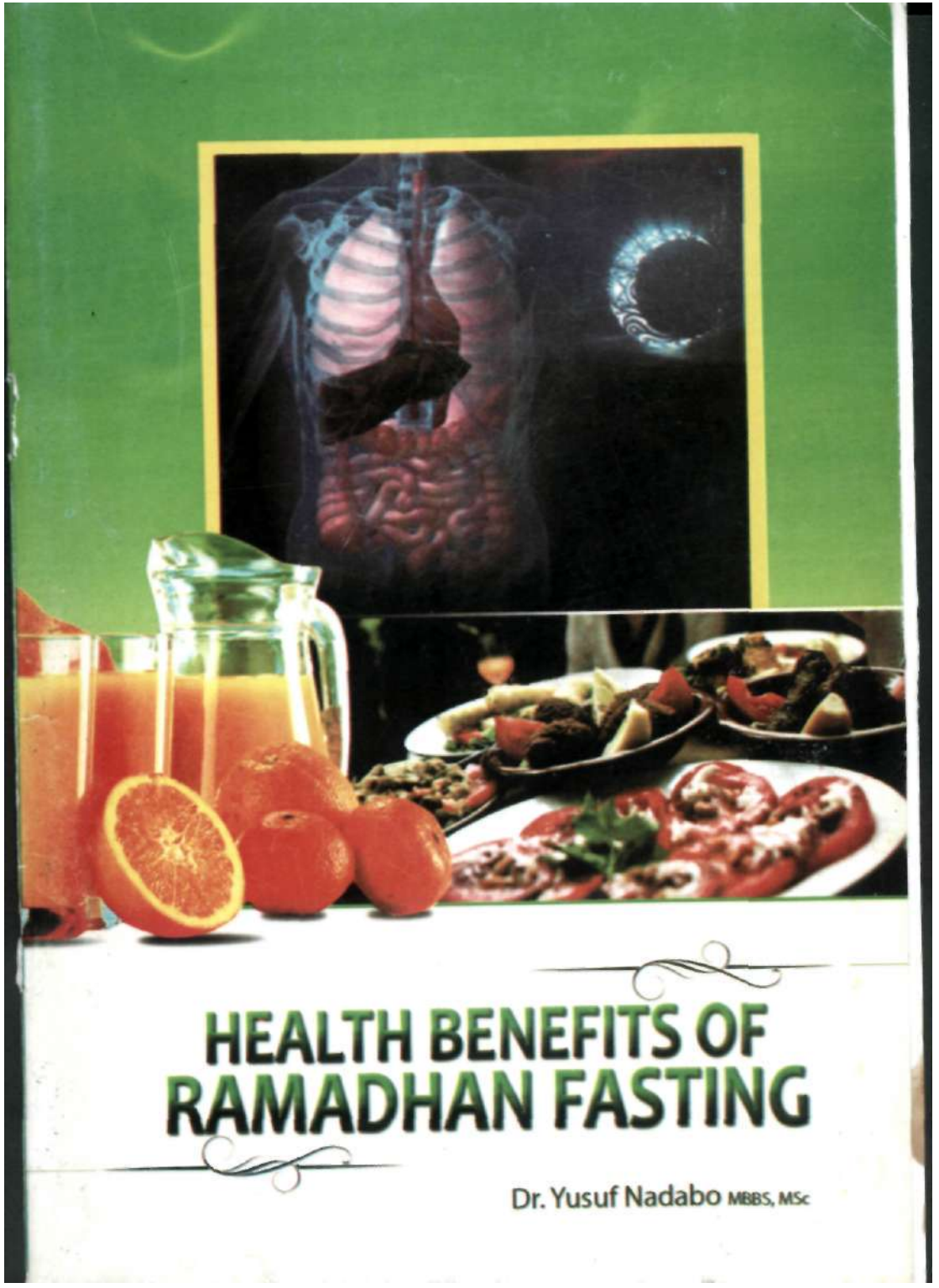

HEALTH BENEFITS OF RAMADHAN FASTING

Dr. Yusuf Nadabo MBBS, MSc

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OF
RAM AD HAN FASTING

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DEDICATION

In the Memory of Sheikh Abubakar Mahmud Gumi and Sheikh A. I. Umaru Sanda for their monumental services to Islam.

Health Benefits of Ramadhan Fasting

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civilization. Some of these diseases can only be conquered or preventedwith Islamic Fasting. Today, Americans and other European Nations have landed on the moon due to scientific progress but ironically they have failed woefully to get rid themselves of obesity and alcoholism, which appears a formidable frontier.

The aim of Ramadhan is primarily the seeking for Allah's Blessings. These Blessings however include some immense health benefits. The fasting encompasses the benefits of all other forms of fasting in a simplest form: Abstinence of food and drink from dusk to dawn for 30 days. The Ramadhan encapsulates: Fasting, physical exercise and dieting. It is devoid of nutritional deficiency or hormonal imbalance. It is the easiest and safest form of fasting; a 10 year old can fast the Ramadhan unharmed. Latest scientific research has now shown that the fasting helps Muslims to withstand the ill-effects of jet-lag or time-zone fatigue. This is because they adapt quickly during international flights across two different time zones; as they show rapid re-synchronization of bio-rhythms.

Therefore, for the spiritual and healthful life of the Muslims, Allah (SWT) prescribed the fasting of Ramadhan (Holy Qur'an, 2:183). The Almighty Allah said: "It is better for him and it is better for you that ye fast, if ye only knew." (Holy Qur'an, 2:184)

Ramadhan fast is made easy and safe, and salutary because of Allah's Promise: God intends every facility for you: He does not want to put you to difficulties. (He wants you) to complete the prescribed period, and to glorify Him. (Holy Qur'an, 2:185)

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INTRODUCTION

HEALTH AND ISLAMIC WORSHIP

In Islam, what stands out conspicuosly is inter-relationship between Health and Worship. They are so intertwined to be insaparable. For instance, when a Muslim fasts the month of Ramadhan, he is worshipping Allah (SWT) and at the same time is improving his health status in a number of ways.

Here are some aspects of Islamic hygiene and sanitation from Sheikhul Islam, A. I. Umaru Sanda, an Illustrious Islamic Scholar of International repute. In one of his series of articles, *The Greatest Single Event in History (4)*, wrote:

"The Prophet *Sallalallahu alaihi wa sallama* declared: This religion (ISLAM) is built upon purification and cleanliness. He also declared: "Cleanliness and sanitariness are part and parcel of the Islamic Faith." He also commanded us: *Nazzthifoo afniyatakum,* meaning: "Keep all your internal and external environments clean..." In these few words, The Prophet *Sallalallahu alaihi wa sallama* taught the world about personal and environmental hygiene, as you will see In Sha Allahu Ta'ala.

Now this purification, hygiene, cleanliness – sanitariness and sanitation are manifested in the following aspects:

1. Personal And Environmental Hygiene and Sanitation: In homes, hospitals, clinics, offices, motor parks, highways, railway stations, factories, other industrial establishments and other public places.
2. The Removal of Any Offensive, Filthy, Unsightly or Injurious Object: This includes thorns, broken glasses, pieces of bones, pins, stones, excrements, phlegm or

feet. Dirty blades and scissors must never be used for manicure or pedicure.

d) *Washing of hands before and after every meal* with clean water. The Prophet, *Sallalahu alaihi wa Sallama* says: "Washing of hands just before and after meals repels diseases with their attendant poverty." Alhadeeth –narrated by Sayyiduna Ibn Abbas, *Radiyallahu Ta'ala 'anhu* and verified and transmitted by Imam al'Tabaraany, *Radiyallahu anhu.* (Today, (19-25, July 1998, p.17)

It is, therefore, pertinent at this point, to briefly describe how *Attahara,* Wudu Washup, Salat and Qur'anic recitation to mention a few, englender good health and also help the muslim to keep diseases at bay.

ATTAHARA (PURIFICATION)

The Prophet (SAW), the founder of Modern Civilization said: "Purification is the key to prayer."(Hadith). This is to show the stringent emphasis Islam places on anal and peri-anal cleanliness as well as the cleanliness of the body.

Attahara consists of *Istijmar,* the practices of cleaning the anal orifice after each call of nature with pieces of stick or stones (which led to the use of toilet paper). This reduces the bulk of faeces around the anus and hand faecal contamination. It is followed by *Istinja,* the washing of the anal orifice with water to ensure total anal cleanliness. The hand is scrubed on sand, which led to the use of soap, and then washed with water. The Prophet (SAW) taught the Muslims to adopt the squatting position while passing excreta, neither facing nor backing the Qibla (the direction of the Holy Ka'aba), and he must incline or lean on his left foot (to exert more pressure on the rectum and anal canal).

- It ensures nasal hygiene and reduces allergy and infection due to regular *instinshaq and istinshar*, i.e inhalation and exhalation of water respectively.
- It keeps the dangerous area of the face clean and prevents infection. (Nadabo, 2004, pp. 421-422)

Dr. Haluk Nurbaki, a Medical scientist, said that: Washup is the best prescription for good health. He mentioned that "The day will come when even unbelievers will imitate the Ablution or Washup, a boon we have been receiving unawares for 15 centuries (Nurbaki, 1998, p.96). He added:

- Washup increases facial and body beauty
- It annuls body's static-electricity which causes many psychosomatic illnesses (using water, which inonizes into *hydronium and hydroxyl ions and cut off the circuit of the* electricity on the body).
- Washup 'exercises' blood vessels by alternately constricting and dilating them. This ensures the flexibility of the vessels with reduction of peripheral resistance and high blood pressure.

Salat follows Wudu. It has some health benefits. According to Hakim Moiuddin Chishti:

> The five daily obligatory prayers are the most magnificent form of food for our soul, as well as being a practical set of physical exercises, which if conducted regularly will banish so many of the common ailments such as lower backpain, arthritis, cervical misalignments, headaches and other complaints or at least their severity if they occur at all. (Athar, 1993, p.181).

- The additional exercise during prayers (Salat) utilizes any extra calories, ingested at iftaar (meal for breaking the fast) approximately 1-2 hours earlier. Simultaneously, the blood glucose is steadily rising in the blood from the ingested nutrients; the circulating glucose is oxidized to CO_2 and H_2O during the prayers.
- Physical movements during Salat (taraweeh and tahajjud) improve flexibility, co-ordination and relaxation response. It also reduces stress-related autonomic responses in normal persons and relieves anxiety and depression.
- During night prayers, adrenaline and noradrenalin are secreted during the physical exercise. They induce dynamism, which combines with the tranquility and the serenity, due to the secretion of enkephalins, endorphins, dynorphins and others.
- Persons who fast and perform night prayers report feeling zest and healthier.
- Repeated and regular movements of the body during prayers improve muscle tone and power, tendon strength, joint flexibility and the cardio-vascular reserve.
- The well coordinated and repeated movements of the body during night prayers help to prevent osteoporosis in the osteoporotic bones of elderly men and post-menopausal women.
- The strain put on the forearm, during prostration in lifting the body from the ground, increases the bone mineral content of the forearm.
- The varying load during the different postures causes a lubricating effect and a protective flow of synovial fluid into the joint cavity.

- The reinforcement of the calf muscle pump during varying postures of the legs, and by active ankle movements prevents deep vein thrombosis, which is a common cause of chronic ulcers of the legs in the elderly.
- The regular exercise prevents coronary heart disease, improves carbohydrate tolerance and ameliorates late-onset type 2 Diabetes.
- Fasting stimulates the increased secretion of Growth hormone which is further elevated by exercise of Salat (long night prayers). This hormone increases the production of collagen, this may be an important factor in the long delay of the wrinkling of skin for the fasting Muslim who performs long night prayers.
- Exercise of qiyam improves mood, thought and behavior. Memory for short-term events deteriorates with old age is however arrested and reversed by regular night prayers.
- Prayers improve memory in the elderly, for short-term events, by keeping the memory pathways in the brain open and communicating with each other.
- Regular and constant repetition of the verses from the Holy Qur'an and other supplications of Allah's glory, improves memory.
- The repetition of a prayer, supplications of glorification, dhikr (words glorifying Allah) or muscular activity, causes a relaxation response, leading to lowering of B.P, decrease in oxygen consumption, as well as a reduction in the heart and respiratory rates.
- Regular night prayers improve stamina, self-esteem and self-confidence in being independent.

- During the exercise of fasting, prayers and different spiritual experiences of Ramadan, certain endogenous substances are released by the brain and spinal cord into the body called opioids, which include enkephalins and endorphins.
- These opioids released during Salat and Qur'anic recitation induce euphoria, tranquility and serenity during such periods.
- The released endorphins and enkephalins are natural painkillers. Endorphins may be responsible for the "feel nice" effects, during Salat or Qur'anic recitation.
- Endorphins and enkephalins are derived from beta-lipotropin. On release, it is cleaved to form three major active products called: met-enkephalin, gamma-endorphin, and beta-endorphin.
- Beta-endorphin is the most active, and is about 20 times as potent as morphine. In addition to their painkilling properties, the narcotic analgesics cause a profound feeling of well-being (euphoria). It is this feeling that is in part responsible for the psychological drive of certain persons who are fasting.

Muslims gain immense health benefits during the *Qiyamu-layl* as they do during early morning or *fajr* prayers at down.

HEALTH BENEFITS OF WAKING UP AT DAWN

It is Obligatory for a Muslim to wake up at down to perform the early morning prayers. It is important to wake up during this period to perform Salat and recite the Holy Qur'an because waking up at down is beneficial to health:

- There is more ozone (O3) in the air at dawn and it gradually

drops until it diminishes at sunrise. The gas has a beneficial effect on the nervous system and energizes your mental and physical health.

- When the sun rises, it rays are close to red colour which stimulates nerves, motivating people to wake up and start the daily activities.
- The ratio of ultraviolet rays is also at its greatest at sunrise and these rays stimulate the skin to produce vitamin D.
- Waking up at dawn protects the body against the risk of heart disease, atherosclerosis and angina attacks. Because it reduces the length of sleep period, which allows deposition of atheroma or fatty residue on the walls of coronary arteries.
- It has also been scientifically proven that cortisone reaches its highest peak at dawn. It is the substances that provide the faculties of the body with energy. (Ahmad, 2010, pp. 289-290)

During Salat, a devotee recieves the health boons of Qur'anic recitation.

HEALTH BENEFITS OF QUR'ANIC RECITATION

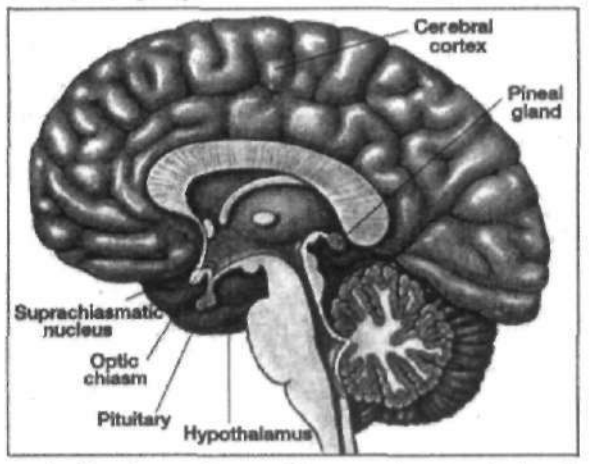
A recent research study has shown that , Recitation of the Qur'an has a healing effect on the body, the mind and the heart. These healing effects are due to the effect of sound (echo) and the meaning on an individuals. The letter 'alif' resounds unto the echoes to the heart and the letter 'ya' unto echoes to the pineal gland in the brain. (Athar, 1993, p.124)

The research of Ahmed Elkadi, a medical scientist has shown that the Holy Qur'an elicits physiological effects through two mechanisms: meaning of the Holy Qur'an, there is

stress reducing effect of verses promising reward –verses of *Targheeb* and less stress-reducing effect of verses promising punishment – verses of *Tarheeb*. The other mechanism is through the sound of Arabic Qur'anic words.

This is the direct healing effects of the Holy Qur'an. The echo of sound has a medical effect and is now widely utilized. Dr. Shahid Athar said, 'The recitation of Qur'an or listening to the same has a wholesome effect on the body, heart and mind.' The letter 'alif' echoes to the heart and 'ya' echoes to the pineal gland and brain. (Athar, 1993, p.124)

Dr. Ahmed El-Kadi of Akbar Clinic, at Panama City, Florida, on his work on the effects of listening to the Qur'anic Recitation on physiological parameters, i.e heart rate, blood pressure and muscle tension has shown improvement in all, irrespective of whether a listener is Muslim or non-Muslim; an Arab or non-Arab. (Alkadi, A., 1984)



Qur'anic recitation has a direct effect on the pineal gland as letter 'ya' sends echoes unto the gland to elicit hormonal secretion and physiological responses.

Scientists have published a research in 1995 that the pineal gland produces one of the most effective substance in the body. The Qur'anic recitation exicites this gland to action. The pineal gland has the following functions:

- It helps the body resist germs and viruses
- It helps the body sleep comfortably and improves the type of sleep
- It helps the body reduce the risk of coronary heart disease
- It alleviates the symptoms of lenghty travel
- It increases the vitality of living beings
- It increases strenght
- This hormone is virtually the primary element in human vitality, health functioning of the physical faculties (Ahmad, 2010, p.298)

The recitation of the Holy Qur'an stimulates this important gland to produce the hormone that cause these and other functions through the use of echo.

The sound of 'ya' or long 'e' in English (as is seen) travels up the nasal septum and stimulates the root of the pineal body, acknowledged by the most Western biologists to be a vestigial remnant of a third eye, or light sensitive organ. Rene'Decartes, a French Philosopher considered the pineal gland to be the seat of the soul.

While other researchers are of the view that the pineal gland is the internal biological clock, in charge of the circadian systems. It is a miracle how the recitation of the Holy Qur'an stimulates this root of the soul to elicit some physiological effects; responses that have immense health benefits.

The transmission of sound is important for maintaining or building health. After all, the Command for the Qur'an was and is, "Recite!." For example, the long sound of alif (alif as in father) is known to vibrate in the heart plexus and stimulate the feeling of power, concentration, majesty and so forth. (Athar, 1993, p.182). The vibration is targeted at the *sinu atrial node (pace maker)* and *atrioventicular node*, the specialised tissues in the heart that generate electricity.

Thus, with progress in science, the mechanisms of the healing effects of the Holy Qur'an are coming to light. These two methods: Echo and Vibration have been known to produce wholesome effects to the body. The Qur'anic echoes and vibrations produce the maximum positive impact on the human. Vibration to the heart and echo to the root of the human soul or pineal gland have synergistic effects the producing health benefits

It is now known that every word has certain units of energy of vibration, which can be built up. At ordinary level, ordinary words when repeated can give rise to vibrational build up of energy. According to Howard E. Hill:

> This can be done very simply by repeating the words: *power, strenght, love, beauty, colour, music, flowers* and so on –any word that seems to excite a pleasurable feeling. Within moments you will be conscious of vitalizing glow that will permeate your whole body... (Hill, 1979, p.140).

Therefore with ordinary words, one can achieve high energy vibrational build up. The writer added:

Say, for example that each word has a vibrational build up factor of five. With twenty power-packed words, you can raise your vibrational level to 100% within a

very few minutes. With this revved up natural source of dynamic energy going for you, you can heal, restore or extend your span of happy active years almost at will and accomplish or overcome nearly all obstacles. (Hill, 1979, pp. 140-141).

The Holy Qur'an has, for over 15 centuries, been using vibrational energy and sound radiational energy in the form of echo to directly effect physiological responses in the body. The vibrational energy generated by ordinary words can not be compared with the feeling of indescribable joy and ecstasy of Qur'anic recitation –an immutable symphony and cadence. Each word of the Holy Qur'an has an unaquantifiable vibrational build-up factor, which stimulates the human soul and revved up the sinu-atrial node of the human heart. These produce bliss and super-elation that even the non-Muslims give the testimonies of its uniqueness. Let us listen to what some of the West's great intellectuals and writers had to say about the effect of the Holy Qur'an:

1. Cash, W. W (1928) in his book, *The Expansion of Islam*, said:

   The most outsanding feature of it (Qur'an) is that it is a thoroughly human book. It throbs with the aims, ideals, hopes, passions and faults of very human man. It is because of this that the Qur'an when recited never fails to touch a cord in other human hearts. (p. 80).

2. Davenport J (1882) in his, *Apology for Muhammad and Koran*, wrote:

   (The Koran) is generally vigorous and sublime so as to justify the observation of celebrated Goethe, that the Qur'an is a work with whose dulness the reader is at first disgusted, afterwords attracted by its charms and

finally, irresistibly ravished by its beauties. (p. 70)

3. Dermenghem, E (1930), in his book, *The Life of Mahomet*, wrote:

The Qur'an is the only miracle performed by Mahomet. Its literary beauty, its irradiation, an enigma even today have the power of putting who recite it into a state of fervour, even if they are least pious. (p.249)

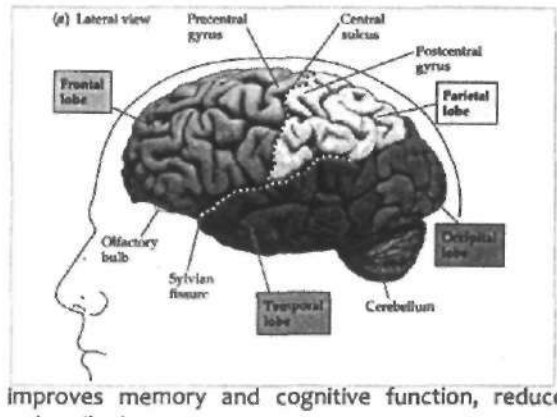
4. Guillaumme, A (1963) in his book, Islam, wrote:

The Qur'an is one of the word's classics which cannot be translated without grave loss. It has a rhythm of peculiar beauty and a cadence that charms the ear. Many Christian Arabs speak of its style with warm admiration, and most Arabists acknowledge its excellence. When it is read aloud or recited it has an almost hypnotic effect. (p. 73)

All these testimonies and several others speak of Qur'anic uniqueness in its transcendal cadence, melody and symphony, that attest to its purity and divine origin. The recitation promotes health. Its musical rythms mesmerize men into tears and ectasy. Unlike music, the melody of Qur'anic recitation is neither irritating nor disturbing. It is pleasing to both the reciter and the listener. In contrast, the effects of music have been described by Hill in the following words:

The beneficial effect of harmonized sounds or vibrations are disturbing, often harmful consequence of just plain noise is too well known to explore at this point. "Rock-and-Roll" music for example is completely demoralizing and degerenative. (Hill, 1979, p.145)

In this connection, it is important to emphasize that persons exposed or subjected to long periods of even the most delightful music do not benefit as much as pleasant restful silence. Further, Hill stated that even the most harmonized sound combinations finally reach a point of diminishing returns. The Holy Qur'an however, does not reach a point of diminishing return; remains the most widely and frequently read book in the world.



Fasting improves memory and cognitive function, reduces aging process and senile decay.

The Glorious Qur'an also elicits direct health benefits through the principles of it's recitation or tajweed.

HEALTH BENEFITS OF TAJWEED

Tajweed, the science of Qur'anic Recitation also engenders health. It deals with the rules and regulations governing the pronounciation of the letters and words of the Glorious Qur'an. Each letter is given it's right and dues. Through these principles:

- It provides a means of exercising the muscles of the

facial expression (or facial muscles) which improves blood supply to the face.

- The improved blood circulation to the face increases the facial beauty (the face glows)
- It excercises the muscles of the pharynx and larynx (throat) and voice box to improve the quality of voice.
- It improves the integrity of the nasan passages and the lungs in the form of "breathing exercise." This increases the vital capacity of the lungs and ventilation.

A Muslim also benefits from facing the Kaba, either while praying or sleeping.

HEALTH BENEFITS OF FACING THE KABA

While Sleeping:

Facing Kaba

The great health Teacher taught the Muslims what sleeping posture to adopt: To lie on the right side and face the Kaba. This is the safest and most healthful sleep posture because of the following factors:

- When a muslim lies on the right side, he or she is lying on the veinous 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 arterial lines, which contain the arteries that distribute blood under pressure to the rest of the body. This is a high tension line.
- 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, both 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 it's secretions upward and easier because the left lung is smaller and the position of the bronchi makes it difficult to expectorate 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.

The safest lying posture is that recommended by the Prophet (SAW), the right side which is venous side of the vascular system. It is a miracle how the Prophet (SAW) advanced this concept 1435 years ago when the knowledge of human anatomy was unknown to his Arabian society.

It stands to reason postulate that to face the Kaba in a sleeping posture is to receive some imperceptible Kaba radiation. The face, like a satellite dish, is set to receive the maximum "Kabal radiation".

The receptacle of this radiation is likely to be the pineal gland or the suprachiasmatic nucleus (SCN) of the hypothalamus. The SCN is believed to be the internal biological clock that controls the physiological and behavioural circadian systems. While the pineal gland is believed to be the seat of the human soul.

2. Facing Kaba when praying:

It is likely that as the Muslim faces the Kaba during prayer or sleep, he is turbo-charging his internal biological clock (like charging the battery of his smartphone) with numerous health benefits. He is also charging pineal gland the root of his soul, which elicits immense health benefits.

KABAL RAYS OR RADIATION

It has been scientifically proven that Kaba is the centre of the world. Adjacent to it is the Hajral-aswad or the Black stone. It is likely that the rays or radiation that the Kaba emits are imperceptible and undetectable to us through our modern equipments or technology. However, the Black Stone has been shown to be a semiconductor (Ahmad, 2010, p.363). The black stone is one of the stones of Paradise. It records the names of those who kisses or touches it or points it. It was reported that Imam Shafi'I, may Allah have Mercy on him, once said:

> The Black Stone records the name of each person who visits it and the name of his mother: Morover, Imam Al Shafi'I was asked, what does the Black Stone do with those who repeat Hajj and Umrah? He replied it records the name of its visitor the first time, then puts a specific marks to indicate the number of times he did Hajj and Umrah. (Ahmad, 2010, p.362)

Today, man is able to put more than 1 million telephone lines in a cable the size of a small hosepipe made of fibreglass, then what about that which is created by Allah, the Exalted. "So fear Allah, and Allah teaches you." (Holy Qur'an, 2:282)

Black Stone possesses the quality of a semi-conductor among other qualities to be discovered. Perhaps, the Kaba is a super-radiator, it emits the healthful Kaba rays that tubo-charge

In this Divine Prescription, while a Muslim fasts the month of Ramadhan for spiritual blessings, he gains some immense health benefits. Thus Allah's Blessings and Health benefits are linked together like the two sides of the same coin. This month of Ramadhan is a speacial month to the Muslims. The Holy Qur'an explains:

> Allah intends every facility for you; He does not want to put you in difficulties (He wants you) to complete the prescribed period and to glorify Him in that He has guided you; and perchance ye shall be grateful (Holy Qur'an, 2:185)

The fasting is both easy and wholesome because of Allah's Promise: *He does not want to put you in difficulties*. The fasting is also simple that a ten year old child can fast the month of Ramadhan without any adverse heath effects. In Islam, Allah's Mercies are revealed to the fullest, as a Muslim glorifies Allah in worship –*Attahara*, *Wudu* (Washup), *Salat* (Prayer), *Tilawat* (Qur'anic Recitation) and Fasting, he or she receives spiritual upliftment and health benefits. Research studies conducted in both Muslims and non-Muslims have not found significant and remediable any deleterious effects in Islamic fasting. Indeed, Allah (SWT) has fulfilled His Promise, "Ramadhan fasting promotes health".

One of the five fundamental rituals of Islam, a religion professed by over one billion people worldwide, is fasting during the month of Ramadhan. The time of observance differs each year because the time of Ramadhan is decided by the lunar calendar. The devotees are to fast from dawn to sunset during which they abstain from food, drinks and sexual intercourse. The duration of fasting every day depends on the geographical site and season. For example, in the summer months, the fast could last up to 18hrs or more in northern latitudes. The fasting has few and minimal side effects which

may include nausea, headaches, dehydration, indigestion and general weakness, some of which can be reduced by following the Prophetic advice:

- Delay Sahoor
- Reduce strenuous activities during the day;
- Make haste to break the fast at Iftaar

ISLAM AND FOOD

Health is the key to joy and happiness and what we consume directly affect our health. Islam encourages Muslims to ensure that they are mindful of their health through what they eat. The Holy Qur'an states: "Eat of the good and wholesome things but indulge in no excess therein." (Holy Qur'an, 20:81)

Allah (SWT) also says: "Eat and drink freely: but waste not by excess, for He does not like the wasters." (Holy Qur'an 7: 31). According to Communities in Action (CIA), Islam considers health from the following stand points:

- The physical body is a gift from Allah: it is given to humans as a amanah (trust) to take care of, for a fixed period.
- How much is consumed and the choice of food has a direct impact on the physical and spiritual well-being of the person.
- The food that you consume affects your behavior and personality.
- Eating wholesome, natural and healthy is encouraged.
- Overeating or binge eating is prohibited, is considered as indulging in 'excess therein.

Islam sees health and 'well being' as much more than just

health:

- Well-being or tranquility requires a strong relationship with one's spirituality
- Good physical health
- Mental happiness
- A sense of purpose and good character and relationships.

Islam is a religion of all ages; it is compatible with science. It makes a strong connection between food and worship, and teaches that all forms of worship have a deeper purpose and impact as well as contribute in some way to the physical and social well being. In this connection:

- Ramadhan Fasting teaches us to manage and practice spirituality and to avoid binge eating.
- It is an opportunity to make significant changes in your lifestyle and develop resolve to make healthy choices.
- Fasting creates a sense of responsibility in Muslims to take a healthy living as normal. (CIA, 2007, pp.12-13)

The fasting poses potential health complications especially in extreme conditions, most of which are remediable.

Fasting poses some potential health complications:

Heartburn (Indigestion): designed to digest food and kill bacteria. Fasting usually reduces the amount of acid produced but thoughts of food or the smell of it make the brain order the stomach to produce acid. This acid secretion may cause heartburn or indigestion. This can be remedied:

- Those on anti-acid or peptic ulcer drugs are advised to

continue taking them at Sahoor, Iftaar and dinner.

- Eat in moderation and avoid oily, deep-fried or very spicy food during Sahoor, Iftaar and dinner.
- Reducing caffeine intake is beneficial
- Stopping cigarette smoking is also beneficial
- Sleep with the head raised on a pillow to avoid regurgitation
- The digestion is likely to subside as the days of fasting progress. This is because weight loss may also help prevent heartburn.

Headache: This is common and has many causes. Headaches during fasting could be due to dehydration or hunger, inadequate rest or absence of addictive substances such as caffeine, nicotine or kolanut, etc. This can be remedied through the following:

- Eating a moderate and balanced diet.
- Do not miss Sahoor –predawn meal
- Consume adequate quantities of fluid
- Taking a dose of painkiller at sahoor such as paracetamol may prevent or reduce the headache.
- Avoid too much exposure to direct sunlight or hot places that is likely to cause headache.
- Avoid strenuous works that are likely to cause too much sweating.
- Wearing a hat and sunglass to reduce the effect of glare from the sun when out

Those with migraines should aim to gain adequate control with medical treatment, prior to starting a fast. It is likely that as the fasting continues, the migraine headache may reduce.

Dehydration: Dehydration is a common occurrence during a fast. The body continues to lose water and salts through breathing, sweat and urine. The quantity of water loss will vary depending on the weather, much you had to drink before your fast, the degree of physical exertion and the ability of the kidneys to retain water and salt. This can be reduced through:

- Adequate rehydration (drinking water) at Sahoor and Iftaar.
- Those on diuretics should reduce or stop the medication –the drug will cause severe dehydration
- Avoidance of physical exertion
- Avoidance of hot environment, direct sunlight to reduce fluid loss through sweating
- Constipation: This could be a problem during fasting and can be prevented through:
- Maintaining good hydration during sahoor and iftaar
- Eating fruits, vegetables and high fibre foods
- Engaging in long night prayers –taraweeh and tahajjud – are good physical exercises which promote digestion and relieve constipation.

Stress: Lack of food and water, changes of routine and shorter periods of sleep can combine to increase stress levels. But what is likely to cause stress is the withdrawal of addictive substances –caffeine, nicotine drugs, sexual urges, which is likely to reduce as the fasting continuous. This can be reduced

through:

- Increase in Qur'anic recitation
- Increase in Salat including taraweeh and tahajjud
- Remembrance that fasting is a training of self-restraint. So it is a period during which you should conquer your addictions or binge eating.

The Prophet (SAW) provides this safety rule to be observed: "Allah has a right over you; your body has a right over you." So strike a balance between the needs of the physical body and spiritual body. It is good to play safe during fasting.

The Prophet (SAW) provides this safety rule to be observed: "Allah has a right over you; your body has a right over you." So strike a balance between the needs of the physical body and spiritual body. It is good to play safe during fasting.

Ever since related research on caloric restriction took off in the 1930s, after Cornell University nutritionist Clive MaCay discovered that rats subjected to stringent daily dieting from an early age lived longer and were less likely to develop cancer and other diseases as they aged, compared with animals that eat well. Several formulated fastings came along it's wake.

FORMULATED FASTING

However, the history of fasting goes back thousands of years. Many religions, including Christianity, Judaism and Eastern religions used and still use fasting as a healing process for spiritual purification with God. Philosophers, scientists and Physicians have used it as a healing process to cure sicknesses.

Fasting affects not only our physical being but mental, emotional, and spiritual self as well. Physicians with a spiritual

orientation are more likely to prescribe fasting to their patients because they are also more likely than other doctors to use the fasting method for cleansing.

The Pre-Islamic fastings as ordained by God in Judeo-Christians also were beneficial to the people of the epochs. However during an era when religion and science were believed to be incompatible, religious fastings were slowly de-emphasesised. Some otherre too severe to be practicable in modern times. fastings we Such fastings could not pass the test of modern times as they are deleterious to health and healthful living. Consequently, there exist today various types of formulated fastings such as:

- Long term fasting
- Fruit fasting
- Fruit and vegetable fasting
- Raw food fasting
- Extreme fasting where only water is consumed

Other popular fasting include:

- Rice fasting
- Water fasting
- Cleansing diets
- Master cleanse
- Semi-Starvation
- Prolonged fasting
- Diet-Plan

These and other various forms of fastings have some ill-effects (from mild to serious complications) such as:

1. Low blood pressure
2. Persistant cold
3. Acute emotional distress
4. Nutritional defiencies
5. Anaemia
6. Kidney stones
7. Electrolyte imbalance
8. Keto-acidosis leading to Osteoporosis(erosion of bone tissue)
9. Liver dysfunctions
10. Severe weight loss.

Many nutritionists, dietitians and medical scientists have formulated various forms of fastings, exercises and variety of diets in the attempt to cure the Developed Nations the deleterious effects of obesity and overweight. Most of the formulated fastings are in the form of mono-diet, that is lacking either proteins or carbonhydrates. But diets other than fasting are insufficient. A writer Simmon warned (1980) in his book, "Never-Say-Diet!" He wrote on its back cover: "What are most Americans wearing this year? *Fat*. What are most Americans doing about it? *Dieting*" Another writer Wiatt said:

> Diets don't work for Americans because most diets prescribe the same solution for all different kinds of problems, leaving you stuck in a destructive pattern

> of food conformity that fights your individuality. The problem is compounded by social, cultural and family norms that place a high value on rich communal meals and shared food which encourage you to eat according to other people's needs instead of your own. (Wiatt, 1995, p.X)

Similarly, various forms of physical exercises, including yoga have not rid the Western countries of obesity and overweight. Like diets, exercises alone are ineffective. A writer, Deepak Chopra, in his book *Ageless Body, Timeless Mind,* explained why diet is ineffective. He said:

> Your metabolic set point is a brain mechanism that regulates how fast your body burns fuel. It also indicates when you feel hungry or satisfied. If you try to impose a diet on yourself that disagrees with your metabolic set point, the brain will create cravings for more food until more is supplied (Chopra, 1993, p.214).

In the world today, there are numerous types of fastings and exercises that are formulated to improve health but most of them are abandoned because they are dangerous to health. For instance, semi-starvation or ketogenic diet was devised for effective weight control but has lost currency due to ill-effects. Similarly, like semi-starvation, total fasting also has some serious harmful effects such as hypokalemia and cardiac arrhythmia associated with low calorie starvation diets. As an act of Mercy, Allah (SWT) has prescribed Ramadhan fasting for spiritual upliftment and health benefits to the Muslims.

Health is the key to happiness and what we consume directly affects our health. Islam encourages Muslims to ensure that they are mindful of their health. The blessed Prophet said: "Take advantage of good health before illness afflicts you." He also encouraged Muslims to try their best to take up a

healthy living lifestyle that includes a balanced diet, regular mental and physical exercise and a balance between material and spiritual needs. In this respect, Allah (SWT) prescribed fasting as means of promoting health. This is the Ramadhan fasting. This fasting is special.

CHAPTER TWO

RAMADHAN IS SPECIAL

Ramadhan fasting is unique amongst the varieties of fasting in existence. It is a fasting devoid of difficulties, prescribed by Allah (SWT), the Creator and Nourisher of mankind. In Fact, a ten year old can perform it unharmed. This fasting engenders good health that is lasting and wholesome with side effects reduced to the barest minimum. Ramadhan is special and comprehensive because:

- Primarily, it is a religious obligation to seek for Allah's Blessings.
- It allows the eating of balanced diets to avoid nutritional deficiency.
- It provides a form of exercise during taraweeh and tahajjud prayers.
- We give rest to the gastro-intestinal tract, the sexual organs, the tongue, the eyes and ears, etc.

- The transit time for a bolus of food from the mouth to the end of the large intestine, called colon, is about 14 hours. This is the period - of 14 hours - during which we fast and withhold any stimulus, reaching the stomach and the digestive system.
- Fasting is an additional safety device for the regenerative processes of the body. The repair processes of the body and the brain, including the memory molecules take place when the body is at rest, especially during the stage of deep sleep.
- Sleeping during Ramadan is much deeper than in other times. Two hours of sleep during Ramadan are more satisfying and refreshing than more hours of sleep otherwise.
- Fasting significantly increases deep sleep and reduces the *dreaming time, which takes place during the Rapid Eye* Movement (REM) sleep. Therefore, it is more beneficial for the elderly to fast because their normal hours of deep sleep in the non-fasted state are much less.
- Islamic fast does not exceed 14 hours or so, the normal steady state of the body is maintained as a result of coordinated physiological mechanisms. Hence, nearly all the biochemical results in the laboratory are normal.
- Social contact during tarawih or tahajjud (long night prayers) and other social spiritual activities should act as a *zeitgeber* (from German 'time-giver'). This is what regulates any desynchronized biological rhythm.
- It is a multidimentional experience in which total body transformation occurs.
- It heightenes spiritual awareness relaxation of the body,

mind and emotions.

- It encompasses the health benefits of all other forms of fastings.
- It is simple and easy, a 10 year old child can perform Ramadhan fasting without health adverse effect.

Dr. Shahid Athar, has explained why Islamic Fasting is different from other types of fasting:

- As compared to other diet plans, fasting in Ramadhan does not cause malnutrition or inadequate calorie intake since there is no restriction on the type or amount of food intake during *Iftaar or Sahoor.*
- It is not a prescribed imposition from a physician. Fasting in Ramadhan is voluntary undertaken. It is a month of self-regulation and training in terms of food intake thereby causing a permanent change in lipostat reading.
- In Islamic fasting, we are not subjected to a diet of selective food only (i.e. fruits only, protein only, e.t.c). And early breakfast, before dawn is taken and then at sunset fast is broken with something sweet. i.e. dates, fruits, juices to offset any hypoglycemia followed by a regular dinner later on.
- Additional prayers are prescribed after the dinner which helps metabolised food. During this extra prayer called Taraweeh, about 200 calories are burnt, all muscles and joints are used during this Salat, which can be considered a mild form of exercise in terms of calorie output.
- Ramadhan fasting is actually an exercise of self-discipline. For those who are chain smokers or who nibble food constantly or drink coffee every hour, it is a good way to

break the habit.

- The psychological effect of Ramadhan fasting are also well observed by the description of people who fast. They describe a feeling of inner peace and tranquility. The Prophet advised those fasting: "If one slanders you or aggresses against you, tell him, I am fasting! Thus personal hostility during the month is minimal. Crime rate in Muslim countries fall during this month(Athar, 1993 pp. 147-148).

It is a fasting with ease as Allah (SWT) had promised: He (Allah) does not want to put you in difficulties. (Holy Qur'an, 2:185)

THE EASE OF ISLAMIC FASTING

Islamic fasting is easy to observe and is not a punishment to the body but a means of respite to the whole body. Several studies on Ramadhan fasting have consistently shown that the fasting is free from deleterious effects. It is free from the perils of starvation.

Starvation is divided into 3 stages: Early, Middle and Long Term. The early stage begins after the end of period of absorption of the last meal consumed (about 5hrs after eating) to the end of post absorption period, which lasts approximately 12hrs, and may last up to 40hrs. The length of Islamic fasting varies from 12 to 16 hours. It therefore falls partly in the absorption and most of it in the post absorption stage (Ahmad, 2010, pp. 350-351)).

The period of fasting is located within the Early stage of starvation. It is therefore devoid of its dangers. It is located in the safety zone where catabolism is balanced by anabolism. Such that:

- Fats are not oxidized in the amounts that could lead to the production of ketone bodies.

- No negative nitrogen balance occurs due to the balance of protein metabolism.
- There is enough breakdown of glycogen to glucose that supplies the human brain, red blood cells and nervous system with adequate glucose for energy.

In contrast, starvation or medical fasting for short and long term often create some dysfunction in the body. Islamic fasting is easy and salubrious. It involves two stages of building and breakdown:

1. Iftaar: The body begins to build important components of the cell and replenishes the stored substances that were used in the production of energy during hours of fasting.
2. Sahoor: after period of absorption of the morning meal, the breakdown phase begins. Stored nutrients such as glycogen and fat to provide the body with energy (Ahmad, 2010, p. 351).

It provides the body with a meal for about 4 hours, starting from the time of refraining from food. This reduces the post absorption period as much as possible (Ahmad, 2010, p. 352). This also allows a gradual and subtle loss of weight that is imperceptible by the lipostat in the hypothalamus. In this way the brain will not create cravings for food in response for weight loss because its metabolic set-point is not altered. It, therefore, lacks the rebound phenomenon and harmful effects of starvation.

To ensure that the devotee starts the fasting with the specified length of fasting period with good blood glucose, the Prophet (SAW) had emphasized the importance of eating Sahoor. He said: " Eat Sahoor, for in there is blessing." He also

encouraged the delay of Sahoor, perhaps to ensure it falls within the ideal metabolic set-point. In this connection, he urged the fasting Muslim to haste in breaking the fast with Iftaar. He said: "People will still be upon right way so long as they hasten to break the fast." Perhaps, to be "upon the right way" also indicates normal and ideal metabolism. A way that today defies the Western medical science to achieve. Thus there is a great medical wisdom underlying the principles of Sahoor and Iftaar.

Making haste to break the fast has another clinical significance, it is a rush to answer the 'cues' or signals of the billions of the cells of the body in response to low cellular energy or ATP. The body's response to this cues is hunger. The loss of appetite during the fast is important as it allows for the signals or cues to end the fast to be heard. When hunger suddenly returns after been absent for hours during the daytime, it is the sign the body now requires additional fuel. It is time to break the fast at sunset.

So the blessed Prophet (SAW) says, "rush to break the fast". This is because breaking the fast at the time of these signals is more satisfying and beneficial. The cells are more receptive to the supplied energy. It is like giving a food when it earnestly requested.

It must be reiterated that several studies on Ramadhan fasting have consistently shown that Islamic fasting is free from deleterious effects on the devotees. However, recently the attention of a researcher was drawn to the timing of Ramadhan fasting. This is because on the days of the fasting, the normal circadian pattern changes amongst the fasting Muslims. In addition to the changes in the mental schedule, sleep pattern also changes, as fasting subjects remain awake during the night and spend most of the daytime sleeping. It is possible that these changes could exert an exogenous effect

on the circadian rhythm.

On the contrary however, it has now been shown that Ramadhan trains the body of the fasting muslim to quickly adapt to the changes in his circardian systems. Consequently, the fasting muslims withstand the ill-health effects of Jet lag and shift work unharmed because of rapid resynchronization.

Researches have also shown that the timing of the fasting is safe as a it affects very little the circadian systems(within normal limit). It is unlikely to cause coronary syndrome or metabolic syndrome to the observer.

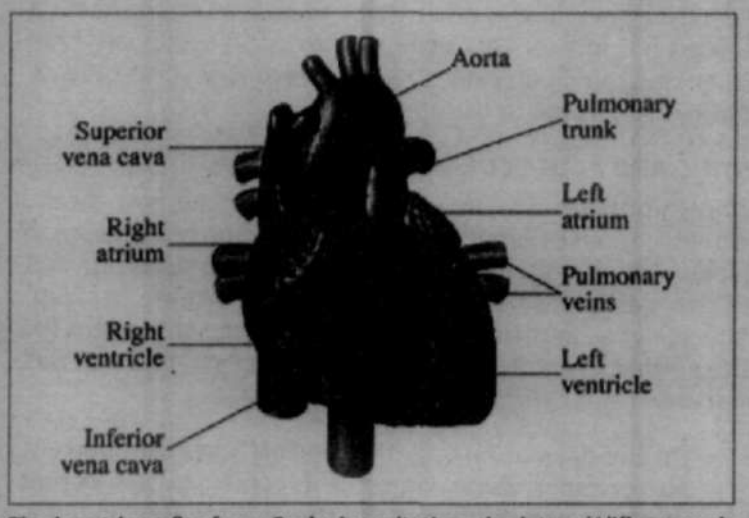
FASTING AND ACUTE CORONARY SYNDROME

During the month of Ramadhan, devotees take two meals, one before sunrise (Sahoor) and the other shortly after sunset (Iftaar). This change in meal schedule is also accompanied with changes in the sleep habit (shortening of time to sleep. Al Suwaidi et al, in their work, "Does the circadian pattern for Acute Cardiac Event Presentation vary with Fasting? Posit this argument:

> On the days of fasting, the 'normal' circadian pattern also changes, as fasting subjects remain awake during the night and spend most of the daytime sleeping. It is possible that these changes would exert an exogenous effect on the circadian rhythm(Al Suwaidi et al, 2006).

It is pertinent to state at this juncture that one of the safe mechanisms of Ramadhan fasting is it's exemption of patients (including those with coronary heart disease). And any patient who undertakes the fasting does so at the risk of life, his fasting is vitiated. Nonetheless, another work of Al-Suwaidi et al in 1991 and 2001; *Circadian Pattern of Acute Coronary Syndrome and Fasting* has shown that:

No significant differences found in the incidence of acute coronary syndrome or CHF among Ramadhan when compared to the rest of the year (in a population in which more than 90% of the endogenous population regularly fast in Ramadhan)(Al Suwaidi et al., 1991-2001). Other investigators reported similar findings.



The heart benefits from Qur'anic recitation, the letter 'Alif' resounds echo into the heart to stimulate sinu atrial node (pacemaker of the heart) and atrioventricular node, the specialised tissues that generate electricity to the heart.

This study has shown, like other previous studies, that Ramadhan fasting is free from coronary metabolic syndrome. It is also free from metabolic syndrome. In fact, it is an effective cure of both syndromes.

FASTING AND METABOLIC SYNDROME

The current thinking today is that circadian clock is linked to

obesity, diabetes and heart attacks. Studies have shown that insulin activity is controlled by the body's circadian biological clock. A research conducted by a team of Vanderbilt Scientists, has confirmed that: "Not only what you eat and how much you eat that is important for a healthy lifestyle, but when you eat is also very important" (david.salisbury@vanderbilt.edu).

A number of studies in both mice and men have found a variety of links between the operation of body's biological clock and various aspects of its metabolism. Physical and chemical processes that provide energy; produce, maintain and destroy tissue. It was generally assumed that these variations were caused in response to insulin, one of the most potent metabolic hormones.The work of the Vanderbilt Scientists has shown that:

> The master clock in the central nervous system drives the cycle and insulin response follows. In addition, they found (in experiment using mice) that mice with genes for proper biological function deleted, appeared to be locked in an insulin resistant mode. They gained weight and became obese. However, when the missing gene re-established their circadian rhythm, reduced their insulin resistance and prevented them from gaining excess fat. It was concluded that disruption of circadian rhythm leads to insulin resistance. Obesity and the insulin resistance that accompanies it, increases the risk of diabetes and cardiovascular disease.
>
> This study, therefore helps to explain the increased frequency of obesity and diabetes among night shift workers and people suffering from disruption of their clocks and normal sleeper patterns (ibid).

However, changes in the meal habit and sleep pattern in Ramadhan were not shown to cause significant changes in

the circadian systems. As a result, Ramadhan is free from both coronary heart syndrome and metabolic syndrome. Many metabolic functions occur at specific times of the day. The master neural clock in mammals is located within the pacemaker neurons of the brain - the *suprachiasmatic nucleus* (SCN) of the *hypothalamus*. SCN controls physiological and behavioural cicardian rythms and coordinates peripheral clocks through hormonal and neural signals. The hypothalamus is not significantly affected during Ramadhan fasting.

This is due to the conditioning the Muslim has undergone. He started fasting from the age of 10 years so his circadian systems have been conditioned over the years to adjust rapidly without inducing any adverse health effects. In addition, the circadian changes induced during Ramadhan fasting are all within normal limits, that is, the body not even be aware of these subtle changes especially in the lipostat of the hypothalamus. a medical scientist explains:

> In the hypothalamus part of the brain, there is a center called "lipostat"which controls the body mass. When severe and rapid weight loss is achieved by starvation diet, the center does not recognize this as abnormal and therefore reprograms itself to cause weight gain rapidly once the person goes off the starvation diet. So the only effective way of loosing weight is slow-self-controlled, and gradual weight loss, which can be achieved by modifying our behaviour and changing our attitude about eating especially by eliminating excess food. (Athar, 1993, P.143)

Ramadhan fasting is a month of self regulation and self training in terms of food intake thereby causing hopefully, a permanent change in lipostat reading and that is unlikely

to cause craving of food. It is also a training of the body on the rapid adaptation to changes in the circadian systems. It modulates insulin secretion.

FASTING AND HYPERSULINISM

Diet and metabolism are joined together. Metabolism is the process that converts the fuel that is in the food we eat into the energy we need to do everything we do. There are thousands of small reactions occuring at the same time within the body to burn fuels so that we can live and perform a variety of functions. This burning of fuel is the burning of calories. (Smith, 2007, p.30)

The body is an energy machine, never resting, always metabolically active –and it powers its operations mainly through the use of glucose in the blood. To be useful to your body, blood sugar has to be transported into the cells. Insulin is the barge that transports glucose from the blood to the cells. Once it reaches the cells, three things can happen to that glucose:

- It can be metabolized for immediate energy
- It can be converted to glycogen for later use as a source of energy.
- It can be stored as fat (Atkin, 2002, p.49)

The body must maintain a certain level of glucose in the blood at all times. So when there is no carbohydrate food source to make glucose, the liver will actually convert protein to glucose. Remarkably, even a prolonged total fast, a healthy body can maintain its glucose level within a rather narrow range.

Insulin is manufactured in a part of pancreas called the Islet of Langerhans. As the blood sugar goes up, the pancreas releases

insulin to move the sugar out of the blood. It then transports the blood sugar into the body's cells for their energy needs. The liver converts excess glucose into glycogen which is stored in the liver and muscles, where it is readily available for energy use. In addition, the liver converts excess glucose to fat, a function which makes the liver the 'storage tanks.' That is why insulin is called "the fat producing hormone." It is this fat storage function of insulin that leads to the dreaded obesity and overweight.

This excessive weight gain occurs in people who eats lots of high Glycemic Index (GI) foods. When foods that are made primarily of sugars such as fruits, vegetables, semovita, bread, yam, rice, e.t.c, the body breaks these larger sugars into simple form of glucose. The GI ranks foods based on how fast the body breaks them down into simple sugar or glucose.

The faster a food is broken down into glucose or simple sugar, the higher the levels of glucose rise in the blood. The faster the blood glucose levels rise, the stronger the signal that's sent to the pancreas to release the hormone insulin into the blood. (Smith, 2007, pp.9-10). Therefore, intake of high GI foods is likely to cause hyper-insulinism - over supply of insulin.

Hyperinsulinism or Hyperinsulinaemia is the condition that results from too much insulin production and release by the pancreas. Dr. Atkin explained the ill-effects of too much insulin resulting from eating high GI foods. He said that as overweight person becomes heavier, insulin's effectiveness decline and the cells become desensitized to the action of insulin so it can no longer effectively transport glucose to them. This is known as *insulin resistance, which quickly leads to hyperinsulinism.* This condition of excess of insulin in the body can cause many health problems that are also linked to insulin resistance, which include:

- The liver converts more and more glucose to stored fat.
- The body becomes a fat producing machine instead of an efficient energy producing machine.
- Insulin is being secreted more and more frequent, and it's doing it's job less effectively.
- This leads to the craving of sweets and carbs, which compound the problem in a vicious cycle.
- Increases salt and water retention, a recipe for high blood pressure.
- Insulin is directly involved in creating atherosclerotic plaques, which if not controlled can lead to heart disease.
- High insulin levels have been shown to correlate with high levels of 'bad' triglycerides and low levels of 'good' HDL cholesterol.
- High insulin levels correlate with increased risk of breast cancer and polycystic ovarian syndrome. Conversely, the lower the levels of insulin, the better the survival rates of breast cancer. (Atkin, 2002, pp.51-52)

The Ramadhan fasting period provides you with an effective means of weight reduction and fat reduction that you can maintain with the Prophet's intermittent fasting of Mondays and Thursdays. It provides you with a metabolic advantage to reverse the adverse health effects of hyperinsulinism.

The Islamic fasting is also a period of great-fat-meltdown. The 'storage tank' of fat is dissolved. The main chemical constituent of this fat is triglycerides that can be a risk factor for heart disease and stroke.

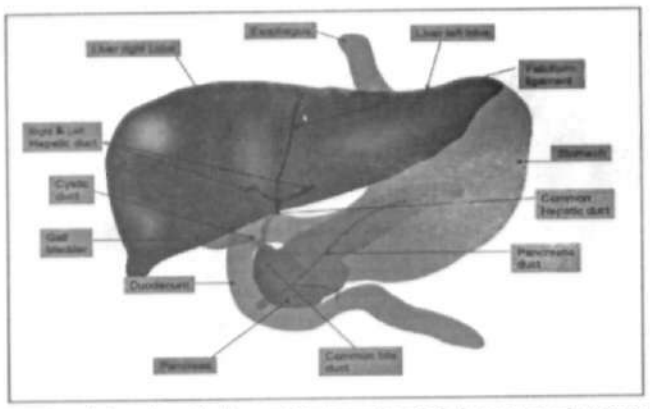
During this great fat meltdown, the fasting causes a subtle

reduction of weight, which reduces the risk of obesity, insulin resistance and hyperinsulinism. It helps the devotees to stall or completely avoid even if they are genetically predisposed to the following health problems:

- High blood pressure
- Atherosclerotic plaques (which causes thickening of blood vessels) and heart disease.
- Lowers the level of 'bad' triglycerides and raises the level of 'good' HDL cholesterol
- Keeps breast cancer and polycystic ovarian syndrome at bay.

The fasting helps the body to effectively stabilize insulin secretion and attenuates hyperinsulinism to make it easier for the body to lose weight and maintain a good shape. This stability that is achieved during Ramadhan is then maintained by the intermittent fasting of the Prophet (SAW). The Islamic fasting is a shield to blood sugar disorders such as Diabetes and by extension, heart disease and other serious ailments.

In addition, it helps the body to maintain a critical carbohydrate level for maintenance (CCLM), which means the amount of carbohydrate that can be consumed such that the body neither gains nor looses weight. Thus Muslims gain immense health benefits during the month of Ramadhan, because it is a period of great fat meltdown.



Fasting dysburdens the liver of it's heavy load of glycogen, to improve it's metabolic functions. The pancreas which releases insulin and the stomach also observe some physiological rest during Ramadhan to improve their functuions.

FASTING: A GREAT FAT MELTDOWN

Eating of foods with high GI for eleven months in a person could box him or her into a metabolic trap, a kind of a high walled box created in large part by high insulin level due to binge eating of high GI foods. This makes the person to be held in bondage in which only Ramadhan can set him or her free, as it provides the way and means to breaking the metabolic high wall to set him or her free.

It also breaks the vivious cycle of intake of excessive glucose, leading to an over supply of glucose, which in turn results in over supply of insulin by the pancreas. Thus an ongoing cycle of hyperglycaemia (excess blood sugar), an insulin overproduction eventually results in hyperinsulinism and ultimately metabolic disorders is broken.

A month of Ramadhan comes as an act of Mercy from the Lord to help the worshipper stabilizes his insulin production so as

to make it easier to breakdown the fat and set the person free. It increases the body's responsiveness to insulin. It lowers the levels of your glucose, insulin and melt down his fat thereby reducing his weight.

This fasting also stimulates the natural process of lipolysis, which means fat meltdown. It is a biochemical process of dissolving fat and breaks it into glycerol and other fatty acids. These are in turn broken down into important by-products called ketones. The entire process is then called Ketosis. It is different from keto-acidosis, that results from the complications of Diabetes type 1 that occurs when there is high glucose with no insulin produced.

Research has shown that chronic ketosis without caloric restriction poses no danger to the heart, kidney or blood (Phinney et al, 1983). This fact strongly suggests that Ramadhan fasting can be a good continous means of ketone production.

Like the two wings of an aeroplane, Lipolysis and Ketolysis occur simultaneously and are safe and have salutary effects to the body. Lipolysis results in Ketosis which in turn produces Ketones. These Ketones serve as the super-fuel to the brain. While the glucose resulting from glucosis provides fuel to the other cells of the body. Thus the body produces fuel and super fuel to energize the body and to power the brain.

The body uses glucose and ketones, the fuels that come from food to energize itself. Fasting is an effective means of providing the body with lipolysis and glucolsis simultenously. These two sources of fuel are the body's natural, alternative and comlpetely parallel options for energy metabolism. (Atkin, 2002, p.59)

KETOSIS AND FASTING

Ketones are acceptable alternative fuels, produced and used by the body any time glucose is scarce.

- They are produced during intense exercise or during sleep.
- Ketosis is a natural metabolic process where ketone production and use fluctuate constantly in response to the body's needs.
- Ketosis also creates a mild acidosis of blood, which over a long period of time may be detrimental to health.
- Ketosis is believed to cause leaching of minerals from the bones leading to osteoporosis
- Fasting, on the other hand, is a short-term endeavor; it is devoid of ketolic ill-effects.
- During fasting, excess protein by-products are being created so strain on the kidneys to eliminate ketones.
- Fasting produces the level of ketosis desired to safeguard muscles.
- Fasting is a simple detox that generally improves well-being.
- Detox is the rebuilding of new healthier cells.
- In fasting, the body feeds itself on the impure and inferior materials, such as dead cells and morbid accumulation, tumors, abscesses, damaged tissues, fat deposits, etc.
- Fasting is pertinently described as 'refuse disposal,' a 'burning of rubbish' of the body.
- During fasting, the proteins needed for new cell building

are resynthesized from decomposed cells.

While in the state of ketosis: After the initial few days of adaptation, some people experience ketosis as wonderful, with increased energy and loss of appetite. Usually the more the over weight an individual, the higher their energy. Thinner people may need more rest than usual. Some fasters show concern that feel 'too good' for anything to be happening.

The Sahoor and Iftaar of Ramadhan have some health benefits on the nutrition and on the circadian rhythm of the devotee. It appears that Sahoor adjusts the circadian rhythm while Iftaar corrects any nutitional imbalance that might occur during the fasting period. It has now been recently discovered that Ramadhan has some salutary on jet-lag.

CHAPTER THREE

RAMADHAN AND JET LAG

Time Zone Fatique is also called Jet Lag. This occurs when a person travels in between two different zones, i.e from a place of day light to darkness and vice versa. His body undergoes a quick sudden reorganisation and re-orientation to adapt to the new environment.

Jet lag, medically referred to as desynchronosis and rarely circadian dysrhythmia, is a physiological condition which results from alterations to the body's circadian rhythms resulting from rapid long-distance transmeridian (East–West Or West–East) travel on high-speed aircraft. It was previously classified as one of the circadian rhythm sleep disorders. The condition of jet lag may last several days until one is fully adjusted to the new time zone, and a recovery rate of one day per time zone crossed is a suggested guideline.

The issue of jet lag is especially pronounced for airline pilots, crew, and frequent travelers. Airlines have regulations aimed at combating pilot fatigue caused by jet lag. The common term jet lag is used, because before the arrival of passenger

jet aircraft, it was generally uncommon to travel far and fast enough to cause jet lag. Trips in propeller-driven aircraft and trains were slower and more limited distance than jet flights, and thus did not contribute as widely to the problem.

Since the Islamic calendar is lunar, the start of the Islamic year advances 11 days each year compared with seasonal year; therefore, Ramadhan occurs at different times of the seasonal year over 33-year cycle (Sakr, 1975; Richards, 1998). This can result in the Ramadhan fast being undertaken in markedly different environmental conditions between years in the same conditions between years in the same country. In addition, the time of sunrise and sunset between 12 hours at the equator and about 24 hours at the 64° of latitude in summertime. For people living in the Polar Regions, it is recommended however that they take the fasting times as those prescribed at Mecca and Medina or from the nearest temperate zones (Muazzam and Khaleque, 1959; Sakir, 1975; Malhotra et al. 1989)

The health benefits of the revolution of Ramadhan over a 33 year cycle are not known. What is now known is Ramadhan help the devotees re-synchronize their circadian rhythms rapidly in event of travelling across two different times. As a result, it alleviates the health hazards of jet-lag.

This sudden difference in time zones causes a severe form of fatigue and other ill effects. Ramadhan helps a Muslim to cope with Jet lag, helps him to recover from desynchronosis very rapidly. Muslims who have been fasting regularly since childhood have been exposed to different sleep/wake and light/dark on a daily basis in one annual lunar month. Hence, it may be easier for such person to synchronize at a faster rate their circadian, circa-lunar and circa-annual bio-rythms under difficult conditions. Thus Ramadhan helps the Muslims to cope with the ill-effects of time zone fatigue or jet lag. Dr. Kazim Ibrahim, a medical scientist explains that:

- Muslims who fast regularly would least suffer from jet-lag while traveling in a plane from West to East (areas of two different time-zones)
- The central circadian biological clock is located in the suprachiasmatic nucleus (SCN) of the hypothalamus. It is a cluster of cells about 10, 000 neurons on either side of the mid-line, above the optic chiasma, about 3cm behind the eyes.
- This internal biological clock is regularly and constantly turbo-charged by Kaba radiation during Salat and sleep (because of facing the Kaba) during which the clock receives maximum Kabal radiations for effective body functions and mental integrity. (Nadabo, 2004).
- When a person is suddenly in a different time zone, the biological clock synchronizes at the rate of 1-2hrs per day to adapt to a reversed shift pattern. There are wide spread individual variations in the rapidity of re-synchronization.
- Muslims who fast regularly and who had disturbed wakefulness/sleep cycles on a daily lunar annual basis can adapt themselves much faster to different conditions during international travel. This is while crossing time zones and do not suffer from the ill-effects of jet lag.
- As soon as Ramadhan is over, normal circadian rythms are established within the fasted Muslim, with such rapidity on the first day of the following month of Shawwal. This means that Eid-al-Fitr (Minor Feats) is to be at par with pre-Ramadhan levels.
- As the fasting Muslim attunes himself re-synchronization processes, during the space of just over four weeks in Ramadhan, the process would be rapid, whether during Ramadhan or any other time.

- In addition, Muslim shift-workers, suffer the least of health problems, such as obesity and diabetes that are linked to shift-work due to rapid re-synchronization.

It has now been known that while a Muslim wakes up for tahajjud and Sahoor during the month of Ramadhan he or she is undergoing a training on rapid - re-synchronization in the event of changes in circadian systems that may arise due to jet lag. Sahoor plays a crucial role in this training process.

SAHOOR AND CIRCADIAN RHYTHM

Strong evidence from human studies demonstrates rhythmic variations in glucose tolerance and insulin action across the day. For example, oral glucose is impaired in the evening compared to the morning, an effect which is believed to be attributed to a combination of both decreased insulin secretion and altered insulin sensitivity in the evening.

The 'dawn phenomenon' is also a well described phenomenon where glucose levels are known to peak before the onset of the active period. In addition, studies in rats have shown that the Supra-Chiasmatic Nucleus (SCN) is critical for the maintenance of the diurnal variations in glucose metabolism, the molecular mechanisms underlying these phenomena are not well understood.

In view of the decreased secretion and altered insulin sensitivity in the evening, on the one hand, and the dawn phenomenon, on the other hand, it stands to reason to posit that:

Sahoor (meal taken at dawn) helps to provide glucose for the dawn phenomenon in the mildly altered circadian rhythm induced by Ramadhan fasting. In the absence of Sahoor, there is a slight risk of mild hypoglycaemic attack due to circadian rise in insulin secretion at dawn.

One of the most important health benefits of Ramadhan fasting, is it's positive impact on mental health. Undoubtabledly, a trio-combination of fasting, salat and Qur'anic recitation have synergistic effects on the mental health of the fasting Muslims.

FASTING AND MENTAL HEALTH

Fasting increases the levels of Brain Derived Neurotrophic Factor (BDNF), a protein that interacts with neurons in hippocampus, cortex and basal forebrain – that parts of the brain that regulate memory, learning and higher cognitive function. BDNF helps existing neurons survive while stimulating the growth of new neurons (neurogenesis) and the development of synapses – lines of communication between neurons. In this regard:

1. Fasting improves memory due to neurogenesis and increased neuronal synapses
2. Low levels of BDNF are linked to diseases of CNS such as Alzheimer's disease, Huntinton's disease, etc. Fasting prevents CNS diseases by stimulating the increase in BDNF levels. This is because BDNF prevents neuronal death, memory loss and cognitive impairment in an animal model of Alzheimer's disease.

The Prophet (SAW) was the founder of intermittent fasting in modern times. He used to fast on Mondays and Thursdays. Abu Hurairah (R. A) reported that when he was asked about that he said:

> "A man's deeds are reported on Mondays and Thursdays and I prefer that I should be observing the fast when my deeds are reported." (Tirmidhi)

This voluntary fasting, a Sunnah of the Holy Prophet (SAW) has now been shown to effectively promote health and prevent

many diseases; epecially the diseases of the Central Nervous System. This is a medical miracle!

Mark Mattson, a Chief neurologist has discovered that intermittent fasting (IF), that is, alternate days fasting, can induce neurogenesis and protect brain injury and disease. In Brain trauma, IF reduces oxidative stress, mitochondrial dysfunction and cognitive decline that normally result from brain trauma. According to the latest research:

- In cervical spine injury, "every other day" fasting was found to be neuro-protective following an injury to a rat's cervical spine. Experiment has showen that despite extensive trauma, fasted rats improved gait pattern, vertical exploration, and forelimb function. Neuronal integrity was preserved, cortical lesion volume was reduced and corticospinal axon (fibre) sprouting increased.
- In age – related cognitive decline, IF is good for basic age – related cognitive decline.
- In Depression, an illness associated with low BDNF level, researchers have found: IF is the key, because it increases BDNF level, which stimulate signaling and synthesis in the hippocampus, the part of the brain that causes depression.
- IF has wholesome effects on general health, cancer longevity and fat loss.

Therefore, the Health benefits of the Sunnah fasting (Mondays and Thursdays) can never be over – emphasized. The salutary effects of Prophet's fastings are many. Some of which include:

- It maintains the health benefits of Ramadhan.
- It easy and convenient, in the form of fasting every 2 days.

- It serves like a wiper to car screen, sweeping metabolic toxins twice weekly - body purification.
- It is the most effective IF that allows the body to reach its ideal weight and maintains it.
- It boosts the body's strength and dynamism to help you cope with the hurly burly of modern life style.
- It help's keep a person from bad deeds and criminal acts
- It enhances productive capacity at work.
- It boosts social spirit and egregoriousness.
- It is economical as it cuts down the cost of lunch and snacks during the daytime.
- It fosters a pleasant personality.

Fasting causes the brain to shift away from using glucose as a fuel, to a metabolism that consumes a special type of fat, manufactured in the liver called ketones. It is the brain super – fuel. George F. Cahill, a Harvard Medical School Professor stated:

> Recent studies have shown that beta – hydroxy butyrate, the principal ketone, is not just a fuel, but a fuel, but a "super fuel" more efficiently producing ATP energy than glucose. It has also protected neuronal cells in tissue culture against exposure to toxins associated with Alzheimer's or Parkinson's (Am Clin Climatol, 2003)

When the brain metabolizes ketones (beta hydroxy butyrate), it gains the following benefits:

- Process of apoptosis (cell suicide) is reduced.

- Mitochondrial genes are turned on leading to mitochondrial replication. These engender the following health benefits:
    - ➢ Neuronal (or brain) cells survival is greatly improved
    - ➢ Neuronal integrity and function improves
    - ➢ Dementia and senile decay are reduced
    - ➢ Neuronal cognitive function improves
    - ➢ Reduction in depression and anxiety
    - ➢ Development of a pleasant crowd-pulling personality.

All these and many other functional integrity and power of the brain have greatly improved. And the increase in the number of Mitochondria, the energy house of a cell, the brain's power of thinking and creativity are enhanced.

Other Researchers have demonstrated that Beta – Hydroxybutyrate has other profoundly positive effects on the brain. It mediates many positive effects of caloric restriction and fasting on the brain, which include:

- Improved antioxidant function
- Increase in mitochondrial population resulting in increased cellular survival
- Enhanced growth of new brain cells – neurogenesis
- Fasting turns on the production of BDNF, and the NrF_2 pathway is also powered up, leading to:

- Reduction of inflammation
- Increased production of brain – protective *antioxidants.*
- Enhanced detoxification.

Ramadhan fasting is the paragon of fastings. The Prophet (SAW) said: *'Fasting improves health'. It has now been* scientifically proven, it does improve health in the true sense of the word. Need more be said? I ask? Ramadhan is the only effective mode of fasting that balances anabolism and catabolism to prevent metabolic disorders.

FASTING AND DIABETES

The study of Sulimani, et al. (1988) has proved that fasting does not pose a danger to most diabetes Patients, rather it may *be beneficial for many of them. Fasting has been called the* "Miracle cure." It effects on diabetic and pre-diabetic patients are wholesome and effective because fasting engenders the following health benefits:

- *It reduces blood sugar*
- Increases breakdown of glucose
- Reduces the production of insulin
- Glucagon is produced to facilitate glucose breakdown.

For Physicians treating Muslim patients, the following guidelines are suggested:

- Diabetes on Dietary control can fast and hopefully with weight reduction their diabetes may even be cured or at least improved

- Diabetes on oral hypoglycemic drugs should exercise extreme caution if they decide to fast.
    - ➢ They should reduce their dose to one – third and take the drug not in the morning but with Iftaar in the evening.
    - ➢ If they develop blood sugar symptoms in the daytime, they should break the fast immediately.
- Diabetes on insulin should not fast. If they do, they should do so under close supervision and make drastic changes in the insulin dose.
- Diabetics, if they fast, should still take a diabetic diet during Iftaar, Sahoor and dinner. They should check their blood sugar before breakfast and after ending their fast. (Athar, 1993, p. 146). Diabetes and obesity are the major causes of infertility and sub-fertility. Fasting has been shown to improve reproductive potentials of these patients. Fasting is also a means of beautification.

To increase your beauty and looks; and to have youthful appearance with skin free of wrinkles, then fast the Ramadhan and maintains it with the Prophet's intermittent fasting.

FASTING AND BODY WRINKLES

As the skin ages, it becomes thin and dry and begins to lose its elasticity due to the reduction of collagen fibres in the dermis. In addition, the collagenous fibres in the dermis becomes thicker and stiffer, the amount of adipose in the hypodermis diminishes, making it thinner.

Ramadhan puts a healthy mind into a healthy body. During fasting, the Pituitary Gland is stimulated; it's efficiency is promoted. The pituitary gland is a master-gland. It releases

nine important hormones. Growth hormone (GH) is one of these hormones secreted by the master gland. GH has the following functions;

- It is an anabolic hormone
- It promotes movement of amino acids through the cell membranes and the utilization of these substances in protein synthesis or production of proteins.
- It produces collagen to help the elasticity of the skin.
- The increased collagen production induced by the GH helps arrests and correct skin wrinkles.
- The synthesis of collagen also improves the integrity of the blood vessels.
- The GH stimulates the production of red blood cells or erythropoeisis.

Ramadhan therefore helps the body to cure it's skin wrinkles through the increased activity of GH. Especially the increased production of collagens. In addition, it makes the skin glow due to an increased red blood cells production and improved blood circulation in the skin. It improves blood circulation to the heart, reduces vascular volume and also reduces peripheral resistance to the vascular blood flow.

FASTING AND HEART ATTACKS

Islamic fasting does not cause serum electrolytes imbalance. However, serum magnesium is elevated with numerous health benefits.

- During fasting, serum magnesium is increased and Magnesium has cardio-protective effects and it is being

used in prevention and treatment of heart attacks.

- It has anti-platelet properties and prevents extension of the clot.
- It is a membrane stabilizer acting on the sodium/potassium/calcium flux at the membrane level. Hence, it prevents cardiac and cerebral dysrhythmias.
- Fasting, through the beneficial effects of magnesium, prevents the formation of atheroma as well as dissolves atheromatous plaques which are responsible for heart attacks and strokes. Hence, fasting takes an active part in the rejuvenating processes of the body through many channels.
- It increases the fibrinolytic activity of the blood, which leads to prevention and also dissolution of any recent clot. So fasting prevents thromboembolism that is likely to cause stroke and heart attack.

During fasting the functions of the hormonal glands are greatly improved, the efficiency of the hormones are also enhanced. During Islamic fasting the male and female reproductive hormonal secretions and efficiency are not altered. The fasting does not affect the reproductive potential of a person.

FASTING AND INFERTILITY

A strong evidence shows that insulin resistance is an integral part of Polycystic Ovarian Syndrome, especially in obese women. In most women with the syndrome, hypersinsulinaemia –driven or revealed by excess weight gain –promotes androgen secretion and abnormal follicular development leading to dysfunctional ovarian and menstrual activity (Sattar and Lean, 2007, p.34). These conditions result in infertility in women.

It has also been shown that fasting can effectively reduce weight and insulin resistance thereby improving the clinical conditions of ovarian polycystic ovarian syndrome, ovarian and mentrual functions. Fasting therefore improves fertility in women. Fasting also improves fertility in men. The prevalence of some degree of erectile dysfunction In men and the underlying cause is believed to be associated with the complications of metabolic syndrome.

It has been shown that modifiable health behaviours including weight loss and physical activity are clearly associated with a reduced risk of erectile dysfuntion (Sattar and Lean, 2007, p.37). Thus Ramadhan fasting and the Prophet's intermittent fasting can improve and even cure erectile dysfuntion or impotence to also improve fertility and enhance potency in men.

With progress in medical science and technology the modern world has come to believe that fasting is a medical marvel.

CHAPTER FOUR

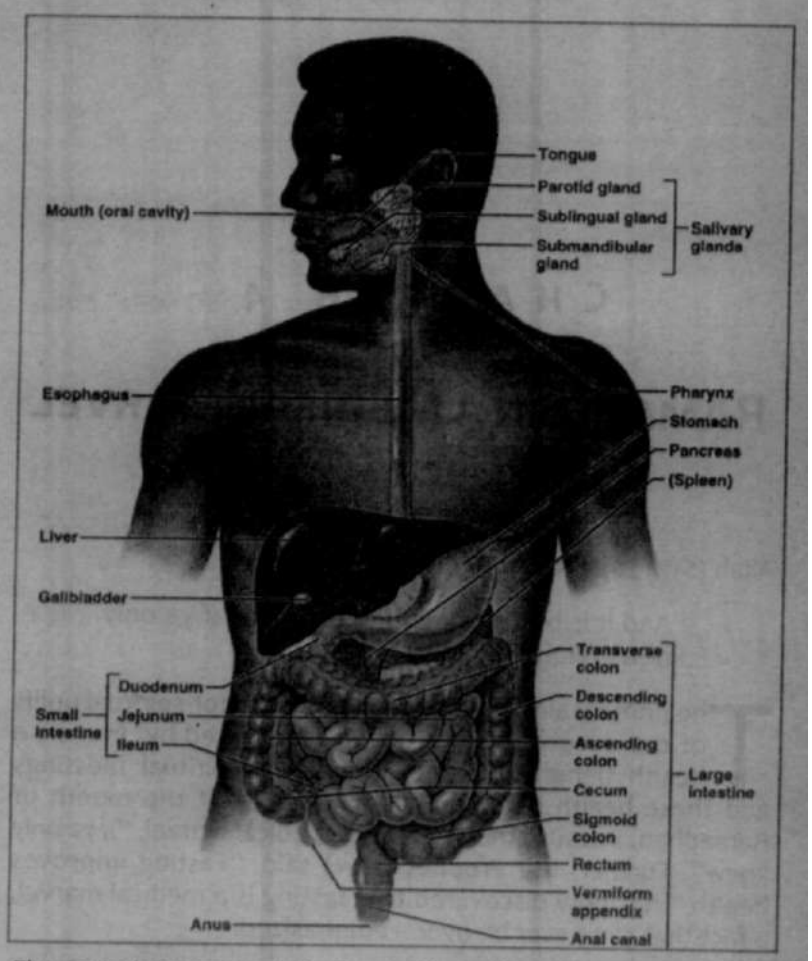
RAMADHAN A MEDICAL MARVEL

Allah (SWT) stated pointedly:

> "And it is better for you that ye fast, if ye only knew" (Holy Qur'an, 2: 184)

The primary aim of Ramadhan fasting is for spiritual uplift of the devotee. This is however followed by immense health benefits. If one knows the spiritual blessings and these health benefits, he will surely fast the month of Ramadhan. Because this fasting is a medical marvel, *"if ye only knew"*. Further, the Prophet (saw) said, "Fasting improves health." It is now discovered that fasting is a medical marvel, a fact that can never be over – emphasized.

The fasting of Ramadhan is a mercy to the gastrointestinal tract (GIT) in that it provides it with an annual physiological rest.



The gastrointestine tract is like continuously working machine. The digestive organs, for example, Esophagus, stomach, and the intestine make a combination of over 4 million times of various motilities or mechanical contractions within the period of eleven (11) months. The Ramadhan provides them with a thirty (30) days period of physiological rest.

TABLE 1: The Mechanical Activity of the GIT

Region	Type of motility	Frequency	Result
Oral cavity	Mastication	Variable	Pulverisation: mixing with saliva; clears oral cavity of food.
Oral cavity/Pharynx	Deglutition	Maximum of 20 min	Movement through the esophagus
Esophagus	Peristalsis	Depends on frequency of swallowing	Permits filling of stomach
Stomach	Receptive relaxation	Matches frequency of swallowing	Permits filling of stomach
	Tonic Contraction	15-20 per min	Mixing and crunching
	Peristalsis	1-2 per min	Evacuation of stomach feeding
	Hunger contraction	3 per min	Feeding
Small intestine	Peristalsis	15-18 per min	Transfer through intestine
	Rythmic segmentation	12-16 per min	Mixing
	Pendular movements	Variable	Mixing
Large intestine	Peristalsis	3-12 per min	Transport
	Mass Movement	2-3 per min	Fills sigmoid colon
	Haustral churning	3-12 per min	Mixing
	Defecation	Variable: 1 per day to 3 per week	Defecation

- Van De Graaff, 1998

The digestive system or gastro – intestinal tract consists of vital organs such as the teeth, salivary glands and jaw, the tongue, Pharynx, Larynx, Esophagus, stomach, small intestine, large intestine, liver and pancreas. All these important organs are under the control of a complex computerized system. Smell, sight and eating or even intention to eat, the entire digestive system is triggered into action, each organ works according to its function.

A small amount of food that gets into the stomach this highly complex system is set into action. The GIT works continuously for 24 hours a day, seven days a week, and for months and years without rest. The mechanical activity of GIT is a series of working machines, each working in coordination with another. As an act of mercy from Allah (SWT), He prescribed fasting in the holy month of Ramadhan a one month period of rest, and for recuperation on the totality of the digestive system.

Let us calculate the mechanical effects of the frequency of movements on some of the digestive organs:

- Chewing involving the teeth and the jaw are numerous times per day.
- Esophagus swallows 20 per min, which means the frequency in a day is:
  20x60x24= 28,800 times
- Stomach:
  1. Tonic contractions per day:
     20x60x24= 28,800 times
  2. Hunger contractions per day:
     3x60x24= 4,320 times

3. Peristalsis per day:
   20x60x24= 28,800 times

Total= 36, 000 times per day

- Small intestine

1. Peristalsis per day:
   18x60x24= 25,920
2. Rhythmic segmentations per day:
   16x60x24= 23,040

Total: 48,960 times

- Large Intestine

1. Peristalsis
   12x60x24= 17,280
2. Mass Movements
   3x60x24= 4,320

Total= 21,600 times

The sum of frequent contractions of these 4 organs per day is :

28,800 + 36,000 + 48,960 + 21,600 = 135,360 times

The number per month is:

135,360 x 30 = 4,060,800 times

The number per 12 months(1 year):

4,060,800 x 12 = 48,727,600 times

The grand total of times of contractions of these four organs in one year is forty eighty million seven hundred and twenty nine thousand six hundred (48,727,600) times.

This large number clearly indicates the tremendous and continuous contractions of the gastro-intestinal tract. A huge amount of energy is expended

The mechanical stress on these organs is like you making press ups continuously and for more over 4 million times within a period of 12 months. The benefits of fasting in the Holy Month of Ramadhan are indeed unquantifiable, as it gives a tremendous physiological rest to the entire digestive system.

RAMADHAN AND HEALTH CONCERNS

EFFECTS OF FLUID RESTRICTION

Leiper and his colleagues have erroneously asserted that the list of those exempted from fasting was as a result of hindsight from previous adverse effects of the fasting. They insinuated that:

The list of groups excused, although primarily expressing specific religious beliefs, may also include empirical knowledge on the adverse effects of fasting on health, from a period long before there was a clinical rationale. However, because of local tradition or a variety of personal reasons, many individuals who have the right to be excused decide to observe the fast (Leiper et al., 2003)

This speculation suggests that the excluded group of Ramadhan came out of experience rather than divinely revealed. Nothing can be far from the truth. Those who are under the obligation to fast Ramadhan and those exempted both were divinely revealed (as stated in the Holy Qur'an,

2:183-185)

Therefore Ramadhan was revealed rather than created – it was not the the formulated type of fasting Leiper and his group were well aware of. The researchers also pointed that interaction of these variables in the intermittent fast during Ramadhan has led to a complex, which has led to concern regarding the possibility of an exacerbation of health problems. In their review of the health effects of intermittent fasting and dehydration during Ramadhan, they posited:

Thus, in this review, all health effects of intermittent fasting and dehydration during Ramadhan are systematically listed, especially as such to review is not available and the spectrum of effects may well contain some hitherto unknown effects of intermittent dehydration (Leiper et al., 2003). The researchers made a list of ill-health effects of fasting in the following groups:

1. Potential Health Concerns Of Ramadhan Diet Restrictions In Healthy Individuals

ENERGY BALANCE

The workers have argued that generally, meal frequency is reduced during Ramadhan fasting, which often leads to a reduced energy intake and loss of body mass and body fat.

There is no diet restriction during Ramadhan fasting, on the contrary, rich balanced diet is recommended to be taken during sahoor, iftaar and dinner. The claim of potential health concerns are quite unlikely to cause ill-health because of the safety precautions have already been instituted. Furthermore, for the past 15 centuries, Muslims have been fasting the month of Ramadhan and the Prophet's Intermittent fasting in a variety of stressful conditions without any high incidence of high negative energy balance of deleterious effects have been

recorded.

PSYCHOSOMATIC ALTERATIONS

A number of studies have investigated the effect on mood irritability of individuals during the Ramadhan fast. These studies were said to show a decrease in subjective feelings of alertness and an increase in lethargy and irritability during the daytime fasting. Cognitive function has also been shown to be decreased, although this is not a universal finding. The researchers also claimed that part of this mood change is caused by alterations in normal circadian rhythms with individuals becoming more active through the evening-night.

All these and other health concerns have been dealt with elsewhere in this book. Several researchers have shown that Ramadhan is devoid of adverse psychosomatic disorders; on the contrary, the fasting stabilizes the mood through the reduction of stress hormones –adrenaline, noradrenaline and cortisol etc. To reiterate, Ramadhan is a period of self-restraint. It allows the Muslim to cope with his withdrawal symptoms due to several forms of addictions.

The investigators have pointed a frequently cited problem of Ramadhan fasting which is an increased incidence of headaches. Tension headaches and migraine were said to be exacerbated during the fasting. They discovered in their studies that caffeine and nicotine withdrawal and oversleeping did not have an influence on headache development but fasting per se was the main contributor to inducing the headaches.

They however failed to give an account of how fasting per se could give rise to the headaches. When several researchers have consistently indicated that the headaches are mainly due to withdrawal of addictive substances and acute dehydration as a factor. Undoubtedly, headaches including migraine could pose some problems during the fast. They are remediable

and preventable. The treatments of headaches and migraines during fasting have been discussed elsewhere in this book.

ACCIDENT AND EMERGENCY CASES

The investigators quoting the work of Langford et al., 1994, have pointed that there was an increased number of Muslims who attended the Accident and Emergency department of a British hospital during the month of Ramadhan as compared to similar time periods before and after Ramadhan. The following reasons were advanced as the major causes: mood changes and decrease in cognitive function. This finding however has contradicted several researches conducted in many countries that showed a significant decrease in criminal activities and accidents. In addition, personal hostility during the month is minimal so also the crime rate. Ramadhan fasting has never been shown to cause accidents. The blessed Prophet once said: "Allah has a right over you; your body has right over you." So a fasting Muslim who considers driving to be an additional stress, it is forbidden for him to drive or operate machines.

A fasting Muslim must be sober and mentally alert all the time. He or she should not be easily moved to irritability. The blessed Prophet urged to fasting Muslims, "If one slanders you or aggresses against you, tell him "I'm fasting."

DRUG COMPLIANCE

The researchers cited some studies which showed Ramadhan fasting adults with some type of health problems during the fast, some were on prescribed drugs while others were on diets relating to their health. It was found that some have stopped taking their drugs, changed their dosage pattern, and missed their dose; while others take their drugs at different times.

It is off-limit to conduct any research on patients with respect to Ramadhan fasting, when they belong to the exempt

group. And any research on the sick, the result should not be generalized to normal healthy Muslims who fast. Allah (SWT) had stated this pointedly: "But if any one is ill, or on a journey, the prescribed period (should be made up) by days later (Holy Qur'an, 2: 185)

OCCUPATIONAL HEAT STRESS

According to Leiper et al, one study (Schmahl et al., 1988) had highlighted the detrimental effects that Ramadhan fast could have on Muslim labourers carrying out light-to-moderate physical work in an industrial setting where it was shown that these workers lost an average of 3.6 kg of body mass during the month of intermittent fasting and several of their biochemical parameters suggested that they were significantly hypohydrated.

Islam has a health concern for its devotees. It forbids those working in extreme conditions from fasting to avoid 'occupational heat stress' and other ill-effects that could be injurious to the health od fasting Muslims. Again Allah (SWT) in His Mercy said: "Allah intends every facility for you; He does not want to put you to difficulties (Qur'an 2:185). Need more be said?

OBSTERICS

In Islamic rulings, pregnant women and nursing women should not fast, if the health of the mother or the child could be endangered. So to report a study, which showed a reduction in energy or fluid intake by the pregnant mother and claimed that it may produce detrimental effects in pregnant women undergoing the Ramadhan is off-limit. Pregnant women are exempt from Ramadhan fasting!

Hence the citations by Leiper et al., of the works of Prentice et al., 1983; Malhotra et al., 1989 that showed women in late pregnancy with a phenomenon of 'accelerated starvation'

during Ramadhan are fatuous and inane. Further, it is gross or ignorance of Ramadhan fasting to the works of Tyson et al., 1976; Printace et al., 1983; Picciano 1996, to incriminate the fasting as a cause of additional metabolic stress on pregnancy and lactation as well as neonatal growth and development (Prientice et al., 1984; heird 1996).

In addition, the claim that in Saudi Arabia, the ratio of low-birth weight babies born during the festival months of Ramadhan and Hajj was significantly higher than in the non-festival months as reported by Opaneye et al., 1990, was contradicted with the finding of Cross et al., 1990, who could find no obvious effect of Ramadhan fasting on the mean birth weight or prevalence of low birth-weight babies at full term in a cohort of 13,351 deliveries that occurred between 1964 and 1984 in British Hospital (Leiper et al.)

Furthermore, it is one thing to have a low-birth weight, it is another to say such a baby has congenital defect –such as mental retardation because the mother fasted the month of Ramadhan. Islam exempts a pregnant woman from fasting but if she is able to fast, she will deliver a normal healthy baby. And several studies support the finding of Cross et al., 1990 which showed Ramadhan fasting is relatively safe on pregnant women and their babies.

In this group of ill effects of fluid restriction in Ramadhan which were highlighted, it must be pertinently stated at this juncture that the work of Leiper et al., 2003 and several others are revolutionary in that they are paving the ways to the understanding of health benefits of Islamic Fasting, which are gaining currency and popularity worldwide especially with the emergence of the works of Chief Neurologist Mark Mattson in 3003. In contrast however, several other researchers appear to be sponsored works with a view to counteracting the rising popularity of fasting by scientists with atheistic disposition. In

this regard, the following points should be noted:

Several researches are conducted on those groups of people who are exempted from fasting Ramadhan.

The results of studies in the exempted group is then applied on the general group of healthy people in order to foist several adverse health effects on Ramadhan fasting

It is to be highlighted that there is a rising orientalism which appears to be targeted at fasting generally and Islamic fasting in particular today.

Most of the researchers who conduct researches on Ramadhan Fasting appeared to be ignorant of the principles of this fasting or they have an ulterior motive in presenting the results of their research works because most of their works were on the exempts of the fast especially the elderly and the diabetics

In certain instances however, the works of nominal Muslims are used to deliberately misrepresent the truth about Islamic fasting.

In this regard therefore, any result of a research study that contradicts or attempts to contract the Grand Norms –Qur'an and Sunnah, with respects to the health benefits of Islamic fasting must be countered and rejected outrightly.

And from this standpoint, any research work which is in concordance with the Grand Norms with respects to the health benefits of Islamic fasting must be popularized.

Several dubious researches are frequently reported to create doubt in the minds of the Muslims either in the practicability of the fasting. Its spiritual blessings or its health benefits.

It is from these standpoints that the second list of concerns

presented by Leiper et al, 2003 should be viewed.

2. POTENTIAL HEALTH CONCERNS OF RAMADHAN DIET RESTRICTIONS IN PATIENTS

DIABETES

The investigators stated that owing to the relationship between fasting and hypoglycemia, diabetics who undertake fasting have been considered as a highly vulnerable group. Several clinical studies have examined the effect of the daytime fasting on hypoglycemia (low blood sugar), control of non-insulin- dependent diabetes (NIDD).

They found that citing the work of Belkhadir et al., 1993 that at the end of Ramadhan there were no significant differences between the non fasting and fasting groups respectively, in serum fructasamine concentration, total glycated hemoglobin level or the number of hypoglycemic events.

The body mass tended to increase over the period of Ramadhan while serum creatinine levels increased, inferring that overall subjects were hypohydrated at the end of Ramadhan. They also indicated that several other studies have shown stable or slight improvement in fasting blood sugar during the Ramadhan fast, citing the works of Mafauzy et al., and Katibi et al, 2001 to buttress this point.

Similarly, other studies have proposed that improvement in glycemic control can only be detected in patients who show a decrease in body mass caused in patients who show a decrease in body mass caused by intermittent Ramadhan fast as demonstrated by the works of Ching et al., 1989; Laajam 1990. Hence, they concluded that :

> While the general consensus from clinical studies undertaken appears to be that most established NIDD patients can cope with intermittent fasting during

Ramadhan, medical practitioners must make their patients aware of potential hazards involved and should consider the use of longer acting drugs during fasting –citing the work of Garcia-Brunnel, 1989 (Leiper et al., 2003)

ACUTE CORONARY HEART DISEASE

The investigators have discovered that there appears to be no obvious increase in acute coronary heart disease events associated with Ramadhan. While citing the work of Temizhan et al, 199, the researches pointed that:

However, a few claims have been made that fast of Ramadhan has several benefits in reducing the likelihood of cardiovascular diseases. Ramadhan has been shown to increase HDL cholesterol, while either lowering LDL cholesterol (Adlouni et al., 1007) or not affecting the levels of other cholesterol fractions (Maislos et al., 1993). Some of the apoliprotein fractions associated with diminished risk of atherogenesis have also been shown to increase during Ramadhan fasting as demonstrated by Adlouni et al., 1998.

PEPTIC ULCER COMPLICATIONS

In a retrospective study in Turkey, Donderic et al., have demonstrated a slight but significantly increased rate of peptic ulcer complications was observed during Ramadhan, compared with an equivalent period before Ramadhan. The result of effect of this fasting on peptic ulcer is rather equivocal as some result fasting showed improvement on peptic diathesis.

UROLITHIASIS

In a western region of Saudi Arabia, an area with a high prevalence of Urolithiasis (urinary stones), the effect of Climatic changes, Ramadhan fasting and pilgrimage festival

on the occurrence of urinary stone colic in males, Leiper et al., 2003 cited the work of Al-Hadramy, 1977, who evaluated in a retrospective study and demonstrated that there was a strong positive correlation between environmental temperature and the rate of urinary colic but there was no significant change related to Ramadhan or the Hajj.

RENAL TRANSPLANT PATIENTS

Daytime dehydration will induce a degree of stress on the concentrating ability of the kidneys. However, the studies of Rashed et al., 1989 and a similar study in Saudi Arabia by Abdalla et al., 1989, have demonstrated that urinary and serum biochemistry and hematocrit showed no significant changes. The authors concluded that it was safe for most Muslim renal patients to undertake the Ramadhan fast, 1 year after Kidney transplant.

In summary what have recent researches shown on Ramadhan Diet restrictions on patients? To reiterate, patients are exempted from fasting if their health conditions will plummet. However, if they insist on fasting several research studies have shown that fasting the month of Ramadhan will either improve their health conditions or stabilize them. Now let us focus the third group of health concerns of Ramadhan as posited by these investigators.

3. Potential Health Concerns of Intermittent Dehydration and Chronic Hypohydration

It has been shown that fluid intake occurs in the form of food and drinks, with the sensation of the thirst underpinning drinking behavior. Individuals usually ingest more fluid than they require matching obligatory water losses through the urine, faeces and as insensible fluid losses in breathing and sweating. Excess water intake is excreted by the kidneys as urine.

Drinking tends to be associated with eating. However in situations where normal drinking and eating habits are altered; according to Fitzsimons, 1972, individuals may ingest significantly less fluid than usual, as they become more reliant on stimuli relating to actual body water deficit.

The sensation of thirst in mass, as the study of Green Leaf, 1992, had shown may not be sufficient to induce drinking up to hypohydration levels equivalent to 2% of the body and as in cited work of Brown, 1947, who had shown that in some situations to up a 5% body mass loss. These studies have indicated that reduction of body mass above 2% of the body is likely to cause chronic hypohydration. Perhaps, due to inability of the body to induce thirst. Interestingly, Ramadhan fasting is free from this sequalae.

INTERMITTENT DEHYDRATION

During the daylight hours of Ramadhan fasting practicing Muslims are undoubtedly dehydrating at a rate that is determined by the loss of body water minus the amount of metabolic water that is produced over this period. Several studies were conducted in many Islamic countries to find the effects of this fasting on dehydration. According to these invegilators:

During the daylight hours of Ramadhan fasting, practicing Muslims are undoubtedly dehydrated but it is not clearly whether they are chronically hypohydrated during the month of Ramadhan. No detrimental effects on health have as yet been directly attributed to negative water balance at the levels that may be produced during Ramadhan.

This significant finding has corroborated the finding of Cheah et al. 1990, where the authors found that Ramadhan fasting did not affect the overnight urine volume, indicating that the subjects were probably not subjected to severe water

deprivation. Thus theses researches have consistently indicate that Intermittent Dehydration during the month of Ramadhan has no adverse effects. But does the fasting cause chronic hypohydration?

CHRONIC HYPOHYDRATION

In theory, cumulative negative water balance of more than 3% of total body water is indicative of hypohydration. There are no valid data on the daily water intake and output of Muslims during Ramadhan fasting in the literature.

However, an actual decrease in total body water content is the most reliable measure of hypohydration and this can now be accurately and safely determined in humans using stable isotopes of water (Schoeller, 1996).

Several researches conducted in many Muslim countries have not shown significant evidence of hypohydration in Ramadhan fasting. According to the investigators:

A group of Sudanese Muslims showed signs that their hydration status was progressively stressed during Ramadhan; at the end of the fasting, the mean daytime urine osmolality was about maximum, however, the urine passed through the night was fairly dilute. This suggests that there was compensation for daytime dehydration by increased drinking during the night which prevented the individuals from becoming chronically dehydrated (Leiper et al, 2003)

A similar observation was made in Malaysian Muslims and other similar studies; all have indicated consistently that Islamic fasting is free from chronic hypohydration. In a remarkable study in Gambian women, four dehydration factors were combined (Prentice, et. al, 1984). The study was undertaken primarily to look at the effect of the fast on lactating mothers output, but several indicators of hydration status were also

measured.

The study involved 10 Gambian mothers who were breast-feeding their infants and 10 non lactating women from the same area, all of whom continued their normal strenuous agriculture work for approximately 7 hours each in conditions of thermal stress (temperature), during the Ramadhan. The following observations were made:

Although the authors stated that there was a gradual reduction in body mass over the entire study period, total body water content of the lactating mothers was at least conserved, and may have been slightly increased during Ramadhan. The body water content on the non lactating group was only measured during Ramadhan, but the values are quite similar to that of lactating group, suggesting that none of the subjects in this study underwent chronic hypohydration during Ramadhan (Leiper et al, 2003).

It is interesting to note that Ramadhan fasting is a miracle of all times. Its health benefits therefore, are inexhaustible and the salutatory, the important effects of sahoor and iftaar can never be over emphasized. The investigators finally made the following conclusions.

Every year, millions of Muslims undergo Ramadhan fasting all over the world in very different circumstances, resulting in some cases in additional dehydration stress. No detrimental effects on health have as yet been directly attributed to intermittent negative water balance at the levels that may be produced during Ramadhan. However, epidemiological research is still sparse in this field and it will be extremely interesting to see if the traditional exemptions from Ramadhan fasting have also a modern scientific basis (Leiper et al., 2003)

In recent years, Ramadhan fasting has been subjected to a

battery of researches and careful scrutiny. But all-in-all, the fasting has withstood the test of these avalanche of studies, proving it's a miracle of time. Leiper et al, 2003 have subjected the fasting in several approaches and viewing the Islamic ritual in four different perspectives in the most scholarly manner in recent times. These invigilators have scholarly scrutinized Ramadhan fasting in these perspectives:

- Effects on health and fluid restrictions during fasting in Ramadhan
- Potential health concerns of Ramadhan diet restrictions in healthy individuals
- Potential health concerns of Ramadhan diet restrictions in patients
- Potential health concerns of intermittent dehydration and chronic hypohydration

Ramadhan fasting is indeed a miracle. In all the above listed areas of studies, several researches that were undertaken and probably the researchers were expecting 'potential hazards' but in a miraculous way. Ramadhan on the contrary, had shown clearly to these investigators –health benefits instead. This uniqueness has under scored the divine origin of Ramadhan fasting. In this conclusion therefore, several investigations on the fasting have shown that:

- Fluid restriction has no adverse health effects
- Diet restrictions on the healthy individuals promote their health status
- Diet restrictions on patients either improves or stabilizes their conditions

- Both intermittent dehydration and chronic hypohydration have not been demonstrated on the fasting Muslims.
- *In addition, even breast feeding women show no ill-effects* on them or their infants.
- Even those who are exempted from fasting as a result of health concerns have turned out to benefit from Ramadhan fasting.

Despite the apparent hardships and the potential health concerns, research studies have consistently indicated that it is better to fast, thereby corroborating the 15 centuries of Qur'anic declaration: "It is better for him. And it is better for you that ye fast. If ye only knew (Holy Qur'an, 2:184)

Need more be said? Yes: "glorify Him, in that He has guided you; and perchance ye shall be grateful." (Holy Qur'an 2: 185)

In response to this recuperative rest the GIT oozes out some odour.

FASTING AND MOUTH ODOUR

When the GIT is fully relaxed and rested, the body's immune system is activated. *The immuno-activity along the GIT receives* a boost of immune cells from the Payer's patches (along the tract). Consequently, the bacteria and viruses along this tract are destroyed.

This leads to the release of large amount of toxins which the body expels. As a result, the mouth of the devotee oozes bad smell or odour which emernates from two sources: Ketones and Toxins. All of which are beneficial to the body.

This odour is said to be pleasing to Allah (SWT), probably

because of it's benefits to the devotee. In addition, to production Ketones (Super-fuel) and elimination of bacteria and other germs from the GIT, the fasting confers other health benefits.

Islam detests a stench because it is a faith founded on cleanliness –clean body, clean mind, clean environment, clean business and clean relationship, etc., it allows the Muslim to maintain the habit of cleanliness even during fasting. So during fasting:

It is permissible to use siwak or chewing stick even during fasting. The Prophet (SAW) had laid emphasis on the use of siwak. He said: "The Salat, which is performed after using siwak is seventy-folded superior to the salat without siwak."

The Great Health Teacher added that:

If, I had not thought this to be unbearable hardship for my followers, I would have prescribed the use of siwak before every prayer. (Bukhari and Muslim)

The use of siwak is immediately followed by what he called madmadah –brushing of the teeth, washing and gargling with water in the mouth to ensure that the teeth and the oral cavity are kept clean.

The founder of Modern Civilization then introduced khillala –tooth picking or dental flossing in the 7th century Arabia (Nadabo, 2004, p.26). Teeth brushing, tooth picking and dental flossing were then unknown to the world. They were his health contribution to the modern world.

- Regular bath using cold or warm water as the condition demands.
- Use of air condition or any cooling device to alleviate the

hardships of fasting

- To use perfumes and scent so as to look and feel pleasant.

Fasting is a period of both purification of body and mind both which benefit the body immensely. The hardships of Ramadhan can be very intense especially in extreme conditions.

CHAPTER 5 FIVE

RAMADHAN IMPROVES HEALTH

Certainly fasting improves health. The health benefits of fasting are numerous, some of which includes :

1. It lowers Cholesterol
2. It lowers glucose level in the blood
3. It slows body's metabolic rate allowing it to conserve energy thereby contributing to the healing process ~ recuperation
4. It lowers body temperature when it's high
5. It reduces systolic Blood Pressure.
6. Fasting works by redirecting blood energy away from GIT to the immune system, to allow the bacterial and viral destructions.
7. The benefits of Ramadhan to the GI tract is akin to rest and sleep to the body.

8. It expedites recovery from illness or injury by conserving more energy to repair damaged bones, tissues or organs.

9. Fasting helps to overcome addictions, by reducing cravings for cigarettes nicotine, alcohol, caffeine and other substance abuse.

10. It promotes a gradual and subtle weight loss without rebound phenomenon.

11. Fasting reduces stress hormones adrenaline, noradrenaline and cortisol thereby reducing criminal activities

12. It enhances hormonal activities

13. Fasting improves diabetes

14. It keeps diabetes at bay

15. It prevents kidney stones

16. It reduces libido and relieves the CNS of tension.

17. It improves fertility in both sexes

18. Fasting improves memory

19. It improves blood formation

20. It reduces allergies

21. Fasting improves special senses – vision, hearing, smelling, touch and taste.

22. It detoxifies the body

23. It improves peripheral blood circulation and makes

the skin clearer

24. It improves sleep
25. It has anti-aging effects
26. Fasting dysburdens the liver by metabolizing glycogen
27. It enhances the functions of the liver(it has 15 functions or more)
28. Fasting provides wholesome physiological rest on the digestive tract and CNS.
29. It normalizes metabolism
30. It is a restful period to the endocrine glands including pancreas.
31. Fasting provides an equilibrium between intracellular and extracellular fluids to improve cellular functions
32. It improves glandular secretions and cellular integrity
33. Fasting improves cerebral blood circulation and mental functions.
34. It de-stresses, reduces anxiety and depression. It also gives a feeling of zest and healthful lifestyle
35. It lowers the risk of cancer
36. It promotes longevity by cleansing the body of harmful toxins
37. Fasting mitigates autoimmune diseases such as rheumatoid arthritis, psoriasis and ulcerative colitis.
38. It reduces crime rate in the society

39. Fasting improves cardiac functions

40. It fosters a sanguine personality

Fasting can also prevent or treat a number of ailments including peptic ulcer.

FASTING AND PEPTIC ULCER

Islamic fasting is a remedy for high gastric acidity; it helps in healing stomach ulcers along with suitable medicine. These findings were based on their observations on the effects of Ramadan fasting on Gastric Acidity.

Peptic ulcer – erosions of the mucous membrane of the stomach or duodenum – are produced by

- Hydrochloric acid (Hcl) contain in gastric juice
- Agents that weaken mucosal lining of the stomach: alcohol, aspirin and hyper secretion of gastric juice (dyspepsia).
- The bacterium Helicobacter pylori, present in the GIT.
- Stress and nervousness

The mucosa of stomach is characterized by the presence of microscopic pits and gastric glands. There are 5 types of cells in the gastric glands that secrete specific products.

- Goblet cells secrete protective mucous
- Parietal cells secrete HCL
- Principal cells (chief cells) secrete pepsinogen

- Argentaffin cells secrete serotonin, histamine and autocrine regulators.
- Endocrine cells (G cells) secrete the hormone gastrin into the blood stream. It causes the secretion of HCL

The stomach is sensitive to emotional stress. Parasympathetic impulses promote gastric secretions in the following phases:

Region	Type of motility	Frequency	Result
Oral cavity	Mastication	Variable	Pulverisation: mixing with saliva; clears oral cavity of food.
Oral cavity/Pharynx	Deglutition	Maximum of 20 min	Movement through the esophagus
Esophagus	Peristalsis	Depends on frequency of swallowing	Permits filling of stomach
Stomach	Receptive relaxation	Matches frequency of swallowing	Permits filling of stomach
	Tonic Contraction	15-20 per min	Mixing and crunching
	Peristalsis	1-2 per min	Evacuation of stomach feeding
	Hunger contraction	3 per min	Feeding
Small Intestine	Peristalsis	15-18 per min	Transfer through intestine
	Rythmic segmentation	12-16 per min	Mixing
	Pendular movements	Variable	Mixing
Large Intestine	Peristalsis	3-12 per min	Transport
	Mass Movement	2-3 per min	Fills sigmoid colon
	Haustral churning	3-12 per min	Mixing
	Defecation	Variable: 1 per day to 3 per week	Defecation

- Van De Graaff, 1998

Ramadhan fasting promotes the healing of peptic ulcer in the following ways:

- It exerts a reduction effect on all the phases of gastric secretions.
- In the cephalic phase, fasting removes taste and mental stimuli to lower parasympathetic impulses, in turn which reduces HCL secretion.
- In the gastric phase, fasting lowers the amount of food in the stomach to reduce the mucosal stretching and chemical breakdown of protein. These actions reduce gastrin secretion, as a result, production of gastric juice (HCL) secretion is drastically reduced.
- In the intestinal phase, only small amount of chyme is produced during fasting, consequently, little intestinal gastrin is released. No additional gastric juice (HCL) is produced.

During fasting, the integrity of mucosal barrier improves because little HCL is produced to ulcerate the stomach mucosa. Consequently, the healing of peptic ulcer is promoted rapidly.

Fasting is a potent antidote to stress. It engenders the following salutary effects on the CNS such that:

- Depression lifts
- Insomnia stops
- Anxiety fades
- Gives serenity and peace of mind
- Restores tranquility and natural joy

Fasting drastically reduces HCL secretion; boost the worshippers' immunity; such that his or her mind-brain function automatically and significantly improves, and spiritual capacity expands. Consequently, the gastric acid secretion is reduced significantly to allow the ulcer to heal. A Cleric summarized the gifts offered by fasting in the following words:

> Fasting as a religious act increases our sensitivity to that mystery always and everywhere present to us. It is an invitation to awareness, a call to compassion for the needy, a cry of distress and a song of joy.
>
> It is a discipline of self-restraint, a ritual of purification and a sanctuary for offering of atonement. It is a wellspring for the spiritually dry, a compass for the spiritually lost and inner nourishment for the spiritually hungry. Fasting is the master key to mental and spiritual unfoldment and evolution. (Dr. Arnold Ehret, 1866-1922)

Ramadhan as an embodiment of discipline in self-restraint is a healer as well, as it shields the devotee from the intake of alcohol, aspirin and other harmful drugs that could worsen the worshipper's peptic diathesis.

- It is an anxiolytic and antidepressant
- It reverses the gastric secretion from hyper secretion to normal gastric juice secretion.
- It stimulates body's endogenous healing process and boost immunity.

Research had shown that fasting improves and strengthens the immune system in a number of ways:

- It improves the functions of T lymphocytes a factor of 10.

- It increases the number of Tlymphocytes by a large amount.
- It raises a number of some kinds of antibodies.
- Increases the levels of antibodies due to the increase in low – density fatty proteins. (El – Kadi, JMA, Vol. 17, P. 84)
- The fasting period allows the body to boost it's defensive systems and to cope with ailments and diseases more effectively. It also reduces all the impulses that will lead to gastric acid secretion.

Therefore with the secretion of gastric acid is drastically reduced, little is left in the patient's stomach and duodenum except Helicobacter pylori, which can be treated with the right drug. Doubtless, Ramadhan is a blessing to the world.

RAMADHAN, A GLOBAL BLESSING

Ramadhan is a month of Allah's Blessings and immense health benefits. It is the month in which Muslims world wide fast. Fasting in Islam includes abstaining from food, drink, smoking and sexual intercourse from dawn to sunset as a religious obligation to Allah (SWT).

Ramadhan is the ninth month of Islamic lunar Calender. It is the month in which the Holy Qur'an for guidance of mankind – spiritually, socially, economically, medically, e.t.c in all aspects of human endeavour was revealed. The Glorious Qur'an revealed in this month is Al-*Shifa*, the Healer. Allah (SWT) said:

> We send down (stage by stage) In the Qur'an that which Is a healing and a mercy to those who believe: (Holy Qur'an, 17:82)

Ramadhan Fasting is the fourth Pillar of Islam; engenders good health. To reiterate for the saice of emphasis the Holy Prophet

Muhammad (SAW), said: "Fasting Promotes Health." This statement made 1435 years ago remains a statement of fact. It is validated by the latest medical researches of the 21st century.

This Great Health Teacher taught the modern world how to eat, what to eat, when to eat and how much to eat in order to keep the ideal weight and remain healthy. He said:

> Never has man filled a receptable more evil than his abdomen. It suffices him to take a few mouthfuls to keep him strong. If he can not, then let him reserve a third of it for food, the other third for water and the last for breathing. (Hadith)

In this concept, the great health Teacher had provided the Muslims with the means of taking the nutritional edge in good abundance as well as in scarcity. He also advanced another healthful precept. It was reported by Abu Huraira (R.A) that the Holy Prophet (SAW) said: "The food of two persons suffices for three and the food of three is enough to feed four people."

This Prophetic precept provides the way to eradicate hunger in every society because it's multiplier effects are salutary and healthful. It also shows that population explosion can never lead to hunger. But greed and niggardness can an could. Today, the world suffers from MALNUTRITION: Obesity in the Developed Nations and Marasmic-Kwashiorkor in the Developing Nations.

The Americans are today the most affluent and also the most powerful nation in the world. Yet they are unhappy. The rich who are supposed to be happy, they also cry! Binge eating leading to obesity and overweight is killing the Western Nations. Dr. Atkin recounts this horror, thus:

> Innocent Human is Turned Upon By Own Hormones! But we did it to ourselves, you know. Remember, no culture in the world history has ever consumed even a fraction of

the sugar we twenty first century Westerners do (Atkin, 2002, p. 53).

Today, Western Nations have split the atom, landed on the moodn and made the greatest strides in science and technology in human history. Yet they are unable to cure themselves from the perils of glutony –Obesity and Overweight. Islamic fasting provides the Muslim nations a shield against these and other perils of scientific progress. It is not only fasting that promotes health but all aspects of Islamic worship.

CONCLUSION

Dr. Haluk Nurbaki, an Oncologist and a Radiotherapy-Radiobiology Speacialist, once said:

"The day will come when everyone will fast." He explained in his explication of the four verses of Qur'an 2: 183-187. Untill quiet recently, fasting was regarded as nothing but a rest of the digestive system. As the sciences advanced, it was gradually realized that fasting is a medical marvel. This is why the last verse begins with: "If you percieved the truth." (Nurbaki, 1998, p.118)

Further, with advances in medical sciences, Ramadhan has been shown to be more of medical fasting than other ordinary fasting. In this fast 15th century, the Holy Qur'an and the Sunnah of the Prophet have kept emphasizing the fact that fasting is a good thing: *And it is better for you that ye fast, if ye only knew* (Holy Qur'an 2:184) The world now knows that fasting promotes health.

The sacred commandment *"that ye fast,"* refers to the fasting of Ramadhan and the voluntary fasting of the Prophet (SAW) both of which we now know that they engender good health. However, the principal aims of these two fastings to receive Allah's Blessings while the health benefits are added bonuses. Hence, these fastings cannot be dispossessed of their religious

values in order to gain physical health benefits.

Islamic fasting constitutes these two fastings. These fastings that can solve the problems of obesity and overweight that are posing great threats to human survival, in spite, of, the great strides made in science and technology. Americans have landed on the moon, yet they cannot conquer fat cells or adipose tissue because they are now drowned in the river of their own fat. Is a fat cell more deadly than a virus? I ask, please tell me!

Islamic fasting is the only effective therapy for the global menace of obesity and overweight. But this therapy obeys the rule of "All or Non Law." This means 'accept Islam as it is or leave it,' and die of the vagaries of obesity and other perils of progress. This is because of the powerful bond between mind and body. So when the fasting is removed out of its religious *milieu,* it becomes another form of starvation or diet-plan. But Islamic fasting is made primarily for religious duty to Allah (SWT).

The health benefits of Ramadhan fasting can be intensified and sustained through:

- Wudu or Washup
- Increase in Salat - Taraweeh and Tahajjud
- Increase in Qur'anic recitation
- Observe the fasting of Mondays and Thursdays.
- Adopt the Prophet's eating habits, he said:-
    1. A believer eats in one intestine (i.e., he is satisfied with a little food).
    2. A believer eats in one intestine, and a *Kafir - un*believer or a hypocrite eats in seven intestines (i.e., eats too much).

Islam forbids binge eating which is now the major cause of obesity and overweight. Abu Huraira(R.A) reported: *Allah's Apostle (SAW) left this world without satisfying his hunger even with barley bread.* (Hadith)

The results are: you'll possess an Ageless body and a Timeless mind.

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About The Book

The Prophet Muhammad (SAW) declared in 1435 AH that: ***Certainly Fasting Improves Health,*** this statement of fact has been validated by the latest scientific researches. Ramadhan fasting has now been proven scientifically to help in rapid re-synchronization of circadian-rhythms to alleviate the ill effects of jet lag to international travelers and night shift-workers.

It improves mental health, memory, fertility, blood formation, and normalizes metabolism. It also detoxifies the body, lowers the risk of cancer, alleviates allergy, retards the aging process and keeps various diseases at bay. It boosts immunity, promotes longevity and engenders zestful life style.

This book is aimed at helping you to understand the health benefits related to fasting so that you are able to make more informed choices, minimise complications weight and maximise the benefits of your fast.

It is written with the general as well as the specialized reader in mind, with aim of stimulating Islamic fasting for spiritual uplift which follows spiritual blessings and immense health benefits.