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Spiritual fasting and health

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Abstract
Food has a very important function in the field of spirituality, it is considered as an important offering to the god in some religions, being an important reason for life existence and to pay devotion towards almighty various religions follow ritual of fasting. Fasting is a practice in which a person restrains himself from having food or consumes restricted amount of calories for a specific time frame. Most of the religions encourage some type of fasting like Ramadan fasting in Islam, Navratri fasting in Hinduism, Prayushan in Jainism and Good Friday eve fasting in Christianism, almost all the religions adopted the act of fasting to pay their devotion. Spiritual fasting is based on caloric restriction or food abstinence aiming to provide healing and based on these spiritual fasting modals, concept of intermittent fasting came into existence. Intermittent fasting involves periods of fasting and calorie controlled diets planned with a motive to lose weight and improve upon metabolism however, spiritual fasting has psychological impact along with the metabolic improvements in the body. Apart from the beneficial effects of fasting there are some contraindications which should also be considered along with the pathological condition of the person. These contraindications include conditions such as nausea, headache, nutrient imbalance, weakness etc. along with the impact on circadian clock and hormonal imbalances. This article highlights the changes that take place during fasting in the body.

Keywords: spiritual fasting, intermittent fasting, circadian clock, metabolism.

Introduction
Food has a plethora of functions which can be complied under physiological, psychological and social. It plays a very important role in our spiritual life as well. The relation between food and spirituality can be traced back to ancient times as food being a vehicle to express devotion to deity among cultures. The devotion was very commonly expressed as a practice still prevalent today as 'fasting'.

Fasting involves lowering the intake of calories or totally abstaining oneself from food for specific time duration. It may also involve intake of specific types of foods and the practice varies across cultures and every culture have a specific perceptional definition associated with fasting and its types.

In Hindu religion fasting has been used as a method to achieve purification since ancient *vedic* times, '*upvasa'* and *'vrata'* are the terms that are used for fasting in Hinduism involving caloric restrictions along with avoidance of specific types of foods. Similar to Hinduism, Jainism also follows practice of '*upvasa'* which involves abstaining from food and water for one day, apart from this various other forms of fasting such as '*chaththa'*, '*aththama'*, *aththai'*, '*amsaksamana'* are also followed with involves fasting over varied durations. In Buddhism also various types of fasting is followed [19].

In Islamic culture '*ramadan'* fasting involves abstinence from food and water from dawn to dusk. In Christianity the *catholics* do not eat meat on Fridays during lent, *coptics* fast for 210 days.

Siddha system of Medicine postulates fasting with methodological pattern. According to Siddha, fasting is an effective way to kindle the digestive fire (Agni) and burn away accumulated toxins from the body however the extended fasting practice is contraindicated [6].

Intermittent fasting: The modern use of fasting as a therapy in medical treatment was first recorded for treatment of epilepsy [1]. After that many medical practitioners started working on fasting as a therapy for physiological benefits [2]. Intermittent fasting involves entirely or partially abstaining from eating for a set amount of time, before eating regularly again [3]. The

types of intermittent fasting involves 'complete alternate day fasting' that involves complete abstinence from calorie intake with alternate days of normal diet, 'time restricted feeding' involves ad libitum of calorie intake with specific periods of fasting on a routine basis, and 'modified fasting regimes' that involves a combination of severe calorie restriction days and ad libitum eating days [3]. However, the intermittent fasting regimes can be altered as per the current physiological condition of the person and decision of the medical practitioner. There are several studies that have found a positive impact of fasting on health [4, 5].

Metabolic Switching and fasting: Glucose is the main sources of energy for cells along with the fatty acids. Under normally fed state the glucose is used for energy, and fat is stored in adipose tissue as triglycerides. During periods of fasting, ketones becomes the major source of energy for the body hence fasting leads to dependence on ketones for energy which may lead to weight loss [8, 14]. Apart from providing energy, Ketone bodies also functions as signaling molecules influencing major cellular pathways along with Brain Derived Neurotrophic Factor (BDNF) release leading to improvement in neural functions [7, 9]. Other metabolic benefits include improvements in glucose regulation, blood pressure, and heart rate [10, 11].

Stress and Fasting: Intermittent fasting stimulates autophagy and mitophagy while inhibiting the mTOR (mammalian target of rapamycin) protein-synthesis pathway. These responses enable cells to remove oxidatively damaged proteins and mitochondria and recycle undamaged molecular constituents while temporarily reducing global protein synthesis to conserve energy and molecular resources. These pathways are untapped or suppressed in persons who overeat and are sedentary [12]. Intermittent fasting may also reduce inflammation thereby it might prove beneficial in disorders like arthritis [13].

Contraindications: Commonly, fasting may result in mild adverse events such as headaches, fainting, weakness, dehydration, and hunger pangs. More importantly, excessive fasting could lead to malnutrition, eating disorders, susceptibility to infectious diseases, or moderate damage to organs [15]. In an animal study it was observed that alternate day fasting leads to development of diastolic dysfunction with diminished cardiac reserve [16], hence, fasting may prove deleterious. However, there are individual impacts of the diet on different people which can't be generalized and genetics also plays a crucial role in the observations [17]. Feeling of hunger is also observed during fasting phase [18] which may lead to poor compliance to the fasting regime.

Conclusion

The use of fasting in spiritual context is a voluntary practice which has impact on physiology as well as psychology. It is observed that the fasting phase usually ends up in eating heavier meals during the nocturnal hours which to counteract, needs proper guidance and counseling. Spiritual fasting and intermittent fasting modals have proven beneficial in terms of weight management as well as in the treatment of various chronic metabolic ailments also; there are some contraindications that may be managed with proper regime. There is a need for further investigation on human modals for long term impact study and insurance of fulfillment of all the nutrients in the phases of feeding after fasting in all the regimes however, balanced diet will still be the epitome of all the current fad diets.

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