Current Nutrition Reports
https://doi.org/10.1007/s13668-018-0233-2

GASTROENTEROLOGY, CRITICAL CARE, AND LIFESTYLE MEDICINE (SA MCCLAVE, SECTION EDITOR)

From Religion to Secularism: the Benefits of Fasting

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Abstract

Purpose of review Since the early development of human societies, religious beliefs, and practices has been integral to their identity, culture, and social structure, traditions are influenced by the area, era, and culture wherein they developed. Some religions offer advice on behavioral and diet modifications as strategies to fortify the body, purify the spirit, and elevate consciousness. This review is an attempt to compare different practices, describe the health benefits and risks of fasting, and reconcile these age-old recommendations with practical modern life.

Recent findings Research to clarify and quantify the impact of these dietary modifications is challenging due to the variability in recommendations among various religions and in day-to-day practices.

Summary Most religions share common goals of well-being, body-mind integration, and spiritual attainment. Historically, the transformational power of fasting periods has been appreciated, but there is still much to discover about the underlying beneficial physiologic mechanisms of fasting in preventing and treating metabolic diseases.

Keywords Religious fasting · Caloric restriction · Orthodox fasting · Islam · Buddhism · Judaism · Hinduism · Daniel Fast

Introduction

Religions have different beliefs, rituals, and practices according to the culture, historical time, and geographical area from which they emerged. Most religious beliefs have a shared goal to fortify the body, mind, and spirit. Among the many aspects of the world's religions, pathways regarding behavioral and diet modifications have been recommended and vary from seasonal fasting, to specifications in the selection of foodstuffs to be consumed or avoided, to prescriptions on proper handling of foods for human consumption. Historically, there has been significant focus on and appreciation of the physical and/or spiritual benefits of periods of fasting.

The practice and interpretation of fasting vary widely. In general, it is considered a limitation on or absence of food consumption for a specified time period, which promotes the use of the body's energy reserves as a primary fuel source without inducing starvation or malnutrition [1].

Although science and medicine have sought to clarify and quantify the real health benefits and/or potential risks of these diet modifications, studying them has proved to be difficult, owing to variabilities in the recommendations among religions and extreme differences in daily practices [2•]. This review is an attempt to explore the different practices, describe the health impact of fasting, and reconcile these age-old recommendations with practical modern life.

Origins and Significance of Fasting in Religions

Fasting has been a common element of the various religious and spiritual practices of the world for millennia. In Christianity, it is one of the seven ancient practices or disciplines, historically

This article is part of the Topical Collection on *Gastroenterology, Critical Care, and Lifestyle Medicine*

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Published online: 09 July 2018

rooted in Judaism [3], traditionally practiced during Lent in preparation for the celebration of Easter; in Islam, fasting is practiced during Ramadan, a month-long period which commemorates the first revelation of the Quran to Muhammed, and similarly culminates in a celebratory commemoration. Among eastern religious practices, fasting can be found in Buddhism, Hinduism, Jainism, Taoism, and many more.

Historical references to fasting are found in the Old Testament, in the book of Exodus, where Moses undertakes a 40-day fast, and in the New Testament, where Jesus fasted for 40 days in the wilderness after being baptized by John in the Jordan River [4]. Yom Kippur has a highly spiritual aspect called Teshuva (Returning to the Creator in repentance) as its highest aim and achievement. In Islam, Muhammed undertook fasting as a form of prayer to Allah, and Buddha, although he later renounced extreme ascetic practices, undertook radical periods of fasting as part of his quest for Enlightenment [3].

There are, of course, doctrinal and philosophical differences among the various religions and spiritual paths of the world, but ultimately, their common goals revolve around freeing man from all forms suffering, be they physical, mental, or spiritual, and attainment of a positive goal, whether it be a "Heavenly after-life" or "Heaven on Earth" [5]. Most religions employ fasting as a means of purification, as an aid to contemplation, and as a method to attain an ultimate freedom.

What Is Nutritional Fasting and How to Best Achieve Its Beneficial State?

During a prolonged fasting period with limited availability of carbohydrates, a change in energy source is required, which induces metabolic changes like increased gluconeogenesis and increased oxidation of fats resulting in increased production of ketone bodies. Interesting evidence suggests that the fasting-induced protein breakdown is not random, but rather an organized process via a complex molecular network that includes AMPK, SIRT1, FOXO, and mTOR interaction, which induces autophagy modulation, focused on destroying unnecessary and potentially dangerous proteins such as abnormal cells and auto-antibodies [6••, 7]. These metabolic changes can be obtained at different levels with several dietary modalities like caloric restriction (CR), alternate-day fasting (ADF), dietary restriction (DR), and the recently described fasting-mimicking diet (FMD).

CR implies a prolonged 20–40% reduction in daily kilocalorie (kcal) intake without changing the content or source of micro/macronutrients. It has been associated with improvement in metabolic profile [8], cardiac performance [9], and delaying the onset of autoimmune and degenerative diseases [10]. CR is the only intervention proven to extend life-span and health-span in mammalian models [11].

ADF is practiced as intermittent periods of limited/absence of food and water consumption, followed by periods of unrestricted food ingestion. ADF has been associated with reduction in blood pressure and increased insulin sensitivity, as well as decelerating the onset of metabolic diseases [9] [12].

DR is a reduction in the intake of a specific macronutrient (carbohydrate, protein, lipid) with no reduction in total kcal intake. Only protein restriction has demonstrated increased life-span in rats' models [13].

FMD is a CR-DR diet (500 kcal/day) based on low protein and carbohydrate consumption, rich in fats, and applied in intermittent periods (typically from 5 days to 3 weeks) induces lower glucose and higher ketone body levels. FMD has been shown to trigger specific cell regeneration in animal models [14].

For Various Religions, What Are the Different Approaches to and Significance of Fasting? Are There Any Health Benefits Beyond the Spiritual Benefits of Fasting?

Religious fasting (RF) varies and may dictate specific restrictions like the kinds of food and beverages to be consumed (Yom-Kippur), the timing (continuous vegetarian Buddhist or intermittently Islamic Ramadan fasting), or the season (during Nativity, Lent, and the Assumption for Greek Orthodox Christians), but in general, RF comprises different levels of CR and DR [15]. CR is associated with enhancement of mental acuity, but RF aims at purging the soul and body, aiming for spiritual attainment [2] (see Table 1).

Due to global migration, cultural and religious rituals have expanded in the world, potentially affecting a greater percentage of the population. Physicians may be unaware of their patients' actual practices and lack information on potential effects on their health. In part, the difficulties in understanding the impact of RF on human health are related to inconsistency in the available evidence and variability in practices. Although the mechanism of action may be unclear, there is a perceived benefit for well-being and a positive effect on metabolic and cardiovascular diseases [2].

Studies on non-religious fasting have focused primarily on short- versus long-term nutritional effects after partial versus complete fasting [16] and on the consequences in acute or chronic diseases. [17]. Its benefits appear related to the induction of autophagy, an innate cellular process characterized by the breakdown of damaged or "unnecessary" cell components during the period of scarcity, then recycling them to rebuild necessary proteins and yield an energy source to the cell. A possible benefit during the refeeding period has been described, with a transitory increase in number and function in hematopoietic and mesenchymal stem cells, possibly decreasing the age-linked "immunosenescence" process and playing

Table 1 Comparative table of fasting practices by religion

Religion	Fasting practice	Diet	Benefits	Risks
Greek Orthodox Christian	Nativity—40 days prior to Christmas Lent—48 days prior to Easter Assumption—15 days in August Total fasting 180–200 days/year	Daily abstention from eggs, meat, dairy products, and alcohol Bread, vegetables, fruits, cereals, and nuts are consumed	Optimal benefits on lipid and glucose homeostasis	No detrimental effect on electrolyte and cardiovascular outcomes
Islam	Ramadan—lasting 28–30 days with mean fasting 12–14 h, occurring during the ninth lunar month of the Islamic calendar Exemption: children, elderly, chronically ill, pregnant or breast feeding women	Food, water or other liquids, and smoking are not allowed from dawn to sunset	Heterogeneous data, unclear impacts remain on body mass index, lipid profile and glucose levels Possible anti-inflammatory effect	Increased risk of hypoglycemic episodes in diabetics. Disturbances in circadian rhythm and dehydration especially in hot climates No other proven adverse effects have been noted
Daniel Fast	From 10 to 40 total days/year (most commonly practiced for 21 consecutive days) at any time of the year	Strict vegetarian food intake such as fruits, vegetables, legumes, whole grains, nuts, and seeds No consumption of animal products, refined carbohydrates, food additives, preservatives, sweeteners, flavorings, caffeine, and alcohol	Lowered total cholesterol, LDL-cholesterol, systolic and diastolic blood pressure Significant increase in glucose homeostasis (lower glycemia, fasting insulin levels, HOMA-IR, and C-reactive protein)	None reported
Judaism	Yom Kippur—tenth day of the seventh month of the Hebrew calendar lasting 25 h Fast begins before sunset and ends after nightfall	No food or drink is consumed for 25 h Abstention from physical comforts and luxuries with no manner of work, driving, cooking, shopping	Well-tolerated, short duration may not produce significant health effects	Potential effect in homeostatic status like dehydration
Buddhism	All year	Typical vegetarian diet excluding meat and dairy products Avoidance of pungent vegetables (garlic, welsh onion, chives, asant, and leeks), alcohol, and large amounts of processed food	No effect on bone mineral density and body anthropometry	None reported
Hinduism	Not specified	Dietary restrictions are varied Avoidance of over-ripened, overcooked, highly processed, frozen, and refined food products	Enhanced immune system has been proposed based on dietary practices	None reported

Comparison between different religious fasting practices and their health impact

a role in re-setting the immune system and modulating the inflammatory process [11] [18].

Most trials on RF have been done in Buddhist, Christian, and Muslim populations. The prolonged fasting periods potentially have a more significant impact on health, body weight, cardiometabolic risk markers, and oxidative stress parameters [2•].

Greek Orthodox Christian

Orthodox fasting (OF) is a seasonal fast practiced during Nativity, Lent, and the Assumption [15] and consists of daily abstention from dairy products, eggs, and meat and from fish and olive oil on Wednesdays and Fridays. During OF, practitioners consume bread, fruits, vegetables, nuts, and seafood [19]. OF collectively comprises 180–200 fasting days per year, 40 days prior to Christmas (Nativity Fast), 48 days prior to Easter (Lent), and 15 days in August before the Assumption, plus additional single fasting days like Eve of Epiphany [15]. During OF, other restrictions include consumption of alcohol which is not allowed [15].

OF is considered a CR and DR, resembling the Mediterranean diet, which has been associated with longevity and low prevalence of cardiovascular diseases [10]. Studies have shown that OF periods are characterized by decreased total energy and fat intake, increased carbohydrate and fiber consumption, and conflicting data regarding protein intake, but generally with optimal lipid and glucose homeostasis [20]. Fasting periods are practiced consistently, well-tolerated, without detrimental changes in electrolyte balance or cardiovascular diseases [21].

There are limited publications regarding the impact of OF on human health [22], but it bears mentioning that it is a consistent diet pattern, with reliable adherence, considered as a Mediterranean diet, and practiced long enough to warrant investigative research due to its real potential physical effects. Studies have shown that practicing the OF for about 1 year induces a significant decreased intake of total energy (↓180 kcal), protein (↓4%), and fat (↓7%), all $P < 0.05$ [23], with a significant reduction in total cholesterol (↓12%), LDL (↓16%), and BMI (↓1.4%) [22]. When comparing Orthodox monks who consumed RD versus NRD, similar metabolic profiles were observed; additionally, monks practicing RD obtained appropriate cardiometabolic, calcium, and insulin resistance homeostatic model assessment (HOMA-IR) [24], without proven life-span extension. D and high parathyroid hormone levels were observed, and normal serum calcium levels were maintained [22].

The benefits of the recurrent OF cycles may be compared with the ADF regime, with the main difference being in type and amount of food consumed. This fasting pattern features abstention from meat, dairy products, and alcohol, carrying potential health benefits related to prevention of degenerative disease and longevity as seeing in animal models [11] [7]. Nevertheless, there is no significant information regarding impacts of OF in high-risk populations like children, pregnant and breast-feeding women, or patients with chronic metabolic diseases.

Islamic Ramadan

Muslims fast from sunrise to sunset during the ninth lunar month of the Islamic calendar (Hijra), the month of Ramadan. During this period, food and drink are prohibited during the daylight hours; the fast is broken by taking two unrestricted meals (after sunset and before dawn). It is an intermittent fast, consisting of alternating fast and feast periods [15]. Children, elderly, chronically ill, pregnant or breastfeeding women, and travelers of long distances are exempted. Adults can make up missed days at other times of the year or during their lifetime [15].

The duration of the fasting is variable since Hijra is a lunar calendar and Ramadan lasts 29–30 days, falling at different times in the seasonal year over a 33-year cycle. Mean fasting lasts 12–14 h, but it can extend to 18–22 h in extreme latitudes [25]. During the Ramadan fasting, abstention from tobacco and caffeine is recommended as part of this cultural belief.

This month-long intermittent fast has been well studied, but physiologic conclusions are difficult to draw due to significant differences in kcal and macro/micronutrient intake during the refeeding period according to region and culture. Most studies indicate a positive effect on body composition and metabolic profile [26], but there are heterogeneous results about quality of fat [27] and fiber consumption [27]. Vitamin and mineral consumption appear unchanged [28]. Reports show no significant adverse effects of Ramadan fast on healthy or vulnerable populations like stable cardiovascular patients [29]. Nonetheless, this dietary regimen could theoretically lead to overeating, imbalanced macronutrient intake, and an increased risk of hypoglycemic episodes in diabetic patients.

Ramadan is the most investigated RF, but there is little consensus regarding its effects on health outcomes due to the variability and inconsistency in the length of fasting periods and the quantity and quality of re-feeding periods. Other confounders are heterogeneity of the populations and detrimental habits like smoking, excess alcohol consumption, and the presence of chronic disease [15].

As a dietary practice, Ramadan fasting is similar to ADF, with intermittent fast and feast periods, with one significant difference being water consumption, which is forbidden for Muslims during the daily fast, and permitted at all times under an ADF protocol. Multiple meta-analyses evaluating Ramadan fasting effects on different health parameters have been published. One meta-analysis including 35 studies found a trend toward weight loss of 1.2 kg during fasting period, followed by a significant increase after the refeeding period 0.72 kg. [30] The greatest reduction was observed in East Asian populations (↓1.56 kg) due to a modest decrease in carbohydrate

consumption, compared to Western Asians (↓1.24 kg), African (↓1.13 kg), and European (↓0.64 kg) populations. Although fasters consumed only two meals daily, total caloric intake increased during Ramadan fasting (1965 kcal/day) and post-Ramadan fasting (2372 KJ/day) [30]. Another meta-analysis [26] evaluating the metabolic impact showed a decreased LDL and glucose level in post-Ramadan fasting period, with unchanged total cholesterol and triacylglycerol levels. Some data suggest significant reduction in insulin (↓53%) and adiponectin (↓46%) levels during Ramadan fasting [27]. An anti-inflammatory effect has been proposed due to a significant and persistent (up to a month) reduction in cytokines IL-1b, IL-6, and TNF-a levels (between 57 and 78%) after the intermittent fasting period [31].

In general, most studies indicate that the possible benefits obtained during Ramadan fasting can be affected by caloric intake, duration of fast, baseline BMI, cultural habits, and country of residence (i.e., total energy and macronutrient intake vary between Saudi and Indian Muslims). The positive effects are documented only during the Ramadan fasting period with no studies evaluating the long-term effects.

The Daniel Fast

This fast, practiced by some Christians, derives from the Biblical story in which the prophet Daniel resolved not to defile himself and consumed only vegetables and water for 10 days initially and then for 21 days. The modern-day Daniel Fast involves ad libitum intake of fruits, vegetables, grains, nuts, and oil [15]. Typically, followers of the Daniel Fast have excellent compliance, with their intention being to become closer to God. The Daniel Fast is commonly practiced for 21 days at any time of the year; periods ranging from 10 to 40 days have been observed. It is considered a DR but is more stringent than other vegetarian diets, with prohibitions on refined foods, white flour, preservatives, additives, sweeteners, flavorings, caffeine, and alcohol.

The Daniel fast resembles a vegan diet. Beneficial effects include reduction in total kcal, protein, and fat intake, with a favorable lipid, glycemic, and oxidative profile [8], without affecting mood or satiety [32]. Increases in carbohydrate, fiber, and vitamin C intake have been noted. Adverse effects have not been reported.

Even though the 21-day Daniel fasting diet does not represent a religion per se, it merits inclusion in this manuscript considering the quality of research on it. Each cycle of the Daniel fast is characterized by a significant reduction in daily caloric (↓250 kcal), protein (↓26 g), and fat (↓12 g) intake, which have been related to improvement in health risk markers [24]. Studies on its impact on metabolic and cardiovascular diseases have showed significant reduction in cholesterol, LDL-C, and blood pressure [32], associated with a meaningful improvement in glucose homeostasis, characterized by lower glycemia, fasting insulin levels, HOMA-IR, and C-reactive protein [24].

The benefits of the Daniel Fast are likely related to CR in combination with a vegetarian diet, with unknown potential benefit related to the associated re-feeding cellular regeneration, and unclear impact in terms of long-term benefit of frequent fasting cycles over long periods.

Judaism

Yom Kippur occurs on the tenth day of the seventh month of the Hebrew calendar, after Rosh Hashanah, the Jewish New Year, with restriction from eating and drinking, even water. It is known as the "Day of Atonement" for iniquities of the past year to prepare for a "Return to God," as abstaining from the pleasure of food is meant to improve one's ability to focus on repentance. Traditionally, Jewish belief holds that on Rosh Hashanah, God makes judgment for each one, and on Yom Kippur, "judgement is sealed" (Talmudic) [33]. Children under age 13 are exempt, and, as per Jewish law, anyone whose life could be compromised during the fast, in light of upholding preservation of life (i.e., women in childbirth, diabetics) [34]. The fast lasts 25 h, beginning before sunset the evening before Yom Kippur, ending after nightfall the next day. In Orthodox Judaism, abstentions from physical comforts and luxuries are considered conducive to spiritual elevation. Yom Kippur is a complete Sabbath; no manner of work, driving, cooking, shopping, etc. can be performed on that day.

From the nutritional point of view, this fast is too short to cause metabolic changes with significant health impacts [35]. Avoiding liquids for 25 h has a potential physiological stress with immediate potential homeostatic imbalance; on Yom Kippur, consumption of a shiur (approximately a half mouthful of liquid) is allowed at intervals of between 4 and 9 min (open to interpretation). If necessary, fasters are allowed 30 cc food periodically [33].

Very little data is available, but a retrospective review of a computerized medical database assessed the number of ER visits in Israel in the 48 h following commencement the Yom Kippur fast and showed no increase in ER traffic [36].

The Jewish Yom Kippur fast is different from other fasting practices because there is a complete abstention from food and water for 25 h [35]. Its immediate potential side effects are headache, dehydration, and hypoglycemia; due to its short duration, long-term health impact is unlikely. The lack of water consumption can cause physiological stress and slow metabolism, with perhaps more effect regionally, i.e., in hot and dry countries like Israel. Other effects may include risk of hypothermia, withdrawal headache in habitual consumers of caffeine, and nausea.

Buddhism

Buddhist fasting patterns consist of a typical vegetarian diet, excluding meat and dairy products (sometimes milk), which is practiced all year around. The type of food varies among different countries and cultures (e.g., Chinese Buddhists typically consume milk, whereas Taiwanese consume soybean products) [37] [38]. Data reflecting these variations are not available. Consumption of five pungent vegetables (garlic, welsh onion, garlic chives, asant, and leeks), alcohol, and processed foods are prohibited [2•].

In general, vegetarian diets have been associated with longevity and prevention of cardiovascular diseases. Micronutrient deficiencies are few due to milk consumption. Studies have shown that even with decreased daily caloric and calcium intake, decreased bone mineral density was not found [39]. No significant adverse effects have been found. Further studies on susceptible subgroups like children, pregnant women, or diabetic patients are needed.

The typical Buddhist vegetarian diet is considered a RD, which has been associated with improved longevity. One study showed that vegan nuns consumed lower caloric intake (↓270 kcal/day) and calcium intake (↓330 g/day) without significant effect on bone mineral densitometry [39]. Another study, comparing Buddhist vegetarian nuns with omnivorous Catholic nuns [37], found normal BMI in both groups, with better lipid profile in the Buddhists in correlation with the duration of adopting a vegetarian diet. Although both diets exclude meat and dairy products for prolonged periods, no significant deficiencies in micronutrients (Calcium, Vit E, Vit B_{12}) were observed [38] [40] [39]. There is a lack of literature on the impact of this type of fasting in high-risk populations.

Hinduism

Vedic literature (ancient Sanskrit texts, foundational to Hinduism) upholds the sacred, eternal nature of all life and states that when life particles interact with material elements, various events like birth, disease, old age, and death result. In Rig Veda, desire for health and longevity is expressed in the Veda sukt: "Pashyem sharadah shatam, Jivet sharadah shatam" (let me see 100 autumns, let me live 100 autumn). Ayurveda (traditional, holistic system of medicine in India) advocates consumption of whole grain foods, fruits, and vegetables and avoidance of food with low amounts of life energy (prana) like over-ripened, overcooked, highly processed, frozen, and refined food products [41]. Because the Hindu religion allows for differing interpretations, foundational philosophical recommendations and dietary restrictions are varied [41].

Although Hindu fasting has millions of adherents, actual practices are widely varied, making arriving at meaningful conclusions difficult. No adverse effects have been specifically reported.

As per the Hindu culture, a harmonious lifestyle that promotes longevity and mental and physical health is advocated. Ayurveda recommends "swasthya vritta" (positive health), "dincharya" (daily routine), "ritucharya" (seasonal routine), diet, exercise and virtuous conduct for positive health [41]. Even though Hindu lifestyle concepts are being followed by various communities across the world, currently, there are no studies about the nutritional benefit of this religious practice.

What Are the Risks Associated with Religious Fasting?

Most RFs are based on daily CR, include a reduction in protein from animal sources [2•], and are practiced for extended periods of time throughout the year [15], representing potential effects on health status. In long-term fasts, the initial phase (first week) is characterized by rapid weight loss, weakness, and high rate of gluconeogenesis, with an initial risk of hyponatremia and hypokalemia. However, after a metabolic switch with mobilization and oxidation of fatty acids, nutritional ketosis is achieved and ketones become the primary energy source for the brain. Hormonal changes during a sustained fast include falling insulin and T_3 levels and rising reverse T_3 levels. Described medical complications during long-term fasting include dehydration, postural hypotension, cardiac arrhythmias, gout, and nephrolithiasis [42].

Can We Reconcile Benefits from Traditional Beliefs with Modern Life?

Living a religious life is considered by many to be a key in making life harmonious and complete. RF practices may reduce mitochondrial oxidative stress and promote autophagy which, theoretically, can induce a healthier aging process and delay/prevent age-associated chronic diseases [43]. In scientific terms, questions arise regarding the conditions required to attain these benefits. We understand that for RF practitioners, intentions, and desired benefits are first and foremost spiritual, yet we wish to clarify the influence of these practices on metabolic performance and longevity.

Evidence suggest that strict adherence to CR may slow aging; delay degenerative, metabolic, and cardiovascular diseases; and reduce tumor growth [44] [14]. However, meal timing (intermittent fasting), quality of diet (restriction of animal protein intake) [45], and microbiome modulation also appear to be key players in promoting health and longevity.[10, 46]. Current challenges are rooted in the difficulty of comparing different RF patterns due to multiple confounders; further clinical trials and observational studies are needed to understand their underlying mechanisms, effects on metabolism, and impacts in high-risk subpopulations.

Conclusions

Although RF varies in terms of practices, underlying philosophies, and intentions, many of these religious traditions have in common a potential benefit for well-being. While fasting may promote equilibrium between physical, emotional, and spiritual health, the full metabolic picture of fasting and the body's responses to it in terms of health and longevity has yet to be fully developed.

While RF was not originally performed with the expressed intention of inducing metabolic and cardiovascular changes, losing weight, prolonging longevity, etc., with mounting evidence on the health benefits of nutritional fasting, and the common goal of well-being, both religion and medical science have an interest in understanding the dynamic metabolic underpinnings of diet, fasting, and the human body.

It is possible that quality rather than quantity of the dietary intake may be the main driver of beneficial effects attributed to different religious practices, based on the many favorable metabolic changes observed in the Daniel and Orthodox fasters featuring unrestricted caloric quantity, and the inconsistent results observed in Ramadan fasters with unrestricted quality of nutritional choices. Before any physiologic conclusions can be made, more data is needed to clarify the impact of prolonged or recurrent fasting periods on health in general.

With recent discoveries suggesting that nutritional modifications are likely the most significant intervention in promoting vibrant health, disease prevention, and increase life-span, hopefully, the benefits of promoting these healthy nutritional modifications, many originating in a religious context, can be more fully realized for all.

Compliance with Ethical Standards

Conflict of Interest Carla Venegas-Borsellino, Sonikpreet, and Robert G. Martindale declare they have no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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- •• Of major importance

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