

# Fasting Off “The COVID-19”

by Sean Mccalmon, DO, Suguni Loku Galappaththy, MD, Sheetal Bulchandani, MD  
& Peminda K. Cabandugama, MD



**Intermittent fasting not only provides a cost effective method of losing weight, it also has long lasting health benefits.**



Sean Mccalmon, DO, is an Endocrinology Fellow at the University of Missouri-Kansas City. **Suguni Loku Galappaththy, MD**, and **Sheetal Bulchandani MD**, are Internal Medicine Residents at the University of Missouri-Kansas City. Peminda K. Cabandugama, MD, (above), is an Assistant Professor of Internal Medicine and Faculty Member of the Endocrinology Fellowship Program at the University of Missouri-Kansas City, Kansas City, Missouri, and is the Vice President of the Midwest Obesity Society.

## Abstract

**The SARS-CoV-2 outbreak has led to an increase in sedentary lifestyles compounded with the loss of access to public exercise facilities and limited fresh grocery supply. With the multitude of possible diet options available, how do you choose one that works with your lifestyle, financial means, and ultimately proves to be most effective? In this article, we review the medical benefits and challenges of several different types of fasting diets that can be adopted by the general public.**

## Introduction

The socioeconomic fallout of the SARS-CoV-2 outbreak led to over 20 million Americans unemployed at one point and millions of others under months-long social distancing or quarantine measures.<sup>8</sup> This change has led to an increase in sedentary lifestyles compounded with the loss of access to public exercise facilities and limited fresh grocery supply. Secondary effects of quarantine such as weight gain, higher A1c levels, increased insulin resistance and loss of daily activities lead to lifestyle changes which result in clinically significant exacerbations of chronic conditions.

Obesity, diabetes and the sequelae of these conditions have long been at the forefront of medical care in the U.S. The COVID-19 pandemic left many

Americans at home, engaging in unhealthy lifestyle habits, and resulted in the weight gain that is now colloquially referred to as “the COVID-19”. This is in reference to an average 19-pound weight gain—a setback which erodes the milestones healthcare has gained on chronic inflammatory conditions.

Prior to this pandemic, the United States was embroiled in a battle with the epidemic of obesity. Trends from 2017-2018 showed roughly 45% of middle-aged adults and 40% of adults in their 20s classified as obese showing an overall worsening trajectory toward a majority-obese population in the United States.<sup>3</sup> Overall mortality increases by 30% for every 5 kg/m<sup>2</sup> of Body Mass Index (BMI) above 25 kg/m.<sup>2</sup> Obesity has multiple complications with an effect on nearly every organ system ranging from depression, cardiovascular disease, chronic obstructive pulmonary disease, dyslipidemia, diabetes mellitus, urinary incontinence, degenerative joint disease, and various types of cancer, to name a few.<sup>13</sup>

With the multitude of possible diet options available, how do you choose one that works with your lifestyle, financial means, and ultimately proves to be most effective? Some may choose specific dietary changes such as the popular Keto Diet, which includes foods high in fat and protein and low in carbohydrates. Another feasible alternative would

be the Mediterranean Diet, which includes mostly vegetables, fish, nuts, and grains with poultry products in moderation, while rarely eating beef products, processed foods, and sugary drinks. With U.S. data showing acute worsening of eating and lifestyle habits, we postulate that a cultural shift toward differing styles of fasting could spark a collective movement toward weight loss after quarantine.

In this article, we review the medical benefits and challenges of several different types of fasting diets that can easily be adopted by the general public. Some of these may be attempted without the need for significant clinical guidance or feedback to reach maximal efficacy. However, we always encourage patients to confer with their healthcare provider before starting any new diets.

A special note should be made at this point that with all of the fasting diets; it is recommended to avoid processed foods, breads, pastas, white rice, and excess fats. Additionally, pregnant or breastfeeding women, children, and teenagers should avoid aggressive fasting strategies.

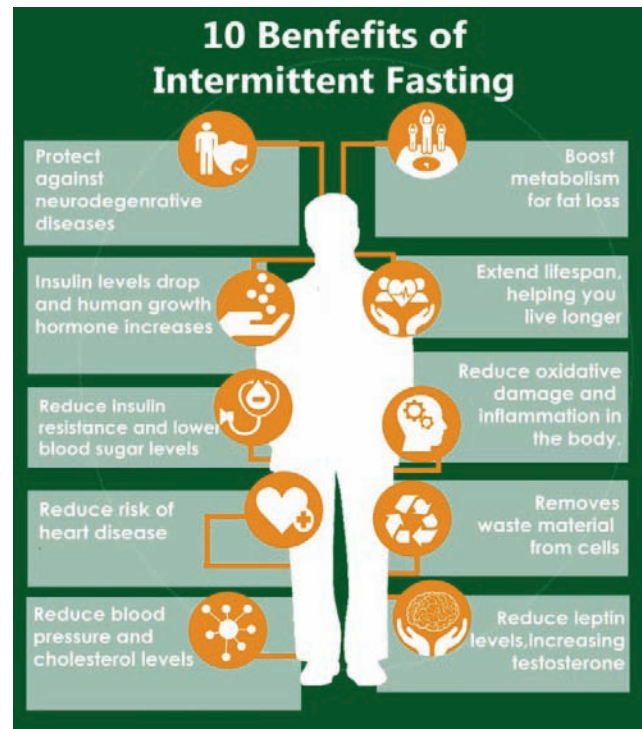
### Why Would You Fast?

Intermittent fasting not only provides a cost-effective method of losing weight, it also has long lasting health benefits. Several dietary interventions have shown to improve cardiovascular risk involving limiting calorie intake during a given period. Participants have seen improvements in weight, blood pressure, and insulin sensitivity. Intermittent fasting is similar to caloric restriction, with the subtle caveat that it focuses on the timing of consumption of the meals. The Oxidative Stress Hypothesis is the theory that decreased energy intake causes mitochondria to produce fewer free radicals.<sup>4</sup> Multiple studies have shown that obese patients undergoing intermittent fasting techniques have resulted with lower levels of inflammation markers and higher levels of antioxidants.<sup>12</sup>

### Types of Fasts

#### *The Circadian Rhythm Fast*

The Circadian Rhythm hypothesis involves timing of fasting allowing for optimization of organ systems. Eating later in the day is associated with higher postprandial glucose levels which have been shown to increase the risk of diabetes mellitus. Fasting regimens that allow eating during the middle of the day had



better weight loss with less adipose, better glucose control, lower lipid levels and decreased inflammation. Conversely, time restriction that only allows late afternoon or evening intake (after 4:00 p.m.) saw no improvement and worsening glucose control, blood pressure, and lipid levels.<sup>4</sup> One small study found that in just 10 days of circadian misalignment (described as 12 hours out of phase from habitual eating and sleeping times), subjects had decreased leptin (17%), increased blood glucose (6%) despite increased insulin levels (22%).<sup>5</sup> This study drew parallels to jet lag and shift work.

#### *The 16:8 Fast*

One popular strategy of intermittent fasting is known as the 16:8 Method, implying 16 hours of the day is dedicated towards fasting while restricting food consumption to an eight-hour window. There are no specific food recommendations or restrictions during the eight-hour feeding window, however, it is recommended that within this window three healthy meals are consumed.<sup>9</sup> When applied to a normal working schedule, it can be achieved with an eating window between 9:00 a.m. to 5:00 p.m. For most people, this simply means eating dinner earlier in the day.

Time-restricted eating offers a method to lower energy intake without the tedious necessity of counting calories. One study, published in *Nutrition and Healthy Aging*, examined 23 obese participants who were allowed to eat during a restricted time interval of 10:00 a.m. to 6:00 p.m. for 12 weeks. Weight loss, as well as other parameters of metabolism were recorded and compared to a no intervention control group. The time restricted group saw decreases in body weight by 3%, and systolic blood pressure by 7 mmHg.<sup>2</sup> Another study involving 34 males were randomly assigned to time restricted feeding versus normal diet while undergoing resistance training regimen. The time-restricted group ate three meals at 1:00 p.m., 4:00 p.m., and 8:00 p.m. The normal diet group consumed their meals at 8:00 a.m., 1:00 p.m., and 8:00 p.m. Meals were composed of the same macronutrients for each group. Exercise consisted of three weekly sessions involving resistance training of different muscle groups for each session. After eight weeks, the time-restricted group saw a decrease in fat mass of 16.4% versus 2.8% in the normal diet group. There was similar fat-free mass maintenance among both groups.<sup>10</sup>

### The 5:2 Fast

If fasting every day seems too daunting, the 5:2 Diet may be an appropriate strategy. With this intermittent fasting strategy, participants spend five days of the week eating regularly while restricting intake to 500 calories two days of the week.<sup>7</sup> This diet is appealing in that it does not involve an actual fast, and it can be spread throughout the week. For example, restricting calories on Monday and Thursday, or Wednesday and Saturday. Again, it is recommended that the five regular eating days include healthy foods. Reducing caloric intake to just 25% on fasting days can be achieved by eating three smaller meals, small breakfast and late lunch, or one single meal. It is recommended to consume foods high in fiber and protein in order to stay satisfied on fasting days. This method is intended for people interested in a less restrictive diet plan such as people who might feel lightheaded or fatigued with fasting.

A study published in the *International Journal of Obesity* compared 25% energy restriction in the form of intermittent or continuous. The study was conducted with 107 obese (BMI 30.6 kg/m<sup>2</sup>) premenopausal women over the course of six months. The 25% intermittent-restriction group consumed 2710 KJ/d

on two days per week, while the 25% continuous restriction group consumed 6276 KJ/day on seven days per week. The intermittent group saw weight loss of 6.4 Kg and the continuous group saw weight loss of 5.6 Kg. The study concluded that intermittent-energy restriction is as effective as continuous energy restriction with respect to weight loss, as well as insulin resistance.<sup>6</sup>

### The Alternate Day Fast

For the more advanced intermittent fasting participants, fasting every other day during a full 24 hour period is an option. This is not recommended for beginning fasters due to the level of difficulty with compliance. A study published in *Obesity Society* involving Alternate Day Fasting randomized 64 participants into four different groups for 12 weeks. The four groups included Alternate Day Fasting, Exercise, Alternate Day Fasting and Exercise, and a control group. The combination group saw the most weight loss of 6 Kg with retained lean mass. The Alternate Day Fasting group saw weight loss of 3 Kg, and the exercise alone group only lost 1 Kg. LDL cholesterol decreased 12% and HDL increased 18% from baseline in the combination group.<sup>11</sup>

### The Ramadan Fast

During the height of COVID-19, the religious fasting holiday of Ramadan was also occurring. Ramadan consists of fasting ~15 hours (dawn to sunset) per day for ~30 days straight. Studies have shown that the mortality of COVID-19 is due in part to a systemic hyper-inflammatory cytokine storm with increased IL-6, TNF- $\alpha$ , IL-1, IL-10. Multiple studies have shown that these proinflammatory cytokines are significantly reduced in men and women during Ramadan compared to before and after Ramadan.<sup>1</sup> One study in particular, involved 12 healthy males who underwent diurnal intermittent fasting during Ramadan and plasma levels of cytokines were recorded at baseline, fasting outside of Ramadan and during Ramadan. In this study, levels of IL-1B and IL-6 were significantly lower during fasting whether it was outside of Ramadan or during the social parameters of Ramadan.<sup>14</sup>

### Conclusion

With obesity rates continuing to rise, and the restrictions placed by the COVID-19 pandemic

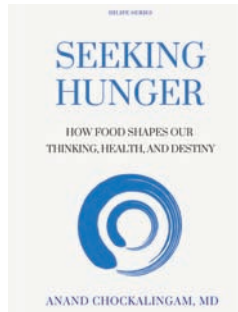


## Seeking Hunger

by Anand Chockalingam, MD

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Hunger has threatened, driven, and shaped our existence since the beginning of human history. However, our fast-paced society and modern culture have altered our relationship with food and hunger. While consumerism and urbanization have created new priorities and values for humankind, they have left us with little time to introspect and connect to our body.



In this short book, you will journey through humankind's relationship with hunger through the ages. You will understand how to relate to hunger on your terms to secure a lifetime of health and

energy. Hunger is an invaluable life experience, and you will see why hunger is fundamental and natural to humans. In *Seeking Hunger*, you will discover the reason why we need hunger to live a full life.

This is the first book in the HiLifeJourney series to better health and a meaningful life. HiLifeJourney combines mindfulness, Siddha Yoga, and positive psychology with the latest cardiology research for holistic wellness.

Author Prof. Anand Chockalingam, MD, is a cardiologist at the University of Missouri, Columbia, and MSMA member. From his research into stress cardiomyopathy, mental health, and heart failure, he pioneered a self-inquiry-based program called 'Heartful Living' for cardiac patients with hypertension, diabetes, obesity, and heart failure.

Since 2015, this program has helped thousands of people world over discover lasting health, reduce their need for medication, and feel decades younger. It has helped doctors to become resilient, students to become confident, and individuals to improve their mindset and health. **MM**

limiting physical activity, it only makes sense that people are snacking more, showing an increase in the rates of depression, and gaining weight. With gym closures being a feature of the lockdowns, we recommend finding an at-home body weight exercise routine. Similarly, with restaurants not being open, we would recommend focusing on a healthier diet at home. These practices along with well-studied intermittent fasting strategies as outlined above are likely to lead to sustained weight loss in a cost-efficient manner; both facets that are currently necessary during the current global pandemic.

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### Disclosure

None reported.

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