

Exploring the Association between Intermittent Fasting and Women's Health

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BACKGROUND

Being overweight or obese is a global concern with at least 2.8 million people dying annually contributing to 2.3 % of global disability-adjusted life years [1]. According to NFHS-5, 24 % of women are obese having BMI ≥ 25.0 kg/m² and 56.7% women have high risk waist to hip ratio resulting in various metabolic diseases [2]. Decreased calorie intake has been an essential factor for body weight reduction and as a behaviour intervention to lose weight, intermittent fasting (IF) is becoming popular strategy for healthy lifestyle among young women. Intermittent fasting is a dietary pattern that switches between fasting and eating on a regular schedule demanding severely restricted calorie intake; primarily Time-Restricted Fasting and Intermittent Energy Restriction. Evidence suggests that medically monitored intermittent fasting regime for 7–21 days is efficient in prevention and treatment of chronic pain, diabetes, cancer, hypertension, and metabolic syndrome. Naturopathy too exploits fasting as the first-line of treatment in management of diseases [3]. The science of Ayurveda also outlines fasting as “upavasa” and has claimed cleansing of sense organs, efficient functioning of digestive system and reduced acute and chronic symptoms associated with health illnesses [4]. IF is also responsible for inducing a long-term effect—“metabolic adaptation”, which has the ability to reduce the metabolic rate and prolong human lifespan [5].

During reproductive life cycle of woman, they encounter heterogeneous health issue extending from nutritional insufficiencies to various types of cancers. Although many programs are in place focussed on improving women's health, intermittent fasting is a void whose role in enhancing women health needs to be assessed.

Relation between spiritual practice and fasting

Intermittent fasting is commonly practiced as a regimen for religious and traditional customs, in Christianity, Islam, Hinduism and Buddhism. Many religious communities integrate fasting into their spiritual rites by fasting on specified weekdays or months [6].

Fasting during Ramadan is a monthlong practise performed by Muslim communities throughout the day from sunrise to sunset. The positive result of Ramadan fasting was observed in a study which showed controlled blood glucose levels and reduced stress hormones in women with PCOS [7].

During Navratri festival in India, people fast for nine days continuously on different patterns. The positive effect of calorie restriction during fasting days was established by an exploratory study on fifty healthy adults fasting for a period of 12 hours. Research showed significant reduction in LDL, total cholesterol, waist circumference, hip circumference and body weight during the intermittent fasting period [8]. According to recent study conducted, Christian Orthodox Fasting may have a positive effect on metabolism lowering lipid concentrations as highlighted by research following a reduced-calorie, 16/8 time restricted window [9].

Intermittent fasting regimens for Calorie Restriction

In comparison with traditional means of losing weight by energy intake restriction, intermittent fasting focusses on specific time period and calorie intake. It is quite evident from several studies that without sufficient energy or food, the body utilizes its stored sugar stores by burning fat known as metabolic switching.

This fasting regime has two major forms: Intermittent Energy Restriction (IER) [10] and Time-Restricted Fasting (TRF) [11, 12]. With this regimen subjects experience lowered metabolic responses, such as the compensatory reduction of “resting energy expenditure [13] Figure 1.

Correlation between IF and women health

Intermittent fasting contributes to significant reductions of risk factors alleviating the health issues. Some evidence-based studies depicting the positive co-relation between intermittent Table 1.

Risks and Challenges Posed while Practising IF

Although the evidence-based research favours therapeutic efficacy of IF, it is rarely used in the modern era as an intervention tool.

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16:8	Fasting for 16 hours a day and restricting eating to an 8-hour window
	<ul style="list-style-type: none"> • It helps lose weight, burn fat, blood sugar control
5:2	<ul style="list-style-type: none"> • Eating normally for five days a week and on two non-consecutive days, 500-600 calories are consumed by eating two small meals with low-calorie food. • Due to Calorie restriction, the body utilizes the glycogen stored in our liver to keep our blood sugar levels stable.
15:9	<ul style="list-style-type: none"> • It involves fasting for a 15-hour window and eating for 9. • Health benefits include improved insulin sensitivity and fat metabolism.
Eat-Stop-Repeat	<p>In this, 24-hour fast once or twice a week is performed. For example, eating dinner one day and then refrain from eating until dinner the next day</p> <ul style="list-style-type: none"> • This calorie deficit will lead to weight reduction
Periodic Fasting	<p>It involves short periods of energy restriction (75–100%) alternated with a normal diet promoting weight loss. It involves a period of fasting days followed by a period of feeding days.</p>

Figure 1: Resting energy expenditure.

Table 1: Correlation between IF and women health.

Disease	Research Study Details	Fasting Intervention	Result
Cancer	<p>Study Type: Intervention Study.</p> <p>Methodology: 13 non-metastatic breast cancer patients were recruited. Body composition was measured weekly by bioimpedance analysis [14].</p>	5:2 Fasting Regime was followed which completely abstain from food on two non-consecutive days (minimum 24 h) per week during radiotherapy.	<ul style="list-style-type: none"> • The fasting group experienced an average decrease of body mass ($p < 0.0001$), fat mass and muscle mass. • This regime was feasible as a treatment of breast cancer patients undergoing Radiotherapy.
Obesity & Diabetes	<p>Method: 12 obese volunteers in the age group of 20–60 years with type 2 diabetes mellitus were recruited. The study was conducted at a tertiary health care facility in Amritsar [15].</p>	Fasting regime of 16:8 for a period of 4 weeks was given.	<ul style="list-style-type: none"> • Highly significant decrease in the mean body weight as ($P < 0.001$). BMI, waist circumference, and waist-hip ratio was observed. The mean fasting blood glucose levels improved significantly. • There is a favorable effect of intermittent fasting on anthropometric indices and fasting blood sugar levels
PCOS	<p>Methods: 18 PCOS women aged (18-31 years) with anovulation participated in a 6-week trial [16].</p>	Time-restricted feeding (TRF) (16:8)	<ul style="list-style-type: none"> • Significant changes in body weight, BMI, were found after the TRF period. • An improvement in menstrual cycle irregularity was detected in 73.3% patients.
Cardiovascular Health	<p>Study Type: Comparative study.</p> <p>Sample Size: N=107 overweight or obese, premenopausal women observed over a period of 6 months [17].</p> <p>Method: Randomized comparison of a 25% energy restriction as IER (~ 2710 kJ/day for 2 days/week) or CER (~ 6276 kJ/day for 7 days/week)</p>	IER (~ 2710 kJ/day for 2 days/week)	<ul style="list-style-type: none"> • IER and CER are equally effective for weight loss: Mean weight change for IER was -6.4 (-7.9 to -4.8) kg vs -5.6 (-6.9 to -4.4) kg for CER. • Both groups experienced comparable reductions in leptin, total and LDL cholesterol, triglyceride, bloodpressure. • Reductions in fasting insulin were greater with IER than with CER.

Table 2: Do's and Don'ts.

Do's	Don't
Stay hydrated by drinking non-caloric beverages	It is recommended to not overeat during eating window and binge eating or constant snacking needs to be avoided.
Well balanced nutritious diet must be ensured	While practising regime, avoid alcoholic and caffeinated beverages.
Include all the food groups in your diet	Avoid junk , processed and sugary foods
Start the intermittent fasting slowly with less restrictive schedule and gradually increase the fasting period depending on the body adaptability	It is advised not to be impatient for seeing the difference in body weight
Exercise and keep the body relaxed	

The risks and challenges of the IF should also be assessed, with all the positive results being offered.

The change, gain or loss of appetite may be a concern which has to be dealt with during or after intervention. Primarily, Hunger is the main side effect due to which one may be lethargic and dizzy. Sleep deprivation and weakend immune system is another risk factor which is known to impair cognitive and intellectual function and responsible for causing mood swings among women. In addition, safety and tolerability is another area of concern which needs to be taken into account [18].

Do's and Don'ts

Intermittent fasting can aid in managing body weight to address acute and chronic conditions like diabetes, irritable bowel syndrome, high cholesterol and arthritis. However, intermittent fasting is not for everyone. Intermittent fasting can have varied effects on different people, so it necessitates physician consultation on experiencing unusual anxiety, headaches, nausea or other symptoms. Children below 18 years, pregnant and lactating women are advised to steer clear of trying intermittent fasting. It's been saying that, there is no one-size-fits-all solution when it comes to nutrition Table 2.

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