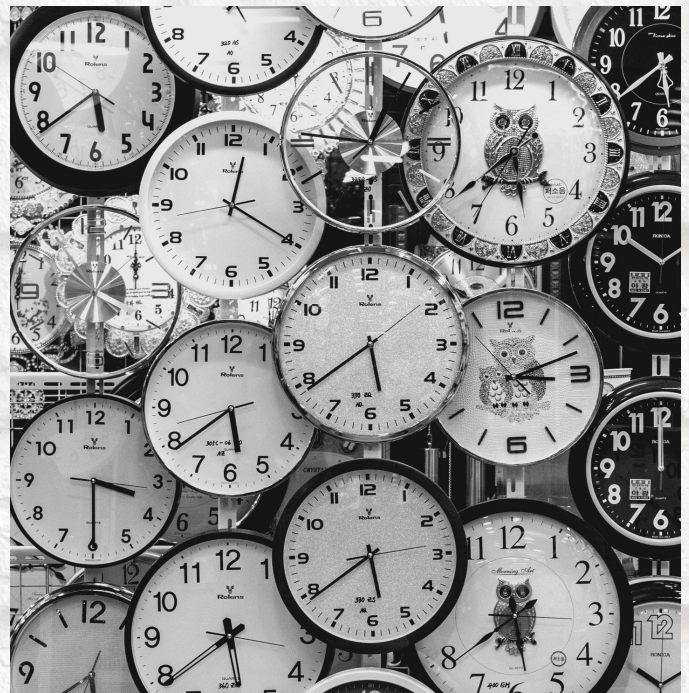


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# *THE VELMA B. COX FOUNDATION*

For Type II Diabetes & High Blood Pressure



## **INTERMITTENT FASTING: NEWEST FAD, ANCIENT WISDOM – OR BOTH?**

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We all fast while we sleep. Our nocturnal fast is typically broken by breakfast, which literally means to break the fast. Furthermore, most religions have a tradition of fasting: Christians during antiquity on holy days, Muslims at Ramadan, and the Jewish people at Yom Kippur.

There is tremendous interest in intermittent fasting as a way to lose weight and to manage certain metabolic diseases, including Type 2 Diabetes. There is also evidence that intermittent fasting may improve brain and cardiovascular health.

Are the claims true, or is it all a bunch of hype? First, we need to look at the basics.

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## WHAT IS MEANT BY INTERMITTENT FASTING (IF)?

- Avoiding food for at least 8-12 hours
- Not eating after dinner so that eating aligns with circadian rhythms
- A popular recommendation is to fast for 16 hours, perhaps 6 p.m. to noon.
- Some versions of IF limit eating to a 4-6 hour window.
- Other versions limit eating to every other day
- At a minimum – no snacking after dinner

While intermittent fasting has a certain logic to it, there are few human studies to back up its effectiveness in treating specific health conditions. Most of the information that floats around is based on “weight loss gurus and animal studies” (Crajower & Horne, 2019). The human studies that do exist, might seem daunting to the average person simply interested in improving their health. For example, there is a case study by Furmlir showing that patients with Type 2 Diabetes were able to stop taking insulin by doing a special IF. Every other day, they were limited to one meal – dinner, for a period of 5-18 days (2018).

I believe it is important to avoid an “all or nothing” mentality. Using intermittent fasting as a tool to improve one’s health makes sense for many reasons. First, it is necessary to understand how the body fuels itself – during the day as well as overnight and during times of famine.



Generally, the body runs on glucose, a form of sugar. We get glucose by eating carbohydrates. When we sleep, the body uses glycogen, a form of glucose stored in the liver for just that purpose. When glycogen runs out, the body is able to convert non-carbohydrate nutrients such as certain fats and amino acids into glucose. This process is known as gluconeogenesis.

Furthermore, during periods of famine, the body can survive by switching from glucose to ketones, an alternative fuel. Ketones are made by burning fat – a benefit to anyone trying to lose weight. When the body switches to ketones, the process is called intermittent metabolic switching.

During the day, most of us run on glucose – but hopefully not donuts! The body regulates glucose levels because it is dangerous for those levels to go too high or too low. We have just one hormone, insulin, to keep sugar levels from rising too much. Insulin also helps keep sugar at an optimal level for our body to function properly. Hormones, such as cortisol (aka the stress hormone), contributes to sugar levels in the body, especially during times when the body is fasting. This explains why stress management is vital to maintaining healthy fasting blood glucose levels.

Sadly, nearly  $\frac{1}{3}$  of Americans are prediabetic or diabetic. The majority have Type 2 Diabetes, a metabolic disease involving insulin resistance (CDC, 2021).



## WHAT IS MEANT EXACTLY BY INSULIN RESISTANCE?



- Insulin rises in response to eating carbohydrates, which turns into glucose.
- Our cells use glucose for fuel
- Glucose cannot enter cells without insulin
- Insulin is like a barking dog demanding that cells open their doors or receptors, and permit glucose to enter
- If we eat too many carbohydrates, the barking at the door becomes incessant and the cells start to ignore the noise, leaving extra glucose outside the cells
- Extra glucose in the bloodstream can lead to dangerous health consequences such as nephropathy, blindness, and kidney failure.
- There are a variety of pharmaceutical as well as herbal products efficient at improving the cellular response to insulin signaling
- Intermittent fasting seems to help improve insulin resistance

Intermittent fasting helps to keep glucose levels stable. It can also lead to weight loss. Interestingly, even without weight loss, intermittent fasting has been shown to improve other health markers such as lipid panels (cholesterol) and blood pressure (Zubrzycki et al., 2018).



## ~INTERMITTENT FASTING (IF) AND BRAIN HEALTH~

- Mostly limited to promising animal studies
- Thought to help with epilepsy, Alzheimer's, Parkinson's, Multiple Sclerosis, and anxiety
- It takes between 12-36 hours to make the switch to ketones.
- Ketones promote the upregulation of brain-derived neurotrophic factors (BDNF) – which helps create more mitochondria (energy power house of the cell), increase brain plasticity and improve cellular stress resilience
- Triggers the cleanup and removal of damaged neurons – a process called autophagy
- Reduces oxidative stress
- Reduces the number of white blood cells that cause inflammation
- Improves the brain's response to insulin (Gudden et al., 2021)



## ~INTERMITTENT FASTING (IF) AND CARDIOVASCULAR HEALTH~

- According to the WHO, over 1/3 of deaths worldwide are attributed to cardiovascular disease
- Obesity rates have tracked with cardiovascular disease
- In animal studies, intermittent fasting helps lower body weight and LDL – in spite of a “junk” diet
- Helps lower inflammation markers seen on blood work
- Helps prevent LDL cholesterol from oxidizing – think rust prevention!
- Healthy males fasting during Ramadan have lower inflammation markers than non-fasting healthy males (Malinowski et al., 2019)



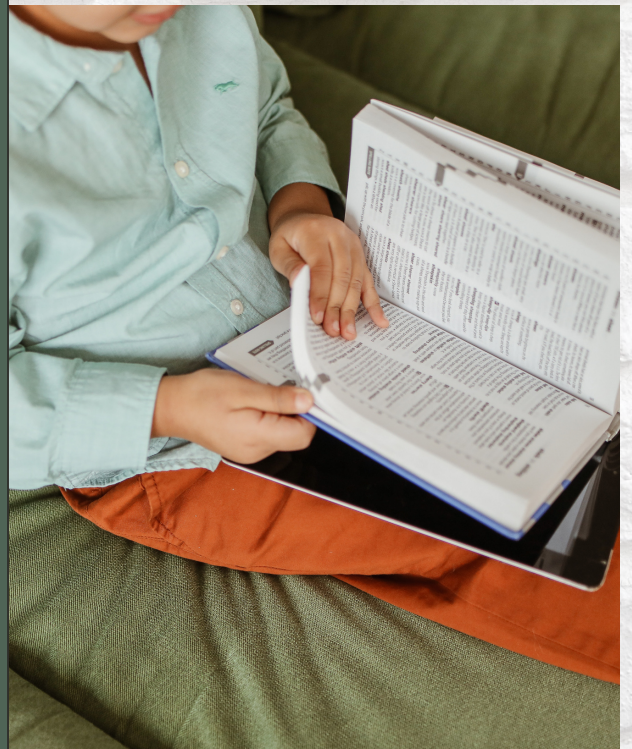


### **~PEOPLE WHO SHOULD AVOID INTERMITTENT FASTING~**

- Anyone who cannot tolerate a period of adjustment from switching from glucose to ketones, during which fatigue, bad mood, and dizziness are possible
- The elderly – due to increase risk of falls
- Pregnant women
- Anyone using a medication to treat diabetes – due to the risk of hypoglycemia (Malinowski et al., 2019)
- Anyone at risk of an eating disorder

### **~INTERMITTENT FASTING (IF) TAKEAWAYS~**

- Very few human studies
- Has improved the health of the mice used in clinical studies!
- Hard to make exact recommendations due to several variables including different diets and different fasting periods
- The science seems to strongly support the benefits of IF
- IF helps get rid of substances bad for the body
- For most people, there is no harm in trying
- It seems to help with weight loss
- For those not interested in weight loss, IF may help with cholesterol, blood pressure and mental health
- At a minimum, IF eliminates the pesky habit of late-night snacking





**Resources:**

CDC.gov. 2022. About Prediabetes and Type 2 Diabetes | National Diabetes Prevention Program | Diabetes | CDC. [online]

Available at: <<https://www.cdc.gov/diabetes/prevention/about-prediabetes.html#:~:text=About%20Prediabetes%20%26%20Type%20%20Diabetes&text=Over%2088%20million%20American%20adults,2%20diabetes%20within%205%20years.>> [Accessed 1 February 2022].

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