



INTERMITTENT FASTING



THE ULTIMATE GUIDE TO FASTING

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INTRODUCTION TO FASTING

It's not just about what you eat, but when and how long you don't eat for. You will most likely have seen lots of press coverage over the last few years about fasting. Some people are doing water only fasts for days on end while others are doing intermittent fasting.

Just like trying to work out what you should eat, how to fast and for how long to fast can be confusing. And the truth is there aren't that many studies on fasting or what is best. Importantly, in the case of women in particular, there are even fewer studies.

This guide is designed to educate and inform you on the different types of fasts and what type of fasting protocol might be most suitable for you.





THE BENEFITS OF FASTING

Fasting can be used for many benefits ranging from caloric restriction, autophagy, entering a state of ketosis, improving mental concentration and focus and enhancing insulin sensitivity.

Many people use fasting as a strategy for staying lean and keeping body fat low and it can be a useful strategy for doing this even without engaging in any caloric restriction.

Autophagy is the body's way of clearing out damaged cells, in order to regenerate newer, healthier cells.

“Auto” means self and “phagy” means eat. So the literal meaning of autophagy is “self-eating”. Enhancing autophagy is an important part of any strategy for enhancing longevity. Intermittent fasting, especially fasts between 16 and 24 hours can significantly reduce insulin levels and help to lower inflammation and enhance autophagy.



This style of fasting has been shown to have benefits for the brain by a process known as neuronal autophagy which is the destruction of ageing neurons to make room for new, healthier ones. Abnormal or restricted autophagic activity has been linked to a number of neurodegenerative diseases including Alzheimer's and Parkinson's Disease. During a period of fasting, the lowered levels of insulin allows the brain to engage in neuronal autophagy. As intermittent fasting helps to lower inflammation, it can also help to reduce neuroinflammation.

In some cases, fasting also seems to be a useful therapeutic tool for chemotherapy, cancer and age-related neurodegeneration. However, fasting in these cases would require the strict supervision of a qualified medical professional and should not be undertaken without this.



There is a distinction between fasting and caloric restriction. Caloric restriction involves intentionally reducing your daily or weekly calorie intake. In the case of fasting, it simply involves not eating for a set period of time and then consuming your food within a limited period known as a “compressed eating window”. The intention is not necessarily to restrict calories, but simply to consume them within a shorter period of time. Although this often leads to a 20 to 30% reduction in overall calorie intake, it doesn't have to. Even without the reduction in intake of calories it can be a very useful strategy for staying lean and muscular.

Some of the more popular forms of intermittent fasting include:

- Time restricted eating - consuming all food within a 3 to 12-hour window each day
- Weekly long fasts - fasting for 24-hours once or twice a week
- Alternate day fasting - cycling fasting for 24-hours, then eating normally for 24-hours on a daily rotational basis.

Two of the most popular styles of fasting are the 12-12 and 16-8 strategies. The 12-12 fasting strategy is an easy one to do as you simply avoid eating for 12 hours after your last meal of the day. So if you eat dinner at 7pm, you wait until 7am before eating again. According to Ben Greenfield, biohacker and author of the book, “Boundless: Upgrade Your Brain, Optimize Your Body and Defy Aging” this form of fasting still gives the neural benefits of fasting.

For men in particular, a 16-8 fasting period may be better as this is the point at which cellular autophagy increases. However, for women or very lean individuals, sixteen hours of fasting may cause metabolic issues and hormonal imbalances.

IF YOU EAT DINNER AT 7PM, YOU WAIT UNTIL 7AM BEFORE EATING AGAIN





SCIENTIFIC STUDIES

Salk Institute for Biological Studies 38 - week study:

In studies in mice, intermittent fasting has been shown to prevent and reverse obesity and metabolic issues regardless of what the mice ate. Scientists fed groups of adult male mice one of the following four diets:

- Regular mouse kibble
- High fat
- High fructose
- High fat and high fructose

Each group of mice ate roughly the same number of calories and could eat whenever they wanted while other mice were restricted to certain feeding periods of 9, 12 and 15 hours. At the end of the study the unrestricted mice were obese regardless of which diet they had been put on. Each group of mice that were restricted to 9 or 12 hours of feeding daily were lean and healthy, even those mice that had been allowed to cheat on weekends. This study suggests that the most effective tool in staying lean is eating all of the day's meals within a compressed eating window preferably somewhere in the range of 9 to 12 hours each day. It showed that intermittent fasting is effective in people in both enhancing insulin sensitivity and promoting fat loss.

Having a period of fasting also gives the gut time to heal and renew itself. This is particularly important overnight when human growth hormone is released and is utilised to repair the intestinal lining.

2005 study in Obesity Research

A study in Obesity Research in 2005, concluded that intermittent fasting improves insulin sensitivity in men but worsens it in women. In 2018 researchers found that when a group of overweight women fasted for 2 days it caused moderate stress. Alisa Vitti author of *"In the Flo"*, concludes that, "in my opinion, the only fasting schedule that is safe and effective for women is to avoid food for a 12-hour period daily, from 7 p.m. to 7 a.m." Alisa Vitti explains more research is needed on how intermittent fasting affects women's biochemistry and hormones. It seems that in premenopausal women, the benefits of fasting may be outweighed by the host of well-documented issues that can occur depending on a particular woman's sensitivity to hormone irregularities. These include infertility or trouble getting pregnant, complete loss of menstruation, irregular menstrual cycles and general hormonal imbalance symptoms such as PMS, loss of libido, acne, poor mood and weight issues.



WOMEN WHO HAVE HORMONAL ISSUES

In women who have hormonal issues or who are already on the fine line of hormonal imbalances, *it may be better to avoid long periods of fasting or irregular eating patterns.* There are certain groups of women that, without further scientific research, may be better off avoiding periods of fasting longer than 12 hours.

These include female athletes, women who are extremely lean (have a body fat percentage of less than 18%) or extremely active, have poor sleep, have low reproductive hormone levels, struggle with thyroid problems, have hormonal imbalances or infertility, young women and teenagers, women planning for pregnancy, pregnant or breastfeeding women.

Certain studies have shown that fasting may reduce glucose tolerance in women and that the benefits of fasting seen in obese women may not translate to leaner women or women in peri-menopause. In his book, “Boundless: Upgrade Your Brain, Optimize Your Body and Defy Aging”, Ben Greenfield makes the point that women “do not experience the same benefits of fasting-induced autophagy that men do”.

One method of fasting that seems to be suitable for both men and women (both pre and post menopausal) is a daily 12-hour intermittent fast (the 12-12 fast). This is easy to do and much gentler on the body while still providing many health benefits. All you need to do is stop eating dinner anywhere between 6 to 8 p.m. and avoid eating again until 6 to 8 a.m.

Occasional longer fasts may help to improve gut health, detoxification, immune system support and to engage in spiritual practices or disciplines. An example would be a 3 to 5 day calorie restricted fast carried out between 1 and 4 times per year. Practicing shorter, less frequent fasts helps to reduce the stress being placed on your body on a daily basis and for women in particular, to help avoid the downregulation of reproductive hormones.





TIME RESTRICTED EATING & CIRCADIAN RHYTHM

"Dinner is the second most important meal of the day in relation to your circadian rhythm, with the most important being breakfast. The moment that you eat or drink anything, other than water or black tea or coffee, is the moment that you break your fast. " - Dr Satchin Panda, author of "The Circadian Code

So, depending on your activity levels, your body composition and your gender, a daily overnight fast of somewhere between 12-16 hours is arguably the best solution for most people. The time at which we eat has an influence on our circadian rhythm. I explained that an important factor in getting a good night's sleep and ensuring proper hormonal rhythm at night, is finishing your evening meal 3-4 hours before bed. Dr Satchin Panda has found that it's healthiest to eat breakfast in the first half of the day because your insulin response is better in the first half of the day.

Also, by starting your restricted eating window earlier, you will need to finish it earlier to be on target the next day. Finishing your evening meal before melatonin levels start to rise is important to avoid blood sugar interfering with melatonin release. Dr Panda advises focusing on protein, vegetables and healthy fats for your evening meal. He explains that unless you have done a hard exercise session in the late afternoon, eating simple carbohydrates at dinner makes it more likely that they will be stored as body fat as the body's glucose control is weaker in the evening.

You can slowly build up to a more compressed eating window. Start with a 12-hour overnight fast for a couple of weeks and then decrease the eating window by one hour a week. Dr Panda's research indicates that the optimum eating window is between 8 and 11 hours. While the science at 12 hours is impressive, he explains that there are greater advantages to moving to as few as 8 hours.

His research has shown that the health benefits you get from eating within a 12-hour window, double at 11 hours and double again for every additional hour compressed, until you get to 8 hours. He explains that compressing the eating window to 8 hours will, for many people, be unsustainable over a period of months or years. However, even just lowering it by 1 hour from 12 to 11 hours provides double the health benefits.



If you struggle with the idea of not eating or drinking during the evening, my suggestion is to start with a 12 hour eating window (an overnight 12 hour fast) and slowly move to a compressed eating window of somewhere between 10 and 12 hours, trying to eat breakfast and dinner at around the same time each day (to help with circadian alignment). You can consider mixing this up with occasional longer fasts of 16 to 24 hours. If you are looking to reduce fat mass and improve mood or endurance, then according to Dr Satchin Panda, a shorter eating window of 10 hours has been shown to provide better results.

The important thing is that you stick with the 12 hour overnight fast for the long term. After 6 weeks, the benefits really start to kick in, Dr Satchin Panda explains. These include better sleep, improvements in energy and lower levels of systemic inflammation

FASTING AND CHILDREN



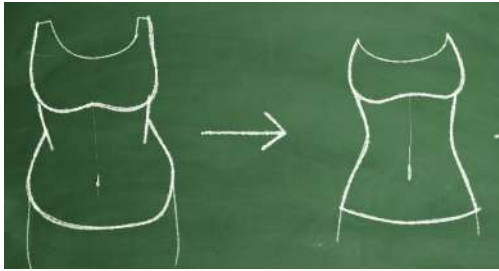
According to Dr Satchin Panda, everyone can benefit from a restricted eating window of 12 hours, even children as young as five. In fact, one of the things I've observed about my own children is that they naturally have a 12-14 hour fast every single day, eating their last meal at about 6.30pm and not eating again until breakfast somewhere between 7 and 8am.





FASTING FOR FAT LOSS

Calorie restriction is also one of the more potent ways to activate autophagy and enhance longevity. The research shows that a calorie reduction of approximately 20-40% is one of the best ways to regulate aging and increase lifespan.



Fasting often naturally results in a loss of calories of around 20-30%. Fasting has been shown in rodent studies to lead to weight loss regardless of the type of foods eaten (See Page 5)

Fasting and calorie restriction for short periods of time have been shown to increase metabolic rate by nearly 4% and increase growth hormone and insulin sensitivity. However, as with most things, you can have too much of a good thing. Being in a fasted state or restricting calories for longer than 4 weeks can down regulate metabolic rate if you do this without re-feeding. This is through a process known as adaptive thermogenesis. When you begin to lose lots of weight the body starts to conserve its energy stores and it does this by reducing the number of calories you burn by down-regulating thyroid activity and cellular metabolism.

One way to get around this is to ensure that you are doing the occasional refeed, for example, at weekends or for active people, in particular, having some carbohydrates at night now and again can be helpful.

Many of the benefits of fasting result from the time spent between meals, not necessarily the calorie restriction. Protein intake has been shown to be important and helps to keep the metabolism elevated. So if you are fasting for long periods I wouldn't recommend a very low protein plant based diet unless you're using it to manage a particular illness such as cancer.

There are also some compounds that you can take that helps you to enhance cellular autophagy and also assist with managing blood sugar.

These include berberine, rock lotus extract and bitter melon extract. Other activities that can help with cellular autophagy include sauna sessions and cold thermogenesis ie. cold showering or a full on cold soak.

"Many of the benefits of fasting result from the time spent between meals, not necessarily the calorie restriction."



SHOULD YOU EXERCISE IN A FASTED STATE?

Exercising in a fasted state is a better way to burn fat. And this can be true provided that you are not over-taxing your body's delicate hormonal balance. Many people enjoy an early morning workout to get a sweat on, stimulate endorphins release and enhance focus and productivity.

Both fasting and high intensity exercise increase, cortisol levels and so combining the two together may cause significant amounts of stress on the body and actually inhibit your fat loss goals. In women looking to conceive, this may disrupt their baby making hormones and lead to infertility.

In one study, women had better muscle adaptations to exercise in a fed state. Fasting after exercise may be a prudent approach and research indicates that growth hormone seems to go up when you fast after exercise for 1 to 2 hours.

What type of exercise should you be doing in a fasted state?

High weight, low repetition weight training or any other training that relies primarily upon fatty acids such as aerobic exercise done at a conversational pace. Examples include walking, cycling, swimming, yoga and Pilates.

Stacy T. Sims writes in her book *Roar: How to Match your Food and Fitness to Your Female Physiology for Optimum Performance, Great Health, and a Strong, Lean Body for Life*, "Please, please, don't do intermittent fasting. Fasting drives cortisol up, creating an elevated baseline of cortisol, which promotes fat storage. Also, long-term elevation of cortisol can become adrenal fatigue."

When looking to lose weight, many people will opt for severe caloric restriction or restriction of certain macronutrients such as through a keto or low-carb diet. It's worth being aware that fasting, calorie restriction and low-carb diets can all increase cortisol, down regulate sex hormones and decrease thyroid hormones. Combining the three approaches together, for example by going on a keto, calorie restricted diet with a compressed eating window of 8 hours or less may cause significant cortisol dysregulation, hormonal imbalances and thyroid issues.

In deciding whether or not to fast, it's important to look at your stage of life, particularly in the case of women, and your overall stress levels and activity levels.



FASTING MIMICKING DIET (FMD)

One type of fasting that still gives your body the nutrients it needs is "The Fasting Mimicking Diet (FMD) that was developed by Dr Valter Longo and is outlined in his book, *The Longevity Diet*.

The FMD allows you to fast while consuming a minimal number of calories, giving you the benefits of fasting while still supplying your body with nutrients. Dr Longo's approach to the FMD is to consume a minimal number of calories for five consecutive days. This form of fasting still places the body under a degree of stress and so may be harmful for certain categories of individuals including children, pregnant women, the elderly, athletes and those with a very low body fat percentage.

Fasting for longer periods (3-5 days or more) has been shown to stimulate adaptive responses in the body including autophagy, lowering inflammatory markers, longer term reductions in IGF-1, improved insulin sensitivity and enhanced immunity through the replacement of old T cells. When the body faces a threat such as caloric restriction or fasting, it starts "cleaning the house" and engaging in autophagy - the self-eating of damaged cells. It is theorized that autophagy triggers the release of stem cell production.

The FMD is low enough in calories to trick your body into believing that it is fasting and provides most of the benefits, while still giving you the nutrients your body needs and limiting the hunger.

Dr Longo has a specific kit called Prolon with powdered prepackaged meals consisting of vegan foods. You do not necessarily have to use the pre-packaged meals to engage in this type of fast. It is arguably more nutritious to cook fresh meals to help raise ketone levels, improve fat burning and reduce hunger.



GAZPACHO

12 oz tomatoes
(1 oz onion
2 tsp olive oil
1 oz black olives
1 Tbsp vinegar
3 oz snap peas
3 oz cucumber
2 oz avocado
3 oz red pepper

Blend all ingredients in blender, adding garlic and salt to taste. Hint: leaving some ingredients to the end with just a quick buzz of the blender can add a chunky texture.

For recipes designed to be compliant with Dr Longo's protocol, you can visit www.FMDrecipes.org



Dr John Douillard also has a five-day Ayurvedic approach to the FMD - the Kaya Kalpa cleanse which is also designed to stimulate autophagy and stem cell regeneration. You can purchase a kit for this cleanse or alternatively make your own tasty Kitchari recipe with rice and beans by following the recipe on Dr Douillard's website

<https://lifspa.com/khichadi-recipe-kitchari/>



Khichadi Recipe (Kitchari)

This kitchari recipe is designed for a traditional Ayurvedic Kitchari Cleanse. The combination of split mung dahl beans and basmati rice is easy to digest...

 John Douillard's LifeSpa / Jan 6, 2009

CAN I DRINK COFFEE WHEN FASTING?

A common question when fasting is should you drink water only, or can you consume other drinks such as tea and coffee. Strictly speaking any drinks other than water or black tea or coffee, may interfere with the fast if you are doing it for pure longevity and autophagy enhancing benefits.



However if you are fasting as a mechanism for improving gut health or as a tool for staying lean and assisting in weight loss then adding in other supplements may help to make the fast more manageable. Caffeine may actually help in this process as caffeine has been shown to improve fatty acid mobilization from adipose tissue (body fat). You may also consider adding in amino acids to maintain muscle mass, for example before a fasted workout, some bone broth (which can aid in gut healing and joint health) and even some exogenous ketones.



HOW TO COME OUT OF A FAST?

After coming out of an extended fast or even a 24-hour fast there is often a downregulation in digestive enzymes and certain hormones known as incretin hormones.

This means that when finishing a fast you may be less equipped to digest complex meals. So, when coming out of a fast it's better to take more time, eating slowly, chewing more and being calm. Herbs and spices such as fennel, ginger, turmeric, cumin and coriander can help you to digest the food more easily and you may consider using some digestive enzymes or Bitters to help with digestion. Focusing on foods that are cooked or fermented or easy to digest such as fish will be easier to tolerate than difficult to digest foods such as a large ribeye steak or a meal that is heavily laden with cooked fats or oils.

In preparing for a fast and also coming out of a fast it can be a good idea to switch to a lower carbohydrate diet. Going into ketosis before the fast can actually help to accelerate your ability to enter into greater cellular autophagy when fasting and it can also help to keep you more satiated and less hungry when fasting.

However, as already mentioned, fasting is not necessarily right for everyone.

If you are looking at fasting to boost autophagy so that you can live longer, fasting is not the only way to clear out cellular damage. There are a number of other ways to boost autophagy, as detailed below.

AUTOPHAGY BOOSTING ACTIVITIES

- Cold & Heat Exposure
- Strength Training
- HIIT
- Sleep
- Eating polyphenol-rich foods





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