

Basic rules of Ramadan: A medico-religious perspective

Bashir Ahmad Laway, Hamid Ashraf

Abstract

Fasting during the month of Ramadan is obligatory for all adult Muslims with few exceptions. The person observing a fast does not eat, drink, and smoke from dawn to dusk. Google and Medline search was undertaken for the articles related to basic rules of fasting-religious and medical perspectives in the previous 24 years using following key words: Islamic fasting, fasting and diabetes, fasting and endocrine system. There are clear cut guidelines regarding fasting in healthy people and exemptions have been emphasized. Some alterations in pulmonary, cardiac, gastrointestinal and neuropsychiatric systems are observed which do not harm a normal person. A risk strategy has been devised for people with diabetes regarding management during Ramadan fasting. Rules regarding adherence to fasting and concessions during the month of Ramadan are clear. Minor alterations in different body systems are observed in normal people during Ramadan.

Keywords: Fasting rules, Ramadan, Islamic fasting, Diabetes, Endocrine system.

Background

World's major religions adopted fasting to pay their devotion, Out of these, fasting in the month of Ramadan is observed strictly by millions of Muslims worldwide. Islam is built upon five pillars: testifying that there is no God except Allah and that Muhammad (PBUH) is the Messenger of Allah, performing Prayer, paying the Zakat, making the sacred pilgrimage to Makkah (Hajj) and fasting in the month of Ramadan. Allah's instructions in Qur'aan is interpreted as "O you who believe, fasting is prescribed for you as it was prescribed for those before you, so that you may achieve righteousness".¹ Fasting is not meant to invite hardships for the believers but to remind the individual about the plight of the poor and hungry, earn rewards and lessen his burden of past sins.

Basic rules of Ramadan Fasting Religious perspective

There are two main requirements for the validity of the

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Department of Endocrinology, Sher-i-Kashmir Institute of Medical Sciences, Soura, Srinagar, India.

Correspondence: Bashir Ahmad Laway. Email: drlaway@gmail.com

fasting: sincere intention to fast everyday for the sake of Allah before the dawn and abstain from dawn to dusk from everything that invalidates fasting. Fasting in the month of Ramadan is obligatory upon every Muslim man and woman who is sane and is not sick and is not on a journey. In case of sickness, decision about fasting depends upon the nature and severity of illness. If a person has a temporary sickness and is expected to recover from it soon, he may not fast on the days he is indisposed but must fast after the month of Ramadan to compensate for the missed days. If the person has an incurable sickness and is not expected to recover completely, he or she is allowed not to fast and is obliged to feed a needy person (or give an equivalent amount of money for one day's meals) for each fast missed. Women in menses or in post natal bleeding are not allowed fasting because fasting may reduce their resistance, they have to make up for the lost days later after the Ramadan. Similarly, pregnant women and nursing mothers are also allowed not to fast because it may affect the health of the child. In all these conditions, the missing days can be compensated anytime during the year even if the cool, smaller days of winter are chosen. Fasting is not obligatory for a person with unsound mind, as they may not be able to follow the rules. Definition of a journey according to the Shari'ah is any travel that takes a person 80 kilometers from the city of residence. It is the same journey that allows one to shorten (qasr) the prayers. The journey should be for a good cause. It is advisable for a Muslim to change his/her plan of travel in Ramadan and one should not undertake it unless it is necessary. It is a sin to take a journey just to avoid fasting. The traveler must make up for these missed days as soon as possible after the Ramadan. Other requirements of fasting: taking a predawn meal (suhur) in the last half hour before dawn and break-fast meal (iftar) immediately after sunset. During the hours of fasting, the person must be pleasant and cheerful and in good spirit. One should avoid telling lies and performing harmful actions, and should not use abusive words, quarrel, have disputes or indulge in arguments. One should develop self discipline with good morals and ethics besides gaining physical training and discipline.²

Things that invalidate the fast

1. Eating, drinking or smoking deliberately during fasting hours.

2. Sexual intercourse during fasting hours is a great sin.
3. Ejaculation because of sexual excitement from kissing or hugging.
4. Deliberately causing one to vomit.
5. Beginning of menstruation or post childbirth bleeding even in the last moment before sunset.

Things that do not invalidate fast

1. Taking a bath or shower or swimming.
2. Using perfume, contact lens or use of eye drops.
3. Taking injections or having a blood test.
4. Rinsing the mouth, use of miswak or tooth brush and paste.
5. Having a wet dream (to have a bath later).
6. Kissing between husband and wife, but one should try to avoid it so that one may not do anything further that is forbidden.

Medical perspectives

Effects of fasting on body systems in normal people

Metabolic effects

In recent times many authors have studied the effects of fasting on body metabolism in normal people. Weight loss of 1-4 kg has been reported in normal weight people, obese people lose more weight, and no weight loss has been reported in undernourished people. In some studies some weight gain is reported because of intake of excessive carbohydrates and fats.³ Alterations in lipid concentrations may follow changes in the body weight. Most of the studies have demonstrated decrease in the levels of total cholesterol and low density lipoprotein (LDL) cholesterol in addition to increase in high density lipoprotein (HDL) cholesterol levels. Some studies have revealed increase in cholesterol and LDL levels because of decrease in weight.⁴

Hormone alterations

Alteration in morning and midnight cortisol has been described in people during the month of Ramadan. There is a reversal of morning/midnight cortisol levels. The increase in evening than morning cortisol occurs at around 3-4 weeks and returns to pre Ramadan pattern 6 weeks after. The reversal in cortisol circadian rhythm is due to alteration in sleep wake cycle. Despite changes in biological process of the body caused by changes in meal time, sleeping pattern, there is no major change in concentration

of pituitary, thyroid, sex hormone levels while fasting in the month of Ramadan.^{5,6} It is believed that the length of fasting during Ramadan is not sufficient to cause any major alternations in pituitary thyroid axis or peripheral conversion of T4.³ Patients with diabetes insipidus and adrenal insufficiency need to be cautious because dehydration may have adverse impact on the body.

Heart, lung, liver and kidney

Blood pressure and heart rate usually remain normal during Ramadan fasting and no increased incidence of myocardial infarction, unstable angina and stroke during fasting is reported. People with unstable heart failure on high doses of diuretics are predisposed to dehydration and its complications. People who had an acute myocardial infarction, unstable angina or a cardiac surgery should postpone fasting.⁷ In healthy individuals, fasting does not affect the lung function; however dryness of respiratory tract might result in exacerbation of bronchospasm. People with a stable lung disease maintained on once or twice daily inhalers can be advised to fast, however people with unstable chronic lung disease are advised against fasting.⁸ Even though complications of peptic ulcers have been reported in fasting patients, use of proton pump inhibitor in such patients results in equal rate of healing with no adverse consequences.⁹ Thus patients with complicated duodenal ulcer may be advised to skip their fast and, asymptomatic patients may try fasting, and can take H2 blocker, or a proton pump inhibitor at Iftar and Suhur, if hyperacidity remains a problem.

There is some increase in serum bilirubin level in the first 10 days and usually comes to normal range in the last 10 days of fasting. The rise and fall in serum bilirubin correlates with fall and rise in blood glucose. No major changes in serum ALT, AST, protein and albumin concentrations occurred during Ramadan.⁹ Fasting can be observed safely in people with liver disease however, people with cirrhosis and active liver disease should avoid it. Interestingly, fasting may benefit patients with spastic colon. No changes in the metabolites like urea, creatinine and electrolytes as sodium and potassium have been reported, however some rise in uric acid may occur because of its decreased excretion. No increase in incidence of nephrolithiasis has been reported in normal people with fasting. People with chronic renal disease should be advised not to fast because of risk of hyperkalaemia.¹⁰

Neuropsychiatric effects

No changes in EEG have been reported, even in extended starvation. Daytime sleepiness is found to be significantly

increased. Subjective attentiveness and mood is depressed during daytime and it is increased at 23 hours during Ramadan fasting. Headaches have been reported to be significantly increased in those people who are prone and the most important exogenous factor was caffeine withdrawal. One study has shown significantly lower suicide rates during Ramadan.¹¹ Some of the alteration in various metabolic parameters and organs are summarized in Table-1.

Diabetes and Fasting

During fasting, as the glucose levels falls, there is reduction in secretion of insulin and concurrent rise in the levels of glucagon and catecholamines, resulting in the breakdown of glycogen, and at the same time gluconeogenesis starts.¹² If fasting is prolonged for several hours, glycogen stores are depleted and there is release of fatty-acids from adipocytes. Oxidation of fatty acids leads to formation of ketones which can be used as an energy source by many tissues. The evolution from the fed state to starvation occurs in three stages: 1) the postabsorptive phase, 6-24 hours after initiation of fasting 2) the gluconeogenic phase, from 2-10 days of fasting 3) the protein conservation phase, beyond 10

days of fasting.¹³

Fasting in Ramadan seldom exceeds 18 hours, the variability of the duration of every phase may lead to different physiological responses to fasting. Fasting usually follow a bulky meal taken before dawn (Suhur), the stored glycogen, along with gluconeogenesis, maintain serum glucose within normal limits. However, there may be minor inter-individual variation in serum glucose because of different food habits and individual variations in the mechanisms of energy regulation.⁴

The recent collaboration between the Islamic Fiqh Academy and the Islamic Organization of Medical Sciences produced a comprehensive guideline for patients with diabetes and categorized people with diabetes into 4 groups depending on their risk (Table-2). Patients falling in category 1 and 2 are advised not to fast and people in category 3 and 4 can continue to fast.¹

Ramadan: An opportunity for better lifestyle

As discussed, that weight loss occurs during Ramadan which if maintained can be beneficial to patients, so they should be encouraged to maintain it, especially if the patient is suffering from metabolic syndrome, diabetes, hypertension and obesity. A person who smokes, should be encouraged to stop smoking. He can be motivated by the fact that if he could not smoke during the fasting period then he could easily abstain later also. Physician's advice and management has to be individualized and people with diabetes encouraged to seek medical advice before the advent of Ramadan to adjust their medications, if necessary. Fasting does not apply to Muslims whose health is at risk. The Qur'an states that fasting during illness should be avoided. The physicians taking care of people with diabetes should be updated with the guidelines for good management during fasting in Ramadan.

Table-1: Metabolic and organ system changes in normal people during Ramadan.

Parameter	Changes during Fasting
Carbohydrates	Glycogenolysis, gluconeogenesis
Lipids	Depends upon change in weight
Weight	Decreased or no change
Liver	Some increase in indirect bilirubin followed by fall
Kidney	Rise in uric acid
Endocrine glands	1. Decrease in total T4 because of alterations in protein binding 2. The reversal in cortisol circadian rhythm, 3. Decrease in total calcium initially followed by minor increase
Neuropsychiatric	More frequent headaches
Heart, Lung, gut	No significant changes seen

Table-2: Risk stratification of patients with diabetes who seek an advice regarding fasting during Ramadan.

Category 1 Very high risk of serious complications	Category 2 High risk of complications	Category 3 Medium risk	Category 4 Low risk
1. All type 1 diabetes 2. Diabetic ketoacidosis, 3. Frequent hyperglycaemia in last 3 months 4. Severe hypoglycaemia or hypoglycaemic unawareness in previous 3 months 5. Diabetes with severe acute illness 6. Complicated diabetes on renal dialysis 7. Diabetes and pregnancy 8. Diabetes patients who are obliged to take hard types of physical labour	1. Poor glycaemic control (HbA1C> 10%) 2. Renal impairment 3. Macrovascular disease 4. People living alone and are treated with insulin injections or secretagogues 5. Patients suffering from conditions that add an additional risk 6. Elderly people with other diseases 7. Patients receiving treatment that interfere with their cognitive function	Diabetes with stable situation and controlled by drugs like insulin secretagogues like sulphonylureas	Stable diabetes controlled on diet and non insulin secretagogues like metformin, glitazones, DPP4 inhibitors

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