

Dr. Yusuf Nadabo



HEALTH BENEFITS OF ABLUTION

Scientific Dimensions of Wudu



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- Dr. Yusuf Nadabo Abdullahi -

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To my mother, Hajiya Amina Isa, whose frequent dream of the Prophet (SAW) remains a delightful memory.





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PREFACE

In the name of Allah, Most Gracious, Most Merciful. Praise be to Allah, the Cherisher and Sustainer of the worlds.

In this book, a humble effort is made to give a brief account on the health Benefits of Ablution; divulging its scientific dimensions and revealing its secrets and wholesome effects. The deepest secret of wudu lies in the use of water, an amazing liquid with a lot of anomalous properties. The choice of water for ablution; is indeed an Act of Mercy from the Most Merciful.

The primary aim of wudu is for spiritual blessing. The Muslims perform it solely for this purpose. In Islam, however, acts of worship promote health status. As we perform wudu solely as an act of worship, we at the same time derive in the process, immense health benefits. This book is a result of decade of research study in the scientific dimensions of wudu in the light of current knowledge. As a Medical Anatomist, I have to expose some of the vital organs and structures that are frequently washed with water during the ablution using related pictures or diagrams in order to show how these organs benefit with regular wudu.

I hope the reader, will find this book useful. I give thanks to Almighty Allah for the ability given to me to write this book. I am however responsible for all the errors discernible in this

text and will appreciate it if my attention is drawn to them for incorporation in subsequent editions.

Finally, as a bona-fide beneficiary of these immense and inexhaustible health benefits of Ablution, I give my whole hearted salutation and praise to Prophet Muhammad the greatest health Teacher of all times, and a Mercy to all nations:

Oh Allah! Bless Muhammad and his household and shower Your favours on them as You blessed Abraham and his household and showered Your favour on them. Indeed, You are Praise-worthy and Glorious.

Nothing from me except by the help of Allah Most High.

Dr. Yusuf Nadabo Abdullahi, MBBS, Msc

Sarkin Tudun Nufawa

Kaduna.

Arafat Day;

9th Zul-Hijjah 1435 A.H/Friday, 3rd October 2014.



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I owe a special thank you to my son Abduljalal Yusuf Nadabo, Malam Isa Rilwan, and Bilyaminu Muhammad Hadi who painstakingly typed and retyped the manuscript rather tirelessly and Mr. Robert for his expert Desk-publishing.

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I appreciate the unflinching support of my wife Hajiya Badiya and my children: Amina (Nasara), Fatima (Golden girl), Zulqarnain, Maryam and Aisha, who not only provided me with a peaceful home environment but were also enthused by the subject matter of this book.

Finally, I am also grateful to those who helped me in one way or another in making this book a success. May Allah (SWT) reward you immensely.



INTRODUCTION Man and Water

The purpose of creation of Man is to worship his Creator in Islam. Man is the quintessence of Allah's Creations. He is created for a definite purpose. Allah the Creator, said: *"I have not Created jinns and men, that they serve Me"* (Az-Zariyat, 51:56). Man is the beneficiary of Allah's worship. And the benefits are in twofold: Spiritual blessings and health benefits. In other words: Health in this world and Health in the hereafter.

Wudhoo or wudu is a Prescription for good health. For centuries the Muslims have been enjoying the health boon from this divine prescription. This is a prescription from the Almighty and it involves 26 washing movements to be carried out 5 times a day, a total of 130 daily washing movements. It is an excellent means of purification.

In addition, wudu is divisible into: ablution or minor purification and ghusl (bathing) or major purification. Hence a muslim in his ritual practice derive immense health benefits from both. The minor purification is more frequently performed with tremendous cumulated health benefits at least five times a day.

The washing cleanses the exposed parts of the body of the

body 100 times covering about 30% of the surface area of the body. This prescription also involves the use of clean and cleansing water. And water is the most mysterious *albeit* magical liquid in existence.

The choice of water and the selected parts of the body to be regularly washed are formulations that are beyond the ken of man. The ritual was revealed it was not created. And it impacts numerous health benefits on the devotees. Further, these benefits are inexhaustible, they will continue to be discovered with progress in medical science. These benefits also vary with the time of the day - morning, afternoon, evening and nightfall. These variational benefits add cumulative effects of health benefits. Consequently, this washup will remain not only a health prescription but may also turn out to be one of the wonders of medical science.

The Islamic washup comprises washing the hands, arms right up to elbow, face, mouth, nostrils, and feet up to the ankle, all three times or more. The inside and behind the ears, as well as the part of the head above the forehead is wiped once. Done 5 times a day, or more. These acts not only cleanse the exposed body parts and rid them of dirt and germs but also send evaporative cooling effects of water to the vital organs, especially the brain and the spinal cord.

Furthermore, to understand the salutary effects of wudu requires a basic knowledge of human anatomy, at least relevant to the parts of the body where water is applied. This is the reason why wudu is explained from its scientific dimensions. The approach is necessary to understanding, the health benefits of this Divine Prescription. In addition, these benefits cannot be fully understood without a basic

knowledge of water, its miracles, anomalous properties as well as its health benefits.

Water, Water, everywhere and so little understood. it's the structure not the composition that makes water an amazing liquid. Even with the current nano technology studying water remains a voyage to an unknown destination. In addition, linking you with water in daily Islamic rituals is an act of Mercy from the Maker because every touch of water is a touch of life and rejuvenation. Water is a symbol of Islamic worship. Is man not made from water?

Hence man the paragon of creation is called to prayer by the Muezzin at specified times of the day. Across the entire Islamic world the Muezzin called the faithful to prayer five times per day:

- Fajr – at dawn
- Zuhr – at noon
- Asr – afternoon
- Magrib – at sunset, and
- Isha'i – at nightfall

These obligatory prayers are of immense health and spiritual benefits to man, who is created in a perfect shape and also endowed with various faculties. The benefits of wudhoo vary with the timing of salat, which is in turn influenced by many extraneous factors such as geomagnetic field, sunlight radiation, temperature, pressure, etc. Man is the sole beneficiary of these benefits.

Allah the Exalted said: “We have created man in the best moulds” (At –Tin, 95:4).

The Holy Qur’an has drawn our attention to this wonderful creation of man. And over the centuries, peoples’ innate interest in their own bodies and physical capabilities has found various forms of expression. Shakespeare’s reverence for the structure of the human body has found expression in one of his writings:

What a piece of work is a man! How noble in reason! How infinite in faculty! In form and moving, how express and admirable! In action how like an angel! In apprehension how like a god! The beauty of the world! The paragon of animals. (Hamlet 2.2.315-319)

The primary reason of his creation is to worship the Creator in Islam. It is for this reason he is regularly called to prayer by the muezzin, which is an alert system of healthful value.

The Call of Muezzin

There is a great medical wisdom behind the muezzin’s call to prayer. The human body is highly complex and dynamic so it requires very delicate handling and meticulous care. Man is an amazing creature. The human body is one of the most amazing creations on the universe. Man is brilliantly efficient, complicated and mysterious. He will continue to be amazed and dazzled by the faculties endowed to him by his Creator. Here are some of the Amazing Human Facts:

- The total length of your circulatory system stretches an amazing 60,000 miles. That is more than twice the distance

around the Earth.

- In one square inch of skin there are four yards of nerve fibers, 600 pain sensors, 1300 nerve cells, 9000 nerve endings, 36 heat sensors, 75 pressure sensors, 100 sweat glands, 3 million cells, and 3 yards of blood vessels.
- Your heart beats about 100,000 times in one day and about 40,000,000 times a year. In one hour the heart works hard enough to produce enough energy to raise almost one ton of weight one yard from the ground.
- The central nervous system is connected to every part of the body by 43 pairs of nerves. Twelve pairs go to and from the brain, with 31 pairs going from the spinal cord. There are nearly 45 miles of nerves running through our bodies.
- On average, you breathe 23,000 times a day. You take about 600 million breaths during your lifetime.
- Fact: Except for your brain cells, 50,000,000 of the cells in your body will have died and been replaced with others, all while you have been reading this sentence.
- Fact: Messages travel along the nerves as electrical impulses. They travel at speeds up to 248 mile per hour. ¹
- 1 sperm has 37.5MB of DNA information in it. This is a normal ejaculation represents a data transfer of 1587GB in about 3 seconds.
- The focusing muscles of the eyes move about 100,000 times a day. To give your leg muscles the same workout, you would need to walk 80km (50 miles) every day.
- Human bone (especially thigh bone) is about 4 times stronger than concert. A cubic inch of bone can bear a load of 19,000lbs - over 8.6 tons.
- The Nose has the capacity to remember 50,000 different

¹ Amazing Human Facts by Vinod Paulson, 23.9.14.....

scents.²

- Human brain can read up to 1,000 words per minute.
- An adult is made up of 7,000,000,000,000,000,000,000,000,000,000,000 (7 octillion) atoms.
- In 30 minutes, the human body gives off enough heat to bring a gallon of water to the boil.
- Along with the 5 senses of sound, sight, touch, smell and taste, humans have 15 other senses as internal senses for suffocation, thirst and fullness.³

Adhan an: Alert System

Adhan is the called out to prayer by the Muezzin in Masjids (Mosques), at an appointed time, five times a day summoning Muslims for Salat. The person who calls for prayer is called Muezzin.

The Iqama (set-up) is the second call that summons Musim to line up for the commencement of the prayer.

These dual summons are important to the life of every Muslim from the cradle to grave. When a muslim is born, he or she receives the recitation of both the adhan and the iqama immediatey after birth.

- Adhan is recited into his or her right ear, and
- Iqama is recited into the left ear.

This tradition dated back to the great Health Teacher who initiated the practice 15 centuries ago. Islam affirms that every human being is born in a state of purity, which is known as fitrah.

In this state of purity of the new born baby and to his 100

² <http://www.sciencedump.com/uybro.jpg>. 20.9.14

³ <http://www.themirrorpost.com/2014/07/40-amazing-facts-about-human-body-that-16.html>. 20.9.14

trillions of his body's living cells, the adhan and the iqama are programmed and are also inscribed in his clean heart. Henceforth, they resonate in his heart and body cells especially with the Muezzin's call to prayer.

It is also likely that this neonatal programming of adhan and iqama are fully activated at puberty. Consequently, both the priming and the activation of the dual summons for Salat engender Salutory effects. Thus some of the benefits of the Muezzin's call to prayer:

- Reminds a Muslim about Allah (SWT) throughout the day, at fixed intervals, to give thanks to Him.
- It serves the Muslim as an alert system which prevents many diseases:
- It Interrupts prolong sitting' thereby obviates sitting disease.
- It calls for short walks to the Masjid (about 10,000 steps per day, which improve health.

This alert system helps keep sitting disease at bay, and several other ailments. It is, therefore, imperative to answer the call to prayer promptly.

It engenders good health because it is only in the remembrance of Allah (SWT) (Salat) that the heart has peace and serenity.

A Muslim has, in addition, various senses, a muezzin to call him to prayer, which is a call or an alert that certain process in the body is getting awry. For example, prolong sitting or standing is harmful to the body. So he is regularly and timely interrupted to safe guard his health. He is called upon to washup and to refresh. The Almighty revealed wudu to help man cope with the various facilities endowed to man. It

improves the functional integrity of each system of his body. So it is necessary to answer the call. The complex human body is dynamic not static so it requires regular and frequent exercise and washup. He is called upon at a time when his body needs the exercise (Salat is a physico - spiritual exercise).

The Holy Qur'an tells us that every man is born with a pure faith - *hanif*, the original pattern to which human is created. The Muezzin calls you to prayer to fulfill your obligation, for your own good. This is because the Muezzin calls you to REFRESH yourself in the GLORIFICATION of the Most High in Salat.

All the numerous activities occurring in the human body are important and must be allowed to proceed unimpeded, otherwise, a disease process would set in immediately.

The 100 trillion cells that make up the human body are ceaselessly in metabolic reactions – utilizing food or nutrients to burn energy and also excreting metabolic wastes for removal from the body, including heat.

These cells also communicate with each other through a complex process called chemical signaling.

In addition, these and other complex activities are influenced by certain activities outside or external factors such as: Temperature and pressure, Humidity, Geomagbiomagnetic fields, Electric field, etc.

The body has over 600 muscles covering 206 bones with 360 joints that allow for various movements. In 7th century the Educator of Mankind stated that “Everyone of the children of Adam has been created with three hundred and sixty (360)

joints” (Muslim).

Until recently, however, the world of science was of the view that human skeleton has 340 joints.

Prior to 1995, it was thought that there are 340 joints in the human body. However, in 1995 a scientific institute proved that the internal ear consists of 10 joints each. Thus 20 joints were added and the discovery was made that the human body consists of 360 joints. Hence the miracle of the Educator was demonstrated.⁴

The complexity of the human body requires a close monitoring and meticulous care.

The muezzin call is to serve as an alert at the right time, which if promptly answered would avert a disease process from setting in. For example, prolonged sitting in the office or driving may heat up the reproductive organs in the male. This rise in temperature is likely to arrest sperm production, which is occurring at the rate of thousands per second – more than 100 million per day.⁵ This rise in scrotal temperature may lead to a low sperm count and infertility in the male.

Furthermore, it has been discovered that prolong sitting is bad for your Health Studies have shown that prolonged sitting down is bad for health. The more time you spend sitting the greater the chances of dying from heart disease or cancer, having a stroke or becoming diabetic.

Research in the British Journal of sports Medicine shows that reducing sitting time increases the length of your telomeres - the protective caps made of DNA and protein that sit on the end of chromosomes and try to stop damage during

⁴ <http://www.answering-islam.org/Responses/Osama/360joints.html>. Dated 20.9.14

cell division. They affect how long cells live, with shorter telomeres being linked to diseases related to aging, such as heart disease, many cancers, diabetes and strokes.

Researches are hypothesising that developing longer telomeres may be a mechanism by which standing up delivers a longer, healthier life.⁵

Earlier this year, a study over 12 years of 92,000 women who are postmenopausal found that those who spent most time sitting (11 hours or more a day) had a 12% increase in deaths from heart disease and a 21% rise in dying from cancer compared with those who sat for four hours or less hours.

Sitting for long periods means you don't contract your large skeletal muscles and this may impact on the body's metabolism. Levels of unhealthier types of fats, such as triglycerides, increase while the high density lipoproteins (good cholesterol) are reduced.

Shorter sitting times, regular short walks and watching less TV increased heart disease and diabetes. In studies, television time is often used as a proxy for sitting.

One study was brutal in how it put the facts:

An adult who watches an average of six hours of television a day over his or her lifetime can expect to live 4.8 years less than someone who does not watch television.⁶

Can you now see the wisdom of Muezzin interrupting your sitting hours calling you to prayer? He is saving you from

⁵ <http://www.theguardian.com/lifeandstyle/2014/sep/15/sitting-down-bad-for-my-health>. dated 20.9.14

⁶ Ibid

developing series of disease such as heart disease, cancer and stroke. Need more be said?

The bones and joints of the body may not be in correct alignment all the time and any slight misalignment is likely to set in a disease process. There are several other examples where harm is likely to occur to a person but it is timely averted by the call of the muezzin. You're call to refresh. You're more complex and complicated than a computer. The computer you use refreshes itself time to time. Why not you? Refresh with Salat.

Furthermore your body can respond to the internal changes and some external influences such as heat, painful stimulus; but it cannot sense other internal influences that are likely to harm you e.g shortening of your telomeres or any slight misalignment of your backbones.

The Muezzin is your call alert system when any of the activities in your body is getting awry. You must therefore respond to the call immediately to avert a disease or discomfort.

The call is regular and very timely. Each of his call is beneficial to you. For instance, it is now known that in every 30 minutes, the human body gives up enough heat to bring a gallon of water to the boil.

- So with such amount of heat generated by your body the Muezzin calls you to cool up and refresh.

In another, instance, it has now been estimated that on average 100,000 to 1,000,000 chemical reactions take place in the brain. The brain, therefore requires refreshing time to enhance its function.

- The Muezzin calls you to salat for your spiritual and health benefits. It is preceded by wudu. So it is your refreshing and cooling time. It is also your drinking time - to beat dehydration as it generates 16% of the body's metabolic heat.

Daily prayer is preceded by Tahara or purification and it is then followed by wudu or ablution. In certain condition a major wudu or bathing is obligatory. Therefor, the health benefits of comprise of the following benefits:

- Health benefits of tahara
- Health benefits of wudu
- Health benefits of water

The use of clean water is used in Islamic worship. According to Thales of Miletus (624 – 546 BC) **water is the best**. So the best is chosen for you.

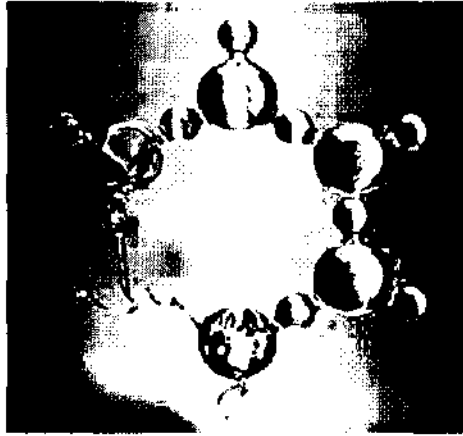
Islam and Water

In Islam, water is not only indispensable to life, it is also indispensable to ritual acts of worship. The Holy Qur'an gives some facts about water that have been confirmed and verified by modern science. Some of these facts include the following:

It is He (Allah) Who has Created man from water (Furqan, 25:54)

And Allah Has Created every animal from water (Nur, 24:45)

We made from water every living thing (Anbiyaa, 21:30)



Water is an amazing liquid

Figure 1: Molecules of Water
Adapted: www.shutterstock.com

Water has some unique properties and qualities (see figure 1). It is placed on a high position amongst Allah's creations. Water has both mystery and magical powers and it is uniquely placed in the hierarchy of Allah's creations. The Almighty placed the creation of the heavens and earth at par with the creation of living things from water as a challenge to the unbelievers. The Book which explains everything, states this fact pointedly:

Do not the unbelievers see that the heavens and the earth were joined together (as one Unit of Creation), before We clove them asunder? We made from water every living thing Will they not believe?

(Al-Anbiyaa, 21:30)

Modern scientists have discovered that the creation of the universe was as a result of cloving asunder or the separation of the heavens and earth by a primal explosion or Big Bang, which threw off planets from vast quantities of diffused

nebular matter of which the condensed core is a sun.

- Scientists have also discovered that life began in water. These facts are conclusions which the knowledge in biological science and astronomy point.
- According to NASA: The universe was contained in a single point in space; the universe must have been born in this single violent event which came to be known as the “Big Bang”.⁷

These facts were advanced by the Holy Qur’an 15th centuries ago. Further, the Holy Qur’an juxtaposes the creation of the heavens and earth, on the one hand, and the creation of living things from water, on the other.

- All these are wonderful creations. Lest they be carried away by the wonders of creation of the heavens and earth. Their attention is drawn to the amazing creation of living things. Let them also ponder on the grandeur creation of the heavens, the earth, the living things and water. It is amazing to note that water is placed at the highest hierarchy of creation. And Zamzam water is the best in the world.

Zamzam Water

This is the name of a well that provides water to billions of people from all over the world throughout history. This water possesses spiritual miracles due to its origin. The well of zamzam was associated with three Great Prophets in religious history; Prophet Ibrahim (Abraham), alaihis Salam; Prophet Ismail (Ishmael), alaihis Salam and Prophet Muhammad, Salallahu alaihi wassalam (SAW).

Zamzam possesses special physical properties due to its

⁷ <http://science.nasa.gov/astrophysics/focus-areas/what-powered-the-big-bang/>. Dated 17.7.14

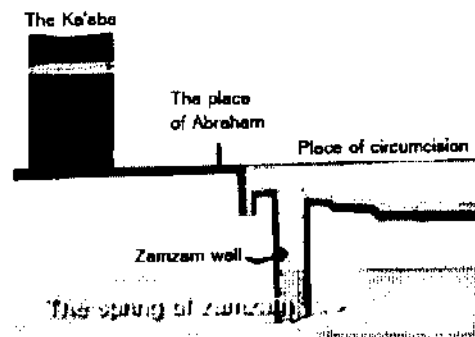
location at Makkah, the centre of the world.

Ibn Qayyim al-jawziyya, a renowned Islamic scholar described this precious water in the following words:

“Zamzam is the finest and noblest of all waters, most esteemed and most beloved, most precious and by all mankind”.

Today the world celebrates the miracles of zamzam.

- Location: Masjid al-Haram, Makkah Saudi Arabiya, 20m east of the Ka’ba, the holiest place in Islam and the centre of the world.
- Coordinates: 21° 25’ 19.2” N and 39°49’33.6” E.
- Area: About 30m (98ft) deep and 1.8 to 2.66m (3ft 7” to 8ft 9”) in diameter.
- Origin: Dated 2000BC.



Adapted: www.nabulsi.com

Figure 2: Showing proximity of Zamzam well to Kaba.

Extra ordinary features:

- Never dried up. It is inexhaustible

- Salt composition unchangeable
- Portability – suitable to carry in bottles and jerrycans etc.
- Universal taste. Zamzam tastes differently at different places. Its appeal is universal.
- No biological growth. The water is free from bacteria, viruses, algae or any microbes. It has never been chemically treated or chlorinated.⁸

The mineral mass concentration of Zamzam as reported by researchers at King Saud University shows:

- Sodium – 133mg/l
- Calcium – 96mg/l
- Magnesium – 38.88mg/l
- Potassium – 43.3mg/l
- Bicarbonate – 195.4mg/l
- Chloride – 163.3mg/l
- Fluoride – 0.72mg/l
- Nitrate – 124.8mg/l
- Sulfate – 124.0mg/l
- PH – 8.0.⁹

The health benefits and miracles of Zam-Zam have been known for centuries by the Muslims and non-Muslims worldwide. Zam-Zam is the only natural water which remains in natural state un-altered. It possessed all the qualities and properties of H₂O but its natural state gives Zam-Zam these unique properties:

⁸ <http://www.alislah4.tripod.com/moreadvices2/d21.htm>. 13.10.14.

⁹ <http://www.siasat.com/english/news/amazingfact-zamzam>.

- The angle of 104.5° remains unaltered in all the water molecules.
- Possesses high energies derived from atomic energies of oxygen and hydrogen.
- Has the ability to freely penetrate body cells.
- Facilitates transfer of nutrients in and out of body cells.
- It provides high energy to body's cells.
- It harmonizes intracellular energy level of the body's cells.
- It refreshes and rejuvenates the body.
- It contains electrolytes in the right proportion and concentration.
- It is likely be charged by Kabal radiation, which makes zamzam harmonizes the energy of the inter-cellular and interstitial fluids of the body.

Perhaps the ability of this water to provide these and other functions lies in the unchanging of the angle of life of its molecules, a property that is unique to Zam-Zam. The deep secrete of Zam-Zam is amazing. The well never dries off for 4,000 years.

Secrets of Zam-Zam

Zam-Zam possesses two deep secretes:

The extra-ordinary features of a water molecules is the angle assumed by the two little Hs when they affix themselves to the circumference of the big O, which is always at an angle of

104.5° This angle in Zam-Zam is unchangeable.

The water Molecules are naturally in energized state, and energize intracellular, extra-cellular fluids to restore electrolytes and electrical balances of the body cells. This property is unique to Zam-Zam. Perhaps this uniqueness is due to Kabal radiation, or radiation of Hajral Aswad (Black Stone). The Kaba, the Black stone and the well of zamzam are all located at the centre of the world.

Scientific Miracles of Zamzam

According to Masaru Emoto, a Japanese scientist who used Nano technology to study zamzam, he wrote in his book *Messages from water*:

- I have proven that water (zamzam) that peculiar liquid, is capable of thinking, fathoming, feeling, getting excited and expressing itself.
- If one drop of zamzam water mixes in 1000 drops of regular water, regular water will get the same quality like zamzam water.
- The quality or ingredients of zamzam water cannot be changed. Science does not know the reason.
- Muslims say BISMILLAH before eating/drinking. After saying BISMILLAH on regular water, there are some strange changes in the quality of regular water. That makes it best water.
- If some recites the Qur'an on regular water, it gets the ability for the treatment of different diseases.¹⁰

¹⁰ <http://majesticislam...Dated> 13.10.14

Another Miracle of Zamzam

The level of zamzam water is around 10.6 feet below the surface. When the water is pumped at the rate of 8,000 litres per second for more than 24 hours, the water level drops to about 44 feet below the surface.

But when the pumping is stopped for 11 minutes the level of the water rises immediately to 13 feet. This is a miraculous phenomenon. This is more revealed in this simple computation:

In 1 second = 8,000 litres.

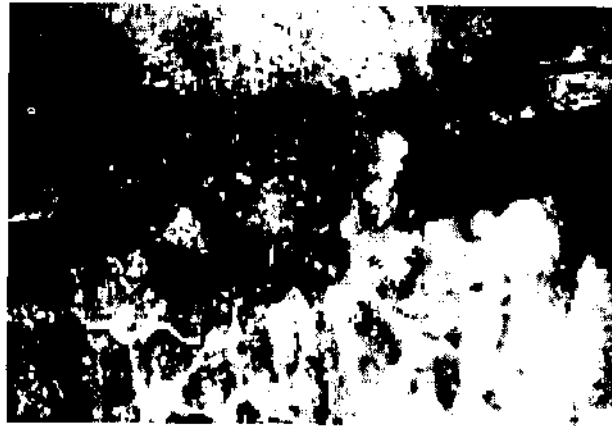
In 60 seconds (1 minute) = $8,000 \times 60 = 480,000$ litres.

In 60 minutes (1 hour) = $480,000 \times 60 = 28.8$ million litres per hour.

In 24hr (1 day) = $28,800,000 \times 24 = 691.2$ million litres per day.

The zamzam well pumps 691 million litres in 24 hours. The huge volume of zamzam is replenished in only 11 (eleven) minutes. This is amazing. There are 2 living miracles here:

- 691 million litres of zamzam pumped in 24 hours, is re-filled almost automatically in eleven minutes.
- It is Allah, the Exalted who Holds this extra-ordinarily powerful Aquifer from pouring extra zamzam out of this well. Otherwise it is capable of submerging the entire world." (See figure 7)



Adapted: www.wikiislam.net

Figure 7: Showing Zamzam Water gushing through the rock for thousands of years.

Health Benefits of Zamzam

Zamzam has the general health benefits of water in addition to its special benefits:

1. Zamzam water contains 366 milligrams of Bicarbonate in every litre, thus, it is the richest water in Bicarbonate carbonate in the world. The water is therefore the best (soda water) carbonated water that is good for digestion and hyperacidity.
2. Zamzam water is the richest water in calcium, with 200 milligrams in a litre.
 - The water is good for strong teeth and bones.
 - It prevents bone erosion (osteoporosis) and bone softening (osteomalacia).
 - It has been scientifically proven that zamzam prevents coronary heart diseases.¹²

¹² <http://www.nabulsi.com/en/art.php?art=11986>

3. It is known to satisfy (treat hunger) and slake thirst.
4. Zamzam has the ability to cure diseases.
5. It contains far more calcium and magnesium than water in other wells.
6. It is colourless and odorless.
7. Even if kept for a long time, it remains crystal clear and safe for consumption.
8. Zamzam water is beneficial to the one who drinks it in accordance with his or her wishes.
9. It strengthens the heart and calms the soul.
10. The Zamzam water is for that for which it is drunk. This means;
 - It nourishes, if it is drunk for nourishments.
 - It heals, if it is drunk for healing.
 - If it is drunk seeking refuge with Allah, the Exalted, He will grant it.
 - Zamzam improves memory, if it is drunk for knowledge etc.

How to Drink Zamzam

It is sunnah (recommended) to start in the name of Allah - saying Bismillah.

- It is sunnah to drink in three draughts.
- To drink facing the kaba (qiblaah). This probably increases

the Kabal radiation to the drink.

- To praise Allah most high after the drink - saying Alhamdulillah.

The Ordinary Water

Water is an amazing liquid. Delwyn Davies, in his book, *Fresh Water: A Precious Resource*, has made a pertinent observation, thus:

Water is basic to life. It is a part of our own environment as important as sun itself and air we breathe. There is no substitute –no other substance has such unusual properties that make it float when frozen, break up rock and soil, moderate our climate –all properties that make the earth habitable from time life began, plants and animals evolved in the presence of water, they are now entirely dependent on it and man is equally vulnerable...¹³

This succinct account on water gives some insights into the wisdom of placing of water on the high level of hierarchy, where water is linked to and entwined with living things. From Davies description it can easily be understood that:

- Water is as important as sun itself.
- Water is as important as the air we breathe.
- Water is indispensable to life.
- Water has unique properties:

1. It floats when frozen.

¹³ Delwyn Davies, *Fresh Water: A Precious Resource*, The Natural History Press, Garden City, New York (1969), p.19

2. It breaks up rock and soil.

- Water moderates our climate.
- Water makes the earth habitable.
- Living things are made from water.
- Living things are entirely dependent on it.

Hence, in addition to the other uses of water, the Muslim derives additional benefits of water with regular wudu.

Miracles of Water

The earth is the only known planet with huge bodies of water. 70% of its surface area consists of oceans, lakes and seas surrounding huge bodies of land.

- Water absorbs enormous amounts of heat without a large alteration in its temperature. Its heat absorption level is 10 times as great as steel.
- During the day, the earth's bodies of water rapidly soak up enormous amounts of heat; thus the earth stays fairly cool.
- At night, they release the vast amounts of heat that they absorbed during the day, which, combined with atmospheric effects, keeps most of the surface from freezing solid at night.
- If it were not for the tremendous amounts of water on the earth, far greater day and night temperature variations would exist.

- Many parts of the surface would be hot enough to boil water during the day, and the same parts would be cold enough to freeze water at night.
- Because water is an excellent temperature stabilizer, the large oceans on earth are vital for life to exist on earth.
- Water contracts when cooled only until it reaches 4 degrees Celsius. Then it amazingly expands until
- it freezes. Thus, because of this anomaly, the ice that forms in seas, oceans and lakes stays near the surface, where the sun heats it during the day and the warm water below melts it in summers

This and the coriolis effects, which produces ocean currents, ensures that most of the ocean stays in a liquid form, allowing the myriads of water creatures to live.¹⁴

Like Islam, water is indispensable to man. This is because man has 3 major thirsts - his own, his agriculture and those of industries. Man may survive several weeks without food but he would die within a few days if deprived of water.

Drinking water is man's most urgent requirement; and some of the reasons include the following:

- Water transports up to 100 trillion cells in the body, all the necessary nutrients in solution.
- Water dissolves the oxygen and carbon dioxide that circulate through the body. Cells need the oxygen to turn food for energy and in the process they produce carbon dioxide, which leaves the body through the lungs.
- Water has high specific heat capacity. Heat produced by cellular activity is absorbed by water without unduly

¹⁴ <http://www.icr.org/earths-water>. Dated 27.10.14

raising the body temperature. This is important because large temperature fluctuations affect catalysts or enzymes on which all body's chemical reactions depends.¹⁵

- Water also satisfies the agricultural and industrial thirsts of man. Water has a number of unique or unusual properties that makes it play many special roles in the biosphere.

Virtually, all of biochemistry is aqueous chemistry, water provides the medium in which most biochemical interactions occur.

- Water has the highest Heat capacity of any common substance. What this means is that it takes more heat (energy) to raise the temperature of water a given number of degrees than for any other material.

Conversely, in cooling through a given number of degrees, water gives up more heat (energy) than any other common material. This property is important both on an individual and on global basis. For the individual, the high heat capacity of water buffers it from sudden extreme shifts in temperature.

- Water is also remarkable in its extraordinary high heat of evaporation. It takes on average, some 600 calories to convert a gram of water into water vapour.

A Muslim uses water more often than anybody and as a result, he is able to utilize most of the properties of water to his own advantage. Wudu is a special gift from the Maker. High Heat Capacity helps him to regulate his body temperature from sudden extreme changes in the body temperatures.

High Heat Evaporation also assists him to maintain a constant body temperature. The Islamic Wudu assists a Muslim to

¹⁵ *Ibid.*, p.19

exploit the evaporative cooling effect of water during high temperature. He also exploits the warming effect of hot water in a cold temperature.

In addition, to these and many other unique properties water. This precious liquid gives vitality to life. It is a very important nuance of great importance to health.

Water and Vitality

In his explanation of this verse of the Holy Qur'an - "We made from water every living thing" (Al-Anbiyaa, 21:30). Dr. Haluk Nurbaki, a medical scientist has opened another miracle of the Holy Qur'an and also a uniqueness of water.

He said that since after James D. Watsons' discovery of the role of DNA, the basic unit of organisms was recognized and a more precise definition of an organism became possible. And since 1950 when this discovery was made, life has become known as the ability to replicate the DNA originally present in an organism. He elaborated:

There is a nuance between life and vitality. Life is a structural characteristic. This concept, which is a bit difficult to understand, may be more readily comprehended by means of an example.

Some viruses and certain bacteria in the soil cannot exhibit their functions due to environmental circumstances. That is, they cannot move and do not reproduce, as if in suspended animation. Under appropriate conditions, they regain motility and begin to reproduce. Now life represents both dormant and active state of the virus or bacterium, while vitality stands for its

period of activity alone.¹⁶

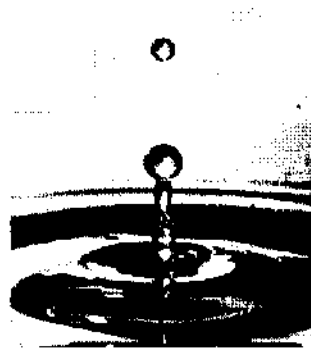
The word “the living” which occurs in the verse refers to “vitality”. This is one of the miracles of the Holy Qur’an – the verses embody very significant secrets. Hence it was only after the 1950 that a distinction between life and “vitality” can be discerned.

The scientist has further identified the significant points in the verse 21:30, in the following points:

- The definition of “all living things” (objects). The Koran, with this single expression, has allowed the concept of vitality sufficient breadth to cover viruses and DNA molecules, and had thus expressed a scientific fact 14 centuries in advance.
- Vitality has arisen from, has gained power from water. The verse does not say “Created” (halaqna); but “empowered” (waja ‘alna).
- After this, the verse ends with the declaration “How can they still not believe”, directed at unbelievers. This is addressed especially to the unbelievers of our age, it is only thirty years since the indispensability of water to vitality has been recognized.¹⁷ See figure 4 :

¹⁶ Haluk Nurbaki, VERSES FROM THE HOLY QUR'AN AND THE FACTS OF SCIENCE. Kitabbhavan, New Delhi (1998). Pp 112 - 113

¹⁷ Haluk Nurbaki, VERSES FROM THE HOLY QUR'AN p.114



Adapted : www.questiononislam.com

Figure 4 : Drops of water. Water is beautiful. A touch of water is a touch of life.

Dr. Nurbaki has further clarified why water is the basic condition for vitality within the context of the most recently discovered rules of biology. Again this explanation will be more understood if it is presented point-wise thus:

- The basic unit of life, i.e., its representative, is a molecule known as DNA. Vitality consisted in this molecule alone, and if this molecule had developed from the molecules of water, the verse would have read: "We created all living things from water". Vitality, on the other hand, is the construction of a new and identical molecule using organic chemicals from the original.
- Modern biology has determined that this addition, is made possible through the H⁺ and OH⁻ ions of water molecules. In particular, the H⁺ ions of water are used to synthesize ATP, a compound of phosphorous amino acids, and ribose sugar. (See figure 5)
- Experiments performed with radioactive hydrogen (tritium) have shown that DNA molecules take the hydrogen ion exclusive from water. The same experiments

have demonstrated that a hydrogen ion we call “mobile hydrogen” creates a continuous electrical field between ribose sugar and amino acid nuclides, thus continuing the basis on which vitality is maintained.

- Vitality is activated when these electrical fields influence bacteria in a living but dormant (static) state; that is, the bacteria becomes operational, beginning to move and reproduce.¹⁸

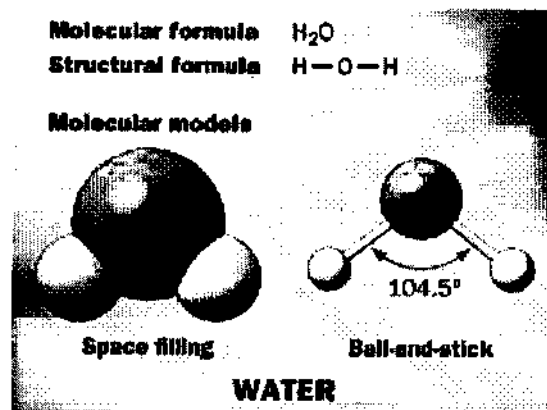


Figure 5: Showing the molecular structural formulae

The relationship between water and vitality is also seen in the provision of energy for the continuation of vitality. This energy is obtained by the exchange of ions. Water is indispensable to energy production. The scientist therefore stated:

The intake of food leads to an activity akin to the production of electric power by the chemical combination and dissociation of certain molecules. In all these energetic processes, the H^+ and OH^- ions in the cell provided the basic medium of exchange, like money or foreign medium of

¹⁸ Ibid

exchange. A cell is healthy if the water ions within it and surrounding it are balanced. Otherwise, it is either diseased or dead.

Water, therefore, is the basic element not of genesis, but of vitality. And the verse expresses this subtlety so beautifully that is not possible to ignore this Koranic miracle either. It re-emphasizes the same fact by stating: "How can they still not believe?"¹⁹

Water is a wonder of life, which is needed and is essential both within and outside the body. According to Rutherford Platt, twenty-five hundred years ago, the Father of Greek Philosophy, Thales of Miletus, founded his school of thought on the basic premise: "All things are water".²⁰ Platt wrote:

In the sap of Plants, the bloodstreams of animals in rainfall on the surface of the land, in rivers flowing to the sea, water represents the great circulation system of our planet. It has covered the earth with evolving life, and its presence, so far as science can determine, makes Earth unique among the planets.²¹

Creation of Water

The prescription of water for Islamic rituals takes into cognizance the nature of water and its biological, physical as well as its biochemical properties that are of great importance to man.

Allah the Exalted is the Prescriber of this injunction in Surah Al-Maidah, 5:6 – He is the Creator of man and water. The Almighty

¹⁹ Ibid, p. 115

²⁰ Rutherford Platt. *Water: The Wonder of Life*. Prentice – Hall inc. Englewood Cliff, New Jersey (1971), p.ix

²¹ Ibid.

knows the human travails in all epochs and the salutary effects of water to assist him.

Creation of water is one of the wonders of Allah (SWT). Water is created from two atoms of Hydrogen, an element from group 1 of the periodic table, and one atom of oxygen, an element from group IV of the same periodic table.

Hence two different elements from two different groups come together willy-nilly to form water. The Holy Qur'an describes this wonder thus:

Then He turned to the sky, and it had been (as) smoke: He said to it and to the earth: "come ye together, willingly or unwillingly". They said: "We do come (together), in willing obedience".

(Hamin, 41:11)

In this obeisance to the Great command from Allah (SWT) different gases and atmospheres were formed. In this primordial or gaseous or "smokey" state, atoms of oxygen and Hydrogen were formed. And in obeisance to the Command they came willingly to form water.

This divine description of the formation of water, is in perfect accord with the scientific facts. It is one of the miracles of the Holy Qur'an. Science, however, describes this unique formation of water as anomalous because:

- When hydrogen combines with S, Se, Te elements of the same periodic table with Oxygen, it forms H_2S , H_2Se and H_2Te , which are gases at room temperature.
- The anomalous properties of water is due to its hydrogen bonding.

- Water is a highly polar molecule.
- The oxygen is so electronegative compared with hydrogen that pulls the electrons of O-Hbond to itself.
- The oxygen is labelled with negative charge and hydrogen with positive charge
- When many of these molecules combine and are so polarized then like charges repel and unlike charges attract.
- The oxygen in one molecule will attract hydrogen of second molecule and the other molecules get attached in a polymeric system.

In the wonders of Allah's creation of water, lies the concept of angel of life.

The Angle of Life

- It is this Creative Command that makes a combination of hydrogen and oxygen atoms to form water (not gases) and gives water anomalous properties.
- The hydrogen bond and the angle between the atom of oxygen and hydrogen is exactly 104.5° . This gives water some unique properties.
- This angle gives V-shaped to the molecule of H_2O :
- This angle is called the angel of life. It is the deep secret of water. (See figure 6 below)

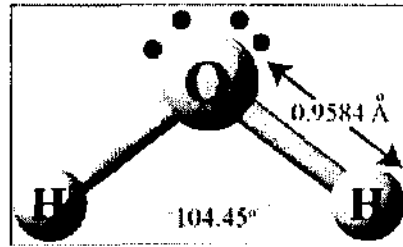


Figure 6: The 2 Hydrogen atoms align with an atom of Oxygen at the angle of 104.5. This is the angle of life and is responsible for the anomalous properties of water.

The extraordinary feature of water molecule is due to the angle assumed by the little H's when they affix themselves to the circumference of the big O. The electron alignments steer H's to a pinpoint landing on the circumference of the O at a precise distance from each other, at an angle of 104.5°.

This angle should be celebrated as the angle of life. It represents the crucial point at which the two most dynamic elements of the Universe create a water molecule.²²

Science and Water

Hydrogen, one of the constituents of water, is the simplest, lightest and most easily spread element in the universe. It is also the primal substance in modern cosmology. After the hypothetical Big Bang which remains swathed in quantum uncertainty, the universe emerged as a mass of fire, radiation and hydrogen.

Oxygen was then synthesized in the stars, which took shape at a later time. Earth resulted from the nuclear fusion and synthesis that followed the Big Bang, as did its primal volcanic atmosphere made up many different elements as well as water vapour. The word 'hydrogen' comes from the Greek and means 'maker of water'.

²² Rutherford Platt, Water: The Wonder of Life, p.31

- As the planet cooled, this vapour condensed into the salt water of the oceans and seas, the freshwater of the lakes, rivers and the underground sources, and the snow and ice on mountaintops, en even (as with Kilimanjaro) in tropical lands.
- The oceans formed in a huge, awesome deluge, in *comparison with which the biblical version seems like a little spring storm.*²³
- The universe still bears traces of this cosmic origin of water. Apart from Earth — where, uniquely in the solar system, the precious substance exists in the three states of matter - the Moon, the planet Mars and Jupiter's moon Europa show the presence of water.
- *Information gathered from space probes leads us to believe that there is ice on the Moon and liquid water beneath the icy surface of Europa.*
- Water is the commonest substance on Earth and the most characteristic of the blue planet. In fact, the scientific notion of an element is descended from Thales' theory that water is the supreme element at the origin of all things.²⁴
- In 1864, in his inaugural course at the College de France, the renowned chemist Marcellin Berthelot taught that 'All living beings, vegetable and animal, are essentially made up of the four elementary bodies: carbon, hydrogen, oxygen and nitrogen Living beings consist of carbon combined with three gases that are the elements of water and the elements of air.
- It is true that, before Berthelot, the French chemist Proust had been the first to demonstrate the constancy of the composition of water, whatever its origin.

²³ Larbi Bougucera, *Water Under Threat*, pp.37-38

²⁴ Rutherford Platt, *Water: The Wonder of Life*, p38

- Lavoisier achieved the synthesis of water in 1785 — a feat which, in addition to its great scientific interest, had repercussions on other planes. For it helped to slough off the faded metaphysical finery and gave birth to modern chemistry, by definitively refuting the theory of a special fluid, phlogiston, supposedly inherent in all bodies and productive of combustion at the moment of its departure from them.
- Thanks to Proust's work and Lavoisier's synthesis, it was placed beyond doubt that water was a combination of two odourless, colourless and tasteless glasses.
- In fact, liquid water is the most extraordinary substance we know, unusual in all its physical – chemical properties.
- It has a unique capacity to exist, under normal conditions of temperature and pressure, in three states of matter: gas, liquid and solid. This is the result of its peculiar chemical structure, which is still not fully understood.
- One thing we do know is that, thanks to the intermolecular hydrogen bond, water can absorb large quantity of heat before letting its molecules vaporize; this is why the oceans are capable of affecting the climate through the alternative absorption and release of heat in the different seasons.
- In the liquid state, the hydrogen bond creates surface tension that allows water molecules to stick to one another and to support heavy objects, apparently defying the laws of gravity.²⁵
- Unusually, in the solid state, intermolecular hydrogen

²⁵ Making Water Move Without Gravity, New York Times Online, 26 January 2001.

bonds stretch to give greater volume but less density to ice – which means that it is actually lighter than liquid water.

- The physical chemical properties of water, compared with other hydrides in column VI of the periodic table of elements, have the peculiarity that, whereas SH_2 (hydrogen sulphide) is gaseous under normal conditions (like H_2Se and H_2Te) and smells of rotten eggs, water has a high boiling point, and as everyone knows, is odourless.
- If H_2O were gaseous like others, life would never have appeared on earth.
- The ability of water to give life, as well as its ability to preserve and dissolve, are therefore nothing short of miraculous.
- In fact, the miracle has a name: the hydrogen bond, which means that the water molecule could be written $(\text{H}_2\text{O})_n$.²⁶
- As many cosmogonies claim, life began in ocean water for the most common cellular organisms. These filtered the most dangerous radiation but brought about marine photosynthesis, which in turn led to the formation of atmospheric oxygen and the protective ozone shield that permitted life to appear on Earth.

- Water thus determined not only the structure of biomacromolecules (proteins) but also their biological function.²⁷

²⁶ Larbi Bougurrera, *Water Under Threat*, p.39

²⁷ *Ibid*

- If water permits life, this is especially due to a number of chemical and physical-chemical phenomena through which it surrounds and coats the other components of life, hydrolysing them and transporting them in a 'hydrated' form.
- Thus, water acts on rocks and dissolves their nutrients, which then percolate through the soil to nourish plants before returning to the sea either directly or in the hydrological cycle (evaporation and condensation) driven by solar energy. Without water, there would be no plants and therefore no photosynthesis.
- It was the magnificent work of the physicist Martin Kamen (1913-2002) which confirmed that all the oxygen released during photosynthesis comes not from carbonic gas - as it had long been thought — but from water.
- How much progress has been made since the days when Robert Boyle, the seventeenth-century English chemist, believed in the transmutation of matter! Seeing plants absorb moisture, he even thought that water could transform itself into flowers, leaves and fruits!
- Water forms 77 per cent of the human body and controls our internal temperature, as it does the Earth's climate. The body of an adult weighing 80 kg contains 50 to 60 litres of water.
- This water content has not escaped the sagacity of

military men.

According to the journal *Air et Cosmos* (quoted in *Le Monde*, 12 September 2002), the Americans have an E (electromagnetic) bomb, which acts 'like a microwave oven' and at a temperature of 45° C induces the activity of water molecules composing human cells, with the associated effects of cooking and burning.²⁸

- Our life, like that of plants and animals, is dependent on the biological functions of water, which dissolves and transports food and fuel (energy) through our organism and our metabolic tracts; it purifies our cells, ridding them of waste and filling our whole system with spinal to amniotic fluid.
- In a close, permanent and profound manner, water binds us to one another and to our origins, since human blood contains water and salts in the same proportions as the primeval ocean in which life first developed.
- It is often wondered whether life exists on other planets, and the cinema and comic books have made us familiar with little green men from Mars. But if water were detected everywhere in the cosmos, that would not mean there was life.
- On Mars, for instance, where water exists at the poles, it is in the form of ice.
- And, for there to be life, water must be in the liquid state, which - so far as we know - is alone capable of dissolving nutrients, carrying them to cells and ridding these of metabolites and waste.
- Not all hope is lost for Mars, however, as some probes

²⁸ Ibid, p. 186(Notes of chapter two)

have suggested that there might be liquid water beneath its surface.

- On 20 February 2003, Nature published an article by an American specialist who, having studied the pictures of ravines and channels sent back by Odyssey, included that the red planet passes through a climatic cycle lasting 100,000 years.
- At the beginning of the cycle, snow fall forms Tins ice flows and snow drifts. Then, under the heat the snow begins to melt from the bottom up, and the resulting water erodes mountainsides and hollows out ravines over a period that may last as long as 5,000 years.
- The layer of snow liquid prevents it from immediately evaporating, so that snow proves to be a 'miniature greenhouse' providing a 'wonderful life.
- It is possible, then, that life will be found in the microorganisms, but probably not in the form of little green men. Too bad for the science-fiction authors. In any event, in May and June 2003, NASA launched two special robots towards Mars to clear away any doubt on the matter.²⁹

Recent scientific findings

Science does not know everything about the tri-atomic molecule: the *aqua simplex* of the alchemists is continuing to reveal its secrets with considerable parsimony. The structure of the water adsorbed is not well understood, in spite of its great economic importance for the phenomena of catalysis or corrosion.

- The calculations of American experts in the field have given us a better grasp of the difficulties."

²⁹ Larbi Bouguererra, *Water Under Threat*, p.41

Moreover, in March 2002, after six years of work on a supercomputer, researchers at the University of Nagoya in Japan discovered how the disorderly state of liquid water passes into the organized structure of ice.

- Since the volume of water increases by 10 per cent when it freezes — which is harmful to living cells — researcher Iwao Ohmine concludes: ‘It is of the greatest interest to know whether amorphous ice rather than crystallized ice can be obtained in the ambient conditions...
- If it can, the freezing techniques currently in use ... could change spectacularly.’³⁰ We can see the practical interest of this type of research into the water molecule and its metamorphoses: body organs, for instance, might be frozen without damage to the integrity of their cells.
- In June 2002 a research team led by David Quere at the College de France discovered that, on a suitable surface, drops of water could rebound like springs without splashing.
- We know that water does not wet the feathers of a duck or the leaves of a lotus, but French researchers have now discovered that the rather surprising behaviour of water might allow us to develop new materials that never get wet — for example, a permanently dry glass.
- For when a drop of water strikes a certain surface, part of it splashes but the rest remains on the surface and slips to the side. By contrast, a drop that falls on a

³⁰ M Maureen Rouhi, Computations: From Water to Ice, Chemical and Engineering News, 1 April 2002

hydrophobic surface like wax does not spread out and is virtually spherical.

- Using high-speed photography (10,000 frames a second) and a particular hydrophobic surface, David Quere and his team have shown that drops may change shape and bounce back in a spectacular manner, more like a spring or a ball than a liquid.
- This creates real opportunities for the creation of permanently dry hydrophobic surfaces, and indeed Quere is currently holding talks with a major French manufacturer of flat glass, with the aim of developing new car windscreens.
- Such research also helps us understand the impact of raindrops on motorway asphalt and the manner in which they wend their way towards groundwater.³¹

Although science does not yet know everything about *aqua simplex*, it has high hopes that the little molecule might one day solve the energy crisis, mitigate the greenhouse effect and help to offset global warming.³²

This expectation of water to mitigating the greenhouse effects and global warming is a strong indication of effects of the perils of mitigating of global warming.

Chemistry of Water.

We soon learn that this tiny combination of three nuclei and eight electrons possesses special properties that make it unique among the more than 15 million chemical species we presently know.

³¹ Larbi Bouguerra, *Water Under Threat*, p. 42

³² *Ibid.*, p. 45.

A molecule is an aggregation of atomic nuclei and electrons that is sufficiently stable to possess observable properties — and there are few molecules that are more stable and difficult to decompose than H₂O.

- In water, each hydrogen nucleus is bound to the central oxygen atom by a pair of electrons that are shared between them; chemists call this shared electron pair a covalent chemical bond.
- In H₂O, only two of the six outer-shell electrons of oxygen are used for this purpose, leaving four electrons which are organized into two non-bonding pairs.
- The four electron pairs surrounding the oxygen tend to arrange themselves as far from each other as possible in order to minimize repulsions between these clouds of negative charge.
- This would ordinarily result in a tetrahedral geometry in which the angle between electron pairs (and therefore the H-O-H bond angle) is 109.5°.
- However, because the two non-bonding pairs remain closer to the oxygen atom, these exert a stronger repulsion against the two covalent bonding pairs, effectively pushing the two hydrogen atoms closer together.

The result is a distorted tetrahedral arrangement in which the H—O—H angle is 104.5°.³³

The uniqueness of water lies in this angle. It is amazing how Allah (SWT) through His Creative Command has created and made water a medium by which He also made all living things. He had directed the two elements oxygen and hydrogen to affix at a precise angle of 104.5° – but the usual expected angle

³³ <http://www.chem1.com/acad/sci/aboutwater.html>. downloaded 9.9.14

is 109.5°. It is this unique angle of life that confers water with a harmonious geometry, which puts it of balance electronically:

- It makes the molecules indestructible, restless and never satisfied.
- The minus plus signs in the electricity of the two Hydrogen atoms and Oxygen atom combined at this precise angle never achieve a placid pairs.
- They continue to combine with each other – but always there are unsatisfied electrons left to reach out and beckon to every molecule it meets.
- It is thought that water is made super. Yet those big working molecules continue to reach out with unsatisfied magnetism.
- Due to its angle of life, water molecules possesses permanent electronic restlessness.
- With those flexible hydrogen bonds electronic restless, it causes water to flow, erode, dissolve and mix with other elements, run, rain, evaporate and reappear as cloud droplets – while the basic H₂O unit remains intact.
- Thus with this electronic 104.5° angle of its makeup, water perpetually promotes the evolution of life on earth.³⁴

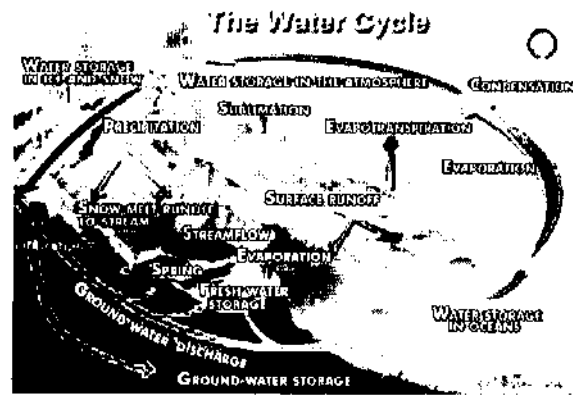
The creation of water coming down from the sky according to due measure in rain, snow and hail is one of the wonders of Allah's creations. Allah (SWT) said:

And We have made above you seven tracts (heavens): and We are never unminded of (Our) Creation.

And We send down water from the sky according to (due) measure, and We cause it to soak in the soil; and We certainly are able to drain it off (with ease)

³⁴ Ibid

With it We grow for you gardens of dates – palms and vines: in them have ye abundant fruits: and of them ye eat (and have enjoyment) (Al-Muminun, 23:17 – 19).



Adapted : en.wikipedia.org

Figure 7: The water cycle. The Holy Qur'an made an allusion to the water cycle (Al-Q. 23:17-19) -anticipating the modern concept by 15 Centuries.

The Holy Qur'an draws our attention to the mystery of water and life, rain from the sky, the ability of water to flow and drain and to the germination of seeds and as well as the growth of vegetations – all for the nutrition and the merry of mankind. Here is another miracle of the Holy Qur'an an allusion to water cycle, 15 centuries in advance. (See figure 7 above)

The creation of water is a Masterpiece of Creation. Rutherford Platt, concurred:

With their elegant techniques, molecular scientist can only say how it works according to the laws of chemistry. But no man can say why those laws obtained or in connection with our subject, on one can say why the precise pattern is electrostatic creates an angle of 104.5° that transforms

two gases into a fluid that made surface of Planet earth spring into life. Is it just a coincidence?³⁵

The creation of water the wonder of life, is far from coincidence. The creation of water and living things from it are so complex and orderly to be coincidental. Life can never be created fortuitously, by chance or by coincidence. Man, the lofty of creation was created from water.

The Holy Qur'an said", It is He Who has Created man from water" (Al-Furqan, 25:54).

While water is wonder of life, wudu is a nourisher of man. Man was created from water, nourished by water and vitalized by it. The creation of water continues to perplex scientists. Water is indeed a perplexing liquid, which according to Platt:

We behold an incredible substance, which seems so weightless in clouds so transient in dew drops, so placid in the mirror of a pond – yet with power to convert a raw lethal planet as a stage of life.³⁶

- There is another dimension to the mystery of water. In the atomic energies of water's two elements – the negative charge in the nucleus of one oxygen atom is four times stronger than the positive electricity in the nuclei of two hydrogen atoms. This disparity in energies is responsible for the restlessness of water. (See figure 8)

³⁵ Ibid, p.32
³⁶ Ibid, p.35

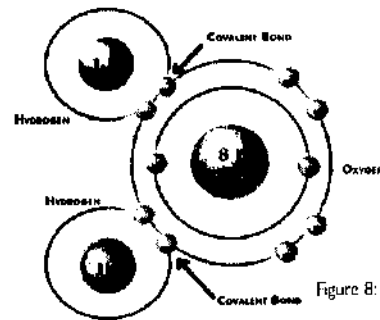


Figure 8: Shows the composition of water.

Adapted: www.warrenburg6.org

Bohr Model of H₂O

As a result, it combines readily with other elements. Further, it is this energy of water that makes it generate running, swirling and splashing.³⁷ In addition, the energies of water are timeless because they are derived from atomic energies of hydrogen and oxygen. Now how do we explain its fluidity? According to Platt:

A single H₂O reaches out with two plus signs from its hydrogen and two minus signs from its oxygen. The nearest H₂O's jerk to attention, bringing their opposite signs in alignment, which unites them with two electrostatic attractions. It takes four H₂O triangles to make the basic tetrahedron of a water molecule in three dimensions.

No matter how many tetrahedrons' stick together they paired plus and minus signs, a cluster can never reach stability. The peaks of peripheral pyramids continue to bristle and reach out with electrostatic magnetism. The molecules clusters, vibrate, whirl and dart-making and breaking

³⁷ Rutherford Platt, *Water: The Wonder of Life*, p35

contact with electronic speed. This perpetual melee of H₂O clusters enmass gives fluidity to visible water. Yet water is ponderous enough to be victim of wind and gravity, and can easily be turned into pieces, as seen in breaking waves, white caps, and all sorts of spray and splashing.³⁸

It is a remarkable solvent that dissolves more substance than any liquid. The creation of water was equated with the creation of sun. To this precious resource, Delwyn Davies describes water as a precious resources. He wrote that:

Water is basic to life. It is a part of our own environment as important as sun itself and the air we breathe. There is no substitute – no other substance has such unusual properties that make it float when frozen, breakup rock and soil, moderate our climate – all properties that make the earth habitable from time life began, plants and animals evolved in the presence of water, they are now entirely dependent on it and man is equally vulnerable...³⁹

Davies equates the importance of water with that of the sun and the air we breathe. To reiterate, the Holy Qur'an draws our attention to this mysterious fluid and to the creation of the heavens and earth.

This globe is unique in the solar system only because it's the only water planet. Thus it is this mysterious liquid that all together makes the difference. It makes the earth to support life. Platt's description was able to capture the essence and mystery of this delicate fabric, thus:

³⁸ Ibid. p. 36

³⁹ Delwyn Davis, FRESH WATER: PRECIOUS RESOURCES The Natural History Press Garden city, New York (1969)p.19

This is a gossamer fabric, indeed, vibrant, quivering, delicately elastic, highly sensitive, expanding and contracting instantly, according to the minute changes of temperature, ceaselessly breathing gases and solutions, it can draw in, hold and carry in its interstices without impairing in the slightest the wonderful fabric of water.⁴⁰

Deep Secrets Of Wudu

The Islamic ablution is a ritual of wash up with immense health benefits. It aims at regulating the body towards homeostasis – maintenance of the ideal internal environment. This it achieves through the regulation of body's temperature to maintain a normal temperature of 37°C Celsius (98.5° F). It also keeps the brain and the testes below the body temperature. Its deep secret lies in the use of water and the precise application of water at certain surface areas of the body with vital organs or structures.

A clean and cleansing water is used in the wash up. In the tropics, the application of cold water aims at causing a cooling effect to those vital organs and structures. The body produces a lot of heat and in the tropical climate it can be very unbearable. It is estimated that the body produces heat in 30 minutes enough to heat up a gallon of water to a boil.

The question now is how does wudu cause the cooling effects? It works by employing water's large enthalpy of vaporization. This term describes an effect that occurs during the evaporation of water, which results in cooling. This effect is referred to as evaporative cooling.

• This type of cooling is based on a physical phenomenon, in

40 Rutherford Platt. Water. The Wonder of Life, p.37

which evaporation of water into surrounding air cools the skin in contact with it. As the liquid turns to vapour, the phase change absorbs heat.

- Technically, this is called the Latent Heat of Vaporization. This is because whenever a liquid evaporates; the process needs some additional energy to mobilize the moles of water and thereby the skin surface is deprived of this energy, which results in a cooling effect. The scientific term for this effect is “adiabatic cooling”.⁴¹
- Water is an excellent coolant because it is plentiful, non-toxic and evaporates easily in most climates. Thus water is a universal liquid and so wudu is global in its benefits. During ablution as the thin layer of water evaporates, the water vapour absorbs heat as it evaporates off our skin.⁴²

The process of evaporation and therefore the cooling effect will be greatly enhanced:

- If the water vapour is transported off by a stream of dry air.
- The amount transferred depends on the rate of evaporation, which in turn depends on the humidity of the air and its temperature.
- When the air humidity is very high, water evaporates slowly.

These factors explain how cold you feel after the ablution or bathing on a hot dry windy environment and the water clinging to your skin dries off. This is also why you feel hotter in humid climate compared to dry climate of the same temperature, the water cannot evaporate as fast to cool your body in a humid climate.

⁴¹ <http://www.planfrog.at/theor-E4.html>. Dated 27.9.14

⁴² <http://www.allianceforwaterefficiency.org/evap-cooling-intro.aspx>. Dated 27.9.14

The Islamic washup using its effective cooling also targets the major areas of countercurrent heat exchange systems of the body, such as: Hands and feet, Forearms and Scrotum.

Hence within the 5 terminals of wudu all the major surface area of all the emissary veins as well as some of the parallel blood vessels of the body are captured. These explain why the cooling effect of wudu on the body is enormous.

Furthermore, there are certain advantages of performing the wudu at regular intervals.

- It provides a regular and sustained cooling effect to the body.
- It also obviates the humidity factor which affects the rate of evaporation of water. The humidity may be very low in the afternoon and vice-versa. The benefits vary with the timing of ablution.

Water is an excellent choice for wudu because:

- It has a high latent heat of evaporation - it takes a large amount of heat from the body before it evaporates.
- It is an excellent coolant.
- It is plentiful and non - toxic.
- It evaporates in all climates.

Therefore the choice of water for ablution is the best. This is an amazing liquid, chosen for Islamic worship - a perfection of religious tradition in the annals of history.

The Choice of Water

The importance of water to life is so pervasive that according to one ecologist Kimball he describes the biospheres as a region in which liquid water can exist in substantial quantities

and that receives an ample supply of energy from an external source.

Water is the single most abundant molecules in living things; it represents some 60% of the weight of the adult body and as much as 95% of the weight of such delicate forms as jelly and embryos.⁴³

“Virtually, all biochemistry is aqueous chemistry” said Kimball. He stated that water provides the medium in which most biochemical interaction occur.

Further, water also participates directly in many biochemical reactions including those involved in cellular respiration, digestion and photosynthesis.⁴⁴ It is the source of living things.

Allah (SWT) said all “We made from water every living thing” (Q21:30). And all biologists and scientists agreed perfectly with this incontrovertible Qur’anic statement. For example, John Clegg concurred:

However life began, there seem little doubt that it was in water that the first living substances and their origin, and it is fairly generally assumed that this took place in the sea. In the aeons of time which followed, some forms invaded and successfully colonized dry lands!⁴⁵

The sea contains the rich brew of dissolved minerals and salts the likely medium in which life originated.

- No organism can live without dissolved salts. It needs these to build up its protoplasm, the essential substance of animal and plant cells.

⁴³ John W. Kimball, Man and Nature: Principles of Human and Environmental Biology, Addison West Co Inc, London (1975), p.204

⁴⁴ Ibid

⁴⁵ John Clegg, Fresh Water Life, Fredrick Warne & Co Ltd, London and New York (1974) p.5

- Plants absorb salt directly from the water, while animals obtain salt by eating either plants or other animals. Thus organisms tend to retain the sea like internal composition through the process of ingestion of foods.
- While Islam the faith of science introduces regular Wudu and ghusl to provide man an easy and simple avenue to get in touch with water to regain his external 'sea life' which gives zest and vitality to life.

Man is bound with water for life: it attracts him irresistibly. H.E Bates, a contemporary writer has captured the mystery of the magnetic appeal of water, thus:

Water attracts me as women attracts men as cherries attract black birds. I fall for it every time. And, as i hope these pages will show, i fall for it still. Water has some kind of powerful mystery about it. Still waters, moving waters, dark waters: the word, themselves have a mysterious, almost dying fall.

Roads, meadows, towns, gardens, woods are man-made ; a river is a primeval piece of work. It is ageless but at the same, perpetually young. It travels but remains. It is a paradox of eternal age and transience. And if there is, perhaps, a dogmatic favour about these remarks it is comforting to reflect that they will be true, roughly, barring astronomical accidents in ten thousand years.⁴⁶

Water has a wide range of anomalous properties, some of which include:

- Frozen water (ice) also shows anomalies when compared

⁴⁶ H.E Bates: Down the River, Gollancz 1937

with other solids. Although it is an apparently simple molecule (H_2O), it has a highly complex and anomalous character due to its intra-molecular hydrogen bonding.

- As a gas, water is one of lightest known, as a liquid it is much denser than expected and as a solid it is much lighter than expected when compared with its liquid form. It can be extremely slippery and extremely sticky at the same time. Many other anomalies of water may remain to be discovered, such as the possible link of water to room temperature superconductivity.
- As liquid water is so common-place in our everyday lives, it is often regarded as a 'typical' liquid.
- In reality, water is most atypical as a liquid, behaving as a quite different material at low temperatures to that when it is hot.
- It has often been stated that life depends on these anomalous properties of water. In particular, the high cohesion between molecules gives it a high freezing and melting point, such that we and our planet are bathed in liquid water.
- The large heat capacity, high thermal conductivity and high water content in organisms contribute to thermal regulation and prevent local temperature fluctuations, thus allowing us to more easily control our body temperature.
- The high latent heat of evaporation gives resistance to dehydration and considerable evaporative cooling.

Attahara or purification is the golden key to prayer. It precedes Wudu, which comes before Salat the Muslim's daily prayer. Although attahara is the key to prayer; it has many health benefits, in its simplest form of application. Clean water is used in attahara.



Chapter One

TAHARA:

THE RISE OF PERSONAL HYGIENE KEY TO PRAYER

The Imperative of Clean Water

The insistence of Islam on Tahara a key to prayer has led to the evolution of habits of general cleanliness and sanitation not only in the Islamic world but in the world in general. It has also led to a science which deals with the acquisition of clean water, its classification, purity and uses. This concept of water classification was introduced in the 7th century at a time when the importance of clean water was largely unknown in the rest of the world. Clean water is required for Islamic rituals the search for it therefore becomes imperative.

- Pure water is used essentially in matters of purification such as wudu (or minor ablution) and *ghusl* (or major ablution).
- This necessitates the investigation of water's purity and the assessment of its qualities.
- Water has 4 essential qualities: no smell, no colour, No

taste and fluidity.

- Water that is used for religious activities must possess all these essential qualities. Water is judged according to whether it retains these qualities or not.

As a result, water is classified into three main categories: *Mutlaq*, *Muqayyad* and *Musta'amal*.

Classification of Water

- **Mutlaq Water**, is natural water. It is clean and also a cleaner. The keyword is 'cleaner', i.e. that which cleanses. The essence of Islamic purification is to be cleaned from impurities. Thus Mutlaq water is recommended for ghusl and Wudu. It is also drinkable water. Examples of Mutlaq water are: rain, brooks, stream and springs. Others are wells, seas and snow.¹

Even today with our sophisticated nano technology, mutlaq water remains pure, except in highly polluted atmospheres, the impurities picked up by snow and rain are too minute to be of concern.

- **Muqayyad Water**
This type of water, though clean, is not a cleaner. It is not a cleanser. Something is added to it so it retains only one property (clean) and loses the other (cleaner). It is not permissible to use Muqayyad water for wudu and ghusl.
eg
- **Musta'amal Water**
This is the water that has been used for either wudu or ghusl, and water used as Qurbat – the water that has

¹ Endless Bliss, Fourth Fascicle, Second Edition, Waqf Ikhlas Publication, Istanbul Turkey (1989), p. 78

been used in washing the hands before and after meals. According to some scholars the water becomes Najs impure of filth. It cannot be used for wudu or ghusl.

The importance of water and its purification are today well celebrated as enrooted in the World Water Day.

World Water Day

The modern world has come to comply with the teaching of Prophet of Islam in which he forbids wastage of water and its pollution. In 1993, the United Nations general Assembly designated March 22 as the first World Water Day. It stated this pointedly:

And with good reason – without water we'd be nothing, just dust. Water is one of the most common substance on earth, and one of the most vital, yet, we squander and pollute prodiously!²

Hence, it's the responsibility of every Muslim not to squander nor pollute water. Thus water sanitation and purification were first advanced by Islamic Scholars.

The Islamic law governing cleanliness and hygiene forbids putting hands into clean water because it is obvious that dirty hands can contaminate water and food. The Islamic teaching is that the hands must be washed three times before they are put into water or food. This rule applies to a person waking up from sleep. Prophet (SAW), the great Health Teacher, declared:

² www.treehugger.com/clean-water/36-eye-opening-facts-about-water.html. Dated 11.4.16

When someone of you gets up from sleep, he shall make ablution and cleanse his nose three times because the devil passed night over his nose.

- The simple and basic teaching of dirty hands cannot be used to handle food or immerse in drinking water founded by Prophet (SAW) has now been known to be very effective against autogenous (self) infections and food-borne diseases contaminate their food and drink with their own dirty hands.
- The importance of hand washing introduced in the 7th century is now accepted world-wide as an effective measure against disease and spread of infection.
- In fact, 15th October is declared as *Hand Washing Day* aimed at raising the public awareness in all nations about the importance of hand washing. The credit goes to the original founder. Need more be said?

It was also the Prophet (SAW) who was the first to raise public awareness against filth or dirt, which he called *najasat*, at the time when such a concept was largely unknown. He was the first to take up cudgel against filths in pre-scientific era.

He made it obligatory upon the Muslims to keep away from filth or *najasat* in whatever form. It is the Prophet's command that every Muslim must keep away from filth.

Keep Away Filth

Islam evolved a concept of filth or *najasat* at a time when such a notion was unknown in the rest of the world. Filth was even classified according to their strength, source or degree of *contamination*.

- Najasat is to be kept away from and it is compulsory to get rid of it, on a person, his clothes, his dwellings and his place of worship.
- Filth is an enemy of a Muslim. It affects him adversely in two ways: "Health and Worship". Hence a Muslim and filth have no common ground.
- To a Muslim, after Kufr or disbelief then naja'sat is his second enemy.

When it stains his body, clothes or place of worship, it vitiates his wudu. Without wudu no Salat is not acceptable by the Almighty.

- Tahara is the key to prayer and prayer is the gateway to Paradise.
- Further, stains of urine can vitiate wudu and lead to person's punishment in the hereafter. So filth is an enemy against his person as well as his worship.
- Filth also is a deadly enemy of Muslim's health: urine, stool and other forms of filths carry deadly germs, which cause various infections and diseases. For example, it has now been known that:
 - Each gram of human faeces contains approximately 100 billion (1×10^{11}) bacteria. These bacteria may include species of Pathogenic bacteria, such as *Salmonella* or campylobacter associated with gastroenteritis (disease of vomiting and diarrhoea). In addition, faeces may contain pathogenic viruses, protozoa and parasites.
 - Faecal material can enter the environment from many sources including waste treatment plants, livestock or

poultry manure, sanitary landfills, septic system, sewage sludge, pets and wildlife.

- If sufficient quantities are ingested, faecal pathogens can cause disease.³
- In the case of urine, while the presence of some types of bacteria is considered normal, other strains are indicative of infection. Types of bacteria in urine include: *escherichia coli*, *enterococcus faecalis*, *klebsiella pneumoniae*, *proteus* bacteria and *lactobacillus* bacteria.

Furthermore, the blood, urine, saliva and body fluid of a person infected with viral infections are now known to be infectious. These are considered as *naja'sat* and Muslim must keep away from them (whether from normal or infected person). The *naja'sat* are classified into two main categories:

Ghaliz Naja'sat.

All the things that vitiate an ablution or *ghusl* when they come out of the human body fall into this category. These include the following: excrement, urine, vomitus, blood, wine, carrion, pork, etc.

- All these filths coming out of man and animals are considered as *Ghaliz naja'sat*.
- Blood is considered as *qaba naja'sat* (very strong).
- Semen is also considered as *qaba naja'sat*. It is interesting to note that today both blood and semen fluid are known to be very infectious as diseases like Ebola, HIV and other deadly viral diseases, are contracted through them.
- It is indeed a miracle how the Prophet (SAW) forbade the

³ http://en.m.wikipedia.org/wiki/indicator_bacteria. Dated 27.8.14.

handling of naja'sat at a time when their harmful effects were not known.

- This divine knowledge had anticipated the modern knowledge of microbiology by over a thousand years. Other naja'sat ghalize include:
- All intoxicant drinks – like wine, alcohol, liquor brandy etc. They are also considered strong or qaba naja'sat. It is compulsory to wash even a mote of any qaba naja'sat completely.
- Therefore, taking the health of a person into consideration, Ghalize Naja'sat is seriously injurious to the body. They are infectious and or toxic to the body.

Khalif Naja'sat

This type of naja'sat or filth is considered *Khalif* or weak. But naja'sat wether strong or weak must be washed off immediately.

- If any of the filth stains the body or clothes, it must be thoroughly washed immediately.
- However, a filth some times cannot be easily seen or spotted e.g. stains of sullage water mixed with faeces and urine, these stains must be washed three times.
- Similarly; blood to a point of pin; most be thoroughly washed.
- All filths of whatever category vitiate prayer. They must be washed thoroughly, such as:
 1. Drops of urine and blood splashing on one's clothes that is equal to a point of coin.

2. Drops of mud splashing on one's clothes in the street.
3. Steam containing naja'sat gases coming from the street.
4. Steam consisting of naja'sat gases coming out, after they might have touched some filth or wind unavoidably.

In Islam any form of naja'sat is an enemy so kill it before it kills you.⁴

- Islamic rules of purification; its classification of impurities and its insistence on cleanliness have led to the establishment of an Islamic doctrine of hygiene.
- It was this Islamic doctrine of hygiene that gave birth to the modern hygiene.
- Its simplicity and efficacy were tested for centuries, as it was observed that most of the Islamic nations were protected against the outbreaks of epidemics and pestilences.

Purification From Naja'sat

The method of purification when contaminated with filth (in liquid or solid form) is through the use water to remove it and wash effectively.

Additional methods were added to make the purification effective, such as: washing and scrubbing, burning, use of chemicals like tanning of the skin, etc. These were some of the methods that were adopted in the Prophet's era.

These methods had proved very effective in the pre-scientific era of Islam. For example, when the skin of a carcass was

⁴ Yusuf Nadabo, Medical Benefits of Islamic Worship, Book I, p.81.

tanned with a chemical, it became clean not a filth or najis. The aims of these methods were to get rid of filths entirely because of religious reasons as Islam declared: "Purification is the key to prayer".

so, filths are considered harmful and injurious to health, as well as unacceptable to Islamic rituals. Islam lays the following emphasis:

- If any naja'sat falls on your body or clothes, then it must be washed thoroughly and immediately.
- A naja'sat that cannot be seen easily, e.g. urine falls on the body or clothe, it must be washed three times. The clothes must be washed and squeezed three times.
- If a wild animal or dog or pig puts its mouth in a small quantity of water, milk, food etc. Such food stuff become impure and are considered unfit for consumption.
- If an animal puts its mouth in pots, sauce pans, cups, etc., They become impure and cannot be used, they must be washed thoroughly.⁵

The term contamination is used to imply pollution from a variety of filthy things or at least things liable to infect people with disease such as blood, faecal matter, pus which leaves the body, animal carcasses and other impurities by which diseases are transmitted.

It is imperative to keep clean and tidy. Allah the Exalted commanded the great Exemplar: "And thy garments keep free from stains". (Al-Muddaththir, 74:3-4).

Personal hygiene involves those practices performed by

⁵ Ibid, p. 79

an individual to care for one's bodily health and well being, through cleanliness. The motivations which Islam gives for personal hygienic practices, include the following.

- To be Allah's beloved. "He love those who are pure and clean (Al-Baqara, 2:222).
- To have acceptable prayer. "Allah does not accept prayer without purification" [Muslim and Majah].
- To complete half of his faith. "Purification is half of faith". [Malik and Ahmad].
- To give Allah's right is to take a bath on Friday. "It is the right of Allah upon every Muslim that he should take a bath at least on every Friday" [Bukhari and Muslim].
- To brush his teeth regularly with siwak. "The siwak is a means of cleaning the mouth and pleasing the Lord" [Abu Dawud].
- To take care of hair. The Prophet (SAW) said: "Whoever is gifted with nice hair should keep it nice and tidy" [Abu Dawud].
- To follow the Prophet's Fitrah: "To pluck the hair under the armpits, shave the pubic hair and cut the nail" [Bukhari and Muslim].
- To keep his room and courtyard clean. That is required because "Allah, the Exalted is Magnificent and inspires beauty; is most Pure and Loves Purity; is most Clean and Loves cleanliness" [Al-Tirmidhi].
- To cover the mouth when yawning is to obey Prophet's command. "if anyone of you yawns, he should cover his mouth with his hands" [Muslim and Abu Dawud].

- To keep the clothes clean and neat is to obey Allah's Command: ". . . Purify your garments" [Al-Muddathir, 74:4].
- To wash hands before and after meals because the Prophet (SAW) said, "it is a blessing to wash your hands before and after meals" [Abu Dawud and Tirmidhi].
- To pick the teeth after meal, is to obey the Prophet's command, he said, "Whoever eats should pick bits and pieces from in between his teeth"
- To wipe with toilet tissue or dry material after a call of nature is called *Istijmar*; and should be from front backward is a Sunnah that is incumbent upon me.
- To wash with clean water after a call of nature is called *Istinja* starting from the urinary part to the anal part that is, from front backward, is a Sunnah that incumbent on me – *Istinja* is *Sunnat-i-muakkada*.
- To wash my hands after toilet is a duty incumbent upon me.
- To avoid urine splashes during passing of urine; and to perform *istibra* – that is not to leave any drops of urine in the urethra by pushing or lying more on the left side. It is obligatory to me. *Istibra* is followed by *Istinja*.

Good personal and healthful hygiene are the per-requisites for healthful living. Islam prevents ablutophobia, a fear of bathing, washing or cleaning. It endangers a healthful living.

Healthful Living

Good personal cleanliness is the first step to good health. It not only protects us from poor health but it is also a means of

our salvation in the hereafter. It shields those around us from suffering illnesses that arise from our poor personal habits. Islam is a faith of personal grooming:

- Hygienic practices and habits such as washing hands, bathing, brushing and flossing are neither monotonous nor boring to us.
- They are our obligatory personal cleanliness and must be observed as religious duties.
- They make us feel good and proud of ourselves as Muslims the originators and purveyors of Modern hygiene.
- They keep us from bacteria, viruses and illnesses because we are the Best of Mankind.

I say: "I am a Muslim; to pray 5 times a day is part of my DNA":

- I say Bismillahi – in the name of Allah, at least 5 times a day during each Wudu.
- I wash my hands up to the wrist, 3 times and 15 times a day.
- I rinse my mouth using my right hand to take the water; gargle and swirl the water in the mouth 3 times; 15 times a day.
- I clean my nose by sniffing water with my right hand and expelling it with the left hand at least 3 times during Wudu and 15 times a day.
- I wash my entire face with both hands, from the top of the forehead to the bottom of the chin and from ear to ear 3 times per Wudu and 15 times a day.
- I wash the right hand up to the far end of the elbow 3 times

and then do the same thing with the left hand 3 times per Wudu. Each is washed 15 times a day.

- I wipe with my wet hands the top of my head near the hairline, and wipe it to the back of my neck, at least 5 times a day.
- I wipe the inner sides of my ears with the forefingers and their outsides with the thumbs, at least 5 times a day.
- I wash my feet up to the ankles, beginning with the right foot 3 times, and 15 times each per day.
- I say Alhamdulillah – Praise be to Allah, whenever I sneeze, I thank Allah (SWT) for making me a Muslim, a “watery individual” in a “watery planet”, and a personification of personal cleanliness and hygiene.
- I wash the exposed parts of my body 100 times a day.
- I also take a bath regularly. It is an obligatory for me to do so.
- I am made from water. Water attracts me like a magnet attracts iron. It revitalizes me and gives me zestful feeling.
- My body is 70% water. I make up the remaining 30% with Islamic indispensable rituals – wudu and ghusl. I am 100% water. Like a fish, I cannot live without water:
- I take a bath whenever I ejaculate (sexual arousal, wet dream or coitus).
- I take a bath whenever I have coitus (marital relation).
- I take a bath every Friday morning.

- I take a bath during Eid festivals.
- I take a bath after bathing a dead person.
- I take a bath upon Entering Makkah.
- I take a bath when entering the state of Ihram – putting ceremonial garment for Hajj or Umrah.
- I take a bath after menses (female).
- I take a bath after post-natal bleeding (female).
- I am not an ablutophobic.

The Islamic rules relating to ritual bath are applicable to both males and females. The Females, however, have additional bathes – after menses and childbirth.

The great Health Teacher had also introduced another important aspect of personal cleanliness that was hitherto unknown, which had impacted positively on the modern world. This was the cleaning and washing of the private parts referred to as *Istijmar* and *Istinja* respectively. This was also Prophet's contribution to the modern hygiene.

ISTIJMAR AND ISTINJA

The great Health Teacher introduced two important and very effective way of maintaining cleanliness of the private part after a call of nature.

- These contributions are the hygienic practices of *istijmar* and *istinja*.
- When a Muslim relieves himself, it is obligatory to wipe his anal area at least 3 times with the left hand using toilet tissue or hard materials like cornstalk or stones (as in the

Prophet's era).

- This aspect of cleanliness is called *istijmar*. This is immediately followed by *istinja* which is washing the area with the left hand at least 3 times.

The wiping or *istijmar* reduces the bulk of the excreta and washing or *istinja* effectively clean the area. This hygienic habit of anal cleanup was an invention of 7th century.

The hand must be thoroughly washed scrubbed with sand or pieces of stone, straw, cornstalk etc. as in Prophet's time or with toilet soap as is the practice today.

How to pass Excreta

These two components of Islamic toilet hygiene have become part of modern-hygiene. Again the health Teacher *par excellence* has taught the Muslim world the best way to pass excreta. The Prophetic method is as follows:

- To adopt the squatting position.
- In open defaecation, the Ka'ba should neither be faced nor be backed – Ka'ba is the Qibla for the direction of prayer.
- He recommended that while in the squatting position, the person should incline more on the left foot. Doing this he said would facilitate evacuation of faeces.
- Defaecation or passing the excreta should be done in a secluded place where privacy is assured.
- While passing urine (in squatting position) the male should perform the *Istibra*, straining and milking the penile shaft to empty the bladder to avoid dribbling of urine.

- In an open defaecation the faeces should be covered with sand to prevent flies and stench.
- Istijmar and Istinja are then performed.
- The hands are scrubbed with sand or stones and then washed thoroughly.⁶
- Even in our “modern age”, too many people who should know better do not wash their hands after using a toilet. But to a Muslim, it is a religious duty.

Toilets can be germ ridden places and if enough care is not taken to adopt etiquette and hygienic practices, it can contribute to the spread of many different types of diseases. The adverse health effects of faulty way of passing excreta and poor hygienic are many. They include the following:

- Human excreta contains large number of germs estimated to be about 100 billion (1×10^{11}) in a gram of excreta. Some of these germs are harmful, they cause diseases.
- When people become infected with diseases such as cholera, typhoid and hepatitis A, their excreta will contain large amounts of these harmful germs.
- About 40 diseases are transmitted by faeces, urine and other secretions on contaminated hands or objects.
- The greatest cause of fatal infants diarrhea came from mothers who went to the toilet, didn't wash their hands and passed along intestinal bacteria to their babies.

These diseases could easily be transmitted to cause several break outs of epidemics.

⁶ Yusuf Nadobo, Medical Benefits of Islamic Worship: Book I, pp 96-97.

- In addition, the excreta also contains many injurious substances that the body throws away through faeces. Some of these substances are carcinogens that is, they can induce cancers. If they are allowed to accumulate in the digestive track they can induce various types of cancers.

Importance of Prophetic Posture

The Prophetic posture of passing excreta is the squatting position and with leaning more inclined on the left foot. This is the simplest, safest and most effective way of passing excreta with little or no harm at all. This position is important health-wise in the following ways:

- Squatting position increases the intra-abdominal pressure which is needed to squeeze out the intestinal contents, with slight straining.
- This posture reinforces 2 important factors – Anatomical and Physical. In the anatomical factor, squatting position strongly assists the levator ani muscle – a muscle of the anal region, that is important in the process of passing out the excreta in the following way:
 - It relaxes the puborectal sling so that ano-rectal flexure is lost so that the anal canal becomes straight, to ease the passage of stool.
 - When the Puborectalis muscle draws the anal wall upwards, the faeces in the rectum and anal move downward and outward. This empties the accumulated faeces in the rectum completely.⁷
- The squatting position helps the muscle in the anal region

⁷Yusuf Nadobo, Medical Benefits of Islamic Worship, p.107

to relax the hook (ano-rectal sling) to allow the junction of the large intestine between the rectum and anal canal to straighten. This action facilitates the movement of faeces straight downward and outward.

- This movement is further enhanced by the action of another muscle located around the pubis and the rectum, which draws the anal canal upward so that the faeces move faster downward and outward. This results in the maximum evacuation of faeces in the rectum.
- This scientific way of passing stools was unique to the Islamic Ummah of 7th century and beyond.

The Prophet (SAW) then added another important contributory factor, he said, “While in the squatting position one should inclined more on the left foot”. The importance of inclination more on the left foot is to add more pressure on the final passages of faeces, which are located on the left lower abdomen.

So when a person stoops on his left foot the sigmoid colon, rectum and anal canal are compressed thereby increasing the intra-abdominal pressure. This requires more explanation because of the movement of faeces in the last 20cm of the large intestine is very important.

The large intestine is structurally divided from the right to the left into the caecum, colon, rectum and anal canal. The caecum is a dilated pouch located slightly below where the small intestine joins the large intestine called ileocaecal junction. A finger like structure called the appendix is attached behind the inner side of the caecum. This appendix is about 8cm long. *Infection of the appendix is known as appendicitis.*

The upper portion of the caecum is continuous with the colon, which consists of three segments – ascending, transverse, descending and sigmoid. The sigmoid colon is located on the left lower abdomen and is continuous with rectum. The terminal 20 cm of Gastro-intestinal tract is the rectum and the 2 to 3 cm of the rectum is the anal canal. See fig. 1.1

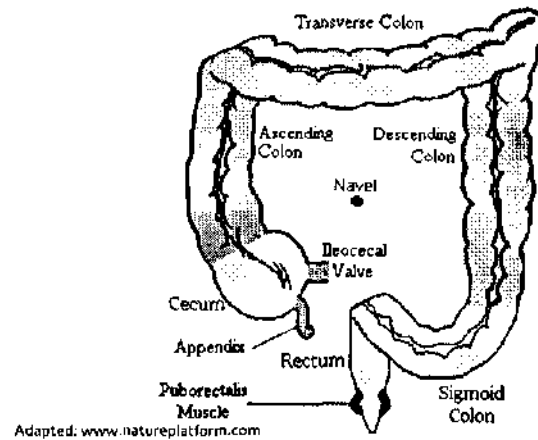


Figure 1.1 Eighty percent of colon cancers develop in the gray-colored areas, which cannot be fully evacuated in the sitting position. Fecal stagnation is the major cause of colon disease.

The anus is the external opening of the anal canal. Two sphincter muscles (a ring like band) guard the anal opening to regulate the passage of faeces. The rectum acts as a temporary storage sites for faeces.

And with accumulation in the rectum, the rectal walls expand due to materials filling it from within, this distension stimulates the stretch receptors from the nerve endings located in the rectal walls to stimulate the desire to pass stools (or

defaecate).

If this urge is not acted upon, the material is often returned into the sigmoid colon where more water is absorbed from the faeces. If defaecation is delayed for a prolonged period, constipation and hardened faeces results.⁸

Hence from this explanation the wisdom of “inclining more on the left”, can be understood. This additional factor has the following effects:

- It further increases the intra-abdominal pressure.
- It ‘squeezes’ the rectum – storage site of faeces to propel it outwards.
- It helps in opening the anal sphincter to facilitate faecal expulsion
- The increased pressure in the bladder to enhance Istibra – process of emptying the bladder.
- Thus squatting and inclination on the left foot ensure the effective evacuation of faeces from the Gastro intestinal tract.

This Prophetic posture was founded on an indepth of the anatomical process of defaecation (passing excreta) and micturation (voiding of urine). There was no way the Unlettered Prophet (SAW) could have known this knowledge in the 7th century except through divine Revelation.

This method has many health benefits. Professor Ian Bird, in his textbook of surgery had described appendicitis, where he stated that: “The squatting position helps evacuation of the

⁸ <http://en.m.wikipedia.org/wiki/Rectum>. 29.8.14

colon and thus avoids stagnation at the tail end of the gut".⁹ It is a position that prevents the occurrence of appendicitis.

This is one of the most important effects of Prophet's posture, it prevents faecal stagnation at the rectum, which may lead to the stagnation of the sigmoid colon and also causing a backup stagnation at the end of the tail end of the gut, which is the caecum.

It is the caecal stagnation with faeces that often causes the infection of appendix called appendicitis. Hence this posture is an effective preventive measure against this surgical emergency.

There is a physical factor that is related to this important anatomical posture of passing stools.

- It is related to the increase in the intra-abdominal pressure, which occurs due to the squatting position, and also leaning heavily on the left foot.
- The increase in intra-abdominal pressure, in turn, leads to an increase in the intra-luminal pressure; or leads to an increased gradient pressure between the intestinal lumen and peritoneal cavity, which can only be produced by the contraction of the intrinsic musculature of the colon.¹⁰
- The prophetic posture is endorsed by the Bockus Gastroenterology, the standard textbook on the subject, thus:

The ideal posture for defaecation is the squatting position, with the thighs flexed upon the abdomen. In this way the capacity

⁹ Ghulam Mustafa Khan, *Personal Hygiene in Islam*, Ta-Ha Publishers Ltd. London (1982), p.10.

¹⁰ Myron Winick (Ed), *Nutrition and Aging*, p. 159.

of the abdominal cavity is greatly diminished and intra – abdominal pressure increased, thus encouraging the expulsion of the faecal mass.”

- The Islamic toilet hygiene is very effective in the prevention of auto infection (or auto infestation) and transmission of the following diseases: Cholera, Typhoid, Dysentery, Schistosomiasis, Helminthiasis (worm infestation), etc.
- Defaecation and excreta disposal are treated with stiff and strict hygienic rules “keep away from filth”. Hence the Islamic communities are kept relatively from pestilences. Where toilet hygiene was lacking the communities suffered from various out breaks of epidemics.
- A squat toilet was re-established and popularized by the Muslims based on the teaching of the Educator is referred to as the Arabian Toilet.
- There are two main types of toilet today. The Arabian or squatting toilet and the sitting toilet.

The Arabian Toilet

The great Universal Model came at a time when people were in the habit of passing excreta in whatever position they deemed convenient with complete disregard to personal and toilet cleanliness. The sanitary records of most nations including the Western world were horrible.

- The popular position of passing excreta was the standing position and people defaecated everywhere. The Educator of mankind advocated and popularized the squatting position and privacy in addition to toilet upkeep or hygiene.

|| <http://en.m.wikipedia>

- The squatting position places the knees much closer to the torso, and it is this position that actually changes the spatial relationships of the intestinal organs and musculature, optimizing the forces involved in defaecation.
- Therefore this squatting position or Arabian toilet is the most ideal and effective toilet of choice rather the sitting toilet which is now known to be the cause of several diseases.

The Arabian Toilet is a very important latrine. It is now called a Squatting Plate or slab. The slab is made up of an impervious material so that it can be washed. The Arabian latrine has the following advantages:

- It is favoured by the great Exemplar.
- It allows for the squatting posture.
- It can be washed, kept clean, dry and covered.
- It is kept clean to repel insects, cockroaches, mice and rodents.
- It is simple to use and safe.
- It is free from smell and unsightly conditions.
- The toilet is culturally acceptable to people.
- It does not require handling of fresh faeces.
- It is economical and easy to maintain.
- It does not contaminate surface soil.
- Excreta is inaccessible to flies or animals.¹²

Arabian Toilet Prevents Constipation

Regular bowel movements are extremely important for your

12 Yusuf Nadabo, Medical Benefits of Islamic Worship, pp. 101-102.

health because, without them, toxins accumulate and are recirculated in your bloodstream. When bowel movements occur fewer than two or three bowel movements a week, it results in constipation.

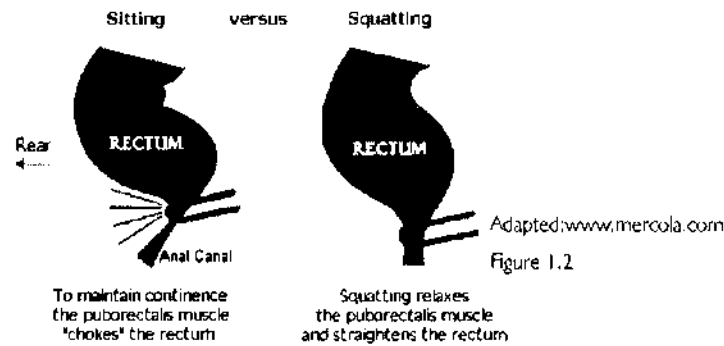
If elimination is not regular and complete, the wastes will dry and become cemented to the walls of your colon. In this way, constipation has been shown to increase your risk of colon cancer and has been implicated in cause of diverticulitis and appendicitis.

Common causes of constipation include hypothyroidism, irritable Bowel Disease (IBD), laxative abuse, and ignoring the urge to go. If you consistently ignore the urge to have a bowel movement, eventually you may stop feeling the urge thereby precipitating constipation. The time of Attahara is the time to relieve yourself. Please do! It is a time to de-stress and exhale.

The Arabian toilet prevents constipation in the following ways:

- Gravity does most of the work.
- The weight of the torso pressure against the thighs and naturally compresses the colon.
- Gentle pressure from the diaphragm supplements the force of gravity.
- The ileocaecal (IC) valve, between the colon and the small intestine, is properly sealed, allowing the colon to be fully pressurized. The pressure creates a natural laxative effect.
- Squatting relaxes the puborectalis muscle, which normally checks the rectum to maintain continence.
- Squatting lifts the sigmoid colon to unlock the “kink” at the entrance to the rectum. This kink also helps prevent

incontinence, by taking some of the pressure off the puborectalis muscle¹³ (See fig. 1.2 below)



Thus the perfect means and ways to attaining Good health in this World and Good Health in the Next World is to comply with this Divine Injunction:

And whatever the Messenger giveth you,
take it, and whatsoever he forbiddeth
abstain from it (59:7).

The Western world lacked the habits of the use of toilet in the Medieval era until the 19th century. The popular Garderobe was a privy used in a medieval Europe which later turned to "wardrobe". This genesis and transformation of toilet to wardrobe is of historical interest.

Garderobe

In Medieval Castles the toilet was called a garderobe and it was simply a vertical shaft with a stone at the top. Some garderobes emptied into the moat - a deep, wide defensive ditch, normally filled with water, surrounding a fortified habitation.

¹³ <http://articles.mercola.com/sites/articles/archive/2012/12/03/toilet-squatting-position.aspx>. Dated 24.9.14

- People hung their robes in the garderobes because they believed the smell would ward off moths.
- In time the word garderobe changed to wardrobe.¹⁴
- As historian Dan Snow noted: “The name garderobe which translates as guarding one’s robe – is thought to come from hanging your clothes in the toilet’s shaft, as the ammonia from the urine would kill the flea”.¹⁵
- By 1189, the city of London was an absolute mess. The population had grown rapidly, and many of its inhabitants lived in squalor. London did have public and private facilities called garderobes.
- A garderobe was a toilet, or bank of toilets, either in a private castle or public hall. It was connected to a pipe through the side of the building that housed it.
- The waste emptied directly into a pit, moat- or river directly outside the building.
- A huge public garderobe emptied directly into the Thames river, causing stench and disease for the entire population of London. The Thames river was squalid and ripe with the smell of rotting sewage.
- A public law, written in 1189 by the London Health Board, stated that garderobes must be walled in, or at least 5 1/2 feet from the nearest neighbor. The law did little to improve sanitary conditions.
- The garderobe was no longer built by the year 1530, and the close stool was the newest modern convenience.
- The close stool was simply a chair with a hole cut into

¹⁴ <http://www.localhistories.org/toilets.html>. Article by Tim Lambert. Downloaded on 10.9.14

¹⁵ <http://www.Smithsonianmag.com/history/turrets-toilet>. Article by Jimmy Stamp. Downloaded on 10.9.14

the seat, and a porcelain or metal pot underneath, which needed to be removed and emptied. The stool was often equipped with handles for traveling.

- This was a great invention for Kings and Queens, Noblemen and Ladies. The poor still relieved themselves in the street, or in a bucket or cistern inside their homes called a chamber pot.
- What did these people do with the waste? They threw it out into the street, of course. They would shout “gardez l’eau” (watch out for the water) before tossing the contents of their chamber pot out an open window or door, usually to the dismay of the passers by on the street.
- In the early 1800’s, Londoners would rather live with the stench and filth than pay higher taxes to have underground sewer systems installed. The public had not yet made the association with sewage and disease.¹⁶

Garderobes later transformed to close stools or chair with a hole cut into the seat. It was the pre-cursor of sit-down toilet

Sit Down Toilet: Is very Harmful to Health

The widespread use of sit down toilets in the Western world is a recent development beginning in the 19th century with the advent of plumbing.¹⁷

Sitting on the modern Thomas Crapper - style - sit - down toilet is designed to place your knees at a 90 degree angle to your abdomen.

- This sitting position makes elimination difficult and

¹⁶ <http://www.plumbingsupply.com/flushingtoilethistory.html>. Article by Maureen Francis. Downloaded on 10.9.14

¹⁷ *ibid*

incomplete, and forces one to strain.

- Prolonged straining especially in those with heart ailments can precipitate heart attack.
- Evidence suggests bowel and pelvic problems may be related to improper potty posture. Only with the traditional squat position is your body aligned in a way that promotes complete bowel emptying. As you can see from the diagram (fig. 1.2), squatting actually straightens and relaxes your rectum.

According to Jonathan Isbit of Nature's Platform:

“For safety, nature has deliberately created obstacles to evacuation that can only be removed by squatting. In any other position, the colon defaults to ‘continence mode.’ This is why the conventional sitting position deprives the colon of support from the thighs and leaves the rectum choked by the puborectalis muscle. These obstacles make elimination difficult and incomplete – like trying to drive a car without releasing the parking brake.

Chronically incomplete evacuation, combined with the constant extraction of water, causes wastes to adhere to the colon wall. The passageway becomes increasingly constricted and the cells start to suffocate. Prolonged exposure to toxins will often trigger malignant mutations.”¹⁸

He goes on to explain how the kink where your sigmoid joins your rectum (refer to figure 1.2) serves an important function

¹⁸ <http://article.mercola.com/sites/articles/archive/2012/12/03/toilet-squatting-position.aspx>. Dated 24.9.14

in continence. It “applies the brakes” to the flow of peristalsis, reducing the pressure on your puborectalis muscle. According to Isbit’s article, it is the major cause of appendicitis, hemorrhoids and constipation.

- Hemorrhoids are veins in the wall of your rectum and anus that have become twisted, swollen and inflamed. They can form either internally or externally, and the resulting lumps can cause pain and bleeding.
- Hemorrhoids are most often created by an increase in pressure, usually from straining to have a bowel movement. Hemorrhoids are common in people with chronic digestive disturbances – especially constipation.
- They are also seen in the elderly, and during pregnancy. If you’re pregnant, the additional pressure your growing baby places on your uterus can result in hemorrhoids.
- Childbirth can increase the problem, but fortunately, most hemorrhoids caused by pregnancy resolve after delivery.

There is research casting doubt on the theory that hemorrhoids are caused by insufficient dietary fiber, but instead by other factors such as the loss of the “ancestral diet,” and the straining associated with defecating from a sitting position.¹⁹

The Islamic faith, prepares the devotee to live a healthful lifestyle. It provides him essentially with preventive strategies to live in a society that is free from diseases, pestilences and epidemics. It guides him make progress in all the facets of human endeavor. Thus a Muslim is best trained to live in the Age of Bacteria.

¹⁹ Ibid

The Age of Bacteria: Living with the Enemy

The microorganisms especially bacteria have ruled the earth for more than 3 billion years. According to Stephen Jay Gould, "We live now in the Age of Bacteria."²⁰ Our planet has always been in the Age of Bacteria ever since the first fossils and of course bacteria were entombed in rocks more than three and half billion years.

The existence of bacteria according to scientists have done more than any other living group to alter the character of this earth. It has been estimated that more than 10^{29} bacteria live on this planet and as many as 10^{14} live on each of us.²¹

We lived and live with our unseen but now our seen enemies. Throughout history we have waltzed with bacteria and the rest of the microscopic world. "We have no choice", said Callahan, "they out-evolve us".²²

Germ Warfare

Today, in spite of, the progress made in Medicine and Pharmaceutics many people die of viral infections like SARS, Ebola and many Haemorrhagic fevers, and also from HIV and Aids, Typhoid fever, Cholera, Malaria and so forth. It is tempting to say, 'there is a Germ Warfare'.²³

Dr. Gerald N. Callahan, an associate Professor of Immunology, however, had a different thought and view on this relation between man and the microbes. He pointed that:

This is not a war at all, if it were, we would have lost long ago, overpowered by sheer numbers and evolutionary speed. This is

²⁰ Emerging infectious Diseases, Vol, 9 No. 8 August (2003), p. 1020

²¹ Ibid

²² Ibid

²³ Yusuf Nadiabo Medical Benefits of Islamic Worship, Book 1, pp. 394 - 395

something else, something like Lichen, something like a waltz. This waltz will last for all of human history. We must hold our partners carefully and dance well.²⁴

- Is it wise to dance with a veritable enemy that surpasses us with numbers and speed?
- In spite of our progress in science and technology we are at lost with the “high technology of the viruses”.
- No effective anti-viral drug to marshal against viral infection like Ebola Virus disease is available today.
- It is true that not all the 10^{29} bacteria are our enemies.
- It is also agreed that not all the 10^{14} load of bacteria that is on each one of us carries are bad. Yet, it is folly to dance with a more sophisticated enemy.
- This is because each of us is battling with 10^{14} enemies in a deadly Germ Warfare!²⁵

The location of these microbes are in different parts or areas on the human body, such as:

Anatomical Areas

The Skin flora – microbial colonization in the human body begins shortly after birth, and average adults possess 10 times more microbial cells than human cells. It is important to note:

- Resident microorganism type vary in relation to skin type on the human body.
- A majority of bacteria reside on superficial cells on the skin or prefer to associate with glands. These glands such as oil (sebaceous glands) or sweat glands provide bacteria with

²⁴ Emerging infectious diseases, Vol. 9 No. 8 August (2003), p. 1020

²⁵ Yusuf Nadabo, *Medical Benefits of Islamic Worship*, Book I, p. 395

water and nutrients.

- These bacteria can be pathogenic (cause disease) and are associated in acne and skin disease.
- Human sweat is by nature odourless but bacteria associated with the skin play a role in producing body odour.

Intestinal Flora

The Small intestine contains a trace amount of microorganisms due to the proximity and influence of stomach which contains *hydrochloric acid*.

However, in the distal portion of the small intestine the alkaline conditions support gram-positive bacteria of the Enterobacteriaceae a group of bacteria residing in the intestine. Bacteria make up most of the flora in the colon, and 60% of the dry mass of faeces.

- This fact makes faeces an ideal source to test or gut flora for any tests and experiments.
- Somewhere between 300 and 1000 different species of bacteria live in the gut, with most estimates at about 500. Fungi and protozoan (parasites) also make up a part of the gut flora, but little is known about their activities.
- However, in certain conditions, some species are thought to be capable of causing disease by causing infection or increasing cancer risk for the host.

Vaginal Flora

The Vaginal flora is influenced by a variety of factors including exogenous (outside) and endogenous (inside) influences.

- Bacteria type vary in women depending on the stage of the menstrual cycle.
- Lactic acid bacteria are predominantly found during child-bearing years, otherwise, the bacterial flora is mixed

- Menstruation alters vaginal P^H.
- Race also influence vaginal flora. The occurrence of hydrogen peroxide-producing lactobacilli is lower in African American women, and vaginal P^H is higher.
- Other influential factors such as sexual intercourse and antibiotics have been linked to the loss of lactobacilli.
- Moreover, studies found that sexual intercourse with a condom does appear to change lactobacilli levels, and does increase the level of Escherichiacoli within the vaginal flora.
- Disruption of vaginal flora can lead to infections such as vaginal candidiasis or bacterial vaginosis.

Oral Cavity

The human mouth is an ideal environment of the existence and growth of microorganisms. It provides a source of water and nutrients, as well as a moderate temperature.

Resident bacteria of the mouth adhere to the teeth and gums to resist mechanical flushing from the mouth to stomach where they are destroyed by hydrochloric acid.

Anaerobic bacteria in the oral cavity include: "Actinomyces, Arachnia, Bacteroides, Bifidobacterium, Eubacterium, Fusobacterium, Lactobacillus, heptotrichia, Selenomonas, Treponema, and Veillonella".

Respiratory Flora

The upper and lower respiratory systems possess mechanical deterrents to remove bacteria. Goblet cells produce mucus which trap bacteria and move them out of respiratory system via continuous moving ciliated epithelial cells.

In addition, a bactericidal effect is generated by nasal mucus which contains the enzyme lysozyme. Nonetheless, the

upper and lower respiration track appears to have a normal bacterial flora. A significant portion of the normal biota belongs to a major bacterial genera: *Prevotella*, *Sphingomonas*, *Pseudomonas*, *Acinebacter*, *Fusobacterium*, *Megasphaera*, *Veillonella*, *Staphylococcus* and *Streptococcus*.²⁶

Thus the wisdom of washing the exposed parts of the human body where the germs reside during ablution is an additional defense system that helps man in his ceaseless and endless battles against germs.

Wudu and Disease Protection

The Human Saviour said: “Whoever does Wudu and does it well, his sins come out of his body even from beneath his nails”. This hadith is a strong motivation to use wudu to remove sins and dirt. The Muslim washes his hands over 15 times a day, dirt is removed “from beneath his nails” which would harm him. This is because diseases caused by dirty hands are staggering in number. On the global level, statistics revealed:

- 30 million people are affected by typhoid
- 600 million are affected by stomach problems
- 250 million are affected by dysentery
- 7 million are affected by cholera
- 5 million are affected by hepatitis.²⁷

A Muslim is henceforth motivated to wash his hands more than 15 times a day shedding “his-sins and his dirt” from his body. This ablution helps to keep him pure and clean. It regularly washes about 25 to 30 percent of his exposed parts of the body where the germs reside to wreak havoc at the slightest opportunity.

26 http://en.m.wikipedia.org/wiki/Human_micro_biome. Downloaded 16.7.14
27 Yusuf Al-lajj Ahmad, *Islamic Medicine*, p. 21.



Chapter Two

The Five Terminals of Wudu

Wudu a Wonder of Life

The ablution is performed purely because of the spiritual blessings however, the health benefits are derived as bonuses.

This is emphasised by the fact that in the following hadith:

- Ablution is the key to prayer as prayer is the key to paradise.
- The radiance of the believer reaches the areas that the water of ablution reaches.
- The Messenger of Allah (SWT) said:
On the Day of Resurrection, my community will be called “those with the radiant appendages” because of the traces of ablution. Therefore, whoever can increase the area of his radiance should do so.
- Wudu is therefore a wonder of life to the muslim with which **he gains both spiritual and healthful**

benefits.

Ablution or wudu is the Islamic act of washing parts of the body using water that is clean and cleanses. Muslims are required to perform wudu in preparation for ritual prayers. It is an injunction from Allah (SWT) the Creator of man, as the Ayat Al-Ma'ida, 5:6 indicates. Wudu involves the following:

- Washing hands up to the elbows
- Washing the face
- Wiping the head (and ear)
- Washing the feet up to the ankles

Hence, wudu is an act of worship, commanded by Allah (SWT). Unlike other acts of worship (Ibadah), Allah (SWT) showed its importance by listing step-by-step the obligatory aspects of its performance. This divine prescription consists of 5 terminals:

- I. The head is the uppermost terminal portion that contains the brain and major sensory organs – the mouth, the eyes, the ears and the nose.
- II. The right upper extremity (or right limb) contains the hand, which extends from the wrist to the palm and fingers, while the fore-arm extends from the elbow to the wrist.
- III. The left upper extremity (or left limb), contains the hand, which extends from the wrist to the palm and fingers while the fore arm extend from the elbow to the wrist.
- IV. The right foot is the terminal portion of the right lower extremity. It extends from the ankle the front and back of the foot and the toes.
- V. The left foot is the terminal portion of the left lower

extremity. It includes the ankle, the front and back of the foot and the toes.

Surface Area of Wudu

The rule of nine is often applied to estimate the extent of skin damaged in burned patients. The surface area of the body is divided into regions, each of which accounts for about 9% (or a multiple of 9%). The total body surface area of the skin is 100%.

During ablution, however, only the exposed skin of parts of the body is affected. The rule of nine is applied to estimate the surface area of the skin covered by wudu. The surface area covered by this special ablution is estimated as follows:

- Right hand and forearm (minus the arm)

Front part	=	2½%
Back part	=	2½%

- Left hand and forearm (minus the arm)

Front part	=	2½%
Back part	=	2½%
Total	=	10%

- Right foot and ankle

Front part	=	3%
Back part	=	3%

- Left foot and ankle

Front part	=	3%
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Back part	=	3%
Total	=	12%
• Head and scalp		
Front part	=	2½%
Back part	=	2½%
• Groin (during attahara)		
	=	1%
Total	=	6%
Grand total = 28%.		

The total surface area of the skin washed during wudu is estimated to be between 25-30% of the total surface of the skin covered by wudu.

- This exposed area (or is exposed) during the washup is very significant to the whole body. This is the significant surface area exposed to ablution or minor wudu.

The significant part of the wudu is the portion of the body that is repeatedly washed with water at least 15 times daily while the total part is washed at least once a day – or once a week on Friday morning.

- This ablution broadly consists of the washing of the hands, the face, the lower arms, wiping the head and washing the feet up to the ankles.
- Unlike other acts of worship or *Ibadah*, Allah the Exalted showed its importance by listing step-by-step, the obligatory aspects of its performance (Al-Ma'ida, 5:6).
- This significant part of wudu constitutes 25-30% of the total surface area of the body.

The exposed parts of the Muslim are washed 100 times a day.

He or she must perform these washups at least 15 times, which is the minimum of times required in the performance of wudu 5 times a day at a fixed interval and with utmost punctuality.

A Clean and Cleansing Water

This primordial tradition specifies the type of water to be used, which must be clean and cleanses. Thus the water to be used for purification in Islam must possess all the qualities of pure water, which include:

- It should be colourless
- Odourless
- Its taste should be delectable and soft as the Nile and Euphrates
- It should be light and tender
- Its sources should be far from (pollutants or contaminants)
- Its course should be clean
- It should be exposed to the sun and fresh air
- It should be sufficiently abundant to repulse impurities
- It should flow from the North and West to the East.¹

This significant part is important in a number of functions elicited by wudu through the use of water, which is described by scientists as the wonder of life. These important functions of wudu, include the following:

- General cleanliness
- Temperature Regulation
- Improving the cooling system both central and peripheral
- Enhancing countercurrent heat exchanging system, etc.

¹ Aljawziyya. The Prophet Medicine, p.452.

- Stimulate the zones of reflexology – healing areas of the body.

The Terminals of Wudu

Let us examine these important terminals from the standpoint of health benefits of wudu.

The Head. Is the superiormost terminal and consists of the brain and its protective coverings, the ears, the face, the nose and the mouth.

- The brain is enclosed by the skull and is bathed in a fluid called the cerebro spinal fluid (CSF).
- The skull is covered with the scalp.
- The brain is the command and control centre of the body.
- It has a high metabolic rate it is estimated that between 100,000 and 1,000,000 chemical reactions take place in the brain. The brain is in continuous needs of nutrients and oxygen supplies. It contains 100 billion nerve cells.
- The brain generates a lot of heat due to its high metabolic rate and; is therefore in need of an effective cooling system. This is the most important terminal of wudu. It therefore, provides this important terminal with three effective methods of cooling systems: Emissary veins, paranasal sinuses and counter current heat exchanger.

Cooling through the Emissary Veins: Where Allah (SWT) requests for water to be applied to the health benefit, it is not a blind application. All the areas where water is applied to this first terminal, has a direct relation to an emissary vein.

- Emissary veins are special veins that connect the veins

inside the skull with those of the head, neck and face.

- These veins are of profound surgical importance because infection may spread through these veins to reach the brain to cause infection of the brain.

However, ablution targets these veins to ward off infection and to send a cooling effect to the brain and other special organs:

- Wiping the scalp with wet water helps to prevent scalp infection and to send cooling effect to the brain through some emissary veins called Diploic veins, which lie between the inner and outer table of the skull.
- The four trunks of the Diploic veins are wetted with water during the washup. These veins are:
 - I. Frontal Diploic vein drains into supra-orbital vein, it is located around the eyebrow.
 - II. Anterior Temporal Diploic Vein, drains into the sphenoparietal sinus. It is located around the side of the skull.
 - III. Posterior Temporal Diploic Vein: drains into the lateral sinus located around the lateral side and the neck.
 - IV. Occipital Diploic Vein: drains into the lateral sinus (large vein in the skull) which is located around the nape.

Thus wiping scalp and all areas of the skull not only keep these important areas clean but also send a cooling effect to

the brain. This improves the functions of the brain. There are other emissary veins that are direct beneficiaries of the wash-up. These includes:

- **Vein of the Foramen Caecum:** Connects the commencement of the superior sagittal or longitudinal sinus (large vein inside the skull) with the veins of the frontal sinus (large vein inside the skull) and the root of the nose, so application of water around the root of the nose irrigate this emissary vein.²
- **Ophthalmic Veins:** Are large emissary veins that connect the supra-orbital (area above the eye) and frontal veins of the forehead with the cavernous sinus which is a network of veins located inside the skull. So washing the face is beneficial to these veins and the brain.
- **Parietal Emissary Vein:** Connect the veins of the skull with the superior sagittal sinus (large vein inside skull). Therefore, wiping the scalp with wet hands sends a direct cooling effect to the brain.
- **Mastoid Vein:** Connects the posterior auricular vein (located behind the ear) with the transverse sinus (large vein inside the skull). It is a very constant and very important emissary vein. It is regular kept cool and clean by application of wet fingers behind the ears during wash-up.
- **Veins of the Hypoglossal Canal:** Small veins connect the transverse sinus with the deep veins of the neck through the hypoglossal canal. The application of water around the neck irrigate these veins during wudu.

² D.J. DU Plessis, A Synopsis of SURGICAL ANATOMY, 11th Edition, John Wright and Sons Ltd, 1975, p.296.

- Veins of the Condylloid Canal: Small veins connect the transverse sinus with the deep veins of the neck through the condylloid canal. Therefore, washing the neck during wudu irrigate these veins.³
- There are other emissary veins that are indirectly influenced by the cooling effects of wudu. These include:
- Veins of the Foramen Lacerum: Connect the cavernous sinus with the pterygoid plexus.
- Veins of the Foramen Ovale: Connect the cavernous sinus with the pterygoid plexus.
- Veins of the Foramen Vesaliü: Connect the cavernous sinus with the pterygoid and pharyngeal plexuses.
- Middle meningeal veins or sinuses, may end in the sinuses of the skull or in pterygoid plexus because they are emissary veins.⁴ (See fig. 2.1)

³ Ibid, p.297

⁴ D.J. DU Plessis, A Synopsis of SURGICAL ANATOMY, 11th Edition, John Wright and Sons Ltd, 1975, p.296

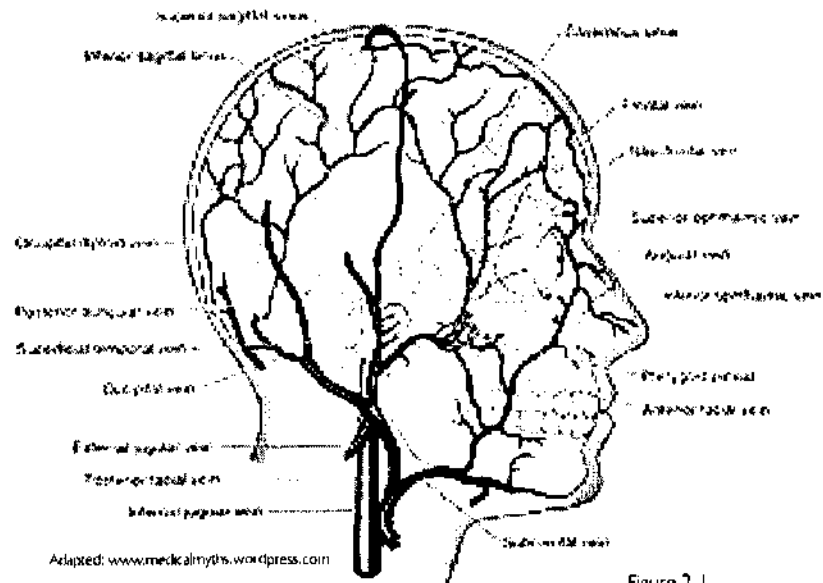


Figure 2.1

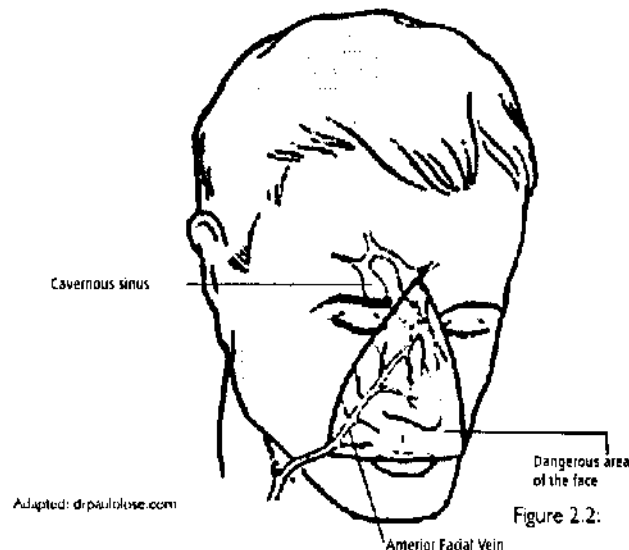
Shows the various emissary veins that interconnect with the cavernous sinus. They transmit the cooling effect of wudu to the brain.

What this means, is that as you wash your face with some cold water during hot weather, the cooling effect is sent directly to the cavernous sinus through several emissary veins either directly or indirectly. The Precise application of water directed at various locations of the emissary veins is one of the miracles of wudu. For example, the regular washup of the face.

Wudu and Dangerous Area of the Face

The facial vein makes an important connection with the cavernous sinus through the superior ophthalmic vein, and the pterygoid plexus of veins through inferior ophthalmic and deep facial veins. Because of these connections, an infection of the face may spread to the cavernous sinus and pterygoid

venous plexus. (See fig. 2.2)



Adapted: dr.paulose.com

Figure 2.2:

Regular wudu keeps the dangerous area of the face clean and cool. It also cools the brain via the cavernous sinus.

It is for this reason that boils or laceration (wound) of the nose or initiated by squeezing pimples on the side of the nose and upper lip could cause infection of the facial veins spreading to the dural venous sinuses.

- Consequently, the triangular area from the upper lip to the bridge of the nose is considered the “Dangerous Area of the Face”.
- Wudu is directed to protect this area – the area is washed several times a day. This health promoting Islamic ritual has another deep secret-cooling the air conditioners of the

brain.

Wudu and Nose Region

The nose is our personal air-conditioning system: it warms cold air, cools hot air and filters impurities. According to Van De Graaf: There are several drainage openings into the nasal cavity.

- The paranasal ducts drain mucus from the paranasal sinuses, and the nasolacrimal ducts drain tears from the eyes.
- An excessive secretion of tears causes the nose to run as the tears drain into the nasal cavity.
- The auditory tube from the middle – ear cavity enters the upper respiratory tract posterior to the nasal cavity in the nasopharynx.
- With all these accessory connections, it is no wonder that infections can spread so easily from one chamber to another throughout the facial area.
- To avoid causing damage or spreading infections to other areas, one must be careful not to blow the nose too forcefully.⁵

To summarize what this paragraph means is that: There are many tiny tubes or ducts that open inside the nose-cavity from three separate areas:

- *Paranasal* ducts or tiny tubes from the air-spaces open into the nose cavity.
- *Nasolacrimal* duct, a tiny tube that connects the tear gland in the eyes and the nose-cavity.
- *Auditory* tube, a tiny tube that connect the ear (middle ear) that connects the middle ear with the nasopharynx in

⁵ K.M Van De Graaf, Human Anatomy, p.587.

the throat. (See fig. 2.3 below)

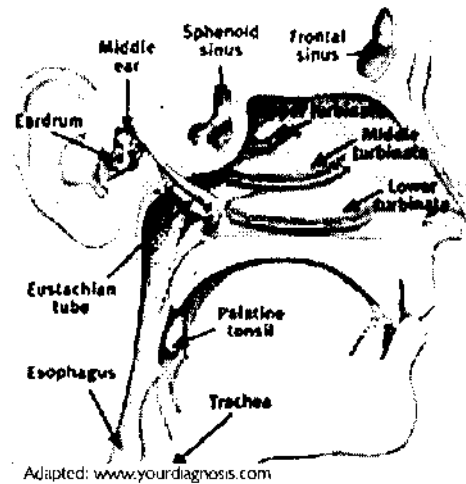


Figure 2.3: A Section of the nasal cavity, its various connections. The Istinshaq and Istinthar keep the nasal cavity clean and also cool the air conditioners of the brain

Due to these connections of tubes infection can easily spread from the eyes to the nose-cavity via naso lacrimal duct; from the ear to nose-cavity. Similarly, infections of the paranasal sinuses can easily spread to the nose, ear and eyes. The importance of facial washup and sniffing of water during wudu can never be over-emphasized in the prevention of infection. Thus, the significance of rising the nose should also be appreciated.

The nose includes an external portion that protrudes from the face and an internal nasal cavity or chamber for the passage of air. Let us first describe the functions of the nose:

- The nose serves to warm, moisten and cleanse the inspired air.
- Due to its rich blood supply, which covers an extensive surface area, which helps to warm but makes humans susceptible to nosebleeds.
- Nasal hairs called vibrissae (vi-bris'e) which often extend

from the nostrils, filter macro particles that might otherwise be inhaled.

- Dust, pollen, smoke, and other fine particles are trapped along the moist mucous membrane lining the nasal cavity.
- Olfactory epithelium in the upper portion of the nasal cavity is concerned with the sense of smell.
- The nasal cavity affects the voice by functioning as resonating chamber.⁶

Nasal Self-Cleansing

The nose subserves another function relating to the mucous secretions. The mucus helps to trap fine air borne particles that have escaped the vibrissae, which might otherwise be inhaled to cause respiratory diseases.

Mucus-secreting cells called goblet cells are present in great abundance in the nasal cavity. The mucus secreted by these cells also keeps the membrane inside the nose cavity moist. According to Sussana Marshall:

- The surface layer of cells in the respiratory tract is mainly columnar and ciliated (hair-like projections).
- These cilia (hair like) are microscopic projections from the surface of the epithelial cells, in health are in constant motion.
- They act in sections, moving forward quickly and backward slowly, from eight to twelve times a second.
- With strong forward movements, the cilia brush along the mucus with which is entangled dust and bacteria.⁷

The Nasal Self-Cleansing mechanism, however, is not perfect and is influenced by numerous factors. According to Marshall:

⁶ K.M Van De Graaf, Human Anatomy, p.585.

⁷ Sussana Marshall, Ear, Nose and Throat Nursing, pp.3-4.

- The cilia may continue to beat strongly in the presence of infection and pus, and are commonly regenerated with this epithelium following damage to the membrane.
- They are slowed with cooling and overheating but recover when the normal temperature returns.
- Drying, inflammation such as that of the paranasal sinuses, the epithelium becomes so damaged that cilia disappear.
- This interferes with the normal self cleansing function, and operations have often to be performed to allow the pus which accumulates to escape.⁸

From this account the limitations of the Nasal self cleansing functions can be due to: Infections, Extreme temperature, Dryness and Chronic Inflammation.

Thus, it is against this backdrop that the health benefits of wudu should be appreciated.

- The application of water during istinshaq and istintha regularly and frequent help to restore and preserve the Nasal-self-cleansing mechanism.
- Use of cold water during hot weather or warm during cold weather revitalizes the ciliary function by providing an optimum temperature.
- During istintha dry secretion with trapped debris are physical expelled to ward off infection.
- Wudu reduces the risk of allergic sinusitis and rhinitis, by expelling and washing away allergens such as pollens.
- It reduces nasal bacterial load to reduce the risk of bacterial sinusitis and rhinitis.
- Regular wudu help to keep the nasal chamber cool and

⁸ Sussan Marshall, Ear, Nose and Throat Nursing, pp-3-4.

moist to assist the damaged cilia to regenerate and retalize its function.

- Istinshaq and istinthar are physical actions like sneezing help at cleansing the nasal chamber. (See fig. 2.4 below)

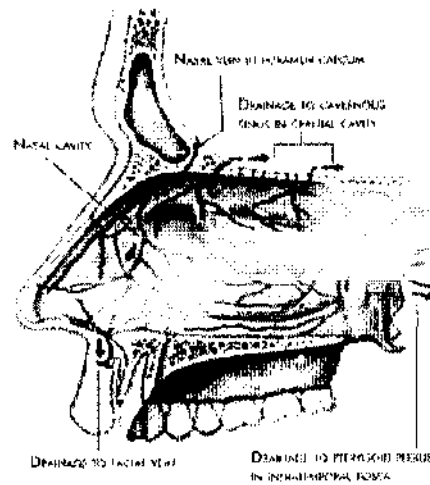


Figure 2.4. Showing a section of the nasal cavity and its drainage openings. Regular sniffing of water keeps the cavity clean and cool and prevents allergic rhinitis

Adapted: www.studydrive.com

Sneezing: This a sudden, forceful uncontrolled burst of air through the nose and mouth. It is caused by the irritation to the mucus membrane of the nose or throat. It can be very bothersome. It can be triggered by: Allergy to pollen, mould, dander, dust as in hay fever; It is triggered by dust, air pollution, dry air, spicy foods, strong emotions, certain medicines, and powder.

Performance of regular Istinthar and Istinshaq provides a quick remedy. It is an effective means of getting rid of some of the allergens, dust and dry air.

According to health experts, we sneeze to give our noses a

reboot. In 2012, researchers figured out why precisely, we sneeze, and what is supposed to happen when we do. Science Daily reported:

- Much like a temperamental computer, our noses require a “reboot” when overwhelmed, and this biological reboot is triggered by the pressure force of a sneeze.
- When a sneeze works properly, it resets the environment within nasal passages so “bad” particles breathed in through the nose can be trapped.
- The sneeze is accomplished by biochemical signals that regulate the beating of cilia (microscopic hairs) on the cells that line our nasal cavities.⁹

Like Istinshaq and Istinthar, sneeze is beneficial to the microscopic hairs as all they assist the cilia to reboot or to start afresh. They help to regulate the beating of cilia as well as expelling the trapped injurious particles along the nasal chamber. All are created by Allah the Exalted to improve the nasal-self-cleansing mechanisms. The great Health Teacher said:

Allah likes sneezing and dislikes yawning. If one of you sneezes and praises Allah, it is the duty of every Muslim who hears him to say to him: Yarhamuk-Allah (may Allah have mercy on you).¹⁰

He also said:

If one of you sneezes, let him say Alhamdu Lillahi (praise be to Allah), and let his brother or companion say to him, Yarhamuk-Allah (may Allah have mercy on you).¹¹

⁹ <http://m.huffpost.method.com/us/entry/4936611>. Dated 15.8.14

¹⁰ It was narrated by Abu Hurairah (R.A) as reported by Al-Bukhari

¹¹ Ibid.

When the sensitive mucous membranes lining the nasal passages are irritated by dirt, bacteria or pollen dust, the irritation causes a reflex explosive expulsion of these “harmful agents” with a speed of 100km per hour. The highest recorded “sneeze speed” is 165 km (102 miles) per hour. For this effective means of getting rid of harmful germs, it is reasonable, to say: Alhamdu Lillahi.

- It is not advisable to suppress a sneeze, because doing this could be dangerous.
- All you need to do is to keep your face away from others, grab a tissue and blow your nose when you feel a sneeze coming.
- And be civilized enough to say, Alhamdu Lillahi because the sneeze rid your nasal passage and sinuses of all the irritants inside.
- And sneeze coming with such an explosive force should not be suppressed. It can lead to injuries.
- It can cause tearing of small blood vessels in the eyes.
- It can weaken the blood vessels in the brain.
- It can rupture the ear drum (or tympanic membrane in the ear).
- It may create some problems with the diaphragm.
- So a force coming at 100km miles per hour should not be suppressed by any method.

Wudu and Nasal Hygiene

Many people carry agents of infection of various types in their nasal passages such as viruses and bacteria. These are carried asymptomatic (without symptoms), or symptomatic

with symptoms of diseases or during convalescent when recovering from the disease. According to Marshall:

- Many types of viruses are responsible – that is, the nasal irritation, the dry sensation (generally in the nasopharynx), the sneezing, followed in a few hours by profuse discharge of watery mucus, and general malaise.
- After a simple virus infection, there is a gradual return to normal in three to seven days.
- In ordinary life the individual is exposed to other pathogenic bacteria, such as *Neisseria Catarrhalis*, *Streptococcus*, *Pneumococcus* and *Haemophilus influenza*.
- It is the increase of these organisms that appears to be responsible for more advanced symptoms of a cold – the purulent nasal discharge, the sore throat, and bacteria.
- Sometimes, anatomical abnormalities, such as the deviation of the septum so alter air current inside the nose that may impinge on one spot and to cause drying.¹²

From this account, nasal hygiene can be seen to play a key role in the treatment and prevention of nasal and respiratory infections. Regular wudu is the simplest and most effective form of nasal hygiene. The *istinshaq* and *istinthar* in particular assist in keeping the nasal chamber clean and reduce the bacteria and viral loads to the barest minimum:

- *Istinshaq* and *istinthar* keep the nasal chamber moist and improve the warm vascular lining within the nasal cavity.
- Infections of the nasal cavity that can spread to several surrounding areas are prevented:
- The paranasal sinuses connect to the nasal cavity and are especially prone to infection.
- The eyes may become reddened and swollen during a na-

¹² Sussana Marshall, *Ear, Nose and Throat Nursing*, p.6.

sal infection because of the connection of the nasolacrimal duct – a tiny tube connecting the tear gland in the eyes to and the nose chamber.

- Infections can spread from the middle ear to the nasopharynx via the auditory tube – a tiny tube connecting the middle ear and the nasopharynx in the throat.
- With prolonged nasal infections, germs may even ascend into the inner recess of the nasal cavity and pass through the cribriform plate – a perforated bony partition that separates the skull and nasal cavity – cause meningitis or brain infection.
- During wudu the nostrils and the fine hairs that surround the openings or vibrissae are kept clean and freed from dust and germs.
- It prevents facial infection which might lead to the dangerous infection around the brain called cavernous sinus thrombosis.
- Rinsing the nose regularly with water helps to modify the warming of the air in the nasal chamber, which improves nasal function.
- Wudu improves the integrity of the blood vessels within the nasal cavity to prevent nose bleeding, by decreasing the temperature in the nasal cavity.
- When working in an over-heated room, office or workplace there is the tendency to causing dryness of the mucosal lining of the nose and mouth. This is mitigated by frequent sniffing of water during wudu.
- The dried mucus and crust that have accumulated in the nostrils are removed by regular wudu.
- The entire nasal chamber is kept clean to improve the resonating function of the nose, which enhances the quality of voice.

- During wudu the external parts of the nose and mouth are thoroughly washed to improve personal hygiene.
- Istinshaq and istintha improve the integrity and function of the olfactory area inside the nose which is responsible for the perception of smell. (See fig. 2.5 below)

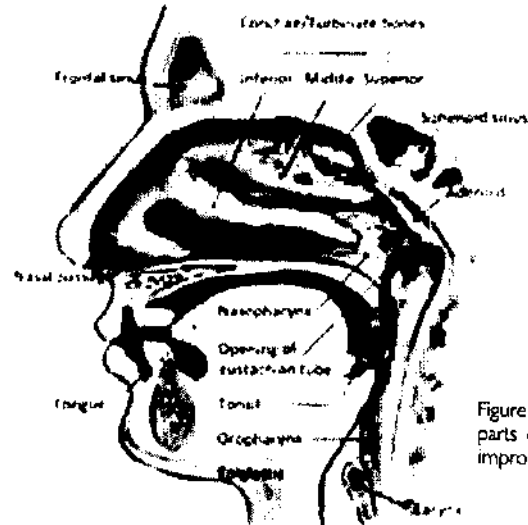


Figure 2.5. Showing the various parts of the nasal chamber that improve with regular wash up.

Adapted: www.sinus-cure.com.au

Wudu and the Sense of Smell

The science of wudu utilizes three methods to produce numerous health benefits. These are temperature regulation; cooling effect and cleanliness. Wudu, therefore, improves the sense of smell in many ways.

This sense of smell is exploited especially by the perfume industry. It is estimated that man can distinguish more than 10,000 different fragrant of chemicals.

- A great deal has been discovered about how we sense

light and sound but our sense of smell is one of the biggest puzzles in biology.

- Scientists have made the surprising discovery of a huge family of the genes that appears to encode odour perception in the nose. This is the crucial first link in the process, which suggests that the sense of smell is quite different from the other major senses.
- How the smell process turns simple molecules in the environment into perceptions can teach us how the brain functions.
- Odours are detected by tiny tubular extensions on nerve cells high in nasal cavity.
- These extensions called cilia are believed to be the location of the molecular receptors. Odourous molecules are thought to fit into certain receptors as key slips into a lock.
- Thus by regular cleaning the lower nasal cavity through wudu, the upper nasal cavity is protected from germs and injurious substance.¹³

Dr. G.M Khan, a Consultant ENT Surgeon of International repute in his, *Personal Hygiene in Islam*, has enumerated some of the salubrious functions of wudu and particularly the aspects of Istinshaq and Istinthar. He said:

- The Prophet (S.A.W) instructs Muslims to clean their noses by douching after rising from sleep and every time they make wudu.
- An ordinary face wash only cleans the outer part of the nose. Douching the nose is the only way to clean it from inside.

¹³ *Islamcoms International, an International Magazine on World Views, September - December, 1997, Vol. I, No. 1, p.56.*

- This helps to wash away the dried secretion stuck to the lining inside of the nose.
- The inner of the soft part of the nose is the skin which has hair follicles. These hairs trap the dust particles going inside and the secretion flowing out through the nose. They can thus become coated with the nasal secretion and dust.
- Rubbing the inside of the nose with little finger – which is ideally situated opposite the thumb – is the only way of making sure that the area is cleaned.
- Muslims also regularly trim the hair inside the nose.¹⁴

Like the mouth, the nostrils are open and constantly exposed to numerous dirt, dust, germs and harmful microbes. The nostrils are so delicate and play a crucial role to the health of man.

- The nose is only second to the mouth in having constant influx of dust, pollen grains, harmful germs and viruses. The mouth, however, can be closed while the nose remains open all the time – day and night.
- In addition, the nose is involved in the passage of over 10,000 litres of oxygen taken in over 16,000 breaths per day.

Islam is strictly hygienic, it specifies the role of right hand – to be used in eating and performing istinshaq, while the left hand is used in cleaning dirt, anal area, blowing of the nose and instinthaar, and so forth. This specification of duty is to minimize self or autogenous infection. The expelled water during instinthaar contains dirt and germs, it should therefore be handled by the left hand.

Abu Hurairah (R.A) reported that the Prophet (SAW) said:

¹⁴ Ghulam Mustapha Khan. Personal Hygiene in Islam. p.6.

“When one of you makes wudu then let him enter water into his nose, then expel it” (Bukhari, Muslim and Abu Dawud).

In the last 15 centuries the Best of Mankind have been enjoying the health boon of this aspect of wudu – *Istinshaq* and *Istinthar*, and would continue to enjoy them *sine-die*. Dr. Khan, a Consultant ENT Surgeon explained the validity of this simple but effective nasal care. This is stated point-wise:

- Cleaning the nose in the manner of the Prophet (SAW) is thus very useful in preventing the infection of nose sinuses (cavities inside the bones of the face), boils in the hairy part of the nose and nose bleeding.
- Also, the lining of the nose has a tendency to set dry in hot countries and cold in humid countries. In this respect, douching is needed to wet the nasal lining; cool water into the nose, like cool air, shrinks the lining of the nose. It is the safest shrinking agents for blocked noses.
- With a clean and free nose, can smell better than with a blocked one.
- Keeping the nose clean also prevents the infection of the ears and throat.
- The use of the handkerchief to blow the nose instead of cleaning the nose with water is not hygienic. The dirty handkerchief is carried in the pocket and while perhaps the handkerchief is changed the next day, the pocket is not!
- It is better to carry disposable tissues. Blowing the nose properly and thus keeping it clean is often considered anti social.
- Even people who instruct others to blow their nose do not do it themselves in company – so great is the social pressure.¹⁵

¹⁵ G.M Khan, Personal Hygiene in Islam, p.6.

The cleansing of the nasal passage with wudu is simpler, safer and more effective than the Hindu method of *Kriyas*. This is a Hindu technique of nasal cleansing, which involves the cleaning of the nasal passages with cotton, water, or a rubber tube and forceful expulsion of air from the lungs bringing with it mucous and other secretions.¹⁶ Some of the health benefits of wudu:

- It washes the nasal passages at least 15 times a day.
- It improves breathing by clearing the nasal passages to facilitate the intake of 10,000 litres of oxygen (or air) daily.
- Wudu enhances nasal breathing rather than mouth breathing by removing blockade of the nostrils.
- Wudu indirectly improves tissue oxygenation (delivery of oxygen) which obviates chest pain due to angina pectoris and ischaemic heart disease.
- It decreases mental tension, nervousness and anger which often occur due to tissue hypoxia (decrease oxygen supply to the nervous tissues).¹⁶Wudu is an effective method of abreaction.

Let's start scrutinizing this unique ablution from the feet and see how each foot is regularly washed to keep clean and to produce some cooling effects.

Wudu and Foot Care/Hygiene

Man is bipedal in locomotion, which means he walks on his two legs. The feet are in constant contact with the ground and exposed to a variety of dirt and infections. They are far removed physically from the eyes and hands so are often neglected. However, regular wudu draws our attention to their care. This is an advanced form of hygiene. The legs deserve a meticulous care. Apol, a writer made these observations pointedly:

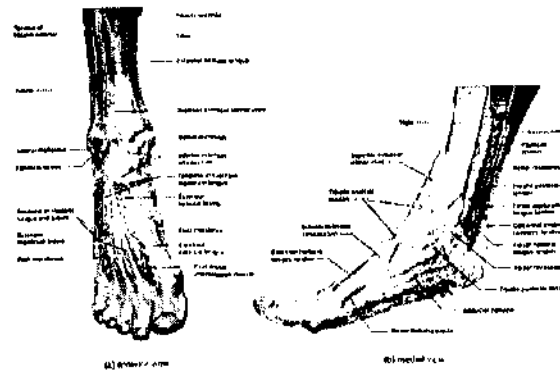
¹⁶ A - Z of Alternative Medicine, p.77.

- Feet are something we usually take for granted. They are far removed physically from the eyes and even the hands.
- The neglect with which we treat our feet is deplorable, especially as the feet mirror all the important organs of the body.
- Foot aches, blisters, bunions, weak ankles, fallen arches are caused by cramping of shoes, high heels, and the like.
- The tremendous boom in sales of 'support' is due to the fact that the condition of our feet has deteriorated over the years.¹⁷
- Wudu provides and necessitates the examination and washing of the foot legs at least 5 times a day in a specified interval, in spite of the hurly burly of modern lifestyle.
- Each foot of the leg contains 26 bones that are knitted together by tendons, ligaments and muscles to make a composite of sophisticated structure, to withstand the weight of the body and the wear and tear of daily movements.
- The foot is a complex mechanical engineering which requires meticulous and good maintenance. Washing the feet up to the ankles three times, starting with right foot, removes soil, dirt, stains and irritating particles; keeps the skin and sole of the foot clean.
- The inter-digits, the dorsum and the sole of each foot is thoroughly washed, scrubbed and massaged. It was reported that Allah's Apostle (SAW) said: "Complete the wudu with wiping in between the Asabi-finger or toes". (Abu Dawud). This prevents athlete's foot or mycosis of the toes.
- It also prevents foot odour, which is commonly caused by sweating or perspiration being concentrated in between

¹⁷ Fikbat Apol. Feel Yourself, p.24.

the toes; with socks and shoes providing warm and airless condition for the odorous smell.

- Frequent and regular washing the feet cool the arteries and veins, revitalize the muscles, ligaments and tendons.
- Wudu improves the venous and lymphatic vessels to enhance venous and lymph returning to the heart.
- Washing the feet improves the efficiency of the countercurrent heat exchanging system at the lower limbs.
- Washing of the feet during wudu and the various postures of Salat (through exercise) improve the strength of ligaments that keep the arches of feet in normal position thereby preventing flat foot.
- The time of wudu provides an ideal time for inspection of the skin, nails and nail-beds, which is important especially in diabetes.
- The ligaments tendons and muscles of the feet are short and stout thus the regular poses of Salat give them regular exercise to enhance their strength, improve their functions and keep arches of the feet in normal position of function. (See fig. 2.6 below)



Adapted: A Brief Atlas of the Human Body - Second Edition

Figure 2.6: Showing the front and ankle of the foot (with skin removed). Showing the tendons, ligaments and muscles that benefits from regular cooling effect of wudu.

- Ablution protects the feet from mycosis fungal infection in the toes, skin infection and suppuration (pus accumulation).
- Ablution also minimize possibility of skin cancers, as it regularly removes chemical substances from the skin before they accumulate thereon. That is why skin cancers are rare in Islamic countries.
- It has also been proved scientifically that sun rays, especially ultra violet rays, play a part in skin cancer. This effect is greatly reduced by doing wudu regularly, which has a moistening effect on the surface of the skin, especially in areas that are exposed to sunlight. This allows surface to protect themselves from the harmful effects of sunlight.

According to Dr. Ahmad Shawqi Ibrahim, a member of the Royal College of Medicine London: "Scientists have concluded that the effect of sunlight on water during wudu leads to the release of *negative ions* and reduction in *positive ions*, which leads to relaxation of the nerves and muscles and rid the body of high blood pressure, muscle pains, anxiety and

insomnia. This is confirmed by an American Scientist who said that water has a magical power. Sprinkles of water on the face and hands during wudu is the best means of relaxation and removal of tension.¹⁸

Wudu and Foot Reflexology

Reflexology is the application of pressure to areas of the feet, hands and ears. It is generally relaxing and may be an effective way to alleviate stress. These areas are believed to correspond to organs and systems of the body. And pressure applied to these areas affects the organs and are beneficial to the person's health.

- The ancient Chinese practice of reflexology, a manual therapy focusing on the foot. For 3,000 years Chinese practitioners have used reflexology to re-balance Qi- the life force flowing through energy channels, to treat a number of diseases or disorders.
- It is believed to engender well being and vitality.
- Foot reflexology is incorporated during the massage and washup during the encompassing wudu.
- This zone therapy is believed to have the following benefits, which include: stress reduction, improved circulation, improved immune system, increased energy and reflexology can assist in conditions such as: allergies, arthritis, blood pressure.¹⁹
- Experts of reflexologist compared wudu with reflexology because both apply pressure on certain areas of the foot. While in wudu it is a general application of pressure and washing, the pressure application in reflexologist is precise and specific. However, the desired health effects are the

¹⁸ Yusuf Al-Hajj Ahmad, Islamic Medicine, p.321.

¹⁹ <http://www.Sydneyreflexology.com/reflexology-benefits.php>

same.

- This means that while you are washing your feet during wudu you are stimulating heating zones at the same time deriving the health benefits of reflexology.
- This is because while performing the washup you are stimulating the Biological Active spots of each foot.

Biological Active Spots (BAS)

In an article titled: *Muslim Rituals and their Effect on the Persons Health*, Dr. Magomed Magomedov, Assistant to the Department of

Man's General Hygiene and Ecology, Daghestan State Medical Academy, explained how wudu stimulates the biological rhythms of the body and specifically the Biological Active Spots, which are very much like the Chinese Reflexotherapy. This means Foot Reflexology.

Dr. Magomedov explained that man's internal organs, in their turn, present a no less sophisticated bio-energetic whole; they all have indissoluble multi-channel bilateral connection with the skin, which hosts special spots, whose functions resemble those of buttons on "control" and "recharge boards", responsible for particular organs. These are called Biological Active Spots.

He compared and contrast wudu with the science of Chinese reflexology. He stated the main differences, thus:

- To become a Doctor in reflexology, requires a period of training between 15 to 20 years of course of study as compared with a simple learning techniques of ablution.
- Reflexotherapy was primarily used to cure diseases and very rarely for prevention, while ablution has many preventive benefits.
- In reflexotherapy a patient is exposed to trauma since

Doctors use cauterization (burning of the body to remove or close a part of it). This is not found in ablution.

- The majority of the most powerful Biological Active spots are being washed during ablution, not by a Doctor but by every Muslim by himself.
- Besides, praying five times a day obliges a Muslim to take the preventive measures against diseases before-hand.
- The Chinese medicine says that there are more than 700 Biological Active Spots and 66 of them have quick reflex therapy effects called the drastic (aggression, antique or prime-elements). Out of these 66 spots, 61 of them are located in zones required for wudu, while the other 5 are located between the ankle and knee.²⁰

The miracles of wudu extend into the realm of ancient Chinese therapy with utmost effectiveness. Thus while a Muslim performs wudu for spiritual benefits he or she also receives immense health benefits from both ancient and modern ways. During the process of wudu he is stimulating some natural healing zones. Reflexology relieves tension, improves circulation and helps promote the natural function of the related areas of the body. Reflexologists posit that:

- Blockage of an energy field, invisible life force, or Qi can prevent healing.
- Stress and pain in other parts of the body can be relieved through manipulation of the feet.
- Pressure received in the feet may send signals that balance the nervous system or release chemicals such as endorphins that reduce stress and pain.²¹

The science of Reflexology provides some insights and supports to the health benefits of wudu. It is more of

²⁰ <http://miraculousquran.blogspot/Fe>. Dated 15.7.14

²¹ <http://en.m.wikipedia.org/wiki/reflexology>.

preventive than curative. Thus, it improves health through massaging by allowing the flow of Qi or life force.

Dr. Magomedov explained the health benefits of wudu using the science of reflexology:

The Face: When the face is washed during wudu it “recharges” such organs as the intestines, stomach and bladder. It also has a positive effect on the nervous and reproductive systems.

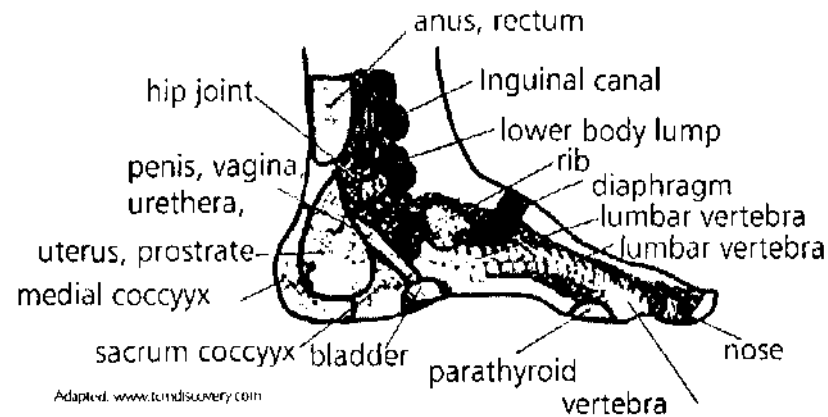


Figure 2.7: shows reflexology map of some of the Bioactive Spots of the foot.

The Leg: The Biological Active Spot responsible for the osseous (bone) system, intestines, nervous system, lumbar area, stomach, pancreas, gall bladder, thyroid gland, solar plexus are those situated on the right, another area reached during wudu.

When a Muslim washes his left leg, the Biological Active Spot responsible for the work of the pituitary gland is stimulated. This gland is located in the brain and regulates the functions of other endocrine glands and controls growth. (See fig. 2.7 below)

The Ear: In the cochlea of the ear, there are hundreds of Biological

Active Spots that harmonize the work of almost all organs, decrease high blood pressure, relieve toothaches and throat pains.

Ear ablution is considered Sunnah (Prophetic tradition). Wiping the ear helps in getting them free of wax accumulation, which may cause middle ear infections and may lead to inner ear infection as well. This eventually causes body imbalances.

Finally, Dr. Magomedov stressed the importance of Prophetic tradition, which emphasized massaging and application of pressure during wudu. He pointed that this aspect, has a scientifically grounded explanation. And that it was due to the solemn belief in the 5-times-a day Muslim prayers are bound to have not only an “indisputable spiritual effect” but are also bound to have a “purely physical healing effect as well”.²²

Wudu and Hand Hygiene

Hand washing during wudu is a ritual with spiritual and health benefits. It is a physical washing of the hand to achieve 4 things: cleanliness, vascular exercise, cooling effect and temperature regulation. The application of water is not arbitrary but is precisely targeted against certain anatomic structures to achieve the desired purposes.

Cleanliness – to wash away dust, soil, chemicals and pathogens or germs.

Cooling effect – it provides evaporative cooling effect to reinforce the venous system in the countercurrent heat exchange system.

Temperature regulation – it helps regulate the temperature using cold or warm water as the weather dictates. (See fig. 2.7 below)

Improves circulation in the peripheral blood vessels through

²² <http://miraculousquran.blogspot.com/>file downloaded 6.8.14

the regular exercise of these blood vessels and lymphatic system.

It stimulates the Biological Active Spots or healing zones to elicit wholesome effects.

This Islamic ritual is simple in its application. The water that is clean and cleanses is used to wash the hand and forearm, thus:

- Washing the hand up to the wrist 3 times, starting with right hand first. This also involves scrubbing the palm and in between the fingers to ensure a reasonable wash up. This washing cleans the hand.
- Washing the arm up to the elbow 3 times, starting with the right arm first. This washing from the wrist to elbow goes beyond cleanliness. It is to enhance the counter current exchange heat system, which involves the blood vessels of this area called the forearm.

Therefore, the washing of the hand up to the elbow 3 times at a regular interval that is performed 5 times a day must be very effective. It means this extremity is washed at least 15 times a day – to serve cleanliness, cooling, countercurrent, heat exchanger and to improve vascular integrity through regular exercise. Thus this religious act is beyond hand hygiene.

This spiritual washup improves vascular integrity to enhance circulation at the peripheral level because of the following factors:

Scientific research has proved that blood circulation in the upper limbs from the hand to the forearms, and in the lower limbs from the feet to the leg is weaker than it is in other organs being namely the heart. So washing these limbs with massaging at every ablution

help strengthen the blood circulation in these parts, thus increasing the vitality and activity of the body.²³

The formulation of ablution and its positive impacts on the health are clear evidence that it was revealed from Allah the Exalted. Undoubtedly, the formulation of wudu is beyond the ken of man. It is not just a ritual symbol; it is a miracle of all times.

Health benefits of Hand Washing

Hand washing in wudu is beyond symbolism, it is a ritual act encompasses both ancient and modern therapy. Hand washing was (and still is) the primordial tradition of Islam, a tradition which makes cleanliness its centre of gravity. A tradition that makes it a religious obligation to:

- I wash my hands 15 times a day.
- I wash my mouth 5 times.
- I rinse my nostrils 5 times.
- I Wash my face 15 times.
- I wash my arms up to the elbows 15 times.
- I wipe my head with wet fingers 15 times.
- I wipe my ears with wet fingers 15 times.
- I wash my feet up to the ankles 15 times.

The US centres for Disease Control and Prevention, declared that: It is well documented that one of the most important measures for preventing the spread of pathogens is effective hand washing. It has also been established cleanliness, via ablution, is one of the most important ways to good health. It protects best against diseases transmitted through faeco-oral

²³ Sharif Kaf Al-Ghazal, Medical Miracles of the Qur'an, The Islamic Foundation (2006), pp.91-92

routes.

- A simple way to stay healthy: Hand washing doesn't take much time or effort, but it offers great rewards in terms of preventing illness. Adopting this simple habit can play a major role in protecting your health.
- You can become infected with respiratory illness such as influenza or common cold, if you don't wash your hands before touching your eyes, nose or mouth.
- Hand washing removes soil, dirt and microorganisms or germs.
- It cleanses the hand of pathogens and chemicals, which can cause personal harm.
- It helps minimize the spread of influenza.
- It prevents diarrhea.
- It prevents respiratory infection.
- It is a preventive measure against infant death at home-birth deliveries.
- Improved hand washing practices have been shown to lead to small improvements in the length growth in children under 5 years of age.²⁴
- Frequent hand washing is one of the best ways to avoid getting sick and spreading diseases.
- It is an effective way of preventing the spread of deadly viral infections like Ebola.
- It stimulates Biological Active Spots.

When to Wash your Hands

Scientific studies have shown that frequent washing of the

²⁴ <http://en.m.wikipedia.org/wiki/handwashing>.

exposed parts of the body to remove dust is no doubt of great significance to public health. These parts are exposed all day long to numerous numbers of microbes counted in millions per every cubic centimeters of air. These microbes exposed to the skin of the human are very harmful to health. These parts are collectively washed 100 times a day. So when do you wash your hand?

- At the time of prayer. Perform ablution as taught by the Prophet (SAW). It is simple and effective washup.
- Wash your hands at other times as recommended by the Prophet (SAW):
- Wash your hands after using the toilet; and after handling things related to body wastes – such as washing the child's private parts after relieving themselves or after changing a diaper.
- Wash your hands before eating your meals and after the meals.
- Wash your hands after blowing your nose, coughing or sneezing into your hands.
- After handling *najasa*t – urine, faeces, blood, alcohol and other types of filth. Most of these filths or *najasa*t, in solid or liquid forms are agents of disease transmission, e.g. urine, faeces, and blood. Hence, the Islamic rule is: “There must be no *najasa*t or filth on the body, clothes or on the place of prayer”.

Salat is vitiated when it is performed with stains of filth. This was the concept that had introduced advanced hygiene to the modern world – clean body, clean apparel, and clean environment.

- Wash your hands after getting up from sleep, because you did not know what you touched with the hands during sleep – e.g. scratching the anal area.

- When you visit a patient do not stay long.
- Perform washup (ghusl) after handling a corpse during preparation for burial.
- Wash your hands after handling garbage and carcass.

Prevention of Disease Transmission

These and other recommendations of hand washing as stipulated by the Allah's Apostle in the 7th century are ultra-modern. Today, they are valid in stemming the spread of deadly viruses such Bird's flu, influenza, ebola and many bacterial diseases.

At the time of writing this book there is an epidemic spread of Ebola in West Africa. It is a deadly disease caused by Ebola virus. It is a Haemorrhagic Fever, with symptoms of febrile illness and bleeding from multiple sites.

- The disease has no cure or vaccines. The disease is transmitted through infected body secretions – saliva, semen, urine, blood and vomitus. It is contacted from infected person and animal.
- This deadly disease has a high death rate between 60 to 90%.
- Therefore, prevention is the only means of eradicating the disease. Ebola infection was first reported in Lagos in Nigeria in mid 2014.
- This was followed immediately by public campaign against the spread of the disease.

The cardinal preventive measures are those advocated by the Prophet of Islam (SAW): This concept originated from the Holy Prophet (SAW) to the stem the epidemics and pandemics of deadly diseases in the world. For example, the Plaque called at-tuon or Black Death was decimating mankind without cure or means of control. The Savior of Mankind in the 7th century

then saved the world by this Declaration:

If you hear of an outbreak of plague in any city, those inside it should not flee and those outside should not go in (Bukhari).

This effective method of stemming epidemics was a contribution of the Prophet (SAW) to the Modern World.

The Prophet method of stemming epidemics was effective and revolutionary as it introduced a new thinking in the prevention of the spread of infectious diseases:

- “Those in should remain within, those out should not come but remain out of the area disease outbreak”.
- This was a great wisdom of the 7th century in stemming the spread of epidemics and pandemics of infectious diseases in history. Its significance is important and very crucial to the prevention of an infectious disease:
 1. If those within the area remained the disease could be limited and its spread prevented.
 2. If someone comes out of the area of the disease-outbreak, even if apparently looking healthy he may have the infection in its incubation period.
 3. If an infected person (with symptoms or not) comes out of the area of pestilence, he will manifest the disease (sooner or later) in the healthy population.
 4. No one should go to the area of pestilence, lest he gets infected with the disease.

When the Muslim societies adopted the Prophetic method of preventing the spread of infectious diseases, they were saved from pestilences unlike the rest of the world. Consequently, the modern world subsequently derived three strategies from this Prophetic methodology:

- Cordon – the people where an outbreak of infectious disease breaks are immediately cordoned off, that is, they are isolated from the rest of the people, with a view to limiting the spread of the infection quickly.
- Quarantine, is a strategy where a strict isolation is imposed on people in an infectious area for a period that is longer than the incubation period. The isolation is also imposed a place or persons suspected of carrying some infectious or contagious disease.

Quarantine Code was first introduced in Venice due to the devastation of Black Death in 1348 in an effort to control the spread of the disease. The Prophetic method had proved to be very effective.

- Contact tracing – is the process of identifying the relevant contacts of a person with an infectious disease:
 1. Aim to interrupt an on going transmission of infection.
 2. To identify people with an infection who may benefit from treatment.
 3. To prevent re-infection from an untreated partner in order to help limit the prevalence of infection in the population.

Today these strategies are applied in combating any epidemic outbreak, which essential are the products of the Prophetic teachings. For example, in the current outbreak of Ebola, the preventive measures includes:

- Avoid contamination with the saliva, semen, stools, blood, urine, and vomitus, etc. of an infected person or animal. These in Islamic hygiene are called najasat that must be avoided from stains or contamination.

- Frequent hand washing. A Muslim washes his hands at least 15 times at a regular intervals in a day.
- Safe burial practices – Islam imposes strict application of hygienic rules in funeral rites including the use of hand gloves, and a bath to be taking by those who washes the corpse.
- Isolation of patient. Islamic hygiene approves the separation of a patient from the normal people or infected animal from the rest of the flock.
- Hygiene and general cleanliness – are half of Islamic faith.

For every Muslim to play safe, he must comply with the Prophetic tradition or the Grand norm. This stand, is in line with this Prophetic Injunction: “None of you (truly) believes until his inclination is in accordance with what we have brought” – Islam. Today the world celebrates the importance of hand washing; and hand hygiene.

World Hand Hygiene Day

On the 5th May, World Health Organization (WHO) celebrates World Hand Hygiene. WHO aims at raising awareness at the role of hand hygiene in combating antimicrobial resistance. Different slogans are used each to raise this awareness, such as:

- Clean your hand campaign – No action today; no cure tomorrow.
- Save lives Clean Your Hands.
- Clean Care is Safer Care.

The global campaign is part of a major global effort led by WHO to support healthcare workers in their efforts to improve hand hygiene in healthcare – settings. The campaign aims to

demonstrate that hand hygiene helps reducing health care associated infections and increase patient safety.²⁵

It has been observed that each year, hundreds of millions of patients around the world are affected by health care associated infections (HCAIs). Although HCAI is the most frequent adverse event in health care, its true global burden remains unknown because of the difficulty in gathering reliable data. Understanding and assessing the global burden of HCAI is one of the key areas of work of the Clean Care is Safer Care programme.²⁶ What these campaigns indicate:

- Importance of hand washing
- Its efficacy in reducing spread of infections
- Public must be consciously aware of the importance of hand washing.
- Health workers must be aware of the importance of hand hygiene.
- Both hand washing and hand hygiene are celebrated annually by WHO.

What must strike a Muslim is the significance of the Prophet's teaching of hand washing and strict observance of hygiene rules. He is indeed the Savior of Mankind, as his teachings in the 7th century, continue to have positive impact on humanity – as the campaign of “Save Lives: Clean your hand”, or the World Hand Washing Day indicate. Need more be said?

World Hand Washing Day

Islamisation of the England became a blessing to the world. It was followed by the Islamisation of other European nations. It became a world power and established a powerful empire – British Empire. Consequently, sanitary ideas were spread

²⁵ [Ecdc/Europa.eu/en/press/news/layouts](http://ecdc.europa.eu/en/press/news/layouts). Downloaded on 3.9.14

²⁶ www.who.int/gpsc/country-work/en. Downloaded on 3.9.14

to the world. Today, in modern times, every nation knows that clean Hands save lives. And 15th October of every year is celebrated as *Global Hand Washing Day*:

- To foster and support a global culture of hand washing with soap.
- To shine a spotlight on the state of hand washing in every country.
- To raise awareness about the benefits of hand washing with soap.

This celebration, however, is a celebration of the Prophet (SAW), the founder and advocator of hand washing in modern times – the Saviour of Mankind.

1. It has now been scientifically established that hand washing be it with or without warm water or soap is vital in fighting cross-section of all types. It can also prevent a wide range of infections: acute respiratory infections, helminth (parasitive worm) infection, eye infections and diarrheal diseases.
2. An article published in the British Medical Journal in 2007, reaffirmed that physical barrier to infection, i.e. hand washing, if given more of a priority would be more effective than drugs. These celebrations are clear evidence of positive global impact of Islamic ablution.

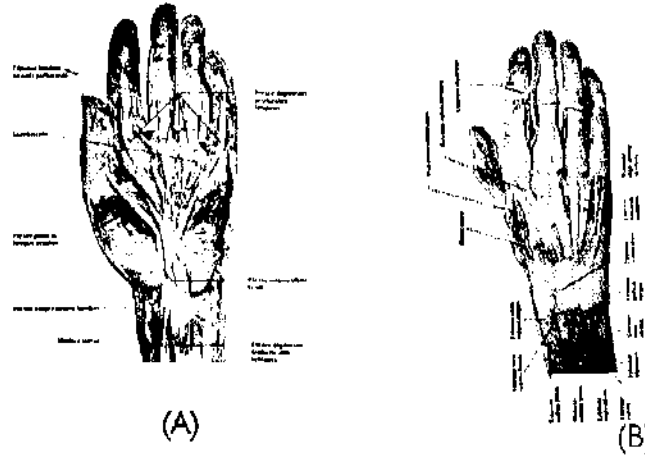


Figure 2.8 : Showing the front (a) and back (b) of the hand after removing the skin. To show the ligaments, tendons and muscles of the hand that benefit from the regular cooling effect of wudu

This veritable impact of wudu remains a universal mercy – ridding the world of pestilences and diseases. Wudu is an effective fortress against the Electrical Environment one of the perils of Modern technology.



Chapter Three

Wudu and Electrical Environment

The Electrical Environment

Modern technology has undoubtedly improved the living standard of many people in the world but at the same time it creates a lot of perils – the cost to both the natural environment and to human health has been very prohibitive. To improve both the standard and quality of our lives we must explore every thing we have that is likely to assist us in navigating through these perils of progress.

Today, technological development has created what is termed Electrical Environment.

The networks of metallic cables and their structures are visible everywhere in our environment. They have visibly changed our environment but at the same time posed numerous perils. According to Dr. John Ashton and Dr. Ron Laura, Modern technology, as perils of progress has produced Health and Environmental Hazards:

- Metallic cables of electricity produce an array of invisible electric and magnetic fields within their vicinity.

- These electric and magnetic field pulsate at 50 or 60 hertz, creating a new electrical environment that is thousands to hundreds of millions of times stronger than those occur in nature.¹
- These pulsating fields produced in the close vicinity of high voltage power lines are approximately 100 million times stronger than those occurring in nature.
- The pulsating fields introduced into homes by wiring or appliances are about a thousand to a million times stronger than natural background.
- Even 90 metres away from a 500 kilovolt transmission line, the pulsating field can be as high as 100 volts per metre, which is around one million times a natural background.
- In nature, any strong electric fields are virtually constant and any rapid fluctuating electric fields are relatively weak.
- Modern electrical technology produces rapidly fluctuating electric fields, which are relatively strong and therefore create a new and different electrical environment from that occurring in nature.

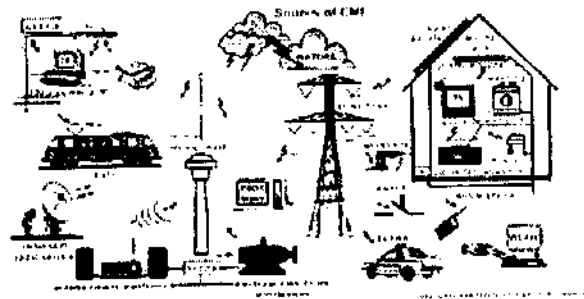


Figure 3. 1: Showing various sources of Electro Magnetic Fields (EMF)

¹John Ashton and Ronald S. Laura, *Perils of Progress: The Health and Environmental Hazards of Modern Technology, And What You Can Do About Them*, Zed Books (1999) pp. 40-41

The same situation is also produced with respect to magnetic fields. In the close proximity of electrical appliances, the fields can be much stronger still.

- Fifteen centimetres from common house-hold electrical appliances such as can opener, electric shaver and hair dryer, the 50 or 60 hertz magnetic field can be as high as 400 milligauss or 2 million times natural background.
- The magnetic fields produced by domestic appliances and house hold wiring are similar to the magnetic fields produced near high voltage transmission.²

Effects on Health

There are many studies that link electromagnetic field to cancer. Studies have shown that the pineal gland is sensitive to electromagnetic field exposure. Other adverse health effects include:

- Electric fields of 60 hertz have been shown to depress pineal melatonin levels in animals.
- Electric fields of 60 hertz may suppress T-Lymphocytes cytotoxicity which is part of body's natural defence against cancer.
- Adult cancer was found to be associated with high current electrical wiring configuration (HCCS)
- A recent 1996 report by Oxford University researchers also links electromagnetic field exposure to brain cancer.
- Many other health effects have been linked to extra low frequency (ELF) such as:
 1. Depression and suicide
 2. Alzheimer's disease
 3. Headaches

² Ibid

4. Migraines³

It is also known that power frequency of electric and magnetic fields cause electric currents inside the body. These currents have deleterious effects on our health:

- The magnetic fields can cause faint flickering visual sensations called phosphopenes or even stimulate nerves and muscles.
- Electric field can cause charges on the body underneath a powerline.
- Some studies have shown that electric field have small particles known as corona ions that are generated by powerlines may have adverse health effects.
- Studies on magnetic fields suggest that there may be increase risk of childhood leukemia (blood cancer) at higher than usual magnetic field exposure at home.
- Studies have shown a possible link between exposure and to magnetic field in the home (and or living close to high voltage power lines) and a small excess of childhood leukemia.⁴

The electrical environment causes various types of hazardous pollutions. These include microwave and high frequency pollutions.

Microwave Pollution: Mobile Phones

Natural microwave radiation reaching the earth from sources is in the order of 1 nanowatt per square metre, that is, one-billionth of a watt per square metre. Studies have shown that there is a rapidly growing microwave pollution resulting from a variety of sources such as from:

³ Ibid. pp. 17-18

⁴ www.gov.uk/government/publications/electric-and-magnetic-fields-assessment-of-health-risks. Downloaded 5.9.14

- Earth-to-satellite television broadcast systems
- Long-distance telephone equipment
- Air traffic control systems, and
- Radar
- There is also an increasing proliferation of ultra high frequency (UHF) television and mobile phones adding further to microwave pollution.

The dangers posed by this pollution can be very serious because these microwaves carry a magnetic field which is absorbed by the human body and its organs. The adverse health effects of this radiation are not clearly understood.

There are radiated magnetic fields that come from various sources which exhibit wavelengths to which the human body may act as an aerial, thereby absorbing considerable radiation.⁵ This, however, has led to serious concerns because communication microwaves are different from natural “white noise” background radiation because of the following reasons:

- They operate at much higher power
- Their precise transmission frequencies
- Polarization of the waves and,
- The modified analog signals.

These special features make these microwaves high suspect of producing interference with biological systems.⁶ This is even more alarming when the human can serve as an aerial or antenna.

Human Antenna

Ashton and Laura, in highlighting the hazards of microwave pollution argued that the human body could serve as an

⁵ Ashton and Laura. The Perils of Progress.

⁶ Ashton and Laura. The Perils of Progress.

antenna. Like an aerial, it can receive microwaves but, with some hazardous effects. The writers pointed that:

Powerlines and domestic appliances produce low frequency 50 hertz magnetic fields as a result of the high electric currents flowing through them, produce electromagnetic radiation of very long wavelengths -6000 kilometres. These cannot be absorbed by the human body.

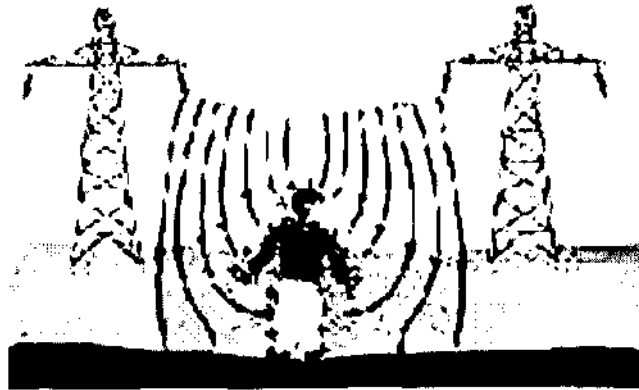


Figure 3.2: A simple picture showing Electro magnetic radiation from high tension lines.

However, there is considerable evidence that shows that the microwaves used in mobile phone communication systems together with TV transmissions and frequency modulation (FM) radio transmissions do produce electromagnetic radiation fields within the wavelength range which can readily be absorbed by the human body. For example:

- A person standing on the ground may act as a half wave antenna absorbing radio frequency magnetic fields (70-80 megahertz in adult and 80-150 megahertz in children). This corresponds to the frequency ranges used by FM radio transmitters and very high frequency (VHF) TV. The

disparity is because the skulls of children are thinner and the radiation can penetrate more deeply into the brain matter, which is likely to cause more damage.

- Parts of the human body can also act as antennae by UHF TV transmitters and mobile phones.
- In the case of mobile phone radiation (825-845 mega hertz), parts of the brain organs may absorb this radiation.
- The finding that brain and other organs can absorb radiation from mobile phones and UHF TV is extremely worrying because:
 - The pineal gland is affected by magnetic fields
 - One of the roles of the pineal gland is the circadian production of melatonin, a hormone, which appears to have a powerful inhibiting action of cancer cells.

Dr. John Ashton and Dr. Laura have also cautioned that mobile phone base stations have potential health hazards especially on children. They also cautioned that computer and VDU and TV watching have health hazards. The modern technology in addition to the creation of microwave pollution has also brought in its wake Higher Frequencies Pollution in the environment.

Higher Frequency Pollution

We live in a world of computers, and in an Age of Computer. Computer is one of the marvels of Modern Technology. Today's computer microprocessors work at speeds of 100 million cycles per second (100 mega hertz) or more, generating electromagnetic fields at this frequency and at even higher VHF harmonics each as 200 or 300 mega hertz. Faster microprocessor chips will generate even higher frequencies. Unfortunately these frequencies are absorbed by the human body, with some adverse effects. The perils of high frequencies pollution are therefore faced in a number of conditions such

as:

Use of Computer in VDU

A video display unit (VDU) consists of a computer output device that uses a cathode ray tube or other technology to present visual images and one or more input devices such as a keyboard, a mouse or both.

Cathode ray tube (CRT) consists of several basic components, including an electron gun that generates a narrow beam of electrons and deflecting coils that produce an extremely low frequency electromagnetic field that allows for constant adjustment of the direction of the electron beam.

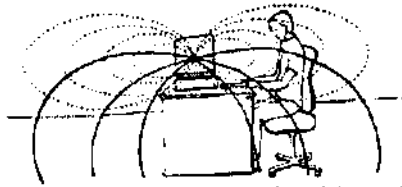


Figure 3.1 A computer picture showing Electric field by (.....) and Magnetic field by (— — —)

It is important to bear in mind this electromagnetic field whenever VDU is mentioned in the discourse. This is one of the ill-effects of prolonged exposure to computer in a pregnant woman. This is because:

- *Pulsed Electric Fields* –VDUs can produce a sound or hum, may impact adversely on health. This mechanical noise is produced by the pulsed electromagnetic field of the flyback transformer, a device which provides the picture scanning voltage. The health implications of these noise levels for pregnant VDU operators are at present unknown.

However, exposure to unnatural repetitive noise, much of which is likely to be audible to the foetus, may well serve to contribute to the environmental stress of the developing

embryo.⁷ It is important to bring this fact to foreground at this juncture. Instead of exposing the baby to environmental noise pollution, you can expose him to Qur'anic recitation. This is because:

- Your baby's ears begin around the 8 weeks and have become structurally complete at about 24 weeks.
- Researchers have discovered that the foetus is living in an auditory (hearing) play ground responding to voices and other sounds they hear outside the womb
- Studies have also found that a foetus can hear sounds though muffled, as early as 20 weeks, and by the third trimester, their hearing is intact. Sonograms show that babies may turn their heads in response to noise.⁸
- It has now been well established that a baby starts hearing its first sounds –the mothers' heartbeat or blood whooshing on the umbilical cord around 18 weeks.
- Research shows that a baby's heart rate often slows down when her mum is speaking, a sign that she not only hears and recognizes the sound but is calmed by it.⁹

Therefore, the best way to comfort your baby is to expose him to the melodious music, cadence, rhythm and symphony of the Qur'anic recitation as well as its health benefits. The baby while nestled snug in your belly, will be calmed by the echo of the wonderful Qur'anic recitation.

- So limit unnecessary exposure to noises.
- Catch your baby young by her listening to Qur'anic recitation in utero!

⁷ Ashton and Laura. *The Perils of Progress*.

⁸ <http://www.parents.com/advice/pregnancy-birth/pregnancy-stages/can-my-baby-before-shes-born/> Article by Elizabeth Weiss McGlerick. Downloaded on 6.9.14

⁹ *Ibid.* Article by Karin A. Bilich

- Let the listening of this Holy recitation be part of her development. Let her recognize Qur'anic recitation from your voice (mum) and dad.
- This is a good protection the baby in-utero can have especially in our modern times. Another peril of high frequencies pollution is static electric fields.

Static Electric Fields

Extremely high static electric fields are produced near cathode ray tubes, their perils are added to those of pulsed electric fields. These static electric fields are often noticeable, for example when switching on or off a TV set, and are commonly detected when hairs on one's hands and arms rise as a result of electrostatic field strength up to 30,000 volts per metre at a distance of 30cm from the screen. It causes:

- Skin rashes
- A skin disease called VDU skin dermatitis is now a recognized problem in patients
- A powerful electrostatic field on the cathode ray screen causes an imbalance of ions in the air with excess of positive charged air molecules present in the environment in front of TV or VDU.
- People close by are continually exposed to these ions.
- Sickness with symptoms such as malaise and lethargy have been associated with extended exposure to high positive ions levels.¹⁰
- Evidences have shown that large electrostatic fields exist in the atmosphere, with the ground level in fair weather measuring about 130 volts per metre.
- This electrostatic field is much smaller than that found near VDUs but polarity is also reversed with upper atmosphere

¹⁰ Ashton and Laura. *Perils of Progress*, p.78

being positive and the ground negative.

- Furthermore, under normal circumstances when the positive charge near the earth increases, thunderstorms often follow with lightning providing an enormous flow of negative ions to earth, thus relieving the build up of the positive charge.
- There is considerable evidence that negative ionized air, for instance is beneficial to health.
- It is apparent that nature provides mechanisms to reduce the build up of positive ions in the atmosphere near the earth's surface and it would now seem that such mechanisms afford significant health benefits."
- There is another peril which poses dangers to our eyes as we are glued to screen for hours.

Dangers to Eyes

Prolonged exposure by this unnatural optic stimulation is illustrated by the occurrence of photo-sensitivity epilepsy –‘television epilepsy.’ According to Dr. Ashton and Dr. Laura, the experts who studied the perils of Modern Technology extensively posited that: the more we indulge our selves in our TVs and VDUs, the more we deprive our selves of the health benefits deriving from natural photic radiation (sunlight), some of which include: Lowered cholesterol, lowered blood sugar, enhanced immune function and lowered blood pressure¹².

These experts have pointed some of the hazards of prolonged exposure to TVs and VDUs in what they describe as ‘photoically artificial environment,’ which denied us some of the health benefits of natural sunlight radiations.

The magnetic field associated with these machines adversely affects melatonin production by the pineal gland.

¹¹ Ibid

¹² Ashton and Laura. The Perils of Progress.p.78

Effects on Pineal Gland

The pineal gland is an active neuroendocrine transducer, converting light into an endocrine signal.

- The gland is implicated in a large number of biological rhythms, which includes the production of melatonin, a hormone with a strong oncostatic function –it appears to prevent both initiation and promotion of cancer.¹³
- The gland is however sensitive to magnetic fluid. The use of these machines has also raised some ergonomical issues that are related to job stress.

Ergonomical Problems

The large use of VDUs and TVs in both work place and at home have raised a lot of concerns that are related to fatigue and discomfort. These are ergonomic issues such as posture sitting while using the VDUs and work environment. The indoor work environment is affected by a number of factors such as: space requirements, lightning, reflection and glare, radiation, noise, heat, and humidity.¹⁴

Indoor work environment is important in reducing the hazards of both VDUs and TVs such as eye strain and fatigue caused by improper illumination and ergonomically improper work stations. The prolonged period of exposure to these machines are likely to cause such problems as effects on the eyes, fatigue and stress and upper limbs discomforts. Eye strain and fatigue may be caused by:

- Staying in the same position and concentrating for a long time
- Poor positioning of the VDU
- Poor legibility of the screen or source documents

¹³ Ibid

¹⁴ www.hsa.ie/Display-screen.pdf. Downloaded on 6.9.14

- Drifting, flickering or jittering images on the screen
- Glare and reflections from VDU screens.

The eye effects may be worked by pre-existing vision defects, such uncorrected defects may make working VDU more tiring or stressful. Due to associated fatigue and stress. These are described by VDU users and may be caused by stress arising from broader aspect of their work. Prolonged usage is also related to WRULDS.

Upper Limb Pains and Discomfort (WRULDS)

A range of effects on the area, hand and shoulder areas linked to work activities is now described as work-related upper-limb disorders (WRULDS). This ranges from temporary fatigue or soreness in the limbs, to cramp, to ongoing pain in the muscles or nerves. These effects are due to some factors:

- Holding a part of the body rigid for a long time such as back, neck and head may cause discomfort in the muscles, bones and tendons.
- Awkward positioning of hands and wrist relative to the work being carried out is another factor.¹⁵

Protective Measures

- Use of aprons and screen that reduces glare
- Use of shields or radiation absorbing device
- Improve work-place environment
- Answer the call of Muezzin (call to Salat) promptly
- Make effective use of wudu –health connection
- Make effective use of Salat –health connection
- Keep homes or schools way from high voltage or

¹⁵ Ibid

transformers

According to the experts:

- Do not sleep close to a meter box or hot water or washing machine on the other side. Sleep as far away as possible from these devices
- Children should be discouraged from playing or spending too much time under suburban powerlines
- Thick powerlines generally carry higher currents and hence produce higher magnetic fields than thin powerlines
- The magnetic fields produced by powerlines also vary during the day according to electricity usage, with magnetic fields generally lower in the early morning and higher in the late afternoon as families begin preparing the evening meal.
- When using electrical appliances such as stoves, washing machines, vacuum cleaners, sewing machines and power tools, we should endeavor to keep our bodies as far as possible from the electric motors or heating elements and keep their operation to a minimum.¹⁶

Always bring your wudu-health-cooperation to effective use and at the appropriate time. Be punctual at the call of muezzin as a worker in the office, a trader in market or shop.

- When the muezzin calls you to pray, it is an indication that something is going awry in your body systems.
- He is calling you to correct immediately, and avert an impending health problem be it known or unknown to you.
- There is always a spiritual and health benefits that are attached to the call of muezzin at regular intervals.
- These intervals colligate with the dynamic changes in your body. Thus the call to prayer is like an alarming system

¹⁶ Ashton and Laura, *The Perils of Progress*, p.51

that is attached to your body systems; it rings whenever something is going wrong.

- It is time conscious so be punctual to salat!

Health Benefits of Call of Muezzin

- It gets you out to natural environment to exhale
- It restores your long-sightedness that was suppressed by the use of VDU and TV screens
- It allows you to relieve yourself of natural stress –urine or faeces
- It gives you the opportunity to “re-fuel” –eat and drink
- It links you up with wudu.

Benefits of Wudu: Health Connection

- Always perform wudu at bed time to ensure you go to sleep without static electricity charges on our body.
- It exposes you to the use of water –to revitalize yourself.
- It affords you the opportunity to clean your self of dirt and impurity.
- It cools your brain to give you a feeling of zest.
- It relieves you of electrostatic charges to allow your nerves and allows you to remain focus
- It links you up with Salat

Benefits of Salat: Health Connection

- It is super-yoga, it re-align your bones and restore your normal anatomy
- It relieves your muscle spasms and tensions
- It improves the blood circulation to your brain
- It quickens your circulatory system

- It gives you confidence and vigor
- It sharpens your wits and memory.
- Salat in its various postures helps to relieve you of stress and fatigue through structural realignments.

The other aspect of the electrical environment is related to static electricity. It also causes some ill-effects to our health.

Static Electricity

Static electricity is an electric charge built-up on persons or objects through friction, static electricity. It is electricity that does not flow in a current, it doesn't go in one direction. Static electricity is made by rubbing two things together to create friction.

Static electricity occurs when materials which are normally electrically neutral become charged due to friction and causes the object to attract. It is produced:

- When two different substances are rubbed together
- When we shuffle our feet along the carpet as we walk across
- Put on a pair of rubber-soled shoes or such as sneakers.
- When sitting on a plastic chair or getting out of the car.
- Rubbing nylon or woolen sweaters, etc.

Static electricity is dangerous in many ways:

- It may ignite a fuel such as gasoline vapour causing fire.
- It can shock especially in kids.
- It can create spark, and if 30 milliamps go through the heart it can kill.
- Zipping of electronic devices in safety critical system.

- High tension power lines generate ions that can cause disease in people living near them.
- Electrostatic is slow-moving or even stationary electric charges. Electrostatic discharge can take place when a pair of objects with different amounts of electrons encounter each other.
- Electrostatic becomes a problem when the charges jumps through the air, which takes place when lots of charges build up on an insulator and travels a short distance in the air to reach an oppositely charged or neutral object.

This is what is happening when you hear a crackling sound as you pull a shirt over your head. The synthetic fibre in the jumper is an insulator and so is your hair, the sound you hear is the charge jumping over to your hair.

The danger is when a charge jumping through an air gap actually creates a spark; this becomes a danger when flammable liquid vapour are nearby. Adding fuel to cars or aircraft is perhaps the time that electrostatic is at its most hazardous.

A spark created by a jumping charge in this situation could cause a large explosion, especially in aircraft because of the speed of the fueling.

If two insulators rub together, they can charge, so the friction between the pipe and the fuel can build up a charge. This can happen only if the pipe is an insulator; fuel is always an insulator.

A charge could leap between the fuel tank and the pipe's nozzle as they get close to one another. This spark can ignite the fuel, and when this happens everyone around is in serious danger. A spontaneous combustion likely to occur.

Getting Rid of Static Electricity

Static electricity is the build up of an electric charge in a particular place. Some materials on or near the body, notably glass, hair and some fabrics, give up electrons rather easily.

A small amount of friction, repeated overtime, can result in a significant loss of electrons and a net positive charge. Such a charged material is likely to attract an electric current, which we feel as the static shock, or electrostatic discharge, when it builds in excess of about 3,000 volts or more. Joseph Nicholson, an expert in this field gives 4 steps as the practical measures to get rid of the lurking dangerous menace.

Practical Measures

- Step 1:** Touch a grounded object. The simplest way to get rid of static electricity in the body is to let it do what it wants to do, which is to discharge from your body into the ground.
 - Step 2:** Ground yourself. Take off your shoes and socks so your feet touch the earth, or bend over and touch the earth with your hand. Static electricity can only build up in your body if you are not grounded, otherwise it could dissipate immediately.
 - Step 3:** Give it time. Static electricity will naturally dissipate slowly, even if not discharged by grounding. If you stop the friction that created the build up in the first place. Thus, if you created static by dragging your feet across carpet, stop moving for several minutes and the charge will dissipate.
 - Step 4:** Prevent static build up. You can prevent static electricity from building up in the body by raising
-

the humidity level, applying moisturizer to dry skin or using an ionizer. Cool, dry air is a good conductor for electrons, and allows friction to create static build up. An ionizer uses a small electric current to re-balance the lost electrons and thus prevent static electricity from forming.¹⁷

Salat and Static Electricity

What Nicholson had suggested in the first two steps is Salat as a practical measure against static electricity:

- Touch the ground. Muslims touch the ground 5 times a day.
- Ground yourself. "Take off your shoes and socks so your feet touch the earth, or bend over and touch the earth with your hand". Need more be said?
- There is another practical measure to be taken, which is wudu. Performance of wudu is an effective way of neutralizing static electricity. It is similar to step 4 measure.
- The electrical environment we live in induces more static electricity in excess which normally our body cannot balance. The atmospheric condition as well as our plastic clothing and common in our daily life adversely affect this balance. Most of us are aware of this static electricity when we receive shock when removing our clothes. In fact, we are not even aware of the health benefits of Salat and wudu as they get rid of this static electricity. The adverse effects of these perils have been mentioned already.

Others include:

- They cause pre-mature skin wrinkles
- Irritability and nervousness
- Depression because static electricity decreases the release

¹⁷ http://www.chow.com/how_5862942-rid-static-electricity.html

of dopamine, a substance that elevate the mood.

- Psychomotor disorders because static electricity disturbs some of the electrical activities of the brain.

These are some of the deleterious effects of static electricity that directly affect man. These bad effects are due to the imbalance of static electricity that can be avoided by Salat, wudu and ghusl some of the obligatory rituals of Islam. Dr. Haluk Nurbaki explained.


Healing by acupuncture and in certain respects, physiotherapy redress this imbalance of static electricity; but we can avoid this effect entirely simply by taking the washup several times a day.¹⁸

In the Islamic ablution there are 26 washing movements to be carried out 5 times a day, a total of 130 daily washing movements. These are the simplest and cheapest ways of:

- Getting rid of dirt on the exposed parts of the body.
- Getting rid of static electricity.
- Improving the integrity of the blood vessels due to induced 'physical exercise'.
- As an effective means of counter current heat exchange.
- Stimulating Biological Actives spots in the hands, feet and ears.

Undoubtedly, the myriad health benefits of wudu have underscored Allah's Favour upon the Muslims. The efficacy of water and its salutary effects on the health status are primarily due to its miracles. And as a divine favour only the Muslims harness the beneficial miracles of water to the maximum. These miracles are exploited in the 5 terminals of wudu.

¹⁸ Haluk Nurbaki, VERSES FROM THE HOLY QUR'AN, p.101

A decorative illustration featuring a horizontal line at the top, with several stylized, swirling floral or leaf-like shapes extending downwards and to the right. The shapes are rendered in a stippled or dotted style.

Chapter Four

Wudu and Counter-current Heat Exchange System

The Circulatory system

Blood has a long road to travel, transport heat a long with it. Laid end to end, there are about 60,000 miles of blood vessels in the human body. While the hard-working heart pumps about 2,000 gallons of blood through those vessels every day. This is one of the wonders of the circulatory system.

The hollow, four-chambered muscular heart is roughly the size of a clenched fist. It averages 225 grams in adult females and 310 grams in adult males.

The heart contracts an estimated 42 million times, pumping 700,000 gallons of blood every year.¹

The heart beats around 3 billion times in the average person's lifetime.

- The heart beats about 100,000 times per day and about 40,000 times per year.

¹ K. M Van De Graaf, Human Anatomy, p.529.

- At rest, the heart of an adult pumps about 5 litres of blood per minute. This is called cardiac output.
- It takes only about a minute for blood to be circulated to the most distal extremity and back to the heart.²
- This volume of blood circulates through the body three times a minute.
- The blood travels a total of 19,000 km (12,000 miles). This shows how fast and efficient is the cardiovascular system.
- The arterial system branches extensively forming a flexible tubes to deliver blood to over 40 billion capillaries in the body.
- So extensive is this branching that scarcely any cell in the body is more than a fraction of a millimeter away from any capillary; moreover, the tiny capillaries provide a total surface area of 1,000 square miles for exchanges between blood and tissue fluid. (See fig. 4.1 below)

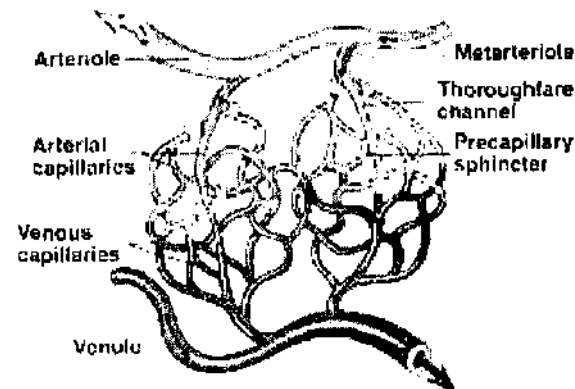


Figure 4.1: Showing a Capillary, a microscopic area for exchanges between blood and tissue fluid.

² Ibid, pp.521-522.

- Veins are vessels that carry blood from capillaries back to the heart. The blood is delivered from microscopic vessels called venules into progressively larger vessels that empty into large veins.
- It must be appreciated how through the agency of water wudu exerts positive influence on the cardiovascular system. It has been said that as the circulatory system goes, so goes the rest of the body.

Regular washup makes this system to stay and to stay for a long time because:

- The circulatory system is the lifeline to the other organs of the body.
- If the vital organs are deprived of the essentials for life, they will falter in their functions, resulting ultimately in body death.
- Some gerontologists (physicians who specialize in the study of the elderly, and of the aging process itself) believe that the first system of the body to show signs of aging is the circulatory system, and that this accelerates the aging process in the other systems.³

The Influence of Washup on the Circulatory System

The regular and frequent washup prevent the development of Arteriosclerosis or hardening of the arteries, is a generalized degenerative vascular disorder that result in loss of elasticity and thickening of the arteries.

- The hardening and narrowing of blood vessels develop over a long period of time. Vessels distant from the heart, such as those in the brain, feet and hands, are in a more

³ K. M Van De Graaf, Human Anatomy, p.566.

vulnerable position.

- Atherosclerosis is a type of arteriosclerosis in which plaque material, called atheroma, forms on the tunica intima, the innermost layer of the blood vessel, narrowing the lumina of the arteries and prohibiting the normal flow of blood.
- In addition, an atheroma often creates a rough surface that can initiate the formation of blood clot called a thrombus. An embolism, or embolus, is a detached thrombus that travels through the bloodstream and lodges so as to obstruct or occlude a blood vessel.
- An embolism lodged in a coronary artery (a vessel that supplies the heart) is called coronary embolism and can lead to heart attack or myocardial infarction.
- An embolism that lodges in a vessel in the brain, is called a cerebral embolism, which could cause a stroke; while in a vessel of the lung it is a pulmonary embolism.

The narrowing and hardening of the blood vessels or arteriosclerosis can be prevented and mitigated by regular wudu or washup. Dr. Nurbaki explained:

- There is an application in our daily life, however, which in a sense 'exercises' blood vessels by alternately constricting and widening them.
- Its agent is water, which gives rise to temperature gradients. Water ensures flexibility and vigor of vessels distant from the heart by dilating them when hot and contracting them when cold.
- It also forces nutrients deposited in tissue due to sluggish circulation back into the bloodstream by virtue of this temperature.
- In the face of these facts, is it possible to view the verse's

counsel to wash hands, feet and face in the washup formula as anything short a miracle?

- And particular in the latter part of the verse, is it possible not to understand the secret of the declaration,⁴ 'We want to complete our favors upon?

Effect of Wudu on the Lymphatic System

Dr. Nurbaki argued pertinently that the lymphatic system is indeed invigorated by the Washup, this is not merely a coincidental and unintended side effect. The reasons are:

- For the lymphatic system to function properly, even a single point in the body must not be neglected, which is assured by the Washup.
- The most important centres for stimulating the lymphatic system is the nasopharyngeal region behind the nose and the tonsils, and washing these spots is especially enjoined in the Washup.
- Stimulation of both sides of the neck has a great influence on the lymphatic system, and this is also present in the Washup.

For these and other reasons the washup targets the lymphatic system, as an act of Allah's favour, to boost the immune system of the devotees. The Medical Scientist explained pertinently:

I would like to explain by means of an example how performing the washup vitalizes the protection of the body, thus completing the divine favor.

The most formidable warrior cells of the body, the lymphocytes, are transported to the farthest reaches of the body and,

⁴ Hafuk Nurbaki, VERSES FROM THE HOLY QUR'AN AND THE FACTS OF SCIENCE, Kitabkhavan New Delhi (1998), p.98.

after passing through intensive biological training, patrol each point in the body ten times a day. If they meet a bacterium or a cancer cell, they destroy the latter immediately. Is this not a divine blessing?

If a circulatory disorder occurs once in a while and you are able to avert this by means of your habitual Washup, is the Washup anything other than the completion of the divine bounty?⁵

It has now been well established scientifically that both wudu and ghusl have positive effects on the circulatory system. According to the latest scientific findings:

- They prevent stiffening and narrowing of the vessels.
- The lymphatic system is stimulated by washing of the tonsils and the region behind the nose, which are some of the most important centres of the lymphatic system.
- Wiping (Masah) the back of the neck and its sides with wet hands has a beneficial effect on the lymphatic system.
- Wudu and ghusl facilitate lymphatic circulation, where warrior cells called lymphocytes protect the body against pathogens and enhance the resistance of the body.
- After ghusl, the body regains its former vigour. Washing the body at certain intervals is highly important in terms of preventive medicine, too.
- Our religion orders us to take ghusl every Friday.⁶

One of the miracles of wudu lies in the enhancements of the counter current heat exchange system (CCHES) mechanism.

⁵ Haluk Nurbaki, VERSES FROM THE HOLY QUR'AN, p.100.

⁶ <http://www.ummah.com/forum/extema>.

Wudu and Countercurrent Heat Exchange System

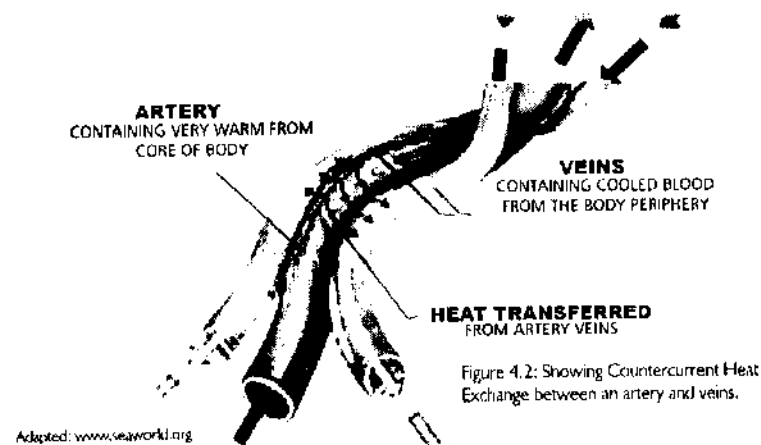
Countercurrent heat exchange is a counterflow mechanism that enables fluids at different temperatures flowing in channels in the opposite directions to exchange their heat content without mixing.

- A countercurrent heat exchange may occur where venous and arterial pathways pass one another in opposite directions.
- Generally the arterial blood carries warmth from the core of the body, while venous blood returning from the cooler periphery.

In such a case, venous blood may be warmed so as to not to chill the entire centre of the body.

Arterial blood may be cooled to reduce heat loss from the skin. In this way a countercurrent exchange helps to conserve body heat.

- CCHES commonly occur in the limbs. Deep veins lie in contact with the arteries. Often two small veins exist for each artery. This facilitates heat transfer by increasing the area of contact. (See figure 4.2 below)



For example, in the spermatic cord, an exchange occurs between the testicular artery and a plexus of veins returning to the body – pampiniform plexus. This mechanism maintains the testis and epididymis below body temperature.

Countercurrent heat exchange is a highly efficient means of minimizing heat loss through skin's surface because heat is recycled instead of being dissipated. This way, the heart does not have to pump blood as rapidly in order to maintain a constant body core temperature and thus metabolic rate.⁷

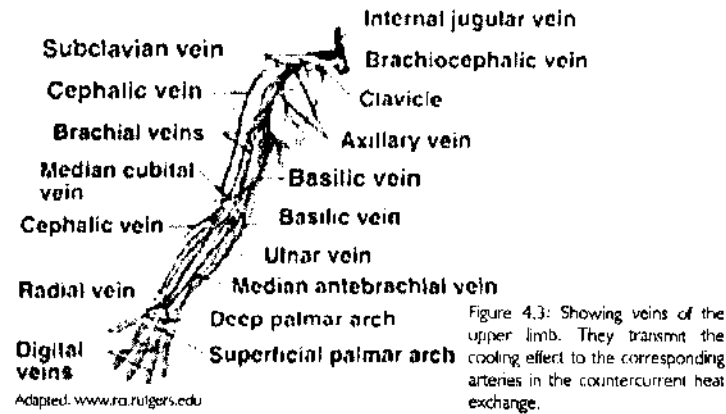
In human, CCE, plays this important role to conserve heat. This requires further explanation.

In addition to its role in the transport of materials, the circulatory system is responsible for the distribution of heat throughout the body.

The greater the surface-to-volume ratio of a part of the body, the faster it can transfer heat to its surroundings.

⁷ <http://uk.answers.yahoo.com/question/index>. Date 15.8.14 Dated 15.8.14

- The arteries of our arms and legs run parallel to a set of deep veins. As warm blood passes down the arteries, the blood gives up some of its heat to the colder blood returning from the extremities in these veins. (See figure 4.3)



- In your arm the deep arteries are surrounded by veins and there are also veins close to the surface of the arm. On a cold day, your face veins constrict so most blood flows back to the heart through the deep veins, which are close to the arteries and flowing in an opposite direction.
- Application of water cools the surfaces of the body. The wudu enhances the efficiency of the counter current heat exchanger.
- On a warm day, your internal arm veins constrict while the surface ones dilate, so most blood is now flowing back to the heart through the surface veins and the heat is dissipated into the environment. A neat counter current and a thermostatic system for maintaining body temperature in humans.⁸

⁸ <http://UK.Answers.yahoo.com/question/index>.

The significance of Islamic wash-up in CCHES, include the following:

- It creates a wide temperature gradient by cooling the blood in the veins thereby facilitating heat transfer to the arteries in accordance with Newton's Law of cooling, which states that the rate of change of the temperature of an object is proportional to the difference between its own temperature and the ambient temperature.
- The timing of Wudu appears to be linked with the thermo regulatory variations due to circadian rhythms - a diurnal variation has been observed to be dependent on the periods of rest and activity, lowest at 11pm to 3am and peaking at 10am to 6pm (period of 3 obligatory prayers: Zuhr, Asr and Magrib).
- Improved circulation. The alternating temperature changes between the close, parallel packing of the arteries (thick walls) and veins (thin walls), make them to repeatedly dilate and narrow. This gives them an effective exercise and improved circulation.
- Application of water to the extremities during Wudu causes evaporative cooling. Water removes enthalpy of vaporization - D^H_{vap} 539.6 cal/gram.
- Is it not a miracle how Allah (SWT) prescribed wudu during which we wash our arms and legs to improve the Countercurrent heat exchange for our health benefits? The wash-up helps to cool the veins located near the surface of the skin.

There are other areas of Countercurrent heat exchange systems in the body that are beneficiaries to Islamic washup such as the brain and organs of reproductions.

Heat Exchanger in the Brain

In man, the internal carotid artery, is a major supplier of blood to brain, carrying warm blood from the heart.

- This artery is located within a large collection of thin-walled veins called cavernous sinus which is a Countercurrent heat exchange site.
- The artery is cooled by the veins before it supplies the brain.
- The human brain cannot tolerate a rise in body temperature of more than 5°C or so. It is the organ most susceptible to damage by heat.

There are veins on the outside of the skull that have a direct or indirect link with the cavernous sinus. They play a role in this cooling system within the cavernous sinus:

- The veins on the scalp and face, called emissary veins are on the outside of the skull.
- The cavernous sinus receives the veins from the face and upper part of the head.
- During wudu the venous drainage areas that connect either directly or indirectly are touched or washed regularly with water. This action sends evaporative cooling effect of water to the cavernous sinus.
- Washing the forehead, the eyes, the face during wudu are very important because most of the veins connected to these areas colligate directly or indirectly with cavernous sinus.
- Wetting the area behind the ear during Wudu is also of

considerable importance because of the presence of Mastoid Emissary vein.

It is remarkable to note that all the areas recommended to be washed during ablution have important anatomical structures relating to body's cooling system. This recommendation is precise not arbitrary and is of some health benefits.

Heat Exchanger in the Neck

In 1940, Oscar V. Batson reported the true functionality of the vertebral Venous Plexus (VVP) (Veins of the back bone) by providing the continuity of the prostatic venous plexus (network of veins around the prostate in males) with the VVP and proposes this route as the most plausible explanation for the distribution of prostate metastatic disease. With his seminal work, Batso re-classified the human venous system to consist of the Caval, Pulmonary, Portal and Vertebral.

Today, VVP is considered part of the cerebrospinal venous system, which is regarded as a unique, large capacitance, valveless plexiform venous network in which flow is bidirectional that plays an important role in the regulation of intracranial pressure changes in disease states, it provides a potential route for the spread of tumor, infection or emboli.⁹

Heat Exchangers in the Forearm

In ablution, the significance of washing away dirt and impurities have always been emphasized especially with washing of the hands. But of what significance is washing the forearm - from the wrist to the elbow? This part of the upper limb, though relatively clean, is however, washed at least 15 times a day. The significance of this washup lies in the role of wudu in countercurrent exchange system.

⁹ Nathoo, N; Caris E.C, Wiener, J.A.; and Mendel, E., History of the Vertebral Venous Plexus and the significant contribution of Breschet and Batson; *Neurosurgery*, 2011 Nov; 69 (5) 1007-14: discussion 14.10 - 1227 New.

It is my hypothesis that washing the forearms 3 times each during wudu is to effectively enhance the countercurrent heat exchange in the upper limbs. This aspect of wudu is obligatory.

- It is a well known fact that human extremities play an important role in dissipating body heat.
- It is one of the miracles of wudu to enhance this heat transfer.
- The areas we wash during wudu are important from the standpoint of heat exchange.

It is pertinent to ponder on these research findings:

Hirata et al., showed that the loss in the forearm is enhanced by the venous blood returning through the superficial veins originated from arteriovenous anastomoses (AVA) presented in the hands and fingers. These structures allow the enhancement of heat transfer from the body core to the extremities without an increase in vasodilation and with a smaller pressure loss.¹⁰

- The evaporative cooling effect of water on the skin surface of the forearm makes the veins of the forearm cooler and thereby promoting the heat exchange with the corresponding arteries of the forearm.
- Undoubtedly, this is an act of Mercy from Allah (SWT) to the Muslims.
- The heat exchange promoting effects of the washup are also harnessed from, the hands and feet.

¹⁰ countercurrent heat exchange system, in the upper limb A heat transfer model. 23.9.14

Heat Exchange in the Hands and Feet

The research work of Grahn et al; is both striking and illuminating. It is striking because it specifically mentioned areas of great importance in wudu - namely palms, feet, face and ears. It is reported that:

Recently, Grahn et al; described the importance of heat transfer of subcutaneous vascular structures in the glabrous skin presented in the palm of the hands, soles of the feet, and regions of the face and ear pinnae.

According to the researchers, blood flow through these structures is extremely variable, ranging from near zero in cold stress to as much as 60% of the cardiac output during heat stress. Blood flow is regulated according to the opening degree of the AVAs.¹¹

- This research has further revealed the medical significance of regular application of water to the hands, feet and of the regions of the face and ear pinnae.
- During ablution the glabrous (hairless) skin of the palms of hands, soles of feet and the face, each is washed 15 times a day. While the ear pinnae are washed 5 times a day.

What is illuminating about the work of Grahn and others, is the fact that it colligates with my hypothesis on wudu and countercurrent heat exchange system.

- I have proposed that application of water to the 5 terminals of wudu is an effective way of enhancing the heat exchange between the arteries and veins. So that as we wash our hairless palms and soles with warm water when the temperature approaches zero in cold stress,

¹¹ countercurrent heat exchange system in the upper limb. A heat transfer model. 23.9.14

there is induced blood dilatation, increase in blood flow with concomitant heat transfer enhancement.

Conversely, when cold water is used during heat stress there is also concomitant enhancement of heat transfer due to evaporative cooling effect of water. The health benefits of ablution are inexhaustible as they will continue to be discovered with progress in medical science and technology.

In addition, the presence of arteriovenous anastomoses (AVAs) in the hands, the superficial veins in the upper limbs are also important to thermoregulation. The washups in these areas are to effectively enhance this vital function.

This principles of wudu in heat transfer had anticipated the modern concept by 15 centuries. Knowledge of heat transfer in human tissue is not more than 100 years old:

In 1948, Pennes presented a mathematical model of heat transfer in human tissue. In the resulting equation, called bioheat equation, the effect of blood flow on heat transfer was modeled as a heat sink or source, the magnitude of which is proportional to the volumetric perfusion rate and difference between arterial and venous temperature.

Pennes assumed that thermal equilibrium occurs in capillary beds, although Chen later showed that it occurs before the blood enters the beds. In addition, a relevant phenomenon not taken into account in Pennes' model is the countercurrent heat exchange between parallel arteries and veins with diameters larger than those of the capillaries (5 - 15 μm diameter). Some analytic models were developed in order to describe temperature variations along countercurrent vessels from 50 to 1000 μm diameter.¹²

Wudu is Allah's Prescription

These research findings including the bioheat equation have

¹² countercurrent heat exchange system in the upper limb. A heat transfer model.

consistently indicated that the areas of washup are of crucial importance to heat exchange and transfer. The works further revealed the wisdom of application of water to these areas at specified times of the day is not arbitrary but with a defined purpose - effective enhancement of heat exchange.

However, all the models that were formulated were focused on the internal dynamics of heat transfer and heat exchange, within tissues. And with emphasis on the evaporative cooling of sweat or perspiration.

- When water evaporates, it cools the surface area. The introduction of application of miraculous water to the body at specified time of the day is a crucial and important parts of wudu which affects both the blood flow and heat transfer within the body. Therefore in its formulation application as well as its specificity, the conception of wudu is a divine knowledge.
- A great wisdom that transcends the ken man.
- Wudu is Allah's prescription for the benefits of Muslims. It is in the recognition of the health benefits of countercurrent heat exchange that water is used for the washup:
- Countercurrent heat exchange prevents the heat loss of a large amount of heat by causing the transfer of heat from warm blood (arterial blood) to cool blood (venous blood) re-entering the core of the body.
- This prevents a large loss of heat across the body surface, and prevents extremely cold blood from entering the core of the body, and dropping the core body temperature, (as shown in the figure)¹³
- As the circulatory system transports blood, sugar, oxygen, nutrients and wastes within the body, it also distributes heat.

¹³ www.biology.ualberta.ca/facilities/multimedia/uploads/zoology/counter%20current.html. Downloaded on 23.9.14

- Blood is warmed as it passes through metabolically active tissues, and it transfers that heat to superficial structures cooled by contact with the environment.
- Several specific mechanisms have evolved to increase or decrease the efficiency of this heat exchange. The circulatory system thus plays an important role in thermoregulation of the body.
- The effectiveness of heat exchange depends on the rate at which blood passes through a tissue and the surface area of the vessels in contact with that tissue.
- Exchange is therefore more complete in a capillary bed, where fluid moves slowly and the surface to volume ratio of the vessels is greatest.¹⁴

The exchange is also dependent on the time of wudu, where or evaporative cooling (or warming) of water effectively enhances the heat exchange. This is a completion of Allah's Favour onto the Muslims. This is a Prescription for Good Health.

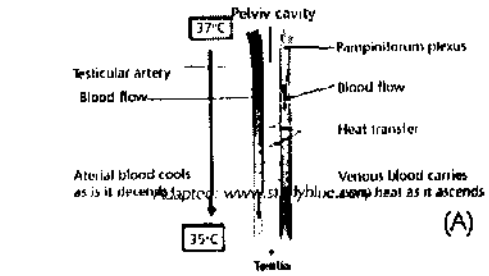
There is an important heat exchanger in both the testes and the ovaries. The use of water in washing the genitals during attahara is of great significance.

Testicular Heat Exchanger

Sperm production or spermatogenesis is extremely sensitive to a rise in temperature. The testicles enclosed within scrotal sacs are kept outside the body because sperm cannot develop if the testes (singular – testis) is at body temperature. The testicular arteries carrying warm blood (at 37°C body temperature) to supply the testes.

¹⁴ <http://healthychristianliving.com/circulatory%20system.html>. Downloaded 19.9.14

Heat Exchange of Pampiniform Plexus



Blood supply in testis aids in cooling

1. Pampiniform Plexus
 - Counter-current heat exchange causes cooling of arterial blood supply
 - Single artery surrounded by a network of veins (increased surface area)
 2. Convoluted testicular artery on surface of the testis
 - Maximizes temperature decrease
 - 4°C before entering testis
- Spermata, but with spermatic cord
Age of spermata in the testis

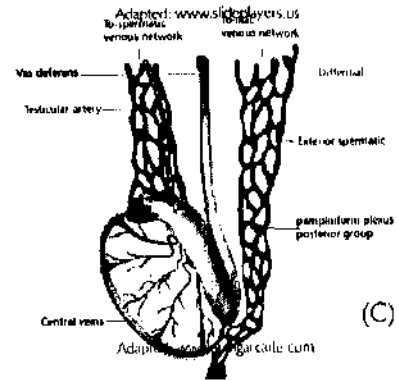
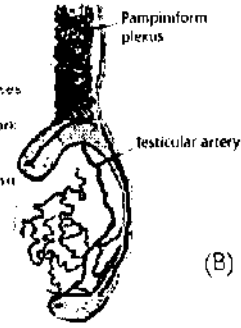


Figure 4.3: showing heat exchange (a to c) in the testicular artery. Washup during tahara enhances the heat exchange boost sperm production.

These arteries are, however, surrounded by a network of veins (carrying cool blood) called the Pampiniform Plexus of veins. This plexus helps to regulate testicular temperature, allowing sperm production and maturation. The pampiniform plexus of veins surrounding the testicular arteries works as a countercurrent heat exchanger system to cool the arterial blood before it enters the testis. (see figure 4.3 a,b and c)

During attahara before Wudu the genitals including the scrotum are washed with cold water, at least, 3 times a day. This cooling effect of water lowers the testicular temperature, boosts sperm production and enhances male potency. The cooling effect also protects the stored sperms in the epididymis from dying. High temperature kills sperms.

The washup during Wudu, therefore, improves male fertility and virility. This is indeed Allah's favour to the Best of Mankind.

Kyla Miller, a Registered Holistic Nutritionist, gave some important benefits of cold showers. Such as increase in Hormone production of, which she explained pertinently. She said:

For example, cold showers can be of great benefit to the reproduction system when trying to conceive a child. A man's testes are not meant to get too hot; that is why they hang outside of a man's body. Sperm counts decrease when the temperature of man's testes increases. In fact, experiments done in 1950s showed that hot baths were in effect contraceptive. Men took a 30 minutes hot bath every other day for 3 weeks were infertile for the next six months.

More recently, the university of California at San Francisco did a study with men who were exposed to 30 minutes of “wet heat” (hot baths, Saunas, and such) a week. When the men cut this exposure out, their sperm went up by 491% and their sperm’s motility improved as well. While switching from a hot to cold shower may not have as a dramatic an effect, if you’re trying to reproduce, it surely won’t hurt.¹⁵

Furthermore, it has been said that cold water therapy helps regulate the endocrine system (including the adrenals and thyroid).

To anyone who is conversant with the tradition of the Educator of mankind the above account is only a scientific explanation of his habit and recommendation of washup after each marital relation, followed by a ritual bath. It is now known that the washup with cold water promotes sperm and testosterone (a male sex hormone) productions. It also probably enhances male virility and potency. So which of the health benefits of Islamic worship will you do?

Attahara and Sperm Production

The testes are paired while organs located outside the body and enclosed in the scrotum. It is the male organ of reproduction kept outside to have the ideal temperature necessary for sperm production in a process called spermatogenesis.

- Each testis is divided or lobulated into 250 to 300 lobules.
- Each lobule contains a tightly convoluted coiled of a thread-like structure called seminiferoustubule, which may exceed 75cm in length if uncoiled. With about 750m of tubules per

¹⁵ <http://www.gudingginstincts.com/10-health-benefits-of-cold-showers.html?m=1>. article by Kyla Miller.
Downloaded 15.8.14

testis, each male has over 1.5km of seminiferous tubules.¹⁶

- It is in this 750m length of seminiferous tubule per testis that spermatogenesis occurs at the rate of thousands of sperms called spermatozoa (singular-spermatozoon) are produced per second – more than 100 million per day – and throughout the life of a healthy sexually mature male.¹⁷
- The optimum temperature for sperm production is 3.6°F below the normal body temperature which is about 35°C or 95°F. Thus the testes enclosed within the scrotum are kept outside the body. This exposes the male organs of reproduction to water frequently during attahara. See figure4.4
- The sac-like scrotum is suspended outside the body and immediately behind the base of the male genital organ. The scrotum serves the following functions:
 - Supports and protects the testes.
 - Regulates the position of the testes relative to the region of the body.
 - Contains numerous sebaceous glands, which produce an oily substance called sebum, to the oily.
 - The sebum protects the scrotal skin and hairs against drying and cracking.
 - The sebum (oily secretion) also acts as waterproof and lubricate the skin of the scrotum.

The scrotum also contains some special muscles called *dartos* (smooth muscle) and *cremaster* (skeletal muscle). These two types of muscles involuntary contract in response to environmental temperature:

- When there is cold and the environment temperature is low, the scrotal muscles contract and the testes are pulled

¹⁶ Ernest W. April, *Clinical Anatomy*, p.456.

¹⁷ Kent M. Van De Graaf, *Human Anatomy*, p.683.

closer to the warmth of the body. In this position the scrotal skin appears lightly wrinkled and the testicular temperature rises to an optimum level for sperm production because of scrotal contact with the body.

- When the environmental temperature is high, sperm production is arrested. The scrotal muscles relaxed and the testes are suspended away from the body. In this position the scrotal sac swings to dissipate heat. The testicular temperature is then lowered to an optimum temperature. Sperm production commences.

In these ways the testicular temperature is maintained within the normal range for sperm production and sperm storage. High testicular temperature over an extended period of time may destroy sperm cells to the extent that sperm count will be too low to enable fertilization. This is one of the causes of infertility in male.

Health benefits of Attahara in the males, through the use of washup:

- It helps to regulate testicular temperature to an optimum level and boost sperm production.
(See figure 4.3 a,b and c)
- It improves fertility by boosting sperm and egg productions.
- It preserves stored sperms in the epididymis.
- Regular scrotal washup prevents accumulation of sebum and bad smell.
- It prevents sebaceous glands blockage and formation of boils around the scrotum.
- Regular washup improves the integrity of the blood vessels of the male genital.
- It is likely to improve male potency and vigor.

- It boosts sperm production through countercurrent heat exchange in the testicular pampiniform plexus of vein.
- It is the recommendation of the great Health Teacher, who said: “When one of you desires to sleep with one of his wives, let him perform the ablution”.
- It was also reported that the great Health Teacher, when he visited his wives in one night, he washed himself after each copulation. He said: “This purer and more pleasing”.
- It is now a scientific fact washing the testes with cold water improves the production of testosterone, (a male sex hormone)
- It has now been established that washup improves hygiene and enhances male potency, that is, “purer and more pleasing”.
- wudu helps maintain the normal testicular temperature at about 35°C (95°F) or about 3.6° F below the normal body temperature.

In the female reproductive system there exists a heat exchanger that is analogous to that of the male. The ovaries also possess heat-exchangers.

Ovarian Heat Exchanger

The ovary is an ovum (egg) producing reproductive organ, that is found in pairs as part of the female reproductive system. Ovaries in female individuals are analogous to testes in male individuals in that they are both gonads and endocrine glands. The ovarian vein drains its corresponding ovary to inferior vena cava or one of its tributaries. It is the female equivalent of the testicular vein, and is the venous counterpart of the ovarian artery.

- The ovarian veins are formed by the network of veins –

Pampiniform plexus of vein. The veins emerge from this plexus in the broad ligament.

- This vine-like network of vessels or plexus communicates with uterine plexus of veins.
- The pampiniform plexus of the ovary is not linked to a temperature regulatory function, but this vital function can be easily deduced:
- Like the testes in males, the ovaries are gonads and endocrine glands in females, temperature is vital to these functions.
- The pampiniform plexus of veins serves a temperature regulatory function in relation to ovarian artery. It is therefore a countercurrent heat exchanger like the plexus in the males.
- The ovaries are located inside the body unlike the testes the temperature requirement is not as sensitive as in the male gonads where it is critical in the spermatogenesis.
- The ovaries of a new born girl contain about 2 million oocytes, this number declines to 300,000 – 400,000 by the time a woman enters puberty. On average, 400 oocytes (eggs) are ovulated or released during a woman's reproductive lifetime.¹⁸
- Each egg is released monthly as compared to sperm production where thousands are produced per second.

The anatomy of a woman genitalia and reproductive organs, though located inside the body, is designed to benefit directly from Islamic washups. In the female anatomy, the uterus a thick-walled, pear-shaped hollow muscular organ, usually lies with its body lying on the urinary bladder. This restricts the bladder from full distension with urine.

¹⁸ K.M Van De Graaf, Human Anatomy, p.710

It can be speculated that this arrangement increases the frequency of micturition (urination) in the female. Consequently, performs more washups in attahara with every micturition.

The cumulative cooling effects of these washups help to keep the female genital clean and also boost the countercurrent heat exchange system in the pampiniform plexus of the ovaries.

It improves female's fertility by improving the functions of the gonad and endocrine glands. Perhaps the pampiniform plexus in the ovaries have a temperature regulatory function through CCHES.

Health Benefits of Attahara in the Female.

The female genital serves the following functions:

- It serves as a canal for menstrual fluid outlet.
- It forms the lower part of the birth canal.
- It receives the male copulatory organ and ejaculation during intimacy.
- It communicates with the cervical canal above and with the vestibule below.

The vestibule of the female genital is the interval or cleft between the labia minora – a pair of thin folds of skin devoid of fat between the two labia majora. The vestibule contains the following orifices or openings:

- Urethral orifice – is an opening for urine passage.
- Genital orifice – lies behind the part of the vestibule.
- There are openings of the ducts of the greater vestibular glands (GVG) or Bartholin's gland. Each gland is about the

size of a bean on each side of the genital opening.

Due to these openings and various types of secretions including menstrual blood and urine, the female genital area calls for proper hygiene to avoid bad odour, especially when the anal opening is close to the genital. The female genital benefits immensely from *attahara*.

Frequent micturition – females pass urine more frequently than the males – they perform *attahara* more frequently to keep the genital clean and free from smell.

- The ovaries, the female organ of reproduction is located in the pelvic area, these organs similarly benefit from the cooling effect of water during *attahara* through the countercurrent heat exchange in the pampiniform plexus of veins around the ovaries.
- Frequent washing (more than 15 times a day) of the genital improves personal hygiene, and prevents bad body odour.
- The cooling effect of water helps to preserve the life span of ejaculated sperms within the genital.
- The washup also improves female fertility.

The various methods of lowering body temperature are used to combat the ill effects of global warming. The health benefits of global warming. Wudu in its thermoregulatory promoting effects can be fully harnessed to mitigate the ravages of climate change as well.



Chapter Five

Wudu and Global Warming Thermoregulation

Global Warming

Global warming is the increase of earth's surface temperature. It is primarily a problem of too much carbon dioxide (CO_2) in the atmosphere –which acts as a blanket, trapping heat and warming the planet.

- CO_2 survives in the atmosphere for long time –up to many centuries. So its heat-trapping effects are compounded over time.
- CO_2 puts us at the greatest risk of irreversible changes.
- Many other heat-trapping gases are released in the air.
- A slight increase in atmospheric levels of CO_2 can cause a substantial increase in the temperature and it tends to remain in the atmosphere for a very long time –time scales in the hundreds of years.
- CO_2 is also said to remain fairly constant and therefore

behave as a controlling factor, rather than a reacting factor.

- The carbon we put in the atmosphere today will determine our climate and that of future generations.

Global warming, is the increase of Earth's temperature due to effect of greenhouse gases, such as carbon dioxide emissions from burning fossil fuels or from deforestation, which trap heat that would otherwise escape from Earth. (See Fig. 5.1)

Climate change is a significant time variation in weather patterns occurring over periods ranging from decades to millions of years.

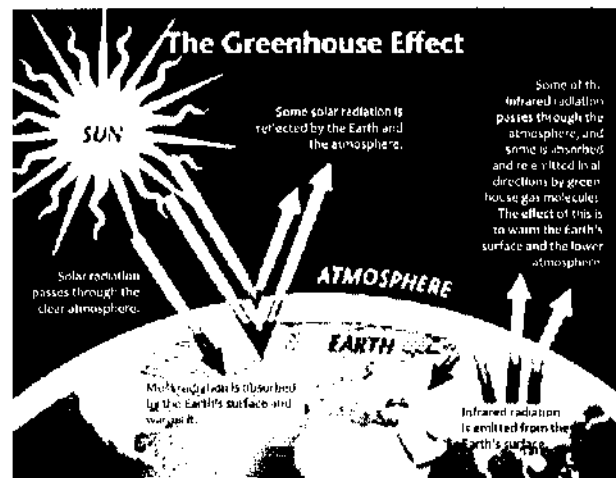


Figure 5.1: Showing the Greenhouse effect. Wudu mitigates the penis of global warming.

Certain human activities have also been identified as significant causes of recent climate change, often referred to as global

warming.¹

Both climate change and Global Warming have harmful effects on the health of humankind. The climate change poses a wide range of risks to population health – the risk that keeps increasing, which causes serious threats on three main categories of health risk, which include:

- Direct – acting effects e.g. due to heat – waves, amplified air pollution and physical weather disasters.
- Impact mediated via climate – related changes in ecological systems and relationship e.g. crop yields, mosquito ecology, marine productivity.
- The more diffuse (indirect) consequences relating to improvement, displacement, resource conflicts (e.g. water) and post – disaster mental problems.²

Global warming also has adverse effects on humans. Here are a few:

- Spread of diseases – warmer northern countries invite disease carrying insects up north, and with them come the disease they carry.
- Deadly disease outbreak – when the warm climate arrives so does the spread of deadly diseases that affect millions of people across the world.
- Warmer climate can also trigger diseases such as avian Flu, tuberculosis, cholera, ebola and skin diseases.
- Deadly heat waves – result in more frequent and severe

¹ America's Climate Choices: Panel on Advancing the Science of Climate Change: National Research Council (2010). Advancing the science of climate change. Washington D.C: the National Academics Press. ISBN 0-309-14588-0. P.1.

² A.J Mc Michael; R. Woodruff; S. Hales (2006). "Climate Change and Human health: Present and future Risks. Lancet 367 (9513): 859-69. Doi 10.1016/S0140-6736(06)68079-3.PMID 16530580.

heat waves resulting in a greater number of heat related deaths.

- Bad Air, Allergy and Asthma – Global warming could increase in a greater number of heat-related death.
- Infectious Disease and water-borne illness outbreaks – warming temperatures, alternating periods of drought and deluges and ecosystem disruption have contributed to widespread of infections like malaria, dengue fever, tick-borne encephalitis and diarrhoeal illness.
- Dangerous weather events – a warmer atmosphere can hold – dumps more moisture, contributing to more intense extreme weather events, which in turn, put people’s lives at risk.³

In whatever conditions the health benefits of wudu are there to help. When the weather heats up, wudu cools it down, and when it cools down, wudu warms it up. The Islamic ritual is also there to help you ward off infections.

Thermolysis

This is the process of heat loss by the body. It involves 3 channels – the skin, lungs and excretion. This loss of heat is through: radiation, conduction, convection, and evaporation. The bodily changes that regulate the exchange of heat between the body and the environment are referred to as physical heat regulation. And wudu is an important factor in this regulation:

1. **Radiation** – due to the difference of temperature existing between the body and the cooler environment, heat is lost from the body by radiation through electro-magnetic waves.

³ www.nrdc.org/globalwarming/Icons/Icons.12sdp

2. **Conduction and Convection** – about 20% of heat is lost from the body through these mechanisms.
3. **Evaporation** – about 25% is lost by evaporation from the body including the lungs.
4. **Insensible perspiration** occurs due to continuous diffusion of fluid from the capillaries of the deeper layer of skin to the dry surface of the skin.
5. **The sweat is vaporized** from the skin surface, which decreases its temperature.

The washup also exploits this property of water that is important to man and animals:

- Water is also remarkable in its extra ordinarily high heat of evaporation.
- It takes, on average, some 600 calories to convert a gram of water into water vapour.
- This value is higher than for any other common substance.
- All endoderms, that is animals that maintain a more or less constant body temperature, are able to do by exploiting molecule in living things.
- It represents some 60% of the weight of the adult human body and as much as 95% of the weight of such delicate, forms as felly fish and embryos.⁴
- water has the highest specific capacity, it therefore take a long time to heat and long time to cool. These effects are

⁴ John Clegg, *Fresh water Life*, Frederick Warne and Co. Ltd., Co. Inc. London and New York (1975) p.5.

due to high specific heat capacity.

- Water takes up a lot of energy with a small temperature rise. This makes water an ideal coolant.
- Water is used to cool down the engine of cars.
- When we have fever, we use cold water bag to help lowering our body temperature.
- Nuclear power plants are usually built in coastal areas when an abundant supply of water is available for cooling reactors.⁵
- Water is used as coolant for car radiators. Due to its high specific heat capacity, it can absorb a large amount of heat energy from the engine of the car, its temperature does not rise too high.
- Hot water bottles are used for fomentation, as the water remains hot in the bottle for a long time in spite of giving off large quantities of heat.
- Land sea breezes: The specific heat capacity of water is about five times more than of sand. It therefore takes a much longer time to heat and to cool with respect to sand.
- During the day, the land cools faster than the sea. The hot air from sea rises while the cool air from the sea moves to take its place, giving rise to a sea breeze.
- During the night, the land cools faster than the sea. The hot air from the land moves to take its place, giving rise to land breeze.⁶

⁵ <http://www.phy.org/contextual/heat/top/temch03-e.html>. 15.9.14

⁶ <http://www.preservearticles.com/201001223158/high-specific-heat-capacity-of-water.html>. Dated 15.9.14

Every chemical reaction in a cell occurs in a medium of water. Every ritual of Islam uses water. Hence water symbolizes Islam. Water cures. Islam cures. According to The Water Cure (TWC) advocates:

Our life, our planet. Over 70% of the earth's surface is water.

You are not just what you eat; you are what you drink. This is why water is so important to you.

What is the basis of all life and that includes your body. Your muscles that move your body are 75% water; your blood that transport nutrients is 82% water; your lungs that provide your oxygen are 90% water; your brain that is the control centre of your body is 76% water; even your bones are 25% water.⁷

Every living this is from water. Islam symbolizes water which means a healthful living. Thus to be out of Islam, is to be like a fish out of water. It helps you cope with the ravages of global warming. Frequent dehydration is one of the ill-effects. Wudu is your drinking time.

Wudu : A Drinking Time.

To cool your 'radiator' drink to beat dehydration during every wudu period. The ablution time, is a Drinking Time; so drink your way to good health. Fluid losses occur continuously from: skin evaporation, breathing, urine and stool.

Keep your water balance by drinking at least a sachet of water (500ml) during each ablution.

⁷ <http://www.water-cure.com>

Watch out for the signs of dehydration, these include:

1. Constipation

- Water absorption is required for healthy bowel movements.
- In dehydration colon contractions slower, less water is absorbed, and stool becomes hard and dry.

2. Skin Loses Elasticity

- Pinch test: when the skin is pinched, it bounces back very fast.
- In dehydration the skin returns slowly.

3. No More Tears

- loss of tears is sign of serious dehydration

4. You're Parched

- Feeling of thirst
- Dry mouth and throat
- Tongue becomes parched and swells.

5. Muscles Cramp

- Low sodium and potassium
- Painful muscle spasms.

6. Overheat

- Dehydration and overheat
- Danger of heatstroke

7. Heart Rate Increase

- Dehydration causes low level of electrolytes.
- Palpitations (or spasms) in muscle heart

8. Sudden Light Headedness

- Blood pressure drops due to dehydration
- Dizziness follows often if you stand up too quickly – orthostatic hypotension.

9. Urine Appears Dark Yellow.

- Concentrated dark yellow urine.
- Blood pressure falls
- Kidneys attempt to store water instead of expel it.

10. Fatigue Sets In

- Blood flow and blood pressure due to lack of H₂O and O₂.
- Muscles and nerve functions burn out.

Make effective use of ablution time. It is your drinking time. So slake your thirst.

Health Benefits of Drinking Water

1. Water Helps your Kidney

- Body fluids transport waste products in and out of cells. The main toxin in the body is blood urea nitrogen, which excreted in the urine by the kidneys.
- Kidney cleanses the body of toxins as long as fluid is

adequate.

- When there is enough fluids, urine concentration, colour and colour increase because the kidney trap extra fluid for bodily function.

2. Water Helps Maintain Normal Bowel Function.

- Adequate hydration keeps things flowing along the gastrointestinal tract and prevents constipation.
- Inadequate fluid makes colon pulls water from stools to maintain hydration – and the results is constipation.

3. Water Helps Energize Muscles.

- Cells that don't maintain their balance of fluids and electrolytes shrivel, which can result in muscle fatigue.
- Drinking enough fluid is important when exercising.
- Drink water at regular intervals to replace fluids lost by sweating.

4. Water Helps Keep Skin Looking Good.

- Skin contains plenty of water, and functions as a protective barrier to prevent excess fluid loss.
- Dehydration makes your skin looks dry and wrinkled, which can be improved with proper hydration, when kidneys take over and excrete excess fluid.
- When you're low on fluids, the brain triggers the body's thirst mechanism. You should listen to those cues and get yourself a drink of water, juice, milk, coffee – anything but alcohol.

5. Water can Help Control Calories.

- Water does not have any magical effect on weight loss, substituting it for higher calorie beverages can certainly help.

6. Water Helps Maintain the Balance of Fluids.

- The kidney is composed of 60% water. The functions of these bodily fluids include: digestion, circulation, creation of saliva, transportation of nutrients, and maintenance of body temperature.
- Through the posterior pituitary gland, the brain communicates with the kidneys and tells it how much to excrete as urine or to hold onto for reserves.

7. Stay Slimmer with Water

- Water revs up your metabolism
- Drinking cold icy water helps amp up metabolism – your body must work to warm the water up, burning a few extra calories in the process.
- Replace calorie-filled beverages with water, and drink a glass before meals to help you feel fuller.

8. Water Boosts your Energy

- If you feel drained and depleted, get a pick-me-up with water.
- Dehydration makes you feel tired – beat it by drinking water.
- Right amount of water will help your heart pump you blood more effectively.
- Water can help your blood transport oxygen and other

essential nutrients to your cells.

9. Lower Stress with Water

- About 70% to 80% of your brain tissue is water. If you're dehydrated, your body and your mind are stressed.
- If you're feeling thirsty, you're already a little dehydrated.
- To keep stress levels down, keep a glass of water at your desk or carry a sports bottle and or sip regularly (or 500 ml at wudu time).

10. Build Muscle Tone with Water

- Drinking water helps prevent muscle cramping and lubricates joint in the body.
- When you're hydrated, you can exercise longer and stronger.

11. Nourish your Skin

- Fine lines and wrinkles are deeper when you're dehydrated. Water is nature's own beauty cream.
- Drinking water hydrates skin cells and plumps them up, making your face look younger.
- It also flushes out impurities and improves circulation and blood flow, helping your skin glow.

12. Stay Regular with Water

- Along with fibre, water is important, for digestion.
- Water helps dissolve waste particles and passes them smoothly through your digestive tract.
- If you're dehydrated, your body absorbs all the water, leaving your colon dry and making it difficult to pass waste.

13. Water Reduces Kidney Stones

- The rate of painful kidney stone is rising. One of the reasons could be because people – including children aren't drinking enough water.
- Water dilutes the salts and minerals in your urine that form crystal known as kidney stones.
- Kidney stones can't form in diluted urine, so reduce your risk with plenty of water.

14. Are you Drinking Enough?

- Most healthy adults get enough to drink by letting their thirst guide them.
- But extra amount you take depends on your size, level of activity, the weather and your general health.
- You may need more water if you exercise or sweat heavily.

15. Boosts Immune System

- A water guzzler is not likely to get sick all the time.
- Drinking plenty of water helps fight against flu, cancer and other ailments like heart attacks.

16. Improves Skin Complexion

- Moisturizes your skin, keeps it fresh, soft, glowing and smooth.
- Gets rid of wrinkles.
- It's the best anti-aging treatment around.

17. Remedies Natural Headache

- Helps relieve and prevent headaches (migraines and back pains too!) which are commonly caused by dehydration.

18. Prevents Cramps and Sprains

- Proper hydration helps keep joints lubricated and muscles more elastic so joint pain is less likely.

19. Puts you in a Good Mood

- When the body is functioning at its best, you will feel great and be happy!

20. Save Money

- Water is FREE! Even if you choose bottled/filtered water (or pure water-500 ml), its STILL cheaper than that high sugar and fat-filled latte.

21. Prevents Heart Attack

- A study conducted in the Loma Linda University in California, involving 20 men and women in the age range of 38 – 100 years, concluded that those who drank enough water throughout the day were less likely to have a heart attack (41% in women and 54% in men).
- Hence, it can be suggested that if you substitute water with milk, coffee, or other beverages then you will have increased chances of incurring a heart attack, with a precise rate of 50% in women and 46% in men.

22. Prevents Cancer

- Research suggests that drinking substantial amount of water is likely to reduce the risk of bladder and colon cancer. This is because water has the ability to dilute the concentration of cancer-causing agents in the urine and reduce the time they take to come in contact with the bladder lining.

23. Normalizes P^H

- The human body needs a neutral P^H 7.0 range in order

to function properly. Drinking water throughout the day helps maintain this balance.

24. Prevents Pimples

- Water does flush out certain toxins in the body that can cause the skin to inflame, which results in clogged pores and acne. This reduces the risk of pimples.

25. Sickness Fighter

- Water may help with decongestion and dehydration, helping the body to bounce back when feeling under the weather.

26. Brain Boost

- A study in London found a link between students bringing water into an exam room and better grades.
- Suggesting H₂O promotes clearer thinking. While its unclear if drinking the water has anything to do with a better score, it doesn't hurt to try it out!.
- Water helps you think. Your brain is made up of 75% water, so drinking more water gives your brain more fuel to operate on.

27. Body Temperature

- Much of the human body is made up of water and this fluid is responsible for the regulation of body temperature.
- We undergo perspiration to dissipate the excess heat in order to lower our temperature.
- This temperature regulator property has been attributed to water as well.

28. Osteoporosis

- According to the research conducted by the Linus Pauling Institute, individuals drinking adequate amounts of water have reduced risks of osteoporosis and hip fractures.

29. Breathing

- Water plays its role in distributing oxygen all over the human body while collecting the carbon dioxide from all these parts and dissolving these gases.

30. Metabolism

- Water is the carrier of oxygen, nutrients, and hormones to the body's parts and also provides a medium for the removal of toxins, dead cells, and waste materials.
- The proteins and enzymes involved in various fundamental processes also require water for their functioning.

31. Backaches

- The back of our body rests on the spinal cord. The spinal core is made up of a large volume of water.
- Dehydration leads to back pain in many individuals.

32. Cardiovascular Disease

- Water can prevent cardiovascular disorders to a large degree.
- It maintains proper viscosity of blood and plasma and fibrinogen distribution.
- Therefore, adequate hydration of vascular components is advisable.

33. Rheumatoid Arthritis

- Joints in the human body are prone to continuous friction and weathering.
- These can be maintained in proper shape by the intake of proper amount of water.
- A decrease in water consumption may lead to rheumatoid arthritis.

34. Pregnant and Nursing Mothers.

- A pregnant woman carries a new life in her womb that develops from her body's resources.
- A nutrients and other factors needed for its growth can be carried from mother to fetus via blood, which in-turn needs water.
- Consumption, bladder infections, and hemorrhoids are common during pregnancy and these can be avoided by drinking excess water during these periods.

35. Skin Tone

- According to the University of Minnesota, skin may get affected by frostbite and blisters.
- It has been established that proper water levels in the body prevent the body from experiencing dehydration.
- This in-turn maintains the turgidity of the skin.
- A number of skin problems can be prevented by drinking adequate amounts of water.

36. Others

- A number of disorders are related to water deficiency: constipation, heartburn, migraine and gastritis and ulcers.

- All can be prevented by drinking modest amounts of water routinely.
- Remember your wudu time is your drinking time!

This Islamic rituals assists the innate body's mechanisms to combat the ill-effects of global warming. Wudu utilizes the magical properties of water to help you combat global warming more effectively.

The central cooling system of ablution begins by *masah* - wiping the head with wet fingers.

Wudu and Wiping the Head

It was Trotter who pointed out that the arrangements of the integuments (skin) of the scalp is similar to that on the palms and the sole of the feet, i.e., the skin is bound to adjacent aponeurosis (a fibrous or membranous sheet) by a densely fibrous tissue.

- In the scalp, the main vessels and nerves run between the skin and the aponeurosis, whereas in the hands and the feet the palmar (hand) and plantar (sole) vessels lie deep to the aponeurosis.⁸

⁸ D. J. Du Plessis, A Synopsis of SURGICAL ANATOMY, p. 1.

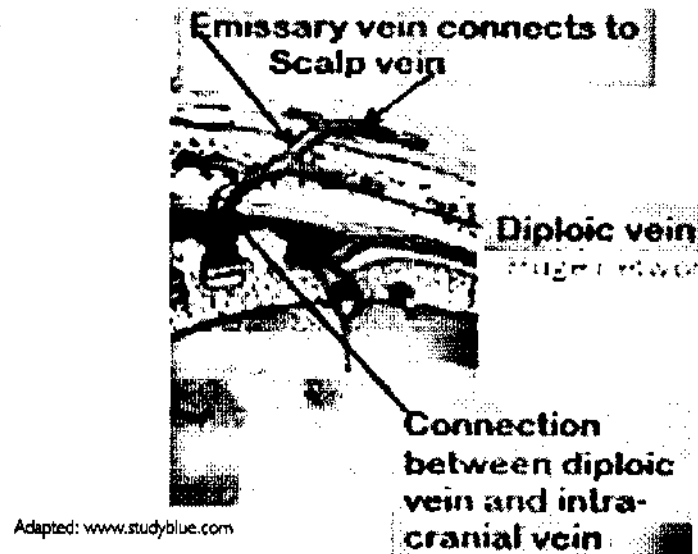


Figure 5.2 A section of showing scalp. The evaporative cooling of wudu is transmitted to the brain via the emissary and diploic veins.

This anatomical difference reveals Allah's Great Wisdom in His recommendation of wiping the head (scalp) and washing the hand (palm) and foot (including the sole).

This subtle difference between where to apply wiping and where to apply washing can only be made by Allah (SWT) the Creator of man.

It is an application of great ingenuity, to provide cooling effect and cleanliness without any adverse effect. This is indeed one of the miracles of Islamic washup.

The role of wudu in enhancing the cooling system of the brain is very significant. It sends an evaporative cooling effect of water to the brain at a regular interval and through several channels of emissary veins. These special veins transmit the

cooling effect to brain via cavernous sinus and suboccipital venous plexus.

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Chapter Six

Wudu and Brain Cooling System

THE CAVERNOUS SINUS

Facial washup is central to ablution, which has a number of health benefits. Washing of the face cools the cavernous sinus, which in-turn cools the brain.

The importance of this sinus in this cooling system is considerable. Its role therefore cannot be over emphasized.

The cavernous sinus, is a large venus plexus (network of veins), located inside the brain. It lies by the side of sphenoid bone, extending from the superior orbital fissure to the petrous sinus and receives venous blood from: ophthalmic vein, central vein of retina, middle and Inferior cerebral vein, emissary veins from the deep face and the neck, it drains into the superior and inferior petrosal sinuses.

These emissary veins benefit directly or indirectly from the cooling effects of ablution. The cooling effects impact positively on the contents of the cavernous sinus, which include:

- Carotid artery and a nerve called Abducens, which gives a nerve supply to an eye muscle called Lateral rectus. The two run through the sinus.
- Cranial nerves: Oculomotor, Trochlear plus two of the three divisions of the trigeminal nerve are embedded on the outer side or lateral side of the sinus.
- The reason why wudu directs this sinus is because of the internal carotid artery.
- This artery carrying warm blood from the body's core temperature traverses the sinus with cooler blood returning from the capillaries of the body's peripheral or outside temperature, allowing for heat exchange to conserve energy or cool the artery.¹

This countercurrent heat exchange is reinforced by the regular washup cooling effects through the emissary veins. The net effect is the cooled internal carotid artery which supplies the brain with blood with optimum temperature.

Because the ophthalmic veins drains a small area of the face through connections with the angular facial vein, and emissary veins communicate with the visceral region of the neck, infections in these areas may spread into the cavernous sinus.²

- There is good link between the brain and the emissary veins of the face that collegate with the brain.
- Face is also an important link with the brain through the paranasal sinus and the carvenous sinus.

¹ K.L. Moore, A.F Dalley and Anne M.R Agur, *Clinically Oriented Anatomy*, Sixth Edition, p.869.
² Ernest W. April, *Clinical Anatomy*, p.516.

The beauty of the Islamic ablution is in the regular washing of the face. It gives a beautiful look and also cools the brain.

Wudu and Face Region

The veins of the face accompany the arteries. There are special veins called emissary veins which make connection to the cavernous sinus that have been explained already.

- The facial vein receives tributaries that correspond to the branches of the deeply placed pterygoid venous plexus (a network of veins located inside the skull) by the deep facial vein.
- The pterygoid venous plexus is connected to cavernous sinus by 3 emissary veins.
- Thus the facial vein is connected to cavernous sinus by two routes: one through the superior ophthalmic vein and the other through the pterygoid venous plexus.

The washup also sends a cooling effect to the pterygoid plexus of considerable size, and is situated between the temporalis muscle and lateral pterygoid muscles.

It receives veins from the corresponding branches of the maxillary artery. It receives about 10 veins from different areas of the face. It also has a connection with anterior facial vein, and also communicates with the cavernous sinus.

Therefore the pterygoid plexus is also important in that it distributes the cooling effect of the Islamic washup to many important structures of the brain and neck.

The cooling effect of evaporation of water is 540 calories/gm but is even larger, 580 cal/gm at the normal skin temperature.

If a part of a liquid evaporates, it cools the remaining behind because it must extract the necessary heat of vaporization from the liquid in order to make the phase change to the gaseous state. It is therefore an important means of heat transfer in certain circumstances, such as cooling of the human. When it is subjected to ambient temperature above the normal body temperature.

Because of the large heat of evaporation of water, the evaporation from a liquid surface is very effective cooling mechanism.³ This mechanism explains the reason why you feel the cooling effect of ablution permeates through you body as you wash your face. The Islamic washup uses the evaporative cooling of water to cool the dangerous area of your face.

The important point that is highlighted here is that due to these special veins called emissary veins which link the veins that are outside the skull with the veins inside the skull infections can spread through these veins into the brain. Therefore these veins within can be cooled through these veins from outside.

Their existence, therefore give the face a Dangerous Area. The area can transmit infection through these special veins to the brain. The triangular area of facial area including the upper lip, nose and medial (or inner) angles of the eye is considered as Dangerous Area of face.

To reiterate, infection can spread through this area to cavernous sinus.⁴ This can lead a very fatal infection called cavernous sinus thrombosis.

³ <http://hyperphysics.phy-astr.gsu.edu/hbase/thermo/sweat.html#c2>. Dated 27.9.14

⁴ Kariman El-Gohary, et al. *Anatomy of the Head and Neck for Medical Students*. El-Nagah Office Press, p.5.

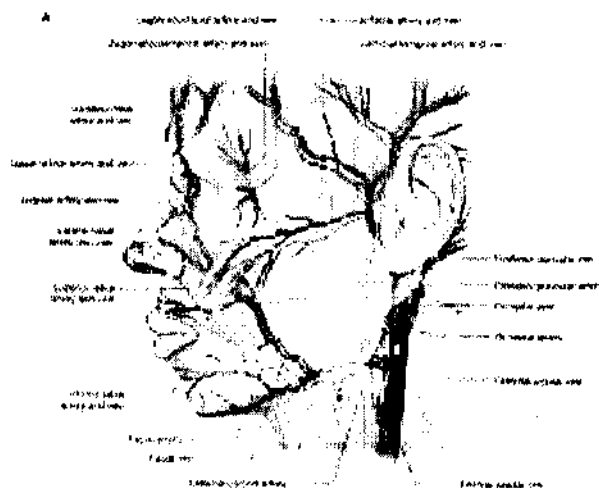


fig 6.1: showing the various blood vessels that receive cooling effect of wudu after facial washup.

The face extends from the hairline to the chin and from one ear to the other ear. The forehead is common to both the scalp and the face. Some important facts to note about the face include:

- The skin possesses numerous sweat glands. It is prone to profuse sweating and accumulation of dirt and bacterial and fungal growth.
- The skin contains plenty sebaceous (oily) glands; it is prone to oily secretions and boils called acne. To keep the skin clean and less oily requires regular facial washups.
- The face has a rich blood supply – to the facial region. It is also rich with sensory and motor nerve supply, which

makes the skin very sensitive to touch.

- The face contains about 43 different muscles of the face for various facial expressions, making it one of the most complex signal systems available to humans.

Face is an area that is exposed openly to dust; it is therefore prone to infection because of sweats and prone to boils because of sebaceous glands. The importance of regular facial washup can never be over-emphasized. In anatomy, the face is divided into four regions:

- The *ocular region*, which includes the eye and associated structures.
- The *auricular region*, which includes the eye.
- The *nasal region*, which includes the external and internal structures of the nose.
- The *oral region*, which includes the mouth and associated structures.

This 'face region' from the standpoint of ablution consists of the following structures:

- **Eyebrow:** ridge of hair that arches above the eye. It protects the eye against sunlight and is important in facial expression.
- *This area is regularly washed. The trapped dust particles, pollens and dirty materials are washed away to make the eyebrow clean and beautiful.*
- **Eyelids:** these are the movable folds of skin and muscles that cover the eyeball in front; they assist in lubricating the front surface of the eyeball and reflexly close (close) to protect the eye.

- The upper and lower eyelids are washed to remove dust particles. The water also assists in cleaning and keeping the eyelid soft and mobile.
- Eyelashes: these are hairs on the margins of the eyelids. They prevent airborne particles from contacting the eyeball.

Ablution washes away these trapped airborne particles to keep the eyeballs free from dust pollens and other foreign bodies.

- Conjunctiva: these are thin mucous membranes that cover the front surface of the eyeball and line the under-surface of the eyelids. It aids in reducing friction during blinking.

Water washes away dust and foreign bodies to keep the conjunctiva free from infection called conjunctivitis, which is commonly caused by contamination of the eyeballs with dust containing germs.

The washup also assists in keeping the mucous membrane soft and watery to reinforce reduction of friction during blinking.

- Sclera: This is the outer fibrous layer of the eyeball; the “white” of the eye that gives form to the eyeball.
- The structure benefits from the regular cooling effects of wudu.
- Cornea: The transparent portion in front of the eyeball. It is slightly convex to reflect incoming light waves.

It is regularly kept clean, moist and free from infection during wudu.

These wash-ups regularly wash away dust and irritants at regular intervals that are trapped around the eyes before they reach the eyeball.

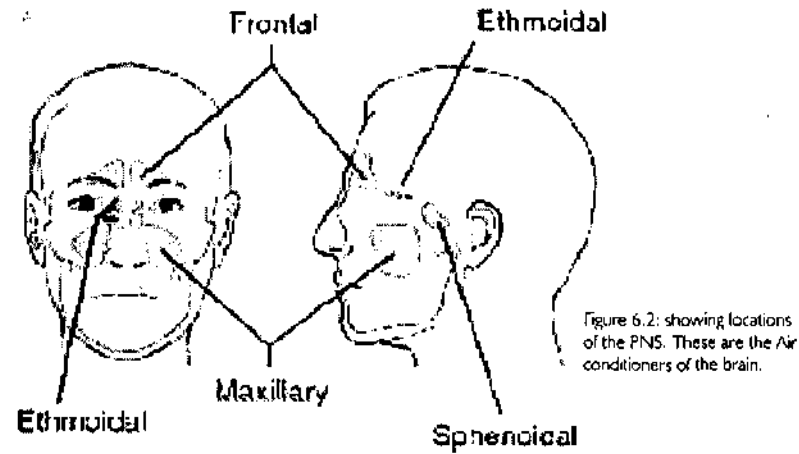
Wudu, through the cooling and moisturizing effects of water, helps to reinforce and revitalize the functions of the eyelids through which we blink.

The face region is important because of the location of “Air conditioners” of the brain located within the skull bones.

Wudu and Air Conditioners of the Brain

The Paranasal Sinuses (PNS) are a group of 4 paired air-filled spaces that surround the nasal cavity, and are named according to their bones of location namely: ethmoidal, sphenoidal, frontal and maxillary sinuses. They are located thus:

- Maxillary – surround the nose
- Frontal – above the eyes
- Ethmoidal – in between the eyes
- Sphenoidal – behind the ethmoids. (See figure 6.2 below)



Each sinus has an opening called an *Ostium*, which connects the nose. The sphenoidal air sinus located within the sphenoid bone is in proximity to the cavernus sinus and pituitary gland. The PNS are believed to serve the following functions:

- Air conditioning
- Pressure damping
- Reduction in skull weight for better balance
- Heat insulation
- Floatation of the skull in water
- Increasing the Olfactory (sense of smell) area
- Increase vocal resonance and diminution of auditory feedback
- Provide a buffer against blow to the face thus serve as

crumple zone to protect vital structures in the event of facial trauma.

- Insulating sensitive structures like dental roots and eyes from rapid temperature fluctuations in the nasal cavity.
- Immunological defence.

From these important functions of the PNS, the health effects of Wudu are therefore easily discernible:

- Water washes the external surface of the PNS and the nose.
- During instinshaq and istinthaq, washes internal surface of the nasal chamber. It clears the crusted mucus pathogens and washes the ciliary system.
- Regular Wudu stimulates and strengthens NALT – nose associated local immune tissue.
- Use of water during istinshaq and istinthaq reactivates the mucociliary system by providing it with dissolved oxygen.
- It clears the lower nasal passages and improve ventilator function of the nose and PNS.
- It improves the productive capacity of the Goblet cells and the quality of mucus secretion.
- Wudu is the simplest, safest, cost effective way of maintenance of nasal hygiene.
- It enhances all the physiological functions of PNS
- It helps regulate nasal and paranasal fluctuations of temperature.

- The evaporative cooling effects of water enhances the air conditioning of the PNS.

There is yet another vital function of the PNS, which Wudu improves – the air cooling effects of the PNS. This is a subject of considerable importance because it reveals one of the secrets and miracles of Wudu.

Cooling Function of PNS

A. C. Gallup and G. D. Hack in a study have shown that the paranasal sinuses that have been regarded as warmers of respiratory “air”, they are in actuality “coolers” of the lower respiratory airway. The authors, in the abstract of the study stated:

For one, the paranasal sinuses have been regarded as warmers of respiratory air, when in actuality these structures appear to function in cooling the blood. In fact, human paranasal sinuses have been shown to have higher volumes in individuals in warmer climates, and thus may be considered radiators of the brain. The literature suggests that the transfer of cool venous blood from the paranasal sinuses to the dura mater may provide a mechanism for the convection process of cooling produced by the evaporation of mucus within human sinuses. In turn, the dura mater may transmit these temperature changes initiated by the cool venous blood from the heat – dissipating surfaces of the sinuses to the cerebrospinal

fluid compartments.⁵

The literature that supports the transfer of cool blood from the paranasal sinuses to the brain. It corroborates my hypothesis on the PNS as “air conditioners - coolers” of the brain rather than “warmers” of the inspired air. In my book *MEDICAL Benefits of Islamic worship, Book1* – in 2004, I posited that:

- The sinuses are, however, located in such a way that they can be influenced by the regular conditioning effects of wudu. It improves the moisturising and resonating function of the air spaces.
- This air conditioning is particularly significant in the sphenoidal sinuses which contains the sella turcica that houses the pituitary gland, a very important endocrine gland.
- When the air spaces become warmer due to the increased external temperature, the internal organs surrounding the air spaces also become warmer. This increase in local temperature especially in the brain and other vital organs impair their normal functions.
- However, with regular wudu, which involves the use of cold water (in a hot weather or warm water in a cold weather) help to decrease the rising temperature (or increase it).

Thus the importance of air conditioning effect of wudu to the pituitary gland and to the vital organs of the face cannot be emphasised.⁶ Evidently the PNS provide some cooling to the

⁵ Galkup AC, Hack GD., Human Paranasal sinuses and selective Brain cooling: A ventilation system by yawning? <http://www.ncbi.nlm.nih.gov/pubmed/21906886>. Dated 28.6.14

⁶ Yusuf Nadabo, Medical Benefits of Islamic Worship, Book 1, pp 443- 444

brain which is enhanced by regular wudu.

The Islamic washup uses its deep secrets to enhance the cooling of the brain.

Brain Cooling System

The brain is extremely sensitive to temperature fluctuations. Additionally, an active brain may produce a significant amount of waste energy. The mechanisms by which the brain improves its cooling system, include:

- The internal carotid artery typically passes through the walls of the cavernous sinus, one of the dural sinuses surrounding the brain. This increases the effectiveness of heat exchange.
- As the cavernous sinus receives blood from the face via the ophthalmic vein, its ability to cool the carotid artery is that much greater.
- Blood from the upper respiratory tract may drain the sinus. Inspiration especially cools this blood in order to warm air going to the lungs.
- The evaporation of human perspiration from the face and scalp provides another mechanism for cooling blood. This surface blood then may enter the cranial fossa to mingle with blood in the cavernous sinus and other dural sinuses instead of via the external jugular vein.
- The variable communications between the dural sinuses and external veins are called emissary veins in these connections.

- The consistent pairs of these pass through parietal foramina on either side of the sagittal suture.
- Other conspicuous canals for emissary veins are sometimes found at the base of the occipital bone.
- Human upright posture may use gravity to facilitate the flow of blood from the brain. In addition, to the internal jugular vein, a plexus of veins in the vertebral canal drains the cranial fossa.
- The combination of emissary connections to the perspiration – cooled skin with gravity – driven siphon of the vertebral plexus is highly effective in cooling the human brain.
- It has been argued that the achievement of this “radiator” mechanism overcame thermal barriers that limited brain size and permitted its further expansion in hominids.⁷

The salient points discussed in this account on Brain cooling system, included:

- Cavernous sinus receives cool blood from the face via the emissary veins.
- Internal carotid artery is one of the blood vessels that supplies the brain. It carries warm from blood from the core of the body.
- When the internal carotid artery is cooled in the cavernous sinus, it supplies cooled blood to the brain.
- Blood from the respiratory tract may drain the cavernous

⁷ <http://healthychristianliving.com/circulatory%20system.html>. Downloaded 19:9:14

sinus. This means that if the respiratory tract is cooled the cavernous sinus is eventually cooled. This, in turn, cools the brain via the internal carotid artery.

- Evaporation of human perspiration from the face and scalp provides another mechanism for cooling the blood, supplying the brain cooling via the emissary veins.
- These veins called emissary veins connect with the veins inside the skull and may transmit cooling effect to the dural sinuses surrounding the brain.
- The cooling effect of the emissary veins and cooling effects due to perspiration on the vertebral plexus (network of veins around the neck) provide a highly effective cooling of the human brain.

Hence with the above facts kept in your mind, I will then lead you to one of the miracles of wudu in the prevention of central nervous system diseases. For the brain to function normally, it has to be kept at a lower temperature than the body core temperature 2°C to 3°C celsius.

Any rise of temperature that is 3°C celsius above the 37°C body temperature, the brain heats up. And prolonged increased in the brain temperature may result in CNS disorders - such multiple sclerosis and Parkinson's disease.

The body there uses a number of mechanisms to prevent the brain from over-heating. Some of these methods of cooling the brain are described above.

Now let us see how wudu provides an effective enhancement of the above mentioned brain cooling mechanisms:

- When you wash your face during wudu; the water provides an evaporative cooling effect to the cavernous sinus, indirectly through the emissary veins that are located beneath the skin of the face and scalp. This cooling effect is transmitted to the brain through the internal carotid artery. At a regular interval you wash your face 3 times making a total facial washup up to at least 15 times per day.
- A Muslim also uses the cooling effect of water when the skin above the surface of the emissary veins is washed regularly and frequently. These emissary veins are located on the scalp, face and behind the ears - areas that are frequently washed with water.

The cumulative cooling effects of the emissary veins are sent to the brain via the dural sinuses surrounding the brain.

- The facial washup at regular intervals keeps the internal carotid artery cool, making it to regularly supply the brain with cooled blood.
- The respiratory tract is also washed in two ways: facial washup, which include the surface of the nose and sniffing of water-*istinshaq* and *istinthar*. These two methods provide an effective cooling to the brain via the cavernous sinus.
- Generally, the evaporation of sweat from the face and scalp provides another cooling mechanism. In addition, to the evaporative cooling effect of sweat or perspiration, a Muslim uses the additional evaporative cooling effect of wudu. He uses water to wash his face and wet his scalp. Thus the additional cooling effect is enormous.

- Lastly, the vertebral plexus located around the upper part of the neck is regularly kept cool by wudu. When you wipe your neck with water during wudu, what you do in effect, is cooling of the vertebral plexus, which is highly effective in brain cooling.

Every Muslim uses the general mechanisms of brain cooling but in addition, he also harnesses the special or deep secret of wudu mechanisms to effectively enhance the brain - cooling system. This additional cooling effect is partly responsible for the reduction of many CNS disorders amongst the Muslims.

I therefore hypothesize that wudu is an effective prevention against CNS disease. The work of Dr. Michael Flanagan provides a strong support for my hypothesis.

Brain cooling and CNS Diseases

Dr. Michael Flanagan in his book: *The Downside of Upright Posture, The Anatomical Causes of Alzheimer's, Parkinson's and Multiple Sclerosis* has made an important discovery link between upright posture in the human beings and some neurodegenerative diseases seen in the aging adults. This 'link' is the cervical spine especially the upper cervical spine and the base of the skull – which contains key circulatory routes for blood and cerebrospinal fluid flow entering and exiting the brain.⁸

⁸ <http://www.upright-health.com/brain-cooling.html>. Downloaded 16.8.14

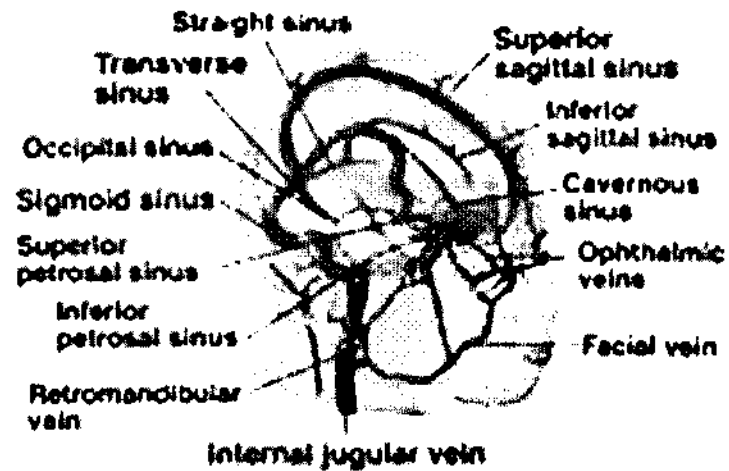


figure 6.3: showing the various venous sinuses that receive the cooling effects of the emissary veins to cool the brain after each wudu.

His work also strongly suggests that the cause of some neurodegenerative diseases can be linked to decrease cooling capacity of the brain and thus contribute to the heat intolerance seen in many patients with multiple sclerosis – one of the neurodegenerative diseases.

In effect the neurodegenerative diseases are caused by:

- Misalignment of the upper cervical bones, which affect the flow of cerebrospinal fluid, which can affect brain cooling. This also disrupts the countercurrent heat exchange system in the vertebral venous plexus.
- Additionally, the cavernous and suboccipital cavernous sinus (atlantooccipital membrane) also serve as *counter-current heat exchangers*.
- Improving the cooling effect of the venous sinuses around

the neck as we regularly do with water during wudu is likely to effectively enhance the brain's cooling effect thereby preventing some of these CNS disorders. This is a discovery of one of the miracles of wudu.

Wudu Prevents CNS Diseases

Dr. Fanagan explained another important role of the Vertbro venous plexus (VVP). He said:

The other role some of the emissary veins play is in draining the head and brain during upright posture. In particular... the ones located toward the back and bottom of the skull, as well as behind the outline of the ear, all drain into the vertebral veins of the spine. The emissary veins that are used to increase the capacity of the brain during upright posture empty into the internal and external veins inside and outside the spine and spinal canal. The vertebral veins thus help to transport heat away from the brain.⁹

- The suboccipital cavernous Sinus, which is also known as the atlanto occipital membrane as depicted exchanger.
- It is located just outside the skull between the first cervical vertebra and the occipital bone at the base of the skull.
- Although it is outside the skull, the suboccipital cavernous sinus is constructed of nearly identical materials, in the exact same way and serves same functions to the cavernous sinus.
- For this reason, some scientists now consider the

⁹ <http://www.upright-health.com/braincooling.html>. Brain and the Cranial veins.

suboccipital cavernous to be part of the intracranial dural sinuses of the brain.

- The vertebral arteries pass through the suboccipital cavernous sinus, which cools the blood before it enters the brain.
- The suboccipital cavernous sinus is cooled by scalp and emissary veins.¹⁰

Further, in a remarkable divine injunction, ablution cools the scalp, the emissary veins of face, behind the ear and upper part of the neck. Consequently, the evaporative cooling effects of the ablution effectively enhance the cooling system of the brain. (See figure 6.4; 6.5; 6.6 below)

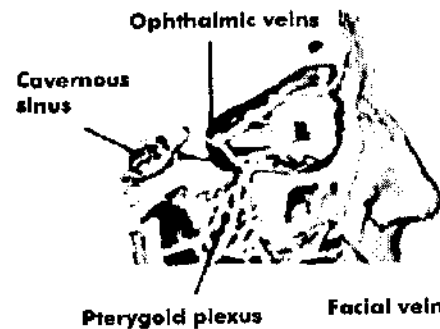


Figure 6.4: showing major veins that receive the cooling effects of wudu to enhance the brain cooling system.

¹⁰ Ibid

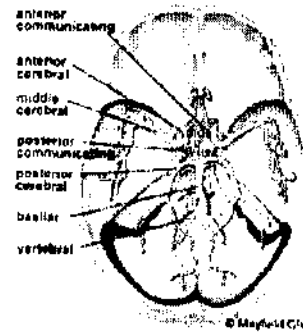


Figure 6.5: Showing the main arteries supplying the brain

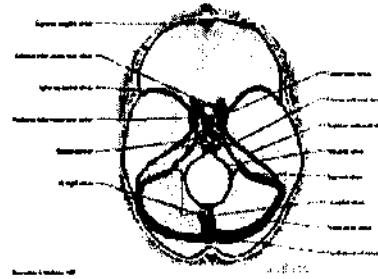


Figure 6.6: showing the veins that drain the brain carrying cooled blood as they descend to the heart. As the arteries carrying warm blood ascend from the heart to supply the brain they give off heat to the veins by counter-current heat exchange.

Until recently, the surgical and anatomical details of suboccipital area (upper part of the neck) have not been given clinical attention. This area, however, has for over 15 centuries, a place of emphasis during Wudu. If any small portion of the ear (in and around at), the mastoid areas and upper part of the neck (suboccipital area) is left dry without wetting, it vitiates the washup forthwith.

- It is mandatory to regularly keep these areas wet and clean – to rid them of dirt and infection.
- Unwittingly the Muslims have been receiving health benefits in addition to spiritual boon.
- Wudu provides a steadily flow of coolness to the brain –

the command and control centre of the body.

- It is also recommended to keep the head on the neck-like an eagle of a flagpole, which is to keep the vertebral column erect and straight – a normal upright posture.
- Thus the Muslim world is, as a result, saved from many diseases – neurodegenerative diseases that afflict most of the non-Muslim countries.

A misalignment in the cervical vertebrae sets the stage for the development of various neurological disorders, which include:

- Alzheimer's disease
- Parkinson's disease
- Multiple sclerosis
- Migraine headaches
- Seizure disorders
- Transient ischaemic attacks (mini strokes)
- Normal pressure hydrocephalus (NPH)
- Chiari malformations
- Tethered cord syndromes
- Amyotrophic lateral sclerosis (ALS)
- Primary lateral sclerosis, to name a few.

The upper cervical spine is the critical link between the brain and cord. In addition to the cord, the upper cervical spines

also contains the vertebral arteries, the vertebral veins and the subarachnoid space of the cord.

- Although they only supply about 20% of total brain circulation, the vertebral arteries supply the most critical structures that run the operating system of the brain-stem. This includes the cerebellum, thalamus and hypothalamus, as well as the inner lobes of the temporal and occipital lobes of the brain.
- The vertebral veins play a unique role in humans in that upright posture increase blood flow to brain, which requires an increase in drainage capacity in order to prevent backups of venous blood in the brain.
- The vertebral veins also play a role in transmitting respiratory waves to the brain, which helps move cerebrospinal fluid (CSF) through the brain.
- CSF plays an important role in the cushioning, protection and support of the brain. Venous drainage and CSF flow problems may play a role in the cause of Alzheimer's, Parkinson's and multiple sclerosis.
- The health of this upper cervical spine is thus critically important to both blood and CSF and that makes it important to overall health. It is especially important to the health of the brain and cord.¹¹

The most important cause of these neurodegenerative disorders is misalignments of the upper cervical spine. It disrupts the Countercurrent heat exchange system in the suboccipital cavernous sinus, which increases the heat in the brain, in addition to the reduction in the vertebral arterial supply to the brain. Wudu maintain the cooling of the

¹¹ Alzheimer's, Parkinson's and Multiple Sclerosis, and their Anatomical Causes, <http://www.upright-health.com/>.

vertebral plexus while the salat can effectively prevent the cervical misalignment:

- Salat and Wudu are effective preventive measures against the development of neurodegenerative disorders.
- During salat the erect upright posture, is a strong recommendation, and is an effective prevention against cervical misalignment. While the ruku or genuflexion and sujud or prostration are effective cervical exercise strengthened the cervical vertebrae.
- Regular application of water around the upper part of the neck and below the skull helps to boost the cooling system of the brain.
- Correct and ideal erect postures during salat ensures correct vertebral alignment and allows the free flow of CSF.
- Certainly regular in salat and wudu, promote good health with advancing age.
- The importance of the prophet's emphasis on erect spine or vertebral column can now be reasonably understood. It prevents brain and spinal cord diseases.
- One of the perils of lack of salat and wudu with advancing age is the development of neurodegenerative disorders. This is mitigated by the Islamic ritual.
- The cumulative health benefits of salat and wudu over the years (puberty to old age) effectively prevent the development of neurodegenerative disorders.
- These neurodegenerative disorders are clear signs that there are prices to be paid in the lack of salat and wudu.

This detailed explanation lends credence to my hypothesis that wudu is an effective preventive measure against CNS diseases.

The regular facial washup and wiping of the head with water at regular intervals sustain and enhance the brain's cooling system in many ways.

It must be reiterated that wudu assists the brain cooling system in the following ways:

- Wiping the scalp with wet fingers - cools the skull veins.
- It cools the paranasal sinuses which in-turn cool the brain.
- It cools the cavernous sinus, which in-turn cools the brain via the internal carotid arteries.
- Cooling of the brain is also effected through sniffing of water - istinshaq and istintha.
- Wudu regularly cools the emissary veins of face – around the *Dangerous areas of the face, and the ear.*
- It cools the emissary veins – around the *dangerous area of the scalp.*
- It also cools the vertebral veins around the nape, which serve as heat exchanges to cool the vertebral arteries – important arterial blood supply to the brain.

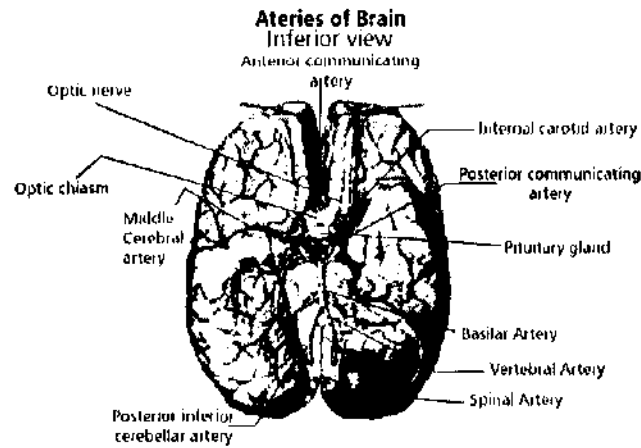


Figure 6.7: Showing the major arteries of the brain. The arteries are cooled by their corresponding veins before they supply the brain.

The brain is supplied with arterial blood that arrives through four vessels. These vessels eventually unite on the inferior or below the surface of the brain in the area surrounding the pituitary gland – the master gland. The four vessels are the paired internal carotid arteries and the paired vertebral arteries.

The value of four separate vessels coming together at one location is that if one becomes occluded, the three alternate routes may still provide adequate blood supply to the brain.¹²

Dr. Paulo Zamboni's work introduced another cause of CNS diseases which suggests that obstruction of the drainage system of the brain called Chronic Cerebrospinal Venous Insufficiency (CCSVI) can cause Multiple Sclerosis (MS). Dr. Zamboni attributed the cause of CCSVI to obstruction in the jugular veins, one of the extra cranial drainage routes.¹³

¹² Kent M. Van De Graaf, Human Anatomy, p.544.

¹³ <http://www.upright-health.com/brain-cooling.html>.

- Chronic Cerebrospinal Venous Insufficiency (CCSVI) due to jugular stenosis (narrowing of the internal jugular vessel) and faulty valves.
- Chronic Cranio – Cervical Venous Back Pressure (CCVBP) due to upper cervical misalignments.

It is possible that both the CCSVI and CCVBP can decrease the cooling capacity of the brain and thus contribute to the heat intolerance in many MS patients.¹⁴

The Islamic washup assists in cooling the arteries that supply the brain in two ways:

- It keeps the temperature of the brain lower and cooler than the core body temperature.
- Regular wiping the neck helps to cool the suboccipital cavernous sinus and vertebral cavernous sinus. The vertebral arteries are therefore cooled before they reach the brain.
- Regular washing of the face cools the heat exchanger in the cavernous sinus. The internal carotid artery is also cooled before it supplies the brain.
- It cools the cranial veins, the dura venous sinuses through the emissary veins, and the cavernous sinus.
- It also cools the suboccipital sinus, and the vertebral cavernous sinus.
- It prevents some of the diseases of the CNS that occur mostly due to chronic over heating of the brain.

Hence it is based on the above factors that I hypothesize that the ablution is an effective preventive measure against many

¹⁴ <http://www.upright-health.com/brain-cooling.html>. Date 11.8.14.

brain diseases.

Another important function of ablution is it gives a good relaxation at bed-time. You don't need a sedative to have to have a good sound sleep.

Wudu at Bed-time

Prophet Muhammad (SAW), encouraged the Best of Mankind to perform Wudu before going to bed (Bukhari and Muslim). It has now been found that doing this religious act before retiring to bed has some wholesome effects.

According to Yoga philosophy, washing important motor and sensory areas such as the hands, arms, eyes, legs, mouth and genitals before sleep using cool water relaxes the body preparing it for a deep sleep. Thus performing wudu before going to sleep engenders good healthful sleep, which enhances the process of anabolism during this restful sleep.

The great Health Teacher also recommends to adopt the right lateral sleeping posture and to face the Ka'ba. These three combinations at bed time: Wudu, lying on the right side and facing the Ka'ba have numerous health benefits:

- Ablution: cools and calms the motor and sensory areas
- It relaxes the agitated nerves and removes tension.
- It boosts the activities of parasympathetic nerve and mellows the activities of sympathetic nerve.
- It enhances the process of anabolism to promote regeneration of various tissues.

- It neutralizes body's static electricity to relieve skin and muscle tensions.
- It promotes the secretion of dopamine, a substance which elevates mood and reduces depression.
- It keeps the body clean and cool to allow restful sleep. Lying on the right side: is the best sleeping posture. It has a number of health benefits
- When a Muslim lies on the right side, he or she is lying on the various side. The veins which return blood to the right atrium of the heart, lie on the right side of the body. It is a lower tension line.
- In the left side are the arteries, which distribute blood under pressure to the rest of the body. This is a high tension line.
- Thus lying on the left side tends to put more tension on the left side of the heart, which pumps the arterial blood to the aorta, a major arterial vessel lying on the left side under pressure.
- So unlike the venous line (lesser tension) on the right side. Lying on the left side is likely to slow down arterial blood circulation. A situation that is likely to jeopardize health (Nadabo, 2004).
- Right side position facilitates gastric emptying – food from the stomach reaches the small intestine faster.
- Right side position allows the left lung to expel its secretions upward and easier because the left lung is smaller and the position of the bronchi (wind pipes) makes it difficult to expectorate (expel) lung secretions.

- Lying on the left side puts more pressure on the heart by the right lung, which is heavier and larger than the left lung.¹⁵

Kaba The Centre Of The World.

An Egyptian Professor Housein Kamal El Din Ibrahim, whose research study had proved that Ka'ba is the centre of the world. He showed Mecca is a centre of a circle that connects all the continents. The city is therefore the centre of the earth.¹⁶ This study has proved the Qur'anic description, thus:

Thus have We sent by inspiration to thee
an Arabic Qur'an: That thou mayest warn
the Mother of Cities and all around her, -
(Shura, 42:7)

The wisdom of this revelation from Makkah the centre of the world is that Islam shall spread from this centre to all the continents of the universe.

There are some health benefits in facing the Ka'ba while sleeping or praying. Ka'ba is the centre of the universe and a qibla.

Kabal Radiation

In view of its immense health benefits the Prophet (SAW) recommended that the Best of Mankind to sleep on the right side and face the Ka'ba.

- Facing the Ka'ba: the Ka'ba is located in the centre of the world. It is reasonable to postulate that it emits radiation that is imperceptible and undetectable by our current technology.

¹⁵ Yusuf Nadabo, Health Benefits of Ramadhan Fasting, pp.27-28.

¹⁶ Hadeer Abo El-Nagah (Transl), The Ka'ba is the centre of the World, Dar Al-Manarah, Egypt p.127-128

- The Prophet (SAW) was aware of this 'Kabal Radiation'. So he recommended the Muslims to face it during prayer and sleep.
- This strongly suggests that the face acts like a satellite dish to receive the kabal radiation. This radiation engenders good health.
- The receptacles of this divine radiation are; the pineal gland – which is considered by scientists and philosophers to be the seat of the human soul.
- This radiation is also received by the suprachiasmatic nucleus (SCN) of the hypothalamus – an important centre in the brain.
- The SCN is believed to be the internal biological clock that controls the physiological and behavioural circadian systems.
- It is likely that while the Muslim face the Ka'ba during prayer or sleeping on the right side, the Ka'bal radiations turbo-charge their internal biological clocks and the seats of their soul like electrical current charging the batteries of their smartphones. Undoubtedly, Ka'ba radiation engenders numerous healthful benefits.¹⁷ Wudu is an excellent remedy for anger. Because it cools the brain.

Wudu and Anger

The Prophet (SAW) had taught the Best of Mankind to control anger with ablution. Wudu extinguishes the fire of anger. In an analogy, anger is said to be from the Devil, who is made out of fire and can therefore be put off by water. This analogical description vividly describes the rage the body undergoes during anger.

¹⁷ *Ibid.*, pp.28-29.

- Anger is a hormonal healthy emotion.
- But managing it can be a problem for many people who find it difficult to keep their anger under control.
- If uncontrolled, it can become very explosive to have an adverse effect on relationships, health and the state of mind.
- It is associated with the surge of adrenaline, which like fire 'burns' the person from within to prepare the body for the "fight or flight" mode.

When anger is allowed to spiral out of control, it can have an adverse effect on the health status. Health issues linked to anger include: high blood pressure, heart attack, depression, anxiety, flu and problems with digestion.¹⁸ When the fire of anger is not quenched it leads to domestic violence. Wudu extinguishes this fire effectively because the water of ablution:

- Cools the brain and calms the agitated nerves.
- Neutralizes the body's static electricity.
- Mellows down the body's metabolic rate, which is raised by adrenaline.
- Extinguishes anger like water extinguishes fires.
- It is simple but effective method of treating anger.

Wudu in general helps to keep neat and diseases and neurodegenerative disease. On the social side, wudu gave rise to hygiene and modern grooming.

¹⁸ <http://www.nhs.uk/conditions/stress-anxiety-depression/pages/controlling-anger.aspx>. Dated 15.6.14



Chapter Seven

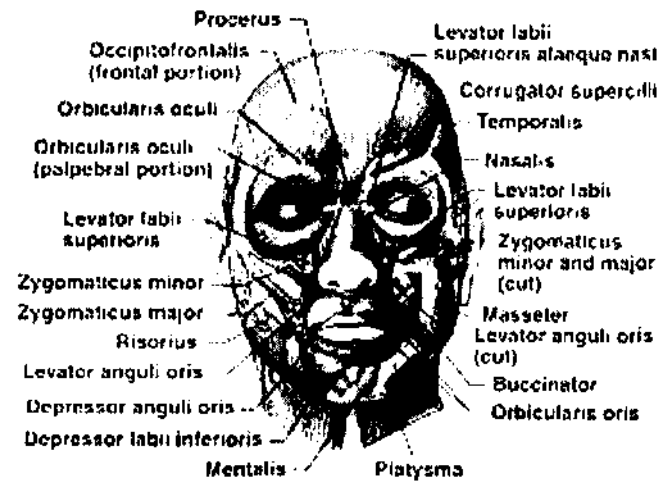
Wudu and Rise of Modern Grooming Wudu and Facial Beauty

Man is *Homo aestheticus* that is a lover of beauty. Today, facial appearance attracts more attention than at anytime in history. The Modern Age has brought along with it the love for aesthetics and fashion. Everybody wants to have a good look; a beautiful face that is free from boils, wrinkles and scars. Wudu is a simple but effective means of natural facial care; which requires washing the face with cool water (or warm water as the temperature dictates) at least 15 times a day at regular intervals. Some facts about the face include:

- The face contains about 43 different muscles.
- The skin naturally produces oil that moisturizes itself.
- The skin of the face is relatively thin and very sensitive because it contains many sensory receptors particularly in the mouth region.
- It also have numerous sweat glands and sebaceous (oil-

secreting) glands, which make the face prone to boils - ache.

- Muscles of facial expression are located in a superficial position on the scalp, face and neck; they are all innervated by the facial nerve.



Adapted: www.rci.rutgers.edu

Figure 7.1: Showing some of the facial muscles that are kept cool (in hot weather) by regular wudu.

The skin of the face and neck unlike those of the rest of the body is linked with the muscles. So that when an emotion either of joy or sadness is experienced the skin and the muscles contract together when commanded by the facial nerves.

- Thus overactive nerves can cause twitches in different parts of the face, facial cramps and even toothaches. People often speak of worry lines on their foreheads!
- Facial wrinkles are less noticeable when skin cells are well hydrated. Your wudu time is your refilling time. So drink to beat dehydration.

- Regular facial washup, like a cold compress reduces under-eye inflammation.
- As water evaporates from the skin, the surface becomes cooler. Wudu time is a cooling time and it gives radiance to your face.
- Cold water is able to literally wake up the lazy blood cells that are being inactive in the stagnant blood stream and tell them to start getting active and move fast. This will promote healing.
- Cold water stimulates the blood cells in the system, it flushes the capillaries in the tissue and cleanses them from the build up of waste matter and poisons, which can causes ache and other health problems.
- When blood rushes to the surface, it suffuses the skin.
- It opens up and relaxes the pores to allow the release of impurities for washing. Cold water reduces swelling.
- It has a magical effect on the morning swelling of the eyes and face.
- It acts as a soothing to the eyes and eyelids.
- Water acts as a tonic and tightens pores that expand in the night.
- It prevents the secretion of sebum and prevents the brightness of the skin.
- It gives you a feeling of freshness and well-being unparalleled.
- It promotes blood circulation and enhances brightness of the face.

- Sebum is a fatty substance that gives the face an unpleasant and dull look; it also attracts sun's harmful rays.
- Wudu tightens the pores and prevents the sebum to store on the skin.
- It tones the face and gives you youthful looks.
- It slows aging especially for tiny wrinkles around the eye.
- When performed at bed-time, wudu stimulate sleep and relaxation.¹

The importance of the face in the expression of depression, anxiety and joy is known. This fact was described 15 centuries ago by the Holy Qur'an:

When news is brought to one of them,
of the birth of a female (child), his face
darkens, and he is filled with inward grief!
(An-Nahl, 16:58)

When Our Clear Signs are rehearsed to
them, thou will notice a denial on the faces
of the Unbelievers! (Al-Hajj, 22:72).

The Holy Qur'an, the Book which Explains Everything has pointed to some of the role of the face in the expression of emotions. The Book also recognizes the faces of the Best of Mankind, the only people who wash their faces at least 15 times a day, and regularly prostrate in prayer before their Lord. The Almighty, said: "On their faces are their Marks, (being) the traces of their prostration" (Al-Fat'h, 48:29)

The combination of regular facial washup and prostration in prayer give the face a unique mark that glows:

¹ <http://bijouxoubijo.com/blog/5-good-reasons-to-wash-your-face-with-cold-water/sthash.UUQY>

1. Washing the face ensures its cleanliness – remove dust and de-load bacteria.
2. It invigorates the facial skin and prevents early wrinkles.
3. Wudu provides a means of regular facial massage with water.
4. It calms the agitated nerves – facial nerve and trigeminal nerve, to remove wrinkles.
5. It exercises the facial blood vessels to improve facial blood supply, which makes the face glow.
6. It nourishes the 43 muscles of facial expression and improves their functions; it moisturizes the skin.
7. It stimulates the facial Bio Active spots (BAS).
8. Gives a facial beauty that is deeper than skin.
9. Provides simplest and most effective means of facial hygiene that is cost-effective.
10. It makes the face radiate aura and a captivating peace and tranquility.
11. Expect good virtue from beautiful faces that emanates from:
 - Regular wudu at least 15 times a day.
 - Regular in Salat at least 5 times a day.

- Regular and frequent in Qur'anic recitation.

The Islamic ablution gives a special attention and care. It ensures the cleanliness of the lacrimal or tear apparatus.

Care of the Lacrimal Apparatus

The lacrimal (tear) apparatus consists of the lacrimal gland (tear gland), which secretes the lacrimal fluid (tears), and a series of ducts (tiny tubes) that drain the tears into the nasal cavity. (See figure 7.2 below)

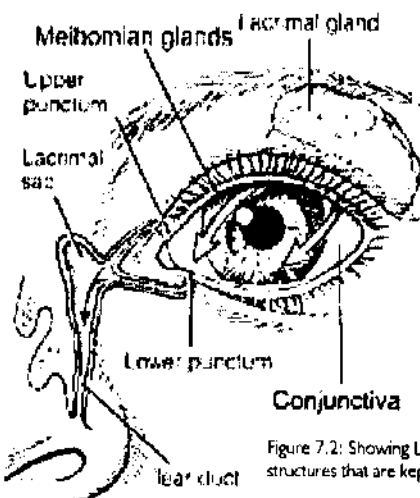


Figure 7.2: Showing Lacrimal (tears) apparatus and related structures that are kept clean by wudu.

- The small tear-gland is located on the upper-outer aspect of the eye-socket.
- It secretes tears through several excretory (very tiny tear) tubes into the conjunctival sac in the upper eye-lid.
- With each blink of the eyelids, tears are spread over the surface of the eye – much like windshield wipers spread windshield washing fluid.

- Tears or lacrimal fluid then drains into two small openings, called lacrimal puncta (drainage openings), which collect through a drainage tube called nasolacrimal duct to finally drain into the nasal cavity.

Thus there is a connection between the eyes and the nasal chamber.

If irritating substances, such as particles of sand or chemicals make contact with the conjunctiva, the tear gland secretes greater volumes. The extra lacrimal fluid protects the eyes by diluting and washing away the irritating substance. It is from this standpoint that the importance of washing the face should be appreciated.

- Water is regularly used to wash away irritants; to ward off infections and to reduce excess lacrimal fluid secretion.
 - While crying, the volume of lacrimal secretion is so great that tears may spill over the edges of the eyelids and the nasal cavity fill with fluid. Water is used to wash away this salty tear to ensure cleanliness.
 - The inner junction of the upper and lower eyelids called medial commissure, a whitish secretion called 'sleep dust' collects during sleep.
 - It is washed before morning prayer.
 - Wudu supports the blinking function of the eyelids which provides moisture to eye by irrigation using tears and a lubricant the eye secrete.
1. Blinking protects the eye from irritants while wudu washes them away.
 2. The eyelid provides suction across the eye from the tear

duct to the entire eye keep it from drying out. Wudu regularly moisturizes the eyelids to prevent the eyeball from drying out.

3. An adult blinks on average 10 blinks per minute. Generally, between each blink is an interval of 2 to 10 seconds. The rates of blink vary with individuals.
4. The normal length of a blink is 100 to 400 milliseconds. Closure in excess of 1000ms were defined as microsleeps.
5. However, when the eyes are focused on an object for an extended period of time such as when reading, the rate of blinking decreases to 3-4 times per minute.

This is the major reason that eyes dry out and become fatigued when reading.²

- Wudu will prolong the reading time with comprehension because of the following reasons:
- It moisturizes the eyelids to prevent the eyes from drying and fatigue.
- It cools the brain through the cooling effects of facial washup – cooling the air conditioners of the brain. This reduces brain fatigue.
- It neutralizes static electricity on the body which interferes with the electrical activities of the brain.
- It calms agitated nerves; relieves muscle tensions and improves comprehension and memory.

Perform wudu before the commencement of reading. After

² <http://en.m.wikipedia.org/wiki/Blink>. Dated 11.8.14.

some hours of reading, perform another wudu to prevent eye and brain fatigues. Finally, it is also important to perform wudu before going to bed. You will harness the miracles of wudu – in your attention comprehension, memory and self confidence.

Because the organs of the facial regions are so complex and specialized, they are given adequate attention during wudu.

The frequent use of miswak and the gargling of the mouth with water before each prayer combine to beat bad breath.

Wudu and Bad Breath

Halitosis is also called bad breath, malodour, offensive or foul odour of the mouth. It can be normal which is typically seen in the so called “morning breath”, which result from enzymatic breakdown of food debris, cellular protein and amino acids.

Bad Breath, is an unpleasant smell on a person’s breath that other people notice when he speaks or breathes out. In most cases of persistent bad breath, the smell comes from a build up of bacteria within the food debris in the mouth, dental plague, gum disease or in a “coating on the back of the tongue”.

Halitosis can be embarrassing and in some cases may even cause anxiety. It’s no wonder why some people use chewing gum, mints mouthwashes and other products designed to fight bad breath. They are temporary measures because they do not address the cause of the problem.

The causes include; nasal and sinus infections, poor oral hygiene, gingivitis and periodontitis, dental caries – food debris packing within the tooth cavity, when it rots due to bacterial action it gives off foul smell, dry mouth (Xeroisomia), gastro – oesophageal reflux and belching, smoking starves the mouth of oxygen - to cause bad breath, stagnated food

debris in between the teeth; it rots and smells, oral infection, and oral tumour.

Fasting is due to the dryness of the mouth and the breakdown of fats into ketones results in ketotic halitosis.

Thus the mouth serves a number of functions and is ceaselessly at work. It harbours a large number of bacteria, viruses and deleterious chemicals, as it is exposed to numerous sources of contaminations.

The mouth is a major gateway into the body.

It is a route to a variety of infections.

Contaminated food and water getting into the mouth can cause vomiting and diarrheal diseases. These are called water borne and food borne diseases.

Contaminated hands especially with faeces could easily get into the mouth to cause faeco-oral diseases such as cholera, typhoid, dysentery, etc.

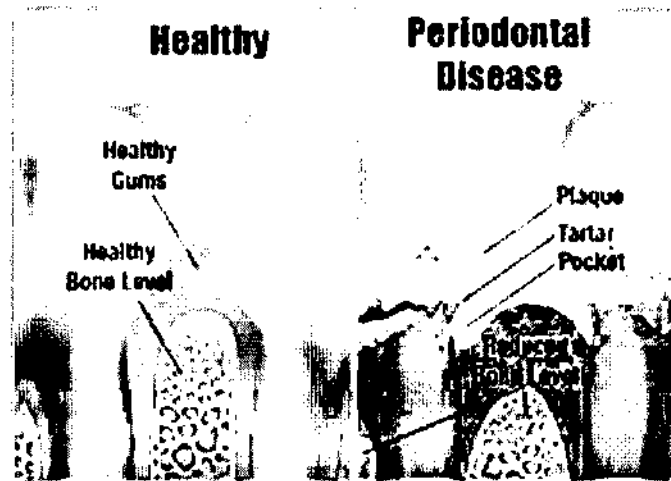
Antony Van Leeuwenhoek (1683) known as the Father of Microbiology was able to see millions of bacteria living in the scum of the teeth of man with the aid of the microscope. Thus, there are trillions of bacteria living in the mouth of man. Most of them are very harmful.

The great Health Teacher who lived in the 7th century, about 1000 years before Leeuwenhock had without the aid of lenses or microscope made several allusions to the existence of germs and their potential of causing diseases. He recommended the most effective preventive measure or cure against the growth and harmful effects of the germs – the use of miswak or chewing stick to the Best of Mankind. He was so convinced of

the efficacy of the use of miswak that he said:

If I had not thought this to be an unbearable hardship, for my followers, I would have prescribed the use of miswak before every prayer (Bukhari and Muslim).

No one person in the history of the world who took up cudgel against poor oral hygiene like the Prophet of Islam. He had single-handedly advocated and popularized the use of miswak, with a view to averting the deleterious effects of poor oral hygiene in the Modern Age. (See figure 7.3 below)



Adapted: austinperiohealth.com
Figure 7.3: Showing a health and diseased tooth

The habit was eclipsed until when it was reintroduced and popularized by the founder of Modern Civilization, who declared that, "The Salat which is performed after using a

miswak is seventyfold superior to the Salat without a miswak” (Tirmidhi and Abu Dawud).

Thus the advent of the Prophet (SAW) in the 7th Century had ushered the dawn of many hygienic practices including the oral and dental hygiene. The use of miswak then was spread by Muslims to the entire world.

- *Al-madmadah* – washing and gargling the oral cavity with water during wudu to remove food debris in the oral vestibule (space between the gum and the cheek).
- Use of miswak or chewing stick before Salat – during wudu.
- *Khillala* – tooth-picking after meals – dental flossing.

These principles of Islamic oral hygiene have impacted positively on modern dentistry and personal hygiene. The Prophet’s regular and frequent use of miswak are excellent examples in oral care, he used siwak at the following times:

1. At every prayer
2. Before reading the Holy Qur’an
3. Before sleeping
4. After waking up from sleep
5. When the breath changes – whether fasting or not, whether at the start of the day or in the afternoon,³.

It is a form of worship which is easy, therefore observe it, O my Muslim Brother!

³ Fahd Ibn Abdur-Rahman Ash-Shuwaib, A Description of the Prophet’s (pbuh) Wudoo, translated into English by Dawood Burbank Al-Britanee, International Islamic Publishing House (1993), pp.25-26.

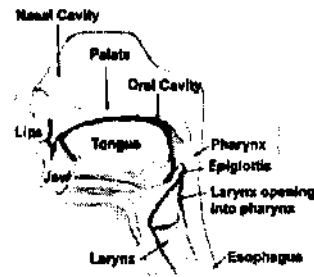


Figure 7.1

Figure showing nasal cavity, mouth and throat, the structures that are washed regularly during wudu to keep you healthy. Prevents bad breath.

The breath of the great Teacher, however, never changed. For he also said: “The siwak is a means of cleansing the mouth and pleasing the Lord (Bukhari).

Mouth Rising and the Use of Miswak

The rinsing of the mouth and al-madmadah or gargling the oral cavity with water are performed 15 times a day. This in combination with the use of chewing stick and tooth-picking or khillala give no room for bacteria and viruses to thrive in the mouth of the Muslims.

1. The hands are first washed before rising the mouth, ensuring bacteria that otherwise remain on the hand does not enter the body via the mouth.
2. The right hand is used because it is cleaner and is not used to handle objectionable things like washing urine or anal region, etc. – where left hand is used in these instances.
3. Regular and frequent mouth wash removes bacteria and unwanted food particles dodged between the teeth are removed through khillala.

4. Food particles that are lodged around the gum and food strained on the teeth are brushed off with siwak.
5. The stringent and bactericidal properties of miswak help reduce tooth decay fight plaque and prevent gum diseases.
6. In addition, miswak contains sinnegrin, tannic acid, and sodium carbonate in the root that act as natural antiseptics.
7. It has been scientifically proven that miswak is more effective than toothbrush in reducing plaque, removing plaque from embrasures, preventing gingivitis (inflammation of the gums) thereby promoting gingival health as well as enhancing interproximal health.
8. There is spiritual dimension to the use of miswak, which according to Jama Kabeer, include: the use of miswak helps developing oratorical capability; cleanses the mouth cavity and strengthens the gum, cleans the phlegm from the throat, it removes the humidity, it sharpens the eyesight, it belates the old age ,it strengthens the back, it enhances the reward and facilitates the agony of the death, it reminds the holy Kalima Shahadet at the time of death, it facilitates food digestion, it casts slur on the forehead of the devil, it widens the scope of learning, it removes the toothache, it invigorates the stomach, it sharpens the intelligence, it cleanses the heart ritually, the face and body and cures diseases.⁴

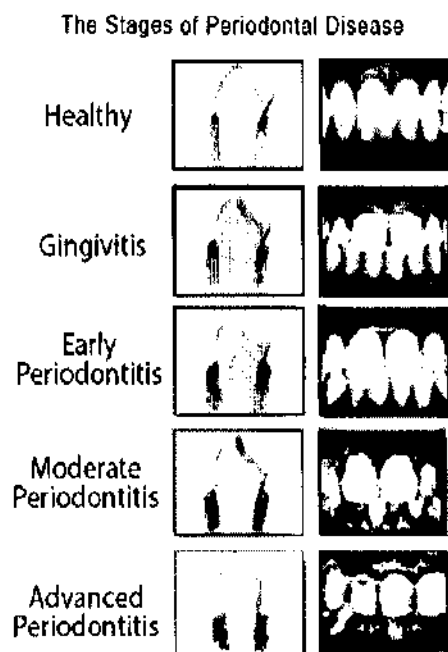
Undoubtedly, what cleanses the mouth and pleases the Lord can engender a lot of health benefits. A good oral hygiene

⁴ Ahmad Saeed Dehvi, *Prophetic Medical Sciences*, translated by Badr Azimabadi (M.A), Saeed International, New Delhi (1997) pp. 27-28.

prevents dental caries.

Preventing Dental Caries

Today tooth decay is a common cause of tooth loss in younger people. Bacteria are normally found in the mouth. These bacteria change foods – especially sugar and starch into acids. Bacteria, acid, food pieces and saliva combine in the mouth to form a sticky substance called plaque.(See figure 7.5 below)



Adapted : www.dr.alamir.com
Figure 7.5: Showing Stages of teeth Decay

- Tooth decay occurs when a sticky acidic film called plaque builds up on the teeth and begins breakdown the surface of the teeth. The plaque will start to soften the enamel

(the hard outer coating of a tooth) by removing minerals from the tooth. Over time, a small hole known as cavity can develop on the surface. This causes toothache.

- Once cavities have formed in the enamel, the plaque and bacteria can reach the dentine (the softer, bone-like material underneath the enamel). As the dentine is softer than the enamel, the process of tooth decay speeds up.
- The plaque and bacteria will enter the pulp (the soft centre of the tooth that contains nerves and blood vessels). At this stage, the nerves will be exposed to bacteria, making the tooth very painful. The bacteria can also infect tissue within the pulp, causing a dental abscess.⁵
- There are a number of factors that can increase the risk of tooth decay. These includes;
- **Diet:** Eating food and drink high in carbohydrate, particularly snacking regularly between meals.
- **Poor oral hygiene:** Lack of regular washing and brushing of teeth and clean between them with floss or interdental brush. You should brush your teeth at least twice a day.
- **Smoking and alcohol:** People who smoke and drink alcohol regularly are at an increased risk of tooth decay.
- **Dry mouth:** People who have lower level of saliva in their mouth are at higher risk of developing tooth decay, because saliva help to keep the surface of the teeth clean and can neutralize acids in the mouth.

It is from these perspectives that the salutary of the Prophet (SAW)actions must be appreciated. He had given all the necessary motivations to the Muslims to cultivate the habit

⁵ <http://www.nhs.uk/conditions/dental-decay/pages/causes.aspx>. Dated 7/9/14

of regular mouthwash and the use of Miswak. His passionate care and concerns can now be viewed in the light of the current knowledge.

Passionate Concerns of the Prophet

The Prophet (SAW) was the foremost advocate of oral hygiene, far more than any great physician in history. He single handedly championed the course of oral hygiene at an epoch when its significance was least understood.

Aisha (R.A), the loving wife of the great Educator reported that: "Whenever Allah's Messenger (SAW) entered his house, he used the tooth-stick first of all" (Muslim).

A day will come when the World Health Organisation (WHO) celebrates a day of mouth wash or oral hygiene.

It was with a purpose that the Prophet (SAW) had shown such a great concern for mouth care and oral hygiene about 15 centuries ago. This was for the health concern of his Ummah and humanity in general. Furthermore, with advances made in the science of medicine the Prophet's concern for oral hygiene and his fight against poor oral hygiene were indeed justified in the light of the current knowledge.

- It has now been well established that the mouth is an excellent habitat for deadly bacteria and viruses.

Microecologic Niches of the Mouth

Today, more than 300 individual cultivable species of germs have been identified in the human mouth with an estimated 10^{14} individual microscopic organisms or germs occupying the mouth and oropharynx (throat) at a time.⁶ We now live in the

⁶ <http://m.cid.oxfordjournals.org/content/34/9/1215.full> Date 10.8.14.

Age of Bacteria.

- The concern of the great Prophet (SAW) was the survival of humanity in the Age of Bacteria and with an estimated 10^{14} germs living in the mouth of people. Therefore, survival in this Germ Warfare called (and still calls) for a strict and comprehensive oral care and oral hygiene as the Muslims were taught. This is because the mouth offers multiple macrobiotic environments:
- Biting surfaces of teeth marked by grooves and fissures shelter bacterial colonies.
- The sides of teeth that contact one another provide microenvironment for germs.
- This contact area, which is surrounded by tooth structure and gingiva (gums) is sheltered by food debris – shelter adherent bacteria. The tooth surface adjacent the gingiva is a distinct microenvironment. It offers a continuum of conditions: The sulcus entrance support aerobic organisms (or germs). Regions at increasing depth are associated with facultative species (of bacteria) and then with anaerobic species (of another type of bacteria) that build adherent multi-species colonies plaque on the tooth (See figure 7.6).
- Another ecologic niche is saliva. Diminished salivary flow and modified salivary composition allow oral pH to decrease and permitting uninhibited microbial growth.⁷

His passionate concern should be appreciated when today, research has shown that plaque begins to form 6 hours after brushing our teeth.⁸

⁷ <http://m.cid.oxfordjournals.org/content/34/9/1215>. Full. Dated 10.8.14.

⁸ <http://www.medindia.net/facts/index.asp?alpha=page=18>. Downloaded on 10.8.14

The second concern of the Prophet of Islam (SAW) was the complications or sequela of dental caries. Even today these complications pose serious health problems. Infection can spread or metastasize from an infected carious tooth to various organs in the body sometimes undetected.



Adapted : www.dentalgentlecare.com
Figure 7.6: Showing Severe tooth Decay

Complications of Dental Caries

The spread of infection from infected teeth or tooth to different organs of the body is a serious health problem. The spread of oral pathogens (harmful germs) becomes a potential result of untreated dental decay once bacterial enter the pulp, the inner side of the tooth with nerves and blood vessels, (See figure 7.6 above). The germs in the mouth can spread through the body thus:

- Hematogenous spread: This is spread of infection through the blood. The infectious agents can spread to the:
- Heart, to cause bacterial endocarditis, which is an infection inside the heart chamber.
- Prosthetic joint, a joint with an implant might lodge

bacteria to cause infection thereby causing complication to this joint.

Reports linked many bacteria and pathogens with systemic diseases in adult. Streptococci (bacteria) had been linked to:

1. Mediastinal abscess
 2. Meningitis
 3. Vertebral osteomyelitis
 4. Hepatobiliary disease – liver disease
 5. Brain abscess due to brain infection.
- Periodontal disease impairs glycemic control in people with diabetes and poorly controlled diabetes may exacerbate periodontal diseases.
 - Aspirations (inhalations) of oropharyngeal (mouth and throat) secretions is the predominant cause of nosocomial pneumonia in the elderly).
 - Periodontopathic bacteria in the blood stream have been linked to:
 1. Atherosclerosis – hardening and narrowing of the arteries due to the deposition of atheroma.
 2. Coronary artery disease – disease of the arteries supplying the heart.
 3. Stroke.

In his commentary on this religious aspect of cleanliness, Dr. Khan had stressed this point pertinently. He said:

One fact which emerges from the above is the emphasis placed on the use of water for maintaining cleanliness and

ritual purity. This emphasis is all the more pronounced when one remembers that the instructions were given first to a people who lived in the desert in a place where there was little water, not sufficient even for the cultivation of crops; for a Muslim these instructions are turned into a habit from early childhood even in the simplest Muslim homes.⁹

In a Hausa radio health programme with Deutsche-Welle, I once made this anecdote:

If the Cobra were to speak to man, it would jibe at him saying, "The venom of my mouth is harmful to others, whereas the deadly germs in your mouth harm no one but you". I was stressing the importance of the use of checking-stick as a preventive method against noma.

The regular washup ensures the general cleanliness of the structures within and outside the oral cavity:

- Lips, cheeks and plated (hard and soft) are kept clean.
- Food debris lodged in the vestibule are washed and flushed out.
- The mouth is kept moist and help to keep the oral P^H normal.
- Refluxed or regurgitated stomach acid is frequently washed away to prevent tooth erosion.
- Regular use of miswak and khillala (dental flossing) get rid

⁹ G.M. Khan, Personal Hygiene in Islam, p.5.

of bacterial colonies in their microenvironments around the teeth.

- Thus frequent washing and cleaning of the mouth, teeth and gums, prevent dental and gum diseases.

Therefore, wudu prevents dental caries and their dangerous complications.

Scalp and Hair Care

The scalp is formed of 5 layers that cover the skull; the letters of the word SCALP indicate each of these layers: S – Skin, C – Connective tissue, A – Aponeurosis, L – Loose areolar tissue, P – Periosteum (Pericranium).

It is significant to note that the loose connective tissue is very tenuous and delicate. Emissary veins connecting the venous sinuses in the skull with the veins of the scalp traverse this area.

- The first 3 layers of the scalp can readily be separated from the pericranium (skull cap) plane which forms a space. This is a potential space where blood or pus may collect – in this subaponeurotic space.
- Because of its potential great extent and the presence in it of certain emissary veins, the subaponeurotic space is often called the “Dangerous Area of the Scalp”.¹⁰

Through the regular wiping of the scalp with cold water the dangerous area of the scalp is regularly kept clean and cool. The cooling effect of water percolates into this area as well as into the cooling system of the brain. The number of hairs on the body varies between individuals but on the average there are about 100,000 hairs on the head (scalp); the human hairs

¹⁰ Ibid, pp. 2-3.

serve the following functions:

1. Hairs act as protective barrier.
2. The eyelashes protect the eyes.
3. Hairs in the nostrils called vibrissae or whiskers trap airborne particles to prevent them getting into the nose.
4. Hairs in outer ear also trap airborne particles to prevent them getting into the ear.
5. The eyebrows prevent sweat dripping into the eyes.¹¹

Hairs also act to conserve heat. Air trapped between hairs insulate the skin and stops heat loss. The straighter the hair stands the more air can be trapped. And attached to each hair follicle is a strip of muscle which makes the hair stand on end, when it contracts causing 'goose flesh'. The muscles are stimulated by cold or emotional stress.¹²

The hair of the scalp are trimmed regularly in men while in women are allowed to flow or are plaited. In addition to trapping of air, the hairs also attract dust because of the exposure to the pollutants. In mature Islamic women the scalp is always covered with a scalf or hijab, while mature men use caps, to ward off dust and dirty materials.

Dusts, heat and humidity increase the chances of scalp infection in both men and women but it is more in women because of the greater length and higher density of their hairs.

¹¹ The Diagram Group, *Man's Body: An Owner's Manual*, pp. 180-181.

¹² *Ibid*

Women are also more exposed to heat in the kitchen during cooking which increase hair drying.

Women are exposed to chemical irritants due to application of a variety of chemicals in the form of hair creams to make it supple and to prevent desiccation and breakage. But health experts have pointed that this application of various hair creams and lotions predispose to a scaly condition of the scalp called *pityriasis capitae* or dandruff. While application of natural oils on the hair is better than chemicals which cause dandruff.

Poor hair care is also a cause of fungal scalp infection called *Tinea capitis*, which humidity and temperature predispose it. It causes itching, scaly ring and broken hairs. Some scales may fall into the eyes and ears causing infection to these vital areas.

Poor hair care also causes infestation with head-lice or *pediculus capitis*.¹³

Regular wudu ensures hair care that is cost effective and simple. The scalp is gently and smoothly wiped with wet fingers from the forehead backward to the nape; then the wiping is reversed at the same time from the nape to the forehead. This wiping is done with wet fingers. This is performed at least 5 times a day at regular intervals. This smooth wiping of the scalp or *masah* achieves the 3 goals of wudu: Cleanliness, coolness and temperature regulation:

- It regularly removes dust and macro-particles on the hair.
- It moisturizes the hair regularly to prevent desiccation and hair breakage.

¹³ Yusuf Nadabo, *Medical Benefits of Islamic Worship, Book 1. Pp.135-136.*

- Helps preserve healthy hair and prevent various types of infection of the scalp.
- It gives hair care which prevent *pediculus capitis* or hair lice.
- The moisture within the hair evaporates and provides cooling effect.
- It helps to regulate scalp temperature by using cold or warm water as the weather condition dictates.
- Wudu draws the attention of a Muslim to his hair at least 5 times a day. It is a means of a regular check up of the scalp.
- The Educator of Mankind had introduced the use of a comb in the 7th century Arabian Desert. He used to regularly comb and oil his hair such that it became part of Sunnah or Prophetic tradition. He was at one reported to have asked someone with disheveled hair, "Does he have nothing with which to comb his hair"? (Abu Dawud).

When the person complied with this teaching or instruction and kept his hair neat and tidy, the Prophet (SAW) was afterwards happy because he asked, "Is not this better than one should come with disheveled hair, looking like the Devil"? (Al-Muwatta).

The venerated Prophet (SAW) had emphasized the importance of cleanliness and hair care to keep the hair from lice infestation and smell.

- Time of wudu is also an ideal time to wipe your hair and to comb it as well.
- The great health emphasized combing and oiling; when these are performed regularly infestation with lice and

infection of the scalp are prevented.

- He was untireless in his campaign against filths and encouraging cleanliness and body care. He said: "Cleanliness invites towards faith, and faith leads its possessor toward Garden (Paradise) – al- Tabarani.
- This showed that the Muslims of the 7th century were in the habit of combing and oiling their hair, as it was prohibited to keep dirty or disheveled hair.
- When the man rebuked for keeping disheveled hair corrected himself by combing and oiling, the Educator was delighted.
- Equating one's look with an unkept hair with that of a grotesque devil showed clearly the degree of aversion from disheveled hair.
- The Saviour of mankind re-emphasized the need to keep the hair combed, oiled, clean and tidy. He then made his promulgation, "Let he who has hair respect it". (Abu Dawud)
- Hence forward, the upkeep of hair is a religious duty. This is because dirty and bushy hair mirror an abnormal personality while well-combed, well oiled and well taking care hair gives a person *ghira* or sense of dignity – which is a sign -post of a Muslim.

The Saviour of Mankind had taught the modern world:

- Hand care or hand hygiene.
- mouth hygiene.
- Nasal hygiene.

- Facial hygiene.
- Ear care.
- Leg care.
- Toilet hygiene
- Squatting posture
- Bathing and
- Environmental hygiene, etc.

Care of the private parts and total body care in the real sense of modern hygiene and aesthetic. The great Health Teacher was reported that when he saw one person looking very dirty, he asked: "Couldn't he find anything with which to wash his clothes?" (Abu Dawud). Hence it is the duty of every Muslim to wash his clothes regularly – to keep clean, neat and tidy.

In this respect, the central aims of wudu are to clean and protect the subaponeurotic space or dangerous area of the scalp against infection. This area allows the spread of blood or pus down the forehead to enter the eyelids resulting in Black eye. Infection in this area can also spread into the skull through the emissary veins to cause fatal infection in the brain.

- Regular wiping of the head with cold water enhances the cooling system of the brain.
- The founder of Modern civilization gave this imperishable commandment: "Cleanse yourself, for Islam is cleanliness" (Ibn Hayyan). Need more be said?

A man cannot truly respect himself who is dirty. Stimulate the habit of cleanliness and we increase the safety of our cities.

Bathing or Ghusl is the major wudu.

At the dawn of Islam in the 7th century ghusl or bathing was made an obligatory religious duty. Even some several centuries afterwards, the rest of the world was either ablutophobic or completely ignorant of the importance of bathing. Medieval Europe was large ablutophobic.

Ablutophobia or fear of bathing. Ablutophobia (from Greek: eblut, ablute, meaning "to wash") or the persistent fear of bathing, washing or cleaning, was largely cultural in Europe in the past. It arose during the fear of water which was believed to carry diseases via the skin. Evidently:

By the Renaissance, the public baths had more less died out in the Western Europe, due largely to the black plaque, which people thought you would catch more easily if your pores were opened from bathing. Dirt was seen as protecting against germs, while water was thought to be unsanitary (which is often would be). Regular bathing wasn't linked to health in Western Europe again until the early 19th Century, by which point private bathing was more the norm.¹⁴

¹⁴ <http://www.apartmenttherapy.com/quick-history-baths-bathing> 146544. Dated 2.10.14



Chapter Eight

GHUSL:

The Rise of Modern Bath Bathing

Bathing (ghusl) is described a major wudu as it involves washing the entire body. Wudu entails washing the exposed parts of the body at least 5 times a day. Both wudu and ghusl are obligatory religious rituals while wudu is performed on daily basis; the ghusl is made obligatory at least on Fridays.

A Muslim washes the exposed parts of his body at least 100 times per day, and at the end of the week, he washes the whole body in ghusl. Thus both wudu and ghusl compliment each other and provide a Muslim with immense health benefits.

Types of Baths

The Age of Ignorance had swept away like a cyclone many useful cultural practices. Bathing that was practiced for centuries was also affected. As a result, there were different types of bathing.

- **Roman Baths.** The early known Roman baths were the

Stabians baths of Pompets, built in the 2nd century BC.

The baths, however, in time degenerated into resort of idleness and indulgence.

The Roman bath was described thus:

If you were a man, you would take off all your cloths, put a little oil on your body, rub it with dust and go out into the playing field to work up a sweat. Then you would get somebody to scrape off your perspiration with an instrument that looks like a little tiny rake, called a strigil. Then you would get into a tepid bath, then into a really hot bath, then into a cold bath.

You never used any soap, and it was all done in the public. If you were just a normal person, you'd probably spend a couple of hours every day in the bathhouse, where you could get wine, food, sex, a medical treatment, a haircut. You could have a depilator pluck hair, the hair in your armpits.¹

Temescal Bath. The temescal of Mexico used by the Aztecs, the Zapotec, the Mixtec of Maya; only its relic survived. When the occasion demanded the bath was taken for the purpose of coming-of-age rites, child-birth, burial of relative and other tribal ceremonies.

In the temescal (meaning bath-house), bathing was not aimed at cleanliness or purification but a mere symbolic rite of tribal ceremonies. The bather was gently whipped with ritual medicinal plants and the ceremony was ended by aspersion with cold water. The bath has little or no hygiene value as it was essentially a therapeutic bath.

¹ <http://www.salon.com/2007/11/30/dirt-on-clear/1/10/14>

- **Finnish Bath.** The Finnish Sauna bath was the much vaunted; it was claimed to have been in existence for about 2000 years. Although the Sauna bath claims some health benefits, there are mixed opinions about these benefits the bath enthusiasts claim.
- **Japanese Baths.** The Japanese also set great store by social bathing. Almost every house had a bath, which was an indoor wooden tub or a garden pool.²

There were several other baths that had existed in the past. But none can be compared with Islamic bath or modern bath, which essentially aimed at physical purification and general cleanliness. It was Al-Mustafa (SAW) who not only reinforced the Christian ethic of bathing but also declared that: Both physical and spiritual purifications are important to man. He then established a modern bath.

Islamic or Modern Bath

The Prophet (SAW) modified bathing from the 7th century when he established the Modern Age. In the past, bathing was performed mainly for symbolic religious reasons. These religions often were magico-religious in nature, as such these baths were often injurious to health.

They involved some bizarre practices such as oiling of the body sometimes in very high temperature, during which scraping of the body of oil and sweat was followed.

- In some other cases, religious oils, concoctions and other harmful substances were used during the “anointing” (to apply oil or to pour oil as a sacred rite).³

² Ibid, p.23

³ Yusuf Nadabn, Medical Benefits of Islamic Worship, Book I, p.282.

- Most of the bathhouses were either injurious to health or concupiscente in nature.
- They were used for Sexual liaison or brothels. As a result syphilis epidemics broke out in Europe from these bathhouses.

Islamic or modern bath was established it abolished these baths, and it introduced these changes in order to meet up with the tastes of modernity:

- Religious baths: must be governed by rules and regulations. There should be conditions which make bathing obligatory.
- The bath must be performed privately. Unlike in the past when public bath-houses were turned into places of sexual frivolities.
- The duration (interval) of religious bath must not exceed seven days. Unlike the previous practices when bathing may take months or years. It makes religious bath obligatory every Friday, that is, at least once a week.
- It makes the use of pure water necessary for the religious bath. In the past oils, all forms of filths and sewage were used or applied on the body in the name of religious bath.
- It prohibits the use of oil, heating and scraping the body, which could be injurious to health. It recommends the use of clean and cleansing water enough to wash impurities.
- It specified the rules and describes the **why**, the **how** and the **when** religious baths should be performed.
- It removes the concupiscente and indulgente practices associated with Greek and Roman baths introducing privacy and gender segregation.

- It prohibits communal baths. A bath must be taken singly and privately.
- It makes religious bath a distinct entity and separate from sweat bath. Sometimes the two could be performed, one after the other.
- It recognizes the importance of sweat bath and lays strong emphasis on its practice.
- Islam makes cleanliness half of faith.⁴
- The choice of water in the rituals of purification is unique in annals of history; in this choice man is linked with miraculous water for his good health and vitality.
- He laid strong emphasis that both physical and spiritual purifications are obligatory because of the dual nature of man – physical body and soul (or spirit).
- To ensure man complies with hygienic rules and general cleanliness are equated with half of faith, ablution and bathing are made religious obligations.
- The gender segregation was in the interest of both the physical nature of man as well as his soul. Sexual instinct if it is not reigned or restricted, it will wreak havoc in the Modern Age.

The great Health Teacher divides bathing into two: Minor purification or Wudu and Major purification or Ghusl. Due to the hurly-burly of the Modern Age, he made religious bath on Friday once a week while the minor purification is made obligatory 5 times a day. In addition, certain conditions make bathing obligatory e.g. bathing after coitus or *janaba*. Undoubtedly, Islam is a complete lifestyle or a way of life that

⁴ *Ibid*, pp.283-284

is ideal and compatible to man in all epochs.

Lastly, due to the complexity of the Modern Age, and the comingling of all nations a universal Role Model was imperative. Hence, the Prophet (SAW) the founder of Modern Civilization is the Great Exemplar – the Universal Role Model for people of all times, and a Mercy unto the world.

Allah (SWT) said: “You have indeed in the Messenger of Allah an excellent (of conduct) – Surah Azab, 33:21.

A system of bath governed by rules and regulations was established and is suitable to all nations. The rise of Islam was phenomenal in human history. It was not spread by force but rather by conviction. According S.B Scott, a British historian wrote:

In the moral as in the material world, the most perfect and durable forms of systems usually arrive slowly and by almost imperceptible gradations at ultimate maturity. But to this rule Islam was a striking exception. It attained the summit of its greatness, and raised the Arabians to an exalted rank in the family of nations, in a shorter period than is generally occupied by a people in passing through the primitive stages of their intellectual development.⁵

Islam: The Driving Force of Hygiene

Water is not only a driving force of nature but also a driving force of Islamic Ibadah. It is also forgotten that the term sharia, which now simple means ‘law’, once designated ‘the law of water’ - striking proof of the ancient codification of matters relating to water among the Arabs. In Islamic countries hammam, is a communal bathhouse that is devoid of sexual or any other immoral trappings, where bathing is taken privately

⁵ S.P. Seal. History of the Moorish Empire in Europe, p 60.

for bathing sake.

The Rise Of Hammam

To enter a mosque after having had sexual relations, a Muslim man or woman must wash from head to toe and therefore, in most cases, visit a hammam. At the height of Baghdad's splendour, in 1993 there were 1,500 such establishments in the city and every prosperous member of the community had a bath in his own home. The hammam thus became a distinctive component of the oriental city. In *Islam and Muslim Art*, the art historian Alexandre Papadopoulo writes:

The word hammam has become so acclimated in France as to earn the distinction of an entry in the *Petit Larousse*.... yet such comfort and luxuriousness were incomprehensible to a people [the Arabs] for whom ... water [was] too scarce to be wasted. True, Muhammad had decreed five obligatory ablutions before praying so as to enter into a state of purity, but in practice the believers in the desert were permitted to make do with a few precious drops.⁶

Papadopoulo shows how the hammam, inherited from the Greco-Roman baths, worked a transformation of the Arabs; who launched themselves, with the success that we know, on the conquest of the world. Besides the hygienic and curative virtues, the Muslims could attribute to it a religious significance all their own in which the baths were deemed the most convenient way of washing away all the defilements of the flesh so as to be in a state of purity when the time came to pray.⁷

⁶ Larbi Bougerra, *Water Under Threat*, p.20

⁷ Larbi Bougerra, *Water Under Threat*, p.20

The Islamic specialist William Marcais, quoted by Papadopoulo, notes that this ritual use of water would influence the architecture of the Muslim city:

The public bath proved to be the suitable place for proceeding with the major ablution ... that does away with the defilement left by the sexual act. And for that reason it gradually became a kind of annex to the mosque. It was under cover of this ritual utilization that it came to earn a worthy place among the essential institutions of the Muslim city.

Finally, we learn from Papadopoulo:

The role of the public bathhouse in Muslim social life grew to be almost as important as that of the mosque and libraries.... It became one of the main places for social encounters, a place for hygiene and ritual purification, but also for relaxation and conversation. Such a city as Damascus had fifty-two hammams in the twelfth century.⁸

The pleasure-loving Flaubert visited a hammam on a visit to Egypt and described his plunge into the delights of the Orient: 'I was alone at the rear of the steam room.... Hot water was running all around.... It was most voluptuous and gently melancholic to bathe in this way.' And Theophile Gautier went even further: 'What an exquisite pleasure to abandon yourself to its slabs..., your limbs dulled, amid a perfumed steam cloud beneath a rain of rose and benzoin.'

The Jewish Torah orders ritual purification: for seven days after the end of their menstrual period, and for six weeks before giving birth, women are supposed to cleanse themselves by following the ritual of the Tahara. At nightfall, 'impure' women

⁸ *Ibid.*, p. 21

must go to the special mikveh baths.

A Gift of Water: Is a Gift of Life

For the Qur'an, water is the purifying element par excellence, both of the body and of the spirit: 'When He covers you with torpor, with safety coming from Him, brings down water from heaven to purify you, to dispel on you the stain of Satan' (Sura VIII, v. 11).

Does not the Holy Book of Islam spell out the unique role of water as the source of life: 'And we have created even-living thing based on water' (Sura XXI, v. 30), or, more clearly still: 'He who created man from water' (Sura XXV, v. 54): (Indeed, water is the origin of animal life: 'God created every animal on the basis of water' (Sura XXIV, v. 45).

Nor can there be any-plant life, and therefore food, without this key element: 'He who brings down water from heaven, with which we make all kinds of vegetation emerge, makes the greenery and diverse grains appear, the palm tree with its clusters jutting from its spathes, and the gardens of vines, olive and pomegranate trees' (Sura VI, v. 99).

In the Mary Sura (XIX, v. 24), the newly born Jesus turns to his mother and consoles her: 'Do not be sad! Your Lord has placed a stream [the child with an extraordinary destiny at your feet:

(A number of hadiths also underline the special character of water: for example, the one entitled 'To be a believer is to be clean', or 'Nothing is more pleasing to God than to give water to him who asks for it.'⁹

On street corners everywhere from Kuwait to Casablanca, one often comes across *sabils*: fountains, earthenware jugs and other (now often refrigerated) receptacles that devout donors, including a considerable number of women, have

⁹ Ibid, p. 22

placed there for the use of passers-by:

Islam even prescribes a haq al shafa (shirb) — a 'right to quench one's thirst' - for everyone without exception, even the worst of enemies.

To give water has always meant recognizing the social bond as non-exclusive; it is the act of humanity, the human gesture par excellence.

The expression of charity urged by Islam became a duty for anyone responsible for the fate of a town — the emir and, by extension, the state - and this has posed quite a few problems for politicians. In Saudi Arabia, water is virtually free - but its cost price is a state secret!

In Arabic, shafa means not only 'to quench one's thirst' but to 'cure' or 'to restore or recover one's health'; there could scarcely be a clearer indication of the virtues of this vital liquid.

In the Qur'an there are sixty-three occurrences of the word 'water' (m'a interestingly, the shortest word in the Arabic language), and for Islam happiness is to be found where there is water. 'God guides by their very faith those who have believed and who have performed beneficial works. Beneath them, streams flow into the gardens of happiness' (Sura X, v. 9).

- This is a recurrent theme, for we read in Sura XXII, v. 2: 'God allows those who have believed performed beneficial works to enter the gardens beneath which the streams flow.' If the text evokes paradise as a garden with flowing streams, this must mean that the idea of the garden needed a context in which water was scarce. As in the Prophet's Arabian desert, it is where water is scarce that it is most strongly associated with life.
- The same Sura (XXII, v. 20) also shows that Allah may use

boiling water to punish infidels. But Sura VII tells us that no punishment can compare to water deprivation - even the afterlife.

- Moreover, the Qur'anic paradise is adorned with a river whose water is particularly sweet: the River Kawthar (Arabic for 'nectar'), while rain in the Holy Book often looks fateful as - beats down.
- The Kawthar has nothing in common with the Styx of Greek mythology. The winding Styx encompasses Hell, but its dark icy waters have magic properties: Thetis dips Achilles in them to make him invulnerable. How mysterious is this combination of quite different properties that popular beliefs have given to water!
- Islam's emphasis on the cleansing role of water applies to the soul as well as to the body. The ablutions required before each of the day's five prayers are the key to the purity of soul that comes through prayer. So, we can see that Islam makes no rigid distinction between body and spirit: they are two complementary and intertwined elements. The injunction to wash reappears in a number of circumstances:
 1. When one is in rage.
 2. When one comes into contact with a corpse or is involved in transporting it.
 3. When one recites from the Qur'an or the hadiths,
 4. When one attends a course in religious knowledge.
 5. When one enters a mosque,
 6. When one calls others to prayer.
 7. When one preaches, and

8. When one visits a cemetery.¹⁰

Islam, however, is a faith of science, is quite unlike the other ancient religions. It is compatible with science and appeals to all people irrespective of race or geographical locations. Islam restored, expanded the scope, popularized and then made washup obligatory and superior to other religious acts of worship. In the entire history of bathing there was never a nation with such a comprehensive system of washup like that of Islamic culture. Al-Hajj Yusuf concurred:

Throughout history man has discovered the great importance of cleaning his body by washing the entire body, and he has treated many diseases thereby, but history has never known a nation to whom this was prescribed in such a regulated manner as that with Allah, the Exalted, honoured the Ummah (nation) of Islam.¹¹

In Islam, certain conditions necessitate religious bath. This is one of the ways of cultivating the ethic of bathing among the people. It makes care for one's personal appearance, hygiene and clothing very necessary.

Obligatory Baths

In Islam, bathing was a great prescription for good health that was ordained by the Almighty the Creator and Nourisher of man. It is made obligatory under certain conditions – to promote cleanliness and hygiene. It is compulsory to take bath under the following conditions:

- Before and after the marital relations.
- Friday morning

¹⁰ Ibid, pp 20 - 24

¹¹ Yusuf Al-Hajj Ahmad, Islamic Medicine, p.312.

- Eid Festivals
- After menstrual bleeding
- After cessation of bleeding from birth (delivery).

The Islamic ethic of bathing then slowly and steadily gave rise to modern grooming. The ethic had impacted positively on all cultures.

Procedure For Performing Ghusl

- Wash both hands up to and including wrists. Wash the private parts. The hands and private parts should be washed even if one is not in the state of Janaabat or Najaasat.
- If there is Najaasat elsewhere on the body, it should now be washed off. Perform Wudhu (Read separate pamphlet for Wudhoo according to Sunnah). If making Ghusl on a stool or platform where water will rapidly flow away, and then perform the complete Wudu.
- If there is fear of the feet being immersed in wastewater during the Ghusl then postpone the washing of the feet to the end of the Ghusl. Ensure that the mouth and nostrils are thoroughly rinsed thrice. After performing Wudu, pour water over the head thrice; Then pour thrice over right shoulder and; Thrice again over left shoulder.
- Now pour water over entire body and rub. If the hair of the head is not plaited, it is compulsory to wet all the hair up to the very base. If a single hair is left dry, Ghusl will not be valid.
- If the hair of a woman is plaited, she is excused from loosening her plaited hair, but it is compulsory for her to wet the base of each and every hair. If one fails to do this then the Ghusl will not be valid.

- As for men who grow long hair and plait them, they are NOT excused from leaving their hair dry. If a woman experiences difficulty or is unable to wet the very bottom of her plaited hair, then it is necessary for her to un-plait her hair and wash her entire head. It is Mustahab (preferable) to clean the body by rubbing it.
- All parts of the body should be rubbed with the hand so as to ensure that water has reached all parts of the body, and that no portion is left dry. Rings and earrings, etc. should be moved so as to ensure that no portion covered by them is left dry. Ensure that the navel and the ears are all wetted. If they are not wet Ghusl will be incomplete.
- On completion one should confine oneself to a clean place. If, while performing Wudu, the feet had been washed, it is not necessary to wash them again. Dry the body with a clean towel, and dress as hastily as possible.
- If, after Ghusl, one recalls that a certain portion of the body is left dry, it is not necessary to repeat the Ghusl, but merely wash the dry portion. It is not sufficient to pass a wet hand over the dry place. If one has forgotten to rinse the mouth or the nostrils, these too could be rinsed when recalled after Ghusl has been performed.

The three Faraa'ids (compulsory acts) of Ghusl are:

1. To rinse the mouth in such a manner that water reaches the entire mouth.
2. To rinse the nostrils up to the ending of the fleshy part.
3. To completely wet the whole body. When one performs these Faraa'id intentionally or unintentionally Ghusl will be

valid.¹²

These obligatory baths have numerous health benefits. But the rationale behind ghus-ul-janabat, a ritual bath after coitus was not fully understood until recently, when the complexity of orgasm is fully comprehended. It banished the cultural ablutophobia across the globe.

Complexity of Orgasm

It is important to give a brief account of orgasm, its impact on the body and why taking a bath is necessary after coitus.

Islam obligates taking a shower after sexual intercourse. It might be asked why does Islam order a person (sexual partners) to wash the entire body when washing of the private parts suffices?

- This is one of the miracles of the Book which Explains everything. The Holy Qur'an is emphatic of taking a bath, after what it describes as "ceremonial impurity" (Al-Nisa, 4:43).
- This injunction was revealed 15 centuries ago, it is now with progress in medical science that the wisdom behind Ghusul-Janaba (bath after sexual impurity is clearly understood.

This requires some explanations, because it is the least understood among the obligatory baths.

- Erection of copulatory organs (in both males and females) results from parasympathetic impulses that cause vasodilation (widening of the vessels) of arteries within the penis and a decrease in venous drainage.
- Emission and ejaculation are stimulated by sympathetic

¹² <http://www.islamicinformation.net/2008/07/how-to-perform-ghusl-bath-in-islam.html>

impulses, which result in the forceful expulsion of semen from the penis.

Generally, the function of sympathetic nerves is to accelerate and stimulate the activities of the various organs of the body, whereas the parasympathetic nerves function to decelerate or slow down the sympathetic impulses.

Hence through these two vegetative nervous networks the activities of the body are controlled and regulated, like the system of accelerator and brake decelerator of an automobile. The works of these two opposing systems must be balanced to achieve a normal condition of the body.

For example, erection of the penis is parasympathetic activity while emission and ejaculation of semen is sympathetic activity.

However, research has shown that during orgasm the climax of the heightened sexual activity disrupts the delicate balance and sets the two opposing systems into disequilibrium.

A shower after this orgasmic response, which is noticeably felt in all parts of the body, can quickly restore the balance or equilibrium.¹³

Water has a mysterious power that calms agitated nerves and restores their functions. In addition, ejaculation has some ill-effects to the body.

Negative Effects of Ejaculation

Male sexual response comprises of four phases: excitement including erection; plateau; ejaculation, usually accompanied by orgasm; and resolution.

- Ejaculation is a complex sexual response involving a sequential process consisting of two phases: emission and expulsion.

¹³ <http://miraculousquran.blogspot.com/>

- Ejaculation is basically a spinal reflex, which requires a tight coordination between sympathetic, parasympathetic and somatic efferent pathways from different segment areas in the spinal cord and innervating structures around the lower synchronizing role is played by a group of lumbar neurons (nerve fibres around lower back) as the generator of ejaculation.

It has some negative effects. Dr. Richard, M.D., enumerates some of these negative effects:

- Ejaculation affects androgens (male hormones) level few hours after coitus especially when the existent ones are used to support the nervous functions.
- When hypothalamo-pituitary-testicular functions is partially or fully blocked, androgen hormones may not be sufficient to effectively support the endocrine and nervous function, especially the high stress and inflammatory hormonal levels precede ejaculation.
- During sexual arousal, the cortisol (stress hormone) will slightly drop but it will rise slightly in response to the orgasm induced inflammation.
- When the modulation on inflammatory and stress hormonal release fall, the cortisol level will rise high enough to suppress adrenal Dehydroepiandrosterone.
- Dehydro-androsterone (DHEA) and androstenedione productions. This will lead to additional prolactin release days after orgasm and delaying the orgasmic recovery time significantly – days or even weeks. DHEA, is a hormone produced by the body's adrenal glands. These glands are just above the kidneys. It is an important steroid hormone.
- Frequent ejaculation will also deplete DHEA, oxytocin,

androstenedione, phosphorylcholine, α -melanocyte, β -endorphin levels, which will not be able to support testosterone production after ejaculation.

- Androgen hormones, neurotransmitters, oxytocin, free amino acids, and minerals in the semen stored in the seminal vesicles. They are supposed to aid orgasm in the post orgasm recovery by exciting and supporting the parasympathetic and sympathetic vagal and spinal nerves as well as the hypothalamic-pituitary-adrenal-testicular axis.
- If, however, these minerals, hormones and transmitters are depleted nervous support is lowered and post-orgasm recovery is delayed.
- That is why it is so harmful to go through multiple ejaculation sessions for a short period of time. This is because the hypothalamic-pituitary-adrenal axis will become too exhausted to produce sufficient androstenedione, DHEA, oxytocin, α -melanocytes, and β -endorphin to help the body restore properly body functions and modulate additional inflammatory responses.
- If the hypothalamic-pituitary-adrenal-testicular axis is exhausted or blocked, the body will rely on the low efficient cutaneous hypothalamic-pituitary-adrenal function to provide the needed restoration hormones and neurotransmitters.
- Due to the low efficiency of this process, it will take about 7-to-10 days for a sexually exhausted person to slightly recover and observe some improvement.¹⁴

Ejaculation may appear to be a simple process but it is not. It is a very complex process that involves the brain, nervous

¹⁴ <http://cure-erectile-dysfunction.org/negative-effects-of-ejaculation>. Dated 18.8.14

tissue, hormonal glands, neurotransmitters, male hormones and minerals.

All these organs produced blasts of their substances within a short period of time for which they have to be replenished within the post orgasm recovery period:

1. DHEA, oxytocin, androstenedione, phosphorylcholine, α -melanocyte, β -endorphine, are the various hormones and neurotransmitters that support the male hormone principally testosterone, excite and support the vegetative nervous systems – parasympathetic and sympathetic nerves including the spinal generator of ejaculation located around the spines of the lower back.
2. This generator of ejaculation is a major relay station and a synchronizing centre which plays a role through a group of lumbar neurons.

The central control centre of this process begins from the hypothalamus in the brain to the testes. Hence, it is described as hypothalamo-pituitary-adrenal-testicular axis, which means a complex series of release of hormones from the hypothalamus, to pituitary gland, to adrenal gland (located on top of the kidneys) and the testes.

Thus water invigorates the vegetative nerves and this important axis. It quickens the post-orgasm recovery period.

Until recently, ejaculation has never been known to wreak some adverse effects on a person. This is a matter to be treated with caution because ejaculation has some ill-effects. Ejaculation has other Problems:

- Orgasm depletes the brain and spinal fluids of

acetylcholine, dopamine and serotonin – important neurotransmitter. This causes depression after sex.

- Diminished are other hormones such as human Growth Hormone (hGH), DHEA, testosterone, Thyroxin (T_4) and Triiodo thyronine (T_3). These include hormone responsible for growth and others T_3 and T_4 increase the metabolic rate while testosterone is a male sex hormone, responsible for maleness or masculinity. Their depletions will cause multiple problems.
 - All neurotransmitters that are responsible for human functioning are also depleted. This affects the central nervous system, the peripheral nervous system and the autonomic nervous system. This is because these systems send their signals to various organs through neurotransmitters.
 - The depletion of the various hormones adversely affect human sexuality.
 - The depletion of neurotransmitters melts the brain's acetylcholine, parasympathetic, dopamine, and serotonin – which adversely affect nervous and endocrine functions.
 - Consequently, the depletion of these various bioactive substances results in bladder and prostate problems.
 - Frequent ejaculation depletes the body of serotonin, which causes an imbalance of melatonin.
1. Melatonin is the chemical that controls your Internal Biological clock and tells you when to sleep and when to get sleepy.
 2. Serotonin, on the other hand, is responsible for stress and

- anxiety as well as focus and concentration.
3. It gets turned into melatonin for sleep and recharging.
 4. Frequent orgasm causes lack of concentration and fatigue.
 5. This is a direct result of depleting their bodies of serotonin.
 6. Loss of Hair: This is due to the imbalance of the body's nutrients and hormones, which frequent orgasm produces.
 7. Over conversion of Dihydrotestosterone (DHT) leads to excessive DHT binding the root of hair cells, blocking them from growing and cutting off their supplies of nutrients and proteins, causing hair to become thin and eventually stop growing altogether.¹⁵

The importance of bath after intercourse can now be well comprehended. And the salutary effects of this bath be appreciated.

Health Benefits of Bathing after Coitus

To get rid of sexual impurity Allah the Exalted, makes bathing obligatory after marital relations to the Best of Mankind. This shower from a medical point of view is of immense benefits:

- It stimulates the circulatory system in men and women.
- It invigorates the nervous system after exhaustion.
- Bathing helps to energize the body and raise morals.

¹⁵ <http://www.herballove.com/articles/science-aftermath-sexualexhaustin-chemical>. Dated 18.8.14.

- It elevates the mood from depression.
- During ejaculation the skin secretes sweat with a high concentration of toxins, which may be reabsorbed and cause harm. So bathing removes these toxins and cleanses the skin.
- Scientists say that a person expends some of his vital elements during intercourse the equivalent to what is contained in a half a litre of blood.
- It is important to be moderate in seeking intercourse due to the lost of vital elements.¹⁶
- A shower calms agitated nervous system and spinal ejaculation generator after frequent ejaculation. Water restores the vitality of these nerves:
 1. Sympathetic nerves.
 2. Parasympathetic nerves
 3. Ejaculation Generator
- It revitalizes the glands and improves hormonal secretions and release of neurotransmitters.
- Bathing improves the functional integrity of the hypothalamo-pituitary-adrenal-testicular axis, and reduces their depletion of hormones.
- It modulates the stress and tension related ejaculation and orgasm.
- It regulates body's metabolism after coitus.
- It hastens the orgasmic recovery time.

¹⁶ Yusuf Al-Hajj Ahmad, Islamic Medicine, p.312.

- The washup cleanses the genitals and reduces the transmission of infection.
- It reduces the complications of multiple ejaculation sessions within a short period of time.
- Bathing improves the cooling system of the brain and helps in the restoration of neurotransmitters and chemicals
- It helps relieve muscle fatigue and tension.
- Water restores the production of these hormones, neurotransmitters, and minerals after being depleted during orgasm, these include: Acetylcholine, DHEA, Oxytocin, Androstenedione, Phosphorylcholine, Androgen, hormones, Neurotransmitters, Free amino acids, α - melanocyte, β - endorphin, prolactin, dopamine, serotonin, melatonin, dihydrotestosterone, and minerals.

It is the tradition of the Educator of Mankind (in his marital relation) to wash in between the acts of intercourse. It was reported that the Prophet (SAW) said: "When one of you comes to his wife then he wants to repeat it, let him do wudu".

The sexual response cycle has four phases: excitement, plateau, orgasm, and resolution. Both men and women experience these phases although the timing usually is different.

The Unlettered Prophet (SAW) could not have known the health advantages of bathing and ablution with a clear knowledge that was far ahead of his time without the agency of Divine intervention.

Islam had established within the last 15 centuries a culture of grooming and morality. It has made bathing compulsory

through religious edict to ensure a maximum compliance by the Muslims. Consequently, washup becomes an Islamic sign-post.

Cleanliness an Islamic Symbol

The Islamic sense of grooming and public hygiene had anticipated the modern age by several centuries. The following are historical facts:

- Poor personal and environmental hygienes are known today as the major causes of diseases and various epidemics.
- The importance of hand-washing was unknown to the West until when the emphasis on the contagious nature of puerperal fever (infection after delivery) was made by Oliver Wendell Holmes (1843) in Boston.

And the demonstration by Semmel Weiss (1847) in Vienna that the incidence of this disease could be drastically reduced by insisting that the students coming from post-mortem room should wash their hands in a solution of chlorinated lime before examining the women.¹⁷

To reiterate for the sake of emphasis, Islam links spiritual worship with physical cleanliness; the two are inseparable. As a result, grooming and environmental cleanliness are moulded into a set of unseparable pattern of behavior, which ensures that every Muslim possesses a high stand of personal hygiene that is lacking in non-Muslim societies.

Islam was the originator of Modern hygiene; cleanliness was synonymous with Islamic faith. M.M. Pickhall, a British Scholar,

¹⁷ G.G.A Thomas. Medical Microbiology, p.183.

- A notable feature of this civilisation was its cleanliness at a time when Europe coupled filth with sanctity. In every town there was a hammam, public hot bath, and public fountains for drinking and washing purposes. A supply of pure water was the first.

wrote:

... Consideration whenever there were Muslims and frequent washing became so much associated with their religion that in Andalusia in 1566 the use of baths was forbidden under penalties, because it ended to remind the people of Islam, and an unfortunate gardener of Sevilla was actually tortured for the crime of having washed while at his work. I myself in Anatolia have heard one Greek Christian say of another: "The fellow is half a Muslim; he washes his feet.

- The public food and water supplies were under strict inspection in all Muslim cities, and meat and other damageable food exposed for sale had to be covered with muslin as a protection from the dust and flies.¹⁸

Islam is a mercy to all peoples. Hygiene is very important. Cleanliness prevents infection getting into the human body, and guards us against ill health and epidemics. They are beneficial to all mankind in this World and the Hereafter:

- God ordered the Prophet (SAW): "O, Prophet keep your apparel clean and meticulously avoid filth and rubbish". This commandment applies to all mankind.
- The Prophet (SAW) said: "God Almighty is Himself pure and

¹⁸ M.M. Peichall, The Culture Side of Islam, p.37.

likes purity, God Himself is clean and He likes cleanliness” (Tirmidhi). This Prophetic injunction to keep clean and pure applies to all mankind.

- God Almighty dislikes dust, dirt and disheveled hair also applies to mankind to adopt personal hygiene.
- The Prophet (SAW) said: “Avoid three things which are cursed: To urinate at the source of water, in the shade, in the pathways.” (Ibn Maja).
- He also said: No one should pass water (urinate) in standing water. [Bukhari, Muslim and Abu Dawud).

According to Abu Hurairah (R.A), Allah’s Apostle (SAW) said to his companions:

Do you believe that dirt can remain on a person bathing five times a day in a stream running in front of his door?” The companions replied in the negative that no dirt can remain on his body. The Messenger of Allah then remarked, “Exactly the same is the effect of prayer offered five times a day. It washes away all sins.

This hadith pointed strongly that the Saviour of Mankind had succeeded in establishing bathing and cleaning in his community in Arabia. Subsequently these hygienic habits spread to the rest of the world.

Furthermore, it is only in Islamic culture that in addition to general bath, Ghusulul-Haidat or bath after menses is made obligatory.

Bath after Mense:

A Muslim in his endeavour to complete half of his faith through general cleanliness and personal hygiene, Ghusl is made compulsory to him: to take a bath while in a state of sexual impurity or *janaba*:- "till you wash your whole body" (Al-Nisa, 4:43); to take a bath after menses (in the female), Islam considers menstruation a condition of both ill-health and poor hygiene:

They ask thee concerning women's courses. Say: They are hurt and a pollution: So keep away from women in their courses, and do not approach them until they are clean. But when they have purified themselves, Ye may approach them in any manner, time, or place ordained for you by God. For God loves those who turn to Him constantly and He loves those who keep themselves clean (Al-Baqarah, 2:222).

The Holy Qur'an raises 3 important health issues that require some analysis and explanation from the point of view of medical science these are: Menses is a hurt; Menses is a pollution; Copulation during menses is harmful.

Menses is Hurtful

The Book which Explains everything states that 'menses is a hurt', and medical science gives its support and provides the evidences.

First, let's get to know some facts about menstruation or menses, which is the cyclical monthly bleeding in women of reproductive age groups.

- Menstruation is complex and controlled by many different glands and hormones they produce. It is controlled by

hypothalamo-pituitary and ovarian axis. This means that hypothalamus a structure in the brain causes pituitary gland to produce certain hormones or chemicals that prompt the ovaries to produce female sex hormones – estrogen and progesterone.

- The menstrual cycle is a biofeedback system in which each structure and gland is influenced by the activity of the others. The cycle is in 4 phases: Menstruation (bleeding), follicular phase, ovulation (release of egg) and the luteal phase.
- The average length of the menstrual cycle is 28 days. It varies between and from one cycle to the other even within the individual.
- The first menstrual period in girls is called menarche. It occurs between the ages of 11 and 14. It is a sign of puberty or maturity.
- During menstrual bleeding, the thickened inner lining of the womb (uterus) called endometrium is eliminated from the body through the external genitalia. The blood consists of cell from the lining of the womb and mucus. It lasts between 3 to 7 days depending on the individual.
- Its purpose each month is reproduction. The lining of the inside of the womb prepares for implantation of fertilized eggs should conception occurs. If it does not occur, the endometrium or the inner lining of the womb is eliminated, which is indicated by bleeding.

Menstruation is associated with series of physical psychological and nervous disturbances. Menstruation is dependent on the proper function of a chain of organs made up of the hypothalamus – ovary – and the uterus.

Disturbances of any of these can cause ill-effect. In deed, menstruation is a 'hurt and pollution'. Majority of accidental

and suicidal deaths among women can occur during menstruation (the Luteal Phase).

Sir Norman Jeffcoate, an Emeritus Professor of Obstetrics and Gynaecology, University of Liverpool, had described some of the menstrual phenomena that are hurtful during or preceding menses:

- **Ovulation Pain** – a mid-cycle pain (*Mittelschmerz*), which can be serious pain in the lower abdomen to mimic appendicitis.
- **Menstrual Pain** (dysmenorrhoea) is pain in the lower abdomen which is moderate or severe at the time of menstruation.
- **Premenstrual Tension or Premenstrual Syndrome (PMS)** – it is a periodic outbursts and moods, often resulting into quarrels making the situation worse. A woman is said to be “living on her nerves” during this period of menstrual tension or PMS.
- **Menstrual Migraine** – persons susceptible to migraine is liable to attacks before or at the time of menses. Menstrual migraine is restricted to cases in which attacks occur only at the time of menses.
- **Premenstrual Mastalgia** – fullness, tingling sensation and breasts become painful and swollen during or before the commencement of menses.
- **Recurrent Mouth Sores** – buccal or mouth sores called aphthous ulcers, is sometimes related to menses. The ulcers occur during the middle of the cycle or before its onset. The ulcers heal after the menses.

- **Recurrent genital sores** – ulceration of the lower part of the genital may occur along with the mouth ulcers or without oral manifestation.
- **Pelvic Allergy** – the hormones released during menses can cause extragenital allergic reactions or a certain menstrual toxin is released from the degenerated inner lining of the womb to act as an allergen. The allergic reactions include – herpetic eruption on the lips, skin rashes, menstrual coryza, cyclical conjunctivitis and menstrual asthma.
- **Vicarious Menstruation**- bleeding occurring from sites other than the womb at regular interval.
 1. If bleeding replaces normal menstruation it is called Substitutional.
 2. If bleeding accompanies uterine flow, it is called Supplementary.

This rare type of bleeding occurs in the extremes of menstrual life and in individuals with nervous and vascular instability. The commonest term of manifestation of vicarious bleeding is epistaxis.

- **Cyclical Haemothorax** – This is a sudden development of blood in the lungs during menstruation which resolves between each menstrual period.
- **Cyclical Pneumothorax** – A rarer and more mysterious condition is the sudden development of air in the lungs, which collapses the lungs. It occurs with each period, and resolves in the intermenstrual interval.
- **Menstrual Epilepsy** – This mostly affects girls and young women. The fits occur only at menstrual periods.¹⁹

¹⁹ Norman Jeffcoats, Principles of Gynaecology, Butterworths, London (1975) pp. 544 - 554.

Although few of these conditions are rare but they occur and are often misdiagnosed out of ignorance or in the attempt to make menstruation appear safe and healthy. The common health effects of menstruation are treated with drugs and suppressed with pain-killers to make menstrual women look 'healthy' while they are "deeply hurt".

The menstrual woman is physically; mentally and psychologically unwell. Her womb is congested with blood. The genital is also congested with blood with the genital walls friable and can be easily bruised. Yet, under this condition of ill-health coitus during menses is being popularized against all the associated health risks and hazards. Undoubtedly, a menstrual woman suffers the following common health problems – PMS.

- **Prementrua Syndrome (PMS)** – it occurs prior to menses and is associated with the sickly feelings a week before ovulation; which include:
 1. Lethargy and depression
 2. Malaise and tiredness
 3. Excitability and irritability
 4. Inability to concentrate
 5. Headaches, cramps and fatigue
 6. Impairment of efficiency in both mental and physical activities
 7. Feeling of nausea and vomiting
 8. Fullness and painful breasts.

Due to the autonomic nervous disturbances during menstruation it has been established that accidents and suicide rates among women are higher during the PMS. A menstrual woman is also hurt due to:

- Dysmenorrhoea - Painful periods
- Menorrhagia - Heavy menstrual blood flow
- Amenorrhoea - Absence of menstruation

Hence, menstruation is associated with often rare and common health disorders, and a menstruating woman is indeed – hurt and is in a state of illness. What she needs is not coitus but a tender loving care and treatment.

The medical science supports the Qur’anic statement that was revealed 15 centuries that menstrual women are “a hurt and a pollution”. Let us see how polluted a menstruating woman is.

Menstruation is a Pollution

It is important to have a brief account of the female genital area as it relates to cleanliness and how the area can easily be polluted or contaminated.

Genital hygiene is ensured by attahara and regular washup the importance of which can never be over emphasized.

- The skin around female genital area is more delicate, very sensitive and vulneral to infections.
- Constant soiling due to the proximity of passages of urine and stools.
- Infections can be transmitted between sexual partners resulting in what has been described as “ping-pong” infection.
- Auto-infection can occur due to faulty cleaning and washing, faeces can be smeared in and around the vaginal opening leading to various types of infection.
- This was why the Prophet (SAW) taught that during attahara, the urinary area is to be washed first before the

anal area.

This means while performing the Istijmar, the cleansing in the female should be front to back i.e., from the vaginal opening to the anus as recommended by the great Health Teacher in the 7th century, and not vice versa. This is then followed by Istinja, which also is from front to the back.

This Prophetic method prevents auto-infection, which occurs when the anal area is first cleaned or washed before the vaginal area. In this way, harmful germs from the faecal contaminated area is dragged and smeared into the vagina resulting into various urinary tract infections.

- Vulva and Vagina are normally moistened by secretions:
 1. Vulval secretions from Bartholin's sebaceous glands and apocrine glands.
 2. Vaginal secretions – mainly from the constant breakdown of the glycogen contained in the cells, which is acted upon by the Doderlein's bacillus, bacteria that are the normal inhabitants of vagina, to produce lactic acid. This acid helps in the protection of vagina against germs.
 3. The vaginal secretions consists of tissue fluids, epithelial debris, electrolytes and lactic acid.
 4. The vaginal P^H ranges between 4 to 5.5. The vaginal acid is a natural defence against pathogens. This acidity kills some germs.

Therefore, in a normal healthy condition the vagina and hence other organs of reproductive tract are naturally defended against bacterial or microbial invasion from the vagina, into the cervix (an opening to the womb), the womb, fallopian tubes and to the ovaries. In addition, to the acidic defense there is also a 'Cervical Plug'.

The cervical mucus is an important constituent of the normal vaginal discharge, but some of it forms a plug in the cervical canal, a small passage from the vagina into the womb. This thick mucus plug provides a functional closure of the cervix.

This plug is said to be bacteriolytic, a property which kills germs in the vagina and prevent bacterial invasion into womb from the vagina.²⁰

However, this natural defense system is disrupted during menses, allowing the growth of various harmful germs. Thus the vagina is not only polluted during menses but is also full of harmful bacteria. During menstruation the natural defense system is disrupted due to the following factors:

- During menses the flow of the alkaline blood raises the vaginal P^H to levels from 5.8 to 6.8. This rise in vaginal alkalinity promotes the growth of harmful bacteria rapidly.
- The vaginal PH varies with the menstrual cycle and the effects of ovarian hormones.
- The cervical plug which provides physical and bactericidal defenses against microbial invasion into the womb is broken down.
 1. Due to the action of progesterone the glands around the cervix proliferate to produce more mucus.
 2. Under the influence of Oestrogen the glands also actively secrete more mucus; cervical mucus absorbs water to become more watery.
- At the time of ovulation the cervical secretion is so profuse that it may be noticeable as a vaginal discharge – which is

²⁰ Norman Jeffcoate. Principles of Obstetrics and Gynaecology, p.27.

called the “Ovulation Cascade”.

1. The cervical plug desolves. Its special character at this period makes it for easy penetration by spermatozoa.
 2. Hence while the ‘gate’ of the cervix is opened at this critical time for sperm, to enter and effects fertilization, bacteria and other pathogens quickly get through the gate into the womb to cause infections. This infection is promoted by coitus at this time.
- A woman menstruating is prone getting sexually transmitted diseases (STDs) than during the normal period because the cervix opens to allow blood to pass through. This opening creates the perfect pathway for bacteria to travel deep into the pelvic cavity.
 - A woman is also more likely to pass blood-borne diseases like HIV and Hepatitis A to a partner during her period.
 - She is even more likely to develop yeast or bacterial infections because the vagina’s P^H during menstruation is less acidic. There is also a chance of getting pregnant.²¹
 - Vaginal secretion which often promotes the growth of harmful bacteria is increased in the following conditions:
At the time of ovulation when there is ‘ovulation cascade’ from the cervix.
 1. During a few days premenstrually when there is increased secretion from all parts of the genital tract.
 2. During pregnancy when there is increased in vaginal and cervical discharges.
 3. During sexual excitement when there is outpouring of Bartholin’s secretion on to the vagina.

²¹ <http://www.everydayhealth.com/sexual-health/berman/sex-during-period.aspx>. Dated: 25.8.14

It is easily understood from this brief account that menstruation is a period when the genital area is polluted with harmful bacteria. It is therefore very important to wash the area frequently and to keep it as dry as possible.

- The genital should be washed regularly because during menses the two labia – majora and minora, the soft fleshy projections surrounding the outer and inner area of the female genital allow the accumulation of menstrual blood.
- The blood tends to enter the tiny spaces like the skin between the labia or the crust around the genital opening must be washed thoroughly to remove the excess blood away. This scrupulous hygiene is important, it protects against the spread of infection in the genital and reproductive organs, inside a woman's body which consist:
- Two ovaries, one each on the right and the left – where eggs are developed, stored and released.
- The womb (uterus) – were a fertilized egg implants and a pregnancy develops.
- Fallopian tubes or oviducts, (one on each side-right and left) – the two narrow tubes that connect the ovaries to the womb; transport fertilized egg from the ovaries to the womb for implantation.
- The cervix – lower part of the womb that connects to the vagina.
- The vagina – a muscular tube leading from the cervix to outside the body.

The menstruating woman also receives another hygienic care.

This was the introduction of piece of cloth that was used to cover the soaks the blood and prevents sailing of the body with menstrual blood.

Islamic Sanitary Pad

In most religions a woman during menses is considered unclean and is abandoned. At the wake of the Age of Ignorance, woman in menses, suffered unfold hardships in many cultures.

It was the Saviour of Mankind who gave women liberty and rights that were hitherto denied of, and also gave them how to take care of themselves during menstruation.

- During menses she is exempted from all the major religious acts such as salat, fasting and holding the Holy Qur'an, etc. this is because from the religious point of view she is in a state of impurity.

This is also significance from the medical point of view because these exemptions provide her with additional relief to cope with physical and psychological stress.

- She is not only in a state of religious impurity but also in a state of physical impurity as well. She is expected to show extra hygiene and cleanliness during this haidto oviate the fetid smell that is usually associated with menstruation.
 1. This because "Allah Loves those who keep themselves pure and clean".
 2. It is also prohibited to engage them in marital relation, till the state of impurity is over, and have taken a ritual bath - "Approach them until they are clean".
- It was extremely difficult to cope with menstrual bleeding and to maintain good hygiene especially in the 7th century Arabia. The great Health Teacher introduced the use of

Kursuf, a piece of cloth or pure organic cotton to pad the genital area.²²

It was meant to absorb the menstrual blood; avoid body contamination and fetid smell and its regularly changed with application of perfume to minimize bad body odour.

The Prophet (SAW) introduced and popularized the use of *kursuf* in the community, which was the precursor of sanitary pad of modern times. It was reported in one of the hadith that:

A woman asked the Prophet (SAW) about the bath which is taken after the menses are over. The Prophet (SAW) instructed her: "Purify yourself with a cloth scented with musk (perfume). The woman asked: "How shall I purify myself with it?" (Aisha), pulled her to herself, and said: "Rub the place soiled with it (Bukhari)".

The *kursuf* is changed regularly until the cessation of the menstrual bleeding called *Istimrar*. When the bleeding stops the woman takes the obligatory bath – *ghusl-i-Haidat* or ritual bath after menses.

However, a woman during menses continues to take general washups. She takes the ceremonial bath for *Istimrar* both for health and spiritual benefits.

The teaching of the great Health Teacher was the application of the pad to cover the genital area but it was not meant to be applied inside the genital.

Another hygienic rule established by Islam is: "No sex during periods". This rule is flouted with severe consequences, in modern times.

²² Yusuf Nadabo, Medical Benefits of Islamic Worship, p.88.

Coitus during Menses is Harmful

Islam prohibits coitus during menses in categorical terms: “Keep away from women in their courses, and do not approach them until they are clean” (Al-Baqara, 2:222). This injunction was revealed 15 centuries ago. The medical science and the latest scientific research are in support of this divine Commandment, due to the following reasons:

- During menses the vaginal P^H is high, which allows the growth of germs and harmful bacteria.
- The proximity of the vaginal opening and the anus is close. So the private part is easily polluted with vaginal secretions and blood – a good medium for bacterial growth.
- Prior to the commencement of menses the cervical plug which closes the entrance into the womb melts down to allow the passage of sperms. Bacteria and germs enter the womb easily through this “open gate”. Germs increase in the menstrual blood and spread infection to different parts of the reproductive tract:
 1. Vulvoginitis – infection of the vulva and vagina due to bacteria, *Trichomonas vaginalis*, *candida albicans* and other pathogens
 2. Cervicitis – secondary infection and erosion of the cervix.
 3. Endometritis – infection of the inner lining of the womb or endometrium.
 4. Salpingitis – infection of the ovarian or egg carrying tube. This tube later heals by fibrosis which blocks the tube and cause infertility to the female.
- 5. Salpingo – Oophoritis infection of the fallopian tubes

and ovaries. Infection may spread into urinary passage, which can spread to other parts of the urinary tract causing bladder infection, pyelonephritis and kidney diseases.

This coitus serves as a piston to force the spread of infection in all the urinary and reproductive systems of the body. Infections is also transmitted to the male sexual partner, which can spread to his urinary and reproductive tracts:

1. Urethritis – infection of the urinary passage, which can heal by fibrosis causing urethral stricture and retention of urine.
2. Orchitis – infection of the testicles resulting in destruction of the testicles and leading to men sterilization.

Sex during menses is also associated with physical hazards.

Physical Complications

The genital and reproductive tracts of the female are flible and engorged with blood. The blood vessels are also engorged with blood and are soft and delicate. These delicate vessels are often described as ‘Leaky’ because they bleed after a mild trauma. Hence coitus during menses causes:

- Menorrhagia – increased menstrual blood flow
- Amenorrhoea – cessation of menses
- Bruising of the genital – reinforcing the spread of infection.
- Dysmenorrhoea – very painful periods.
- Polymenorrhoea – intermittent or erratic menstrual period.
- Endometriosis

- Uterine Fibroids and Adenomyosis
- Ectopic pregnancy

Sex during periods is also associated with psychological trauma.

Removal of Womb

A research study published in 1996 by Dr. Winnifred Cutler has revealed the following grave harms associated with sex during menses in peri-menopausal women about the age of menopause:²³

- Engaging in coitus during menstruation is associated with heavier bleeding patterns in peri-menopausal women.
- The Stanford Menopause Study showed 83% of the peri-menopausal women engaged in sexual intercourse during menstruation.
- The study suggests that increased bleeding is associated with sex during menses.
- Dr. Cutler explains the significance of this study in the United States especially:
 1. This country has a rate of hysterectomy – surgical castration of women that is 5 times higher than in other advanced nations. Hysterectomy means removal of the womb, and Castration removal of the ovaries.
 2. A majority of American Physicians consider peri-menopausal women with increased or unexplained bleeding as prime candidates for hysterectomy and simultaneous castration (ovariectomy).

²³ Journal of Psych, Obs Gyn, 1996, Vol., 17, pp.149-157.

3. About 12 million U.S. women are in that perimenopausal transition.
- Women who are at risk have now a preventive abstinence during menses that might prevent unnecessary hysterectomies.
 - The knowledge of this study may reduce the excessively high rate of hysterectomies in the United States.

Dr. Cutler of the Athena Institute for Women's Wellness, was a co-discoverer of pheromones in humans in 1986. The findings of this research by Dr. Cutler and her colleagues, is a wake up call to young girls not only in US but in all nations to desist from indulging in sex during menses. In addition, to having series of problems due to the preventative act, it might caused their wombs and ovaries in the 7 years transition to menopause.²⁴

In other words, they may attain menopause battling with the complications of castration and removal of the womb, especially the removal of the ovaries, because they will spend the rest of their lives on hormonal pills.

Lastly, Chinese ancient philosophy lends its support to Islamic injunction against sex during periods:

- It can cause blood stasis and leads to amenorrhoea (no period or scanty period), dysmenorrhoea (painful period), menorrhagia (heavy and prolonged period) or irregular periods. This is because:
- During period, blood and Qi (energy) naturally move downwards with sexual arousal through the body, Qi moves upward. As these two opposite movements clash, they can cause a stagnation of both Qi and blood in the uterus. And this stagnation interferes with the natural flow

²⁴ http://www.athenainstitute.com/prs_sex_me.html Dated 15.8.14

of menstrual blood, which can cause various problems.

However, in spite of the grave dangers associated with this abnormal sexual habit, it is popularized in the most Developed countries especially the U.S with the highest rate of womb removal.

Fallacy of Sex during Periods

The safety of sex during period is a ruse and fallacious, yet its being orchestrated as healthy and safe:

- It is claimed to be more pleasurable to the female because the high level of hormones during menses makes its more excitable. But it is messy and bloody and the presence of blood can be off-putting.
- It is said to relieve premenstrual tension and cures cramps. But uterine and vaginal contractions and spasms during orgasm helps in sucking in blood containing germs into the different parts of the genital and reproductive tracts of the female.

This invariably helps the spread of infection. Hence orgasm achieved in sex during menstruation is very costly – it is at the risk of the spread of HIV, hepatitis and other diseases that are sexually transmitted.

- It is also claimed to be safe from pregnancy – that it carries less risk of pregnancy. This is false because it has now been well established that pregnancy can occur because sperms can survive inside the woman's body up to 7 days. Sex during period is not safe and will not be a safe period.
- Menstrual period remains a period of “a state of hurt and pollution”, it can not be safe and pleasurable. It is a form of sadism to hurt a woman who is in a state of

hurt by 'pumping' blood carrying germs deeper into her reproductive tract during coitus.

Islam is supra-science, is compatible with science, and is in tandem with human development in all epochs sine die. It makes taking a bath after cessation of bleeding after delivery called as Nifas.

Bath after Birth

Islam considers the womb a very special organ. It emphasizes the importance and significance of kinship of persons or siblings who share same mother especially; it encourages purity of lineage; it shows a great concern for women during menstruation and bleeding after birth. It also considers the shedding of the inner linings of the womb as "a state of hurt and pollution".

The Qur'anic injunction as it relates to Al-Baqara, 2:222, applies to both Nifas and Haid - birth delivery and menstruation. Similarly, the Islamic prohibitions and recommendations during these states of impurities are the same.

When the period of nifas ends by the cessation of bleeding then it is obligatory to perform the ritual bath-ghus-ul-nifas. It is pertinent to observe:

- General bath for body cleanliness is not prohibited during the periods of haid and nifas.
- Bathing after Istimrar the cessation of bleeding in these states of impurity is crucial as it signifies the restoration of the body to normal state.
- Ritual bath after the haid and nifas facilitates the restoration of the body systems to normal. Water has a magical power, it revitalizes the body.

- Water assists the body to restore itself, which is crucial to health. It is more significant than the general bath because it responds to the internal demand of the body toward, the restoration of milieu interior or internal environment.
- The ritual bath is a crucial time to assist the body to return to the normal state of metabolism. The hormonal secretions are low; the activity vegetative nerve is also low.
- This bath and its timing made obligatory otherwise it may not be observed diligently. So that hygiene and cleanliness of the body may be compromised at a crucial time when the body needs them most.
- Immediately after Istimrar and ghus-ul-nifas marital relation can commence. This time is also important because:
 1. The vagina and vulva are healed.
 2. Woman is physically comfortable and emotionally ready.
 3. By 6 weeks after delivery most of the changes of pregnancy, labour and delivery have resolved and the body has reverted to the non-pregnant state.
 4. Mother is stable to take care of her babe. And breastfeeding for two years is good for the baby and also good for the mother.

Undoubted, the teachings of the Prophet (SAW) with respect to menstruation and puerperium have impacted positively on the modern world – on some of the principles of obstetrics and gynaecology.

Health Benefits of Bathing

- **Male fertility:** Perhaps there are very few people who know this fact, that a cold shower can increase fertility in men. On the other hand, a hot shower is bad for your testicles, because it can potentially lower the sperm count. If you want to plan on having a child, it's time to bathe in cold water. Think again if you plan to visit the sauna or steam bath.
- **Increase blood circulation to remove toxins:** When the cold water is put on the surface of the skin, blood vessels beneath the skin will shrink. This reduces the blood circulation, but at the same time the mechanism of blood pressure and it will automatically destroy the target tissue. This causes the blood to circulate with greater impetus, so that blood flow becomes stronger in the increasing circulation.
- **Build up immunity:** You want to increase white blood cells? Bathe in cold water, because it will increase your metabolism, which in turn increases body heat and revive the immune system by releasing white blood cells.
- **Increase metabolism:** When a person feels cold, they will usually wear a sweater to warm the body. Similarly, when your body is doused in cold water, your body will automatically produce heat, which makes the body's metabolism to increase rapidly. That's when carbohydrates and fats are burned to make you feel warm.
- **Prevent injury:** When you perform physical activity, the muscles will become inflamed and you need time to make

your muscles become relaxed. To increase strength and muscle mass, your muscle fibers will swell and shrink. Therefore, to prevent rupture of muscle fibers due to excessive physical activity, wash with cold water.

- **Additional benefits:** a cold shower can reduce chronic pain, reduce body aches, improve hair health, kidney function, reduce inflammation and regulate the autonomic nervous system.
- **Cold water and the rhythms of the body:** Cold water can deepen your breathing and helps fight fatigue. Even if you are having trouble sleeping, take a cold shower *memembuat* believed to be sleeping more soundly.²⁵
- **Improved blood circulation:** Showering with cold water is in going to improve your blood circulation between organs and skin considerably. With cold temperatures, blood flows to your organs for protection to keep them the warmest. Warm water sends the blood rushing to the skin so alternating between cold and hot (as I will detail later) can be a great way of improving your blood circulation. If you are just beginning, it might be best to stick to a cold shower only.
- **Improved mood:** It is hard to quantify mood and indeed it is altered by many things. As my *UnbalancedBrain* series indicates, there are scientific reasons for many mood disorders. Cold showers can stimulate noradrenaline secretion in the brain, which is associated with improving mood disorders like depression.
- **Increased immune strength** – unlike what your mother told

²⁵ <http://scarlettswinter.blogspot.com/2012/04/7-benefits-of-bathing-with-cold-water.html>

you, spending time in the cold can actually increase your immune strength. Those who take cold showers typically exhibit higher white blood cell counts as well as higher concentrations of plasma, T helper cells, and lymphocytes.

- **Increased testosterone levels** – I’m always looking for healthy and natural ways of increasing my testosterone levels. It’s a boon in the gym, it makes me feel more motivated in general, and manipulating it naturally is the safest long term method I can think of. When I heard that cold showers can vastly increase testosterone production, I was even more thrilled. Not only is testosterone elevated during the shower, but throughout the day as well.
- **Metabolic advantages** – from a body composition perspective, cold showers are also incredibly useful. The cold water induces an increased metabolic rate. The cold temperatures force your body to re-regulate the body temperature continually, which utilizes many calories. Mark mentions that an evolutionarily retained adaptation to cold water exposure is a layer of protective fat. Therefore, get your cold shower short and sweet and then get out. Longer exposure to cold therapy is not necessarily better.
- **Better breathing** – you may hyperventilate as soon as you get in a cold shower, which is a pretty natural response. However, the panic will only make the experience worse so it is in your best interest to breathe calmly and deeply. Few people breathe deeply so you may need cold showers to help you do so.²⁶

²⁶ <http://www.thehackedmind.com/7-reasons-to-take-cold-showers-and-1-that-really-matters/>. Dated 6.6.14

Global Impact Of Wudu

While washing habits were established in the 7th century, Medieval Europe remained for 1,000 years without hygienic practices of grooming and toilet. However, the west imbibed the Islamic hygienic practices that today the western world is the best in the field of public health and hygiene.

W.T. Sedgwick (1908) in a leading public health textbook noted that:

- Sedgwick's comment came at a time of transition, when personal hygiene wasn't a widespread habit.
- Through great periods of European and much of U.S. history, cleanliness was inconvenient, religiously restricted, or just plain out of fashion.
- Living unwashed were saints, the masses and monarchs alike.
- In response to the debauchery of Roman baths, the early Christian church frequently discouraged cleanliness. "To those that are well, and especially to the young, "Saint Benedict in the sixth century commanded, "bathing shall seldom be permitted".
- Saint Francis of Assisi considered an unwashed body a stinking badge of piety. Queen Isabella of Castile boasted that she had only two baths in her life – at birth and before her marriage.
- Colonial America's leader deemed bathing impure, since it promoted nudity, which could only lead to promiscuity.
- Laws in Pennsylvania and Virginia either banned or limited bathing, for a time in Philadelphia, anyone who bathed more than once a month faced jail.²⁷

²⁷ <http://wordinfo/unit2701/p:1>

Islam is a faith of science and a Mercy to all nations. The hygienic habits that were established in Makkah the Centre of the world spread to all the continents supplanting terrible customs in its trajectory across the globe. In Europe particularly, this civilizing force removed the dread of water amongst the Europeans and introduced bathing habits to the royalties and to the general public in general.

The use of toilet, toilet etiquette and hygiene, and bathing habits that are seen in Europe today were due to impact of Islam. It treated Europe of its cultural ablutophobia.

Europe's 'Bath Phobia'

The Crusaders brought back the culture of public baths borrowed from the Turks whose Turkish public baths were famous venues for daily washings and considered a must by the Turks.

- In medieval Europe people had a strange mentality. With diseases like plague and other communicable illnesses being rampant from the 14th to 18th centuries, and from kings down to the peasants, all were fearful of dipping their bodies in water thinking that it made their bodies vulnerable to germs.
- Thus, they avoided water in favor of linen cloth, which could be changed regularly, in lieu of bathing.
- Fear of immersing the body in water continued into the 20th century. And of course, the long cold winters of the West with no central heating made bathing a lot more cumbersome, even frightening.
- People feared they would catch the cold and die.

- Children belonging to well-to-do aristocratic homes screaming with horror while being taken for their first warm bath was no uncommon sight.
- Americans (writes author Katherine Ashenburg), were as filthy as their European cousins before the Civil War, but the Union's success in controlling disease through hygiene convinced its citizens that cleanliness was progressive and patriotic.
- Total immersion bathing as we know it did not come into use until the 19th Century. It was simply too much work to heat the water, fill the tub, and then empty it. But occasionally in inns, a visitor would order a bath drawn which was considered quite a luxury.
- People generally took what we would call a sponge bath every day, using basins and pitchers that are still around today with plants in them. People also carried around pomanders to sniff in case they ran into bad odors.

Also, bed linens and cotton garments were frequently washed, however cotton garments were rarely worn by the royals and aristocrats. But satins, velvets, and wools were never washed. So one can imagine the stench.

In the 7th century Arabia the Muslims, though living in the desert where using water for washup after toilet and washup before each prayer and bathing was obligatory. There were made "watery individuals" inhabiting the "water planet earth". In contrast, Europe was languishing in the ill-effect of bath phobia for over 1,100 years until the Islamization of Europe in 19th century.

Prior to that the hygienic record of Europe was terrible. Heba,

gave a vivid account of Europe prior to the positive influence of Islam. It was a brief account on disgusting hygiene of Medieval European royals. In this illumination account; He wrote:

Despite the opulence of the palaces of France until the 18th century showing all those paintings, pomp, grandeur and romance, they lacked indoor plumbing and most palace dwellers smelled pretty bad. It was not uncommon to find human excrement in the elegant carpeted stairways of the great palaces and castles. Piles could be found in hallways and corridors. Bathing was a rarity. It was an era of cultural ablutophobia. The dread of bathing was particularly seen amongst the monarchs and the royals.

Marie Antionette, last queen of France

Marie Antoinette bathed infrequently, seldom changed clothes, and was around palace people who were even less hygeinic than she was.

- Marie Antoinette's once a month baths were like a glamorous ritual. Thus, the body odor would begin from the third or the fourth day, and a fortnight later she would literally stink.

Queen Elizabeth I

She's said to have taken a bath once a month "whether she needed it or not" even though she had access to sunken bath built by her father.

Anne of Cleves

The Germans had long shocked the rest of Europe by not washing their hands before eating and bathing infrequently.

- Henry VIII's forth wife, Anne of Cleves was no different.

Before she was presented to Henry, her advisors worked hard to get the stinky German princess to take a refreshing bath. Not that Henry VIII himself was any role model of cleanliness!

King Henry VIII

He bathed at Hampton Court (one of his palaces in England) with actual heated water pumped in from a stove in the adjoining room.

- To ease the pain in his sore leg, he soaked it in a mixture of herbs, musk and civet. Civet is a small carnivorous cat that supposedly gives off a very distinctive musk. Not sure what cat musk smells like but it definitely isn't pleasant.
- Henry also went to bed with a piece of fur so that fleas and lice would jump on it and not on his royal skin.
- This begs the question, wouldn't the fleas be confused if you smelled like a dead cat? Furthermore, how could fleas and lice be found in a place like the "royal bedchamber" unless the royal himself was filthy?
- Hair was even dirtier than the body. The elaborate hairstyles of the aristocratic ladies, queens and princesses looked elegant. But there was a catch.
- Behind that elegance they often carried lice in those huge hairdos.
- The combs and picks seen in pictures sticking out were used to stab and scratch at the lice.
- Washing the hair was even more infrequent than washing

the body, particularly among women.

- Hardly anyone washed their hair until the 19th Century. Hair was maintained by excessive use of hair powders and perfumed ointments to groom the hair. One can imagine the goopy mess it must have been.

Peter the Czar of Russia

This man was supposed to be widely travelled, educated and cultured .. but probably in his own way.

Good and proper hygiene was a practice he never understood nor followed.

He found nothing wrong with urinating on the glittering palace walls. He washed occasionally using natural mineral spring bath. Regular bathing never became his habit.

Charity sometimes began in the tub.

While suffering from a “distressing malady” Countess Platen Hanover bathed in milk and then generously donated the diseased milk to the poor. Totally disgusting!

Queen Isabella and Ferdinand of Spain

Ferdinand and Isabella didn't help in the quest toward cleanliness either. This may sound too crazy to believe, but in Spain the Christian doctrine saw bathing to be a corrupt practice that could only lead to “nakedness.”

- It was considered a form of “hedonism” and something “unreligious.”
- Religious Christians often walked from England or France

to Jerusalem as a ritual without washing or changing their clothes.

- After the conquest of Granada by the Christians, the Muslims (Moors) not only had to give up their religion to survive the Inquisition, they also had to give up bathing.
- Isabella and Ferdinand ordered the Moorish baths to be destroyed and bathing was strictly forbidden.
- When Columbus mentioned about the daily bathing habits of the natives of the Bahamas and the Caribbeans, Isabella was horrified and commanded her new subjects to stop this blasphemous bathing practice at once.
- Isabella boasted that she herself had only bathed twice in her life and every historian takes her word for it.

Phillip II and his Daughter Isabella

Continuing along with the Spanish love for dirt, Phillip II banned the remaining bath houses in 1576.

- His daughter Isabella became a “national martyr to germs” when she vowed in 1601 that she would not change her undergarments until the siege of Ostend ended.
- Unfortunately, the siege lasted over three years! That’s an awfully long time to be wearing the same underwear!! After three years, her white shift had turned a lovely shade of brown.

Henry IV

Henry’s first wife, Marguerite de Valois complained bitterly

about Henry's lack of bathing worsened by his constant desire to eat large amounts of raw garlic.

- Cleaning the teeth in medieval Europe was another infrequent practice.
- Since most of them were frequent drinkers and eaters of half raw foods, bad breath was a common problem too.

ing and his tub

The king that always gets accused of being dirty (in more ways than one) is Louis XIV.

Numerous books contain the rumor that Louis XIV bathed "only three or two times in his life".

The ruling theory of the time was that simply changing your linen would soak up sweat and dirt.

- The rich wore tightly woven fabrics like linen and taffeta because it was believed to keep the crawlies away from skin. Loose garments were believed to be far less effective in staying clean.
- The king's morning ritual consisted of his hands and face being wiped down with spirits and then his sweat-drenched linen was changed (Louis reportedly sweat a lot).
- His courtiers then sent him on his way to go to mass, his council meeting, hunt, chase the ladies and work up some more sweat. His linen was then changed a couple of more

times throughout the course of the day. But no bathing.²⁸

Islam is a faith of science with an amazing history. A credo that had lit the candle into the Dark Ages of Europe and had nudged it into Renaissance, Enlightenment and to science and technology. Despite the current stand-off between the two cultures, the future between Islam and the West is still bright. I solemnly believe that the prophecy of sir George Bernard Shaw will come to pass. He said:

I have always held the religion of Muhammad in high estimation because of its wonderful vitality. It is the only religion, which appears to possess that assimilating capacity to changing phase of existence which can make it self-appeal to every age.

I have studied him - the wonderful man and in my opinion far from being an anti - Christ, he must be called the saviour of humanity. I believe that if a man like him were to assume the dictatorship of this modern world, he would succeed in solving its problems in a way that would bring it the much needed peace and happiness; I have prophesied about faith in Muhammad that it would be acceptable to the Europe of tomorrow as it is beginning to be acceptable to the Europe of today.²⁹

²⁸ <http://muslimvillage.com/index.php?topic=3219,0;wap?> Dated 1.10.14

²⁹ George Bernard Shaw. *The Genuine Islam* taken from *Islam our choice* published by Begun Aisha Bawany Trust.

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About The Book

Ablution involves regular washing of the exposed parts of the body about a 100 times a day. It is performed for spiritual blessings and also promote health status. It targets with absolute precision the surface area of certain special veins called the Emissary veins that are in the head and face, and the parallel blood vessels (arteries and veins) of the limbs, to enhance countercurrent the heat exchange system between these vessels.

The book argues that wudu may prevents some of the neurological disorders through its evaporative cooling effects such as Multiple Sclerosis (MS), Azheimers' disease (AD) and Parkinson's Disease (PD) and so forth. It also shows that ablution is a valuable fortress against the perils of progress such as Global Warming and Electrical Environment. The book is written with the general and specialized reader in mind.

