



ILLUSTRATION: LAURA WOOD

In the fast lane

Fasting is one of the oldest techniques used to promote health - it's probably the original biohack. Could it work for you? Naturopath Tania Flack reports.

FASTING has been used since the dawn of time to stimulate healing and purify body, mind and spirit. Fasting is so fundamentally connected with the healing process that both man and beast will naturally avoid food during times of illness, thus allowing the body's energies to be prioritised for recovery and repair, instead of digestion.

Taoist texts dating back to 220 BC detailed the fasting practice of Bigu, which was used to promote longevity. The ancient Greek physician, Hippocrates, who is considered the father of modern medicine, observed that a diminished appetite was part of the body's natural response to illness and therefore recommended it to promote recovery.

Fasting is also an important feature in many major religions and is used to facilitate a higher spiritual connection, as an act of repentance, or to purify the soul. Muslims practise daytime fasting during the holy month of Ramadan and people of the Bah'ai faith observe a similar month-long fast. People of the Buddhist, Eastern Orthodox, Hindu and Jewish faiths all celebrate important fast days.

Extensive research has investigated the health benefits of fasting and the findings to date have been overwhelmingly positive. Studies show it changes our biochemistry, reduces inflammation

and protects metabolic, cardiovascular and neurological health. It also has potential application in autoimmune diseases, mental health, neurodegenerative diseases and digestive health, to name a few. Perhaps most importantly, it significantly enhances longevity and has been shown to extend the life

expectancy in all species of animals that have been tested. So, how can we safely embrace the principles of fasting to harness the benefits and improve our health?

Weight loss

Intermittent fasting is an effective tool for weight loss and works in several ways to improve body composition. It has a profound effect on blood glucose levels and insulin sensitivity and is able to normalise insulin responses in obese individuals, which in turn contributes to weight loss and the improvement of several markers of metabolism.

A placebo-controlled, double-blind study of alternate day fasting, published in *Nutrition*

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* Pros and cons of fasting

Benefits

Improves weight loss; reduces visceral fat; improves insulin sensitivity; lowers blood sugar; reduces inflammation; improves blood pressure; protects cardiovascular system; has beneficial effects on the brain; slows ageing

Risks

The following people should avoid fasting: pregnant women; breastfeeding women; children; diabetics; people with a history of eating disorders; anyone with a BMI under 20, kidney or liver disease, a gastric ulcer, or adrenal fatigue

Journal, showed that participants lost 5kg on average, or six percent of their total bodyweight, and had significant reductions in fat mass over 12 weeks. Intermittent fasting also reduces visceral fat, which sits around our organs and is considered the most damaging type of fat for our health, with one study published in *Obesity Reviews* reporting up to 10 percent decrease over a 12-week period.

Fasting also has beneficial effects on appetite. Along with the expected reductions in body weight, fat mass and insulin levels, several studies have demonstrated that participants have an increased sense of fullness after eating without a compensatory increase in hunger on fast days. This shift in appetite that occurs during fasting periods may also be of benefit in longer-term weight management.

Heart health

Fasting benefits cardiovascular health in numerous ways. Both animal studies and human clinical trials have shown that fasting reduces circulating inflammatory cytokines, oxidative stress and a range of other atherogenic risk factors that can contribute to cardiovascular disease. Animal studies show that it also up-regulates protective mechanisms within cardiovascular cells, helping to protect blood vessels against damage.

Cholesterol levels also improve. Studies show that after 12 weeks of intermittent fasting 'good' cholesterol stays at the same levels while the particle size of 'bad' cholesterol improves, reducing the potential for vascular damage. Triglyceride levels reduce significantly, as do biomarkers of inflammation. This general reduction in inflammation also improves blood pressure sensitivity and studies show significant reductions in both diastolic and systolic blood pressure in healthy adults participating

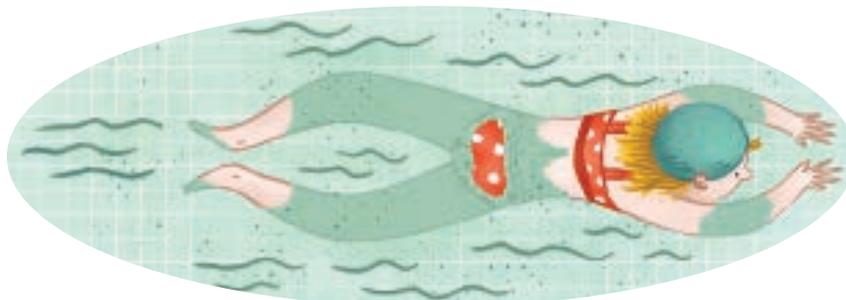
in Ramadan. Another study investigating methods to lower blood pressure has compared intermittent fasting against endurance exercise in 64 obese adults and found that fasting alone was the only intervention that lowered systolic and diastolic blood pressure.

Heart function in general can benefit from fasting. Overweight subjects who consumed only one meal a day have been found to have significantly improved left ventricular heart function and improved recovery of blood pressure and heart rate following exercise. Other studies on obese participants show it increases dilation of blood vessels allowing better blood flow and reduces visceral fat and homocysteine, a marker of endothelial cell injury.

Mood regulation

Fasting has long been used to boost mood and promote feelings of euphoria in religious and spiritual practices. Researchers have started to clarify its ability to impact neurochemistry, influence mood and protect the brain. In the first few days of fasting there is a massive release of stress hormones, and it is thought that the brain launches a range of protective neurochemicals during this time which can lead to changes in neuroplasticity and positively influence mood.

The release of 'the happiness neurotransmitter', serotonin and its precursor, tryptophan, is increased during fasting in animal studies, which may partly explain the mood benefits people experience. Animal studies also show that natural endorphins ('feel good' neurochemicals) flood the brain during the first 24-48 hours of fasting, which would contribute to feelings of wellbeing and even euphoria. Changes in serotonin metabolism may also explain why many participants in fasting clinical trials report a reduction in migraines.



Animal studies of intermittent fasting show significant increases in brain derived neurotrophic factor, an important protective neurochemical that plays a role in serotonin metabolism and brain plasticity. It protects against changes associated with depression, improves cognitive function, and increases the brain's ability to resist ageing. Fasting and calorie restriction have also been shown to help protect brain cells against degeneration in animal models of Alzheimer's, Parkinson's disease and stroke. Hopefully, further research will clarify how we can harness the power of fasting to help protect the ageing brain.

Autoimmunity support

There is some emerging evidence to suggest that intermittent fasting may be a useful dietary intervention to help manage the progression of autoimmune diseases. A wealth of evidence testifies to its ability to significantly moderate inflammatory biomarkers in human clinical trials. One study investigated the effects of fasting on a group of patients with rheumatoid arthritis. Patients consumed a very low calorie diet (approximately 200 calories per day) for seven days under medical supervision and inflammatory markers were monitored. A highly significant 37 percent decrease in interleukin-6 was seen in fasting patients, while other inflammatory markers such as C-reactive protein and ESR were also reduced and disease activity was slowed.

Recently released studies have also identified the potential for fasting to modify disease progress in animal models of multiple sclerosis. Animals had repeated cycles of a fasting mimicking diet, with three-day low calorie and low protein intake, followed by seven days of free access to food. Results showed that cyclical fasting reduced the clinical severity of symptoms in all animals and completely reversed the disease in 20 percent of animals. Most interestingly, fasting suppressed autoimmunity and stimulated re-myelination via the regeneration of specialised cells. While no human trials on the effect of fasting in multiple sclerosis have been done to date, it is a fascinating insight into potential new therapies for people with autoimmunity.

Interested in intermittent fasting but don't know where to start? See your health practitioner for support. It's a great way to promote a healthy body composition and slow ageing. ✨

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Types of fasting

The 5:2 Diet: Perhaps the most well known type of fasting is the 5:2 diet, which became popular after a BBC documentary featuring science reporter Michael Mosley detailed the benefits of intermittent fasting in 2012. This diet encourages people to fast for two days a week and eat normally for five days. During the fasting days, men are allowed to eat 600 calories (2,500 kJ) and women 500 calories (2,100 kJ). This model of fasting can lead to significant weight loss, decrease intra-peritoneal fat, and improve cardiovascular and metabolic biomarkers. While it gets fantastic results for some people, in others it can lead to overeating on non-fasting days, which seems to negate some of the benefits. It may also have an impact on socialising during the fasting days, so perhaps best suits people who have a predictable schedule.

Extended overnight fasting: This is my favourite model and the one I use most in clinic for people who need to lose weight, lower inflammation, and rest their digestive system. It is ideal for people with insulin resistance and achieves great results within three months. It is a flexible model of fasting and works on a sliding time scale. In any one 24-hour period, people fast for 16 hours and can eat two nourishing, well balanced meals in the remaining eight hours. Usually people start their fast at 8pm and end it at noon the following day. This is ideal for busy people who usually eat on the run in the mornings anyway. Sadly, the average Australian breakfast is high in carbohydrates and sugar and low in nutrients, so missing out on this is often no great loss. Extended overnight fasting also promotes a mindful approach to food, as people are more likely to plan their two main meals in advance. It gets great results for weight loss without cutting out any of the main food groups. It is a user-friendly way of accessing the benefits of fasting.

Alternate day fasting: This more extreme version of intermittent fasting has been the subject of a number of studies. As the name suggests, people fast on alternate days, consuming only one small meal (around 25

percent of normal daily calories) on fast days. It gets great results for weight loss, and improves insulin sensitivity and a range of cardiovascular markers. It can be difficult to manage socially however, and you should consult your health practitioner for support while fasting.

Calorie restriction: While not strictly a fasting regime, this is worth mentioning here as it achieves similar benefits. Calorie restriction achieves good results in weight loss, while lowering cardiovascular disease and diabetes risk. This dietary intervention involves cutting back the total amount of calories consumed by between 20-50 percent each day. While this achieves good results in weight loss, it is very difficult to adhere to long-term and can lead to binge eating and rebound weight gain.

Which type of fasting is best? A recent review of the literature compared the efficacy of calorie restriction against intermittent fasting and alternate day fasting, and found that while calorie restriction achieved slightly better results in weight loss, losses in visceral fat, improvements in insulin sensitivity and decreases in total fasting insulin levels were comparable across the three groups.

While intermittent fasting is generally considered a safe therapeutic form of caloric restriction, prolonged fasting falls into a different category and should never be attempted without professional supervision. I never recommend prolonged fasting in my practice, but I am mentioning it here so people understand the potential health risks. It has profound effects on the body's physiology and is more likely to cause health complications.

The first couple of days of fasting triggers the rapid mobilisation of glycogen stores from our muscles and liver. Between days two and seven of a prolonged fast we start to burn fat stores as a fuel; however, after that the body will start to catabolise protein from our muscle as fuel, which can lead to significant problems. Prolonged fasting may also affect hormonal balance in some women and can cause disruption to the menstrual cycle and negatively impact fertility. Pregnant and breastfeeding women and children should never fast.