

## Intermittent Fasting (IF)

### What is intermittent fasting?

Intermittent fasting (IF) is an umbrella term that encompasses a number of different fasting regimens, which involve consuming few or no calories for a predetermined period of time. The concept of fasting in religious and medical practice has been established for thousands of years, dating back to ancient Chinese, Greek, and Roman civilizations. Even research on human evolution indicates that early humans in hunter-gatherer societies spent extended periods of time with access to very little or no food. Today, individuals still choose to follow fasting regimens for spiritual and health reasons.

### How does fasting work?

The purpose of fasting is to shift the body into a metabolic state known as “ketogenesis”. When the body’s available glucose and glycogen stores are depleted, it then will utilize fatty acids and fatty acid-derived ketones as its primary source of energy. The point at which our bodies switch from utilizing glucose to fatty acids as fuel is sometimes referred to as the “metabolic switch”, which typically occurs approximately 12 to 36 hours after cessation of food intake but varies by individual, depending on physical activity, metabolism, age, and stored glycogen levels.

### What are the health benefits of intermittent fasting?

Research has highlighted a number of health benefits associated with IF, including:

- Weight loss and improved body composition
- Improved cardiovascular risk factors (e.g., blood pressure, triglyceride, LDL cholesterol, and total cholesterol levels)
- Improved glucose metabolism
- Enhanced insulin sensitivity
- Reduced fasting insulin levels
- Decreased oxidative damage and inflammation

Intermittent fasting has also been shown to benefit patients with obesity and overweight, type 2 diabetes, hypertension, metabolic syndrome, and inflammatory conditions, such as rheumatoid arthritis (RA) and asthma. Some evidence suggests that IF may also improve athletic performance and longevity.

There are a number of proposed mechanisms responsible for the health effects of IF, including circadian biology, changes to the gut microbiome, and beneficial effects on lifestyle behaviors.

## Types of Intermittent Fasting

The common types of intermittent fasting regimens are summarized in the table below.

Fasting method	Description	Feeding window	Fasting window
<b>Alternate day fasting (ADF)</b>	Abstain from all calorie-containing food and beverages during the fasting window; Consume food <i>ad libitum</i> during the feeding window	Every other day	Every other day
<b>Modified alternate day fasting (mADF)</b>	Restrict energy intake to 20-25% of daily caloric requirement during the fasting window; Consume food <i>ad libitum</i> during the feeding window	Every other day	Every other day
<b>Time-restricted feeding (TRF)</b>	Abstain from all calorie-containing food and beverages during the fasting window; Consume food <i>ad libitum</i> during the feeding window	4-12 hours per day	12-20 hours per day
<b>Early time-restricted feeding (eTRF)</b>	Abstain from all calorie-containing food and beverages during the fasting window; Consume food <i>ad libitum</i> during the feeding window	6 hours per day, early (e.g., 8am-2pm)	The remainder of the day
<b>5:2 diet - Periodic or cyclic fasting</b>	Restrict energy intake to 20-25% of daily caloric requirement during the fasting window; Consume food <i>ad libitum</i> during the feeding window	5 days per week	2 non-consecutive days per week
<b>6:1 diet - Periodic or cyclic fasting</b>	Abstain from all calorie-containing food and beverages during the fasting window; Consume food <i>ad libitum</i> during the feeding window	6 days per week	1 day per week

\* *ad libitum* = without restrictions

### Caution

While IF is generally considered to be safe, potential side effects include feeling cold, having low energy, hunger, and mood or behavioral changes. Diabetic patients, particularly those with type 1 or advanced type 2 diabetes, should exercise special caution with fasting. Ketoacidosis is a life-threatening complication of diabetes in which ketone bodies accumulate in the body as a result of insufficient insulin.