



Since 2013

# Intermittent Fasting On Ketogenic Diet



COMFORT KETO  
By MyKetoPal 



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By **MyKetoPal** 

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## What Is Intermittent Fasting?

Intermittent fasting (IF) is a technique that manages primarily when you eat. IF involves restricting your food intake to a certain time window each day and then fasting for a specific period. While we strongly emphasize that IF is a great enhancement to the ketogenic lifestyle, IF's primary concern is not how much you eat, but when you eat.

As you can see from the above statement, IF is not actually a diet; it's a pattern of eating. It's the scheduling of your meals so that you get the most benefit out of them in terms of weight loss, disease prevention, and longevity.



## Why Is It Worthwhile To Manage "When" You Eat?

Because IF is simple enough that you'll really do it, and helpful enough to make a tangible difference. Here are the three main reasons why:

1. IF is a great way to get lean without going on a complicated diet. It is primarily about managing when you eat.
2. When you are on IF, you may try to keep your calories the same. Some folks eat even bigger meals during a shorter time interval.
3. IF is a great way to keep muscle mass on, while getting lean -shedding bad weight off while keeping good weight on.

Let's clarify these bullet points simply: Whether you are on IF or other fasting protocols, fasting will simply put your body in fat burning state. Fat burning will simply not happen during a normal 3-5 meal eating schedule.

**'Your body will hardly burn any stored body fat until 11-12 hours after your last meal.**

This is one of the reasons why most folks on IF will steadily lose consistently moderate amounts of stored body fat without changing:

- how much they eat, or
- how often they exercise.



## How Does Intermittent Fasting Work For Fat Loss?

To understand how IF leads to stored body fat loss, we first need to understand the difference between the "fed state" and the "fasted state."

- **FED STATE** is when your body is digesting and absorbing food. The fed state starts when you begin eating and **lasts for 3 hours** (up to 5 hours for individuals with metabolic struggles). During the fed state, your body will hardly burn any stored body fat as your insulin levels will remain high.
- The **POST–ABSORPTIVE STATE** follows the fed state, during which your body isn't processing a meal. The post-absorptive state **lasts for 8 hours after your last meal** (up to 12 hours for individuals with metabolic struggles).
- After the post-absorptive state, your body enters the **FASTED STATE**. In fasted state, your insulin levels are low. Consequently, in this state, it is much easier for your body to burn stored body fat that has been inaccessible during the fed state.

## Wide-ranging Benefits Of Intermittent Fasting

There are plenty of intermittent fasting success stories out there, and several reasons you may want to consider adding it to your routine. Fat loss is great, but it isn't the only benefit of IF.

IF has been associated with several benefits, including:

- Intermittent fasting is a relatively easy enhancement to your ketogenic lifestyle.  
Most diets fail because it's a behavior change problem. If you get over the idea that you need to eat all the time, your adaption to IF will surely improve the results of your ketogenic diet.
- Intermittent fasting makes your day simpler.  
We at MyKetoPal are big on behavior change, simplicity, and reducing stress. Intermittent fasting provides one additional simplicity to your life. When you wake up, you don't worry about breakfast. Just grab a glass of water and start your day.  
  
Depending on which IF protocol you chose to follow, you will eat one or two less meals, which means less planning, shopping, cooking, and lower food expenditure. It makes life a bit simpler.



- **Increased Weight Loss:**  
Studies show that fasting can reduce body weight and body fat while also helping to retain muscle mass to improve body composition.
- **Intermittent fasting helps you live longer.**  
When you're starving, your body finds ways to extend your life. Scientists have long known since 1945 that calorie restricted fasting is a way of lengthening life. A more recent study found that alternate day intermittent fasting leads to longer lifespan.  
  
There's just one problem: who wants to starve themselves in the name of living longer? The good news is that IF activates many of the same mechanisms for extending life as calorie restriction. In other words, you get the benefits of a longer life without the hassle of complete starving.
- **Improved Heart Health:**  
Fasting is effective at improving cholesterol levels, which could potentially help reduce the risk of heart disease.
- **Better Blood Sugar Control:**  
Not only can fasting decrease levels of blood sugar, but it can also increase insulin sensitivity to help your body use insulin more efficiently.
- **Decreased Inflammation:**  
Several studies have found that fasting may reduce several markers of inflammation, which is thought to play a central role in health and immune function.
- **Reduces Hunger:**  
Intermittent fasting in support of keto diet could decrease leptin levels (the satiety hormone that signals your brain when it's time to stop eating). Keeping leptin levels low can help prevent leptin resistance to help keep hunger and appetite under control.
- **Promotes Brain Function:**  
Animal studies show that fasting can improve cognitive function and preserve brain health by influencing specific proteins involved in brain aging.
- **Intermittent fasting may reduce the risk of cancer.**  
This potential benefit is up for debate because there hasn't been a lot of research and experimentation done on the relationship between cancer and fasting. Early reports, however, look positive.



### **Why Is Intermittent Fasting and Keto Combination Highly Recommended?**

If you are aiming to get most outstanding results in terms of weight loss and combating a chronic metabolic disease, you should definitely consider combining IF with a ketogenic dietary routine. We'll go into the details of this one-two punch solution which we call IFKETO, in the following sections of this e-book.

Fasting on keto can be incredibly beneficial, especially if you've reached a plateau after long-term ketogenic lifestyle and aren't seeing expected results from keto alone any longer.

IF is thought to speed up ketosis by helping your body burn through glycogen stores in the liver and muscles (glucose=sugar is stored in the liver and muscles in form of glycogen) considerably faster, which can help sidestep symptoms of the keto flu and get faster results.

Ketogenic diet easy in the contemplation, however, challenging in the execution. Intermittent fasting is by design just the opposite — it's difficult in the contemplation but easy in the execution. Although it's tough to overcome the idea of going with a combination of purposely short eating intervals and restricted food, once you begin the regimen, nothing could be easier.





## Daily Intermittent Fasting Methods

MyKetoPal recommends intermittent fasting as an exceptionally useful tool to enhance the weight loss success of the ketogenic diet. IF on keto diet is well researched and proven to promote overall health and longevity. If you decide to give IFKETO a shot, here are the few different **options MyKetoPal** focuses on. These methods are listed in order of difficulty (from easy to harder) and weight loss (increasing).

The easy to follow *Daily Intermittent Fasting* methods facilitate you to eat healthy ketogenic foods without depriving yourself, intermittent fasting is a strategy that allows you to consume regular meals at specific hours of the day – by skipping your breakfast, having your lunch at noon and your dinner absolutely no later than 6:00 PM, and not eating anything at least three hours before you go to bed – to boost your body's fat-burning mode.

- IFKETO 16/8 (16 hours without eating, time between meals: 8 hours)
- IFKETO 18/6 (18 hours without eating, time between meals: 6 hours)
- IFKETO 20/4 (20 hours without eating, time between meals: 4 hours)
- IFKETO OMAD

Right now, you're probably eating around the same time every day without thinking much about it. Well, it's the same with daily IF. You just learn not to eat at certain times, and it soon becomes a habit of eating on this schedule.

It doesn't matter much when you start your X–hours eating window. You can do whatever works for you as long as you stay within the window. (In the case of OMAD, the recommended eating time is 2-3 pm.)

One other potential challenge is that because you typically cut out a meal or two out of your day depending on the IF method you select, you will need to get the same number of target calories in during the day. This means, the caloric count of each meal has to be increased to accomplish that. Simply put, you will need to get used to eat bigger meals on a consistent basis.

## Weekly Intermittent Fasting Methods

The weekly programs are rather more challenging methods of IFKETO and are usually utilized by professional athletes under supervision of sports nutrition professionals for weight cutting purposes. Yet, with a weekly routine, you will see considerably more of the benefits we've already talked about, faster.

- IFKETO 5:2 diet (5 days of the week with selected IFKETO, 2 days water fasting)
- Alternate day fasting (alternate days of selected IFKETO and fasting - 3 days of the week with selected IFKETO, 4 days water fasting) great if you are fallen off the wagon.



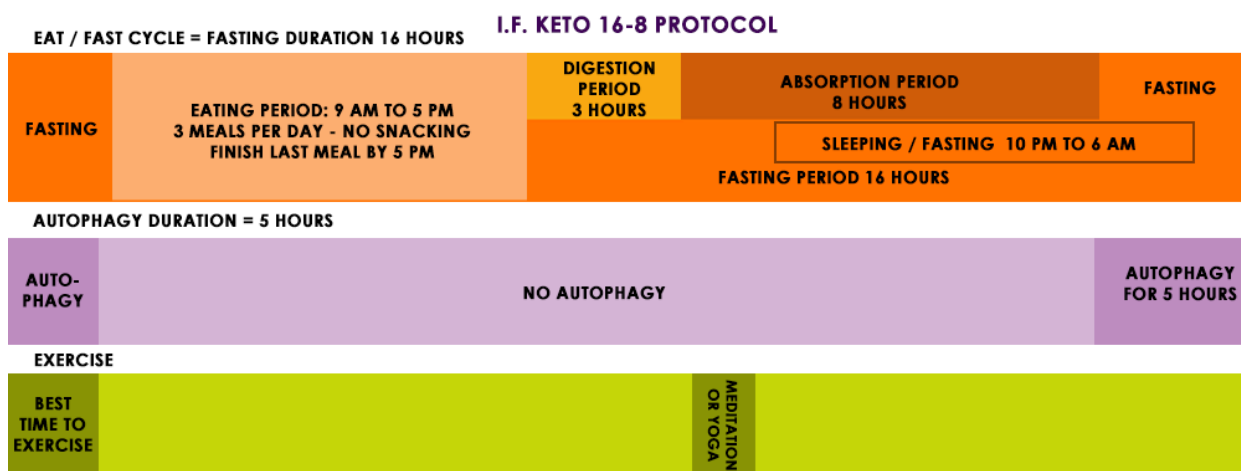
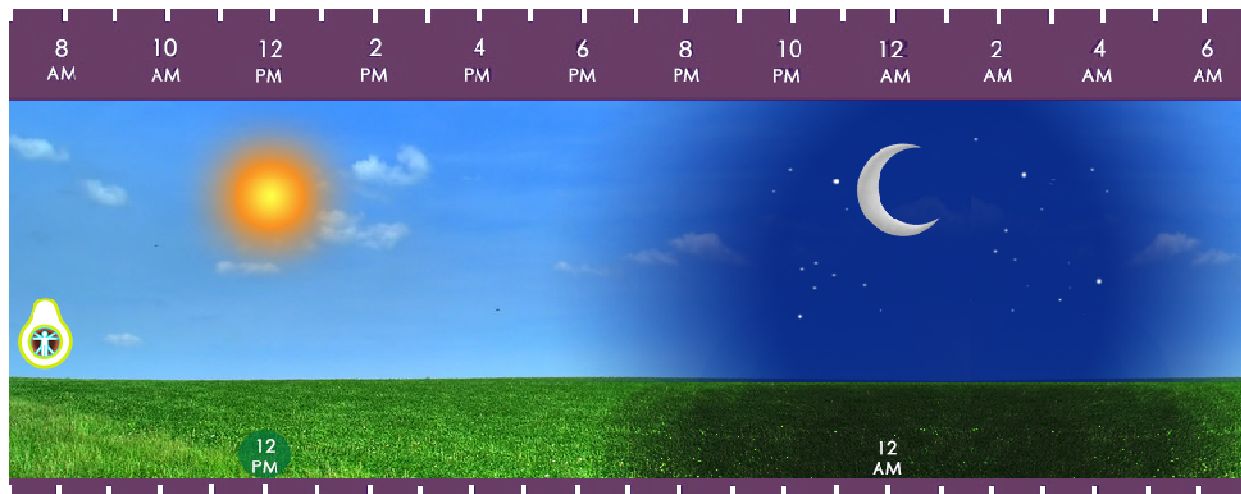
### IFKETO 16-8 Daily Intermittent Fasting

Intermittent fasting method:	<b>IFKETO 16-8 Protocol</b>
Type of Intermittent Fasting:	Daily intermittent fasting
Difficulty grade:	Easy challenge level
Target group:	Recommended for beginners of Intermittent Fasting
Knowledge level:	Fundamental Awareness (basic knowledge) of Keto and IF
Type of diet:	Ketogenic diet
Pre Condition for best results:	Being in the state of ketosis (fat adapted)
Eating window:	8 hours
Number of meals:	2-3 meals
Best morning beverages:	Black coffee in the morning, sparkling water (combats hunger feeling)
Best fast breaking foods:	Bone broth (prevents potential hair loss)
Time of day for first meal:	9:00 am
Time of day for last meal:	Finish the second and last meal by 5:00 pm
Snacking between meals:	Not recommended for best results
Fasting time frame:	16 hours
Daily caloric intake:	As recommended on the IFKETO 16-8 meal plan
Expected hours of autophagy:	5 hours max
Autophagy stoppers:	Vitamin C, Branch-chain-amino-acids BCAAs (found collagen, energy drinks, protein snacks)
Type of exercise:	Walking, bike riding, swimming, yoga
Time to exercise:	Shortly before breaking fast
Exercise tools:	Resistance bands, free weights, kettle bell, balance ball
Exercise duration:	30 minutes
Supplements:	Apple cider vinegar: any time throughout the day Wheatgrass: take one ounce serving just before breaking fast Cayenne pepper (supports thermo genesis): consume with meals Ketone salts (11.5 grams of BHB - nutrition, brain food): take upon waking up Ashwaganda or adrenal fatigue formula: take recommended daily amount before going to bed (adaptogen) Omega-7 (supports fat release): take before going to bed Milk thistle complex: take before going to bed
Circadian rhythm (sleep cycle):	Try to get a solid 8 hours sleep; go to bed no later than 10 pm every night
Hydration:	No less that 90 ounces of water (alkaline water not recommended) Drink your last glass of water at 9:00 pm (for uninterrupted sleep)
Self care:	Skin care (firming): Retinol cream, Vitamin C cream, Collagen cream, Olive oil soap, Seaweed soap Compression garments (prevents water retention, promotes fat cell shrinkage)
Monitoring tools	Ketone sticks, blood glucose monitor
Expected weight loss:	Low (1.5-2 lbs a week)





## IFKETO 16-8 Daily Intermittent Fasting Protocol - Graphic Illustration



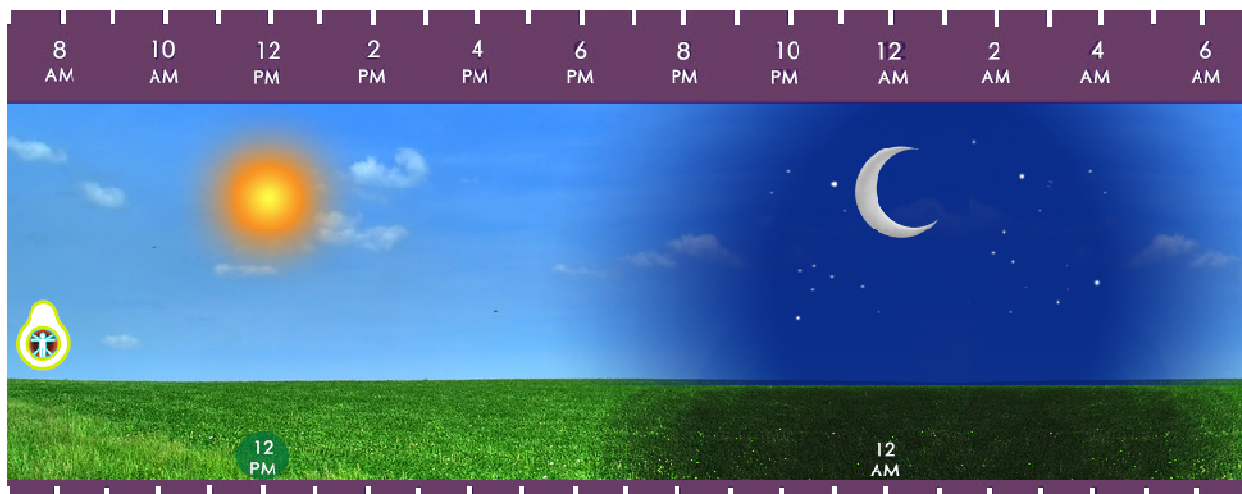


### IFKETO 18-6 Daily Intermittent Fasting Protocol

Intermittent fasting method:	<b>IFKETO 18-6 Protocol</b>
Type of Intermittent Fasting:	Daily intermittent fasting
Difficulty grade:	Moderate challenge level
Target group:	Recommended for beginner to novice level Intermittent Fasters
Experience level:	Novice level experience with Keto and IF
Type of diet:	Ketogenic diet
Pre Condition for best results:	Being in the state of ketosis (fat adapted)
Eating window:	6 hours
Number of meals:	2 meals; this protocol skips breakfast
Best morning beverages:	Black coffee in the morning, sparkling water (combats hunger feeling)
Best fast breaking foods:	Bone broth (prevents possible hair loss)
Time of day for first meal:	11:00 noon
Time of day for last meal:	Finish the second and last meal by 5:00 pm
Snacking between meals:	Not recommended for best results
Fasting time frame:	18 hours
Daily caloric intake:	As recommended on the IFKETO 18-6 meal plan
Expected hours of autophagy:	7 hours max
Autophagy stoppers:	Vitamin C, Branch-chain-amino-acids BCAAs (found collagen, energy drinks, protein snacks)
Type of exercise:	Walking, bike riding, swimming, yoga
Time to exercise:	Shortly before breaking fast
Exercise tools:	Resistance bands, free weights, kettle bell, balance ball
Exercise duration:	30 minutes
Supplements:	Apple cider vinegar: any time throughout the day Wheatgrass: take one ounce serving just before breaking fast Cayenne pepper (supports thermo genesis): consume with meals Ketone salts (11.5 grams of BHB - nutrition, brain food): take upon waking up Ashwaganda or adrenal fatigue formula: take recommended daily amount before going to bed (adaptogen) Omega-7 (supports fat release): take before going to bed Milk thistle complex: take before going to bed
Circadian rhythm (sleep cycle):	Try to get a solid 8 hours sleep Go to bed no later than 10 pm every night
Hydration:	No less that 90 ounces of water (alkaline water not recommended) Drink your last glass of water at 9:00 pm (for uninterrupted sleep)
Self care:	Skin care (firming): Retinol cream, Vitamin C cream, Collagen cream, Olive oil soap, Seaweed soap Compression garments (prevents water retention, promotes fat cell shrinkage)
Monitoring tools	Ketone sticks, blood glucose monitor
Expected weight loss:	Moderate (2.5-3 lbs a week)



## IFKETO 18-6 Daily Intermittent Fasting Protocol - Graphic Illustration



EAT / FAST CYCLE = FASTING DURATION 18 HOURS

### I.F. KETO 18-6 PROTOCOL



AUTOPHAGY DURATION = 7 HOURS



EXERCISE



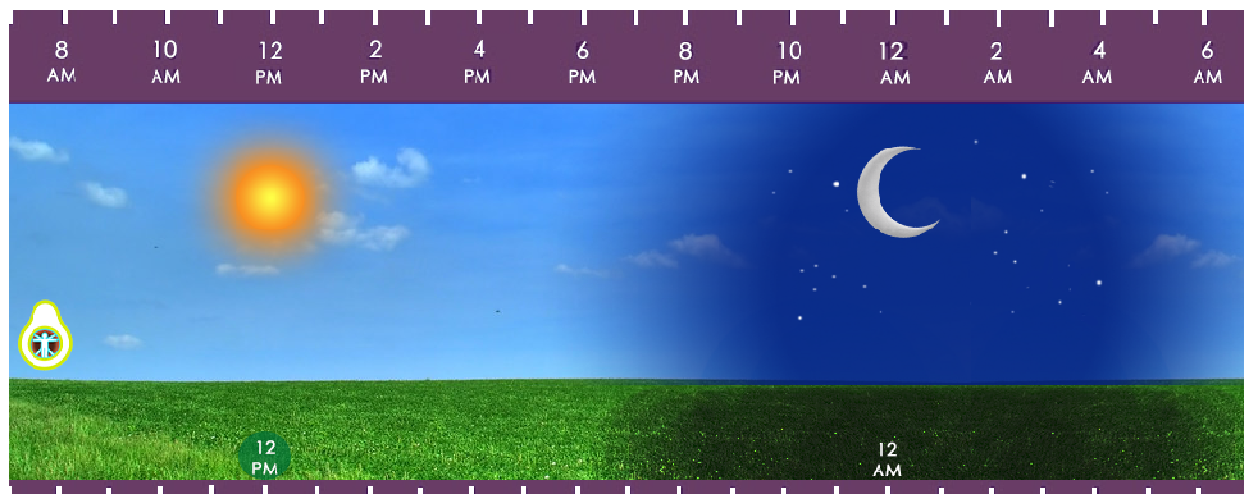


### IFKETO 20-4 Daily Intermittent Fasting Protocol

Intermittent fasting method:	<b>IFKETO 20-4 Protocol</b>
Type of Intermittent Fasting:	Daily intermittent fasting
Difficulty grade:	Moderate to high challenge level
Target group:	Recommended for intermediate level Intermittent Fasters
Experience level:	Intermediate (practical application) knowledge of Keto and IF
Type of diet:	Ketogenic diet
Pre Condition for best results:	Being in the state of ketosis (fat adapted)
Eating window:	4 hours
Number of meals:	2 meals; this protocol skips breakfast
Recommended beverages:	Black coffee in the morning, sparkling water (combats hunger feeling)
Best fast breaking foods:	Bone broth (prevents possible hair loss)
Time of day for first meal:	1:00 pm
Time of day for last meal:	Finish the second and last meal by 5:00 pm
Snacking between meals:	Not recommended for best results
Fasting time frame:	20 hours
Daily caloric intake:	As recommended on the IFKETO 20-4 meal plan
Expected hours of autophagy:	9 hours max
Autophagy stoppers:	Vitamin C, Branch-chain-amino-acids BCAAs (found collagen, energy drinks, protein snacks)
Type of exercise:	Walking, bike riding, swimming, yoga
Time to exercise:	Shortly before breaking fast
Exercise tools:	Resistance bands, free weights, kettle bell, balance ball
Exercise duration:	30 minutes
Supplements:	Apple cider vinegar: any time throughout the day Wheatgrass: take one ounce serving just before breaking fast Cayenne pepper (supports thermo genesis): consume with meals Ketone salts (11.5 grams of BHB - nutrition, brain food): take upon waking up Ashwaganda or adrenal fatigue formula: take recommended daily amount before going to bed (adaptogen) Omega-7 (supports fat release): take before going to bed Milk thistle complex: take before going to bed
Circadian rhythm (sleep cycle):	Try to get a solid 8 hours sleep; go to bed no later than 10 pm every night
Hydration:	No less that 90 ounces of water (alkaline water not recommended) Drink your last glass of water at 9:00 pm (for uninterrupted sleep)
Self care:	Skin care (firming): Retinol cream, Vitamin C cream, Collagen cream, Olive oil soap, Seaweed soap Compression garments (prevents water retention, promotes fat cell shrinkage)
Monitoring tools	Ketone sticks, blood glucose monitor
Expected weight loss:	Elevated (3.5-4 lbs a week)

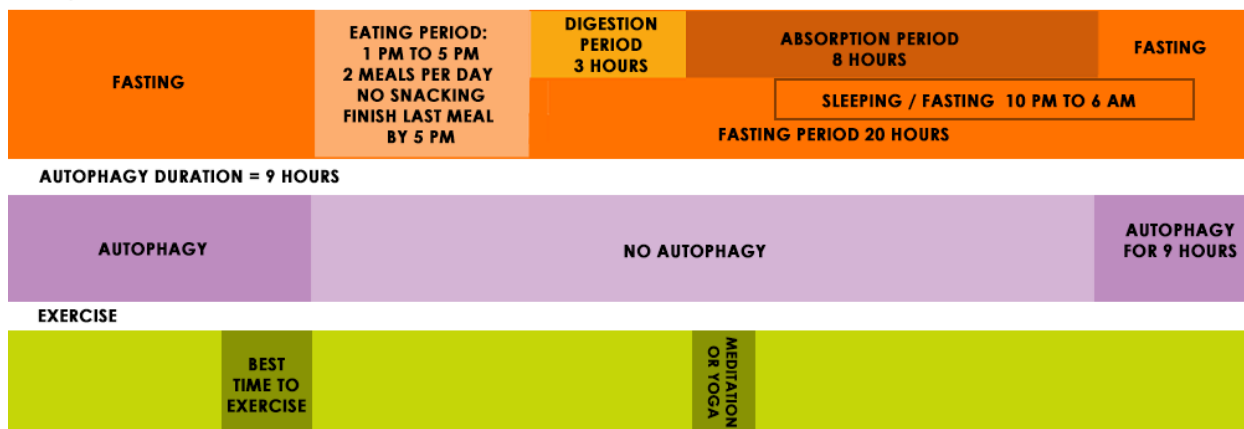


## IFKETO 20-4 Daily Intermittent Fasting Protocol - Graphic Illustration



EAT / FAST CYCLE = FASTING DURATION 20 HOURS

### I.F. KETO 20-4 PROTOCOL



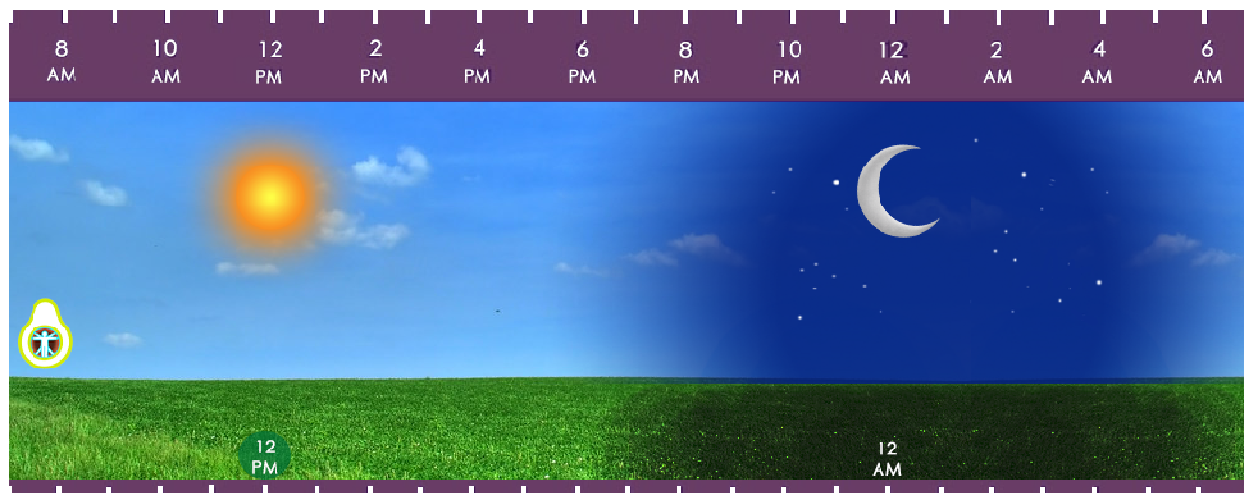


### IFKETO OMAD Daily Intermittent Fasting Protocol

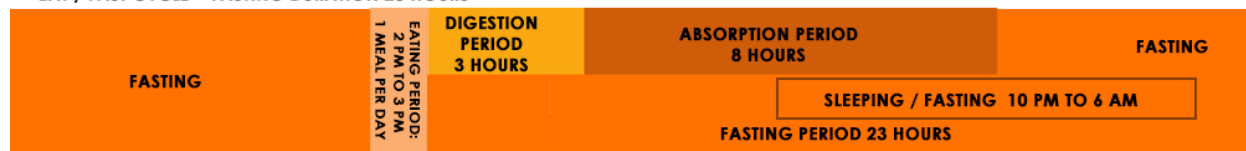
Intermittent fasting method:	<b>IFKETO OMAD</b>
Type of Intermittent Fasting:	Daily intermittent fasting
Difficulty grade:	May be challenging to some
Target group:	Recommended for advanced level Intermittent Fasters
Experience level:	Advanced (practical application) knowledge of Keto and IF
Type of diet:	Ketogenic diet
Pre Condition for best results:	Being in the state of ketosis (fat adapted)
Eating window:	1 hour
Number of meals:	1 meal; this protocol skips breakfast and dinner
Recommended beverages:	Black coffee in the morning, sparkling water (combats hunger feeling)
Best fast breaking foods:	Bone broth (prevents possible hair loss)
Time of day for first meal:	2:00-3:00 pm
Time of day for last meal:	Finish the one meal by 3:00 pm
Snacking between meals:	Not applicable
Fasting time frame:	23 hours
Daily caloric intake:	As recommended on the IFKETO OMAD meal plan
Expected hours of autophagy:	13 hours max
Autophagy stoppers:	Vitamin C, Branch-chain-amino-acids BCAAs (found collagen, energy drinks, protein snacks)
Type of exercise:	Walking, bike riding, swimming, yoga
Time to exercise:	Shortly before breaking fast
Exercise tools:	Resistance bands, free weights, kettle bell, balance ball
Exercise duration:	30 minutes
Supplements:	Apple cider vinegar: any time throughout the day Wheatgrass: take one ounce serving just before breaking fast Cayenne pepper (supports thermo genesis): consume with meals Ketone salts (11.5 grams of BHB - nutrition, brain food): take upon waking up Ashwaganda or adrenal fatigue formula: take recommended daily amount before going to bed (adaptogen) Omega-7 (supports fat release): take before going to bed Milk thistle complex: take before going to bed
Circadian rhythm (sleep cycle):	Try to get a solid 8 hours sleep; go to bed no later than 10 pm every night
Hydration:	No less that 90 ounces of water (alkaline water not recommended) Drink your last glass of water at 9:00 pm (for uninterrupted sleep)
Self care:	Skin care (firming): Retinol cream, Vitamin C cream, Collagen cream, Olive oil soap, Seaweed soap Compression garments (prevents water retention, promotes fat cell shrinkage)
Monitoring tools	Ketone sticks, blood glucose monitor
Expected weight loss:	Elevated (5-7 lbs a week)



## IFKETO OMAD Daily Intermittent Fasting Protocol - Graphic Illustration



EAT / FAST CYCLE = FASTING DURATION 23 HOURS **I.F. KETO OMAD PROTOCOL**



**AUTOPHAGY DURATION = 13 HOURS**



**EXERCISE**



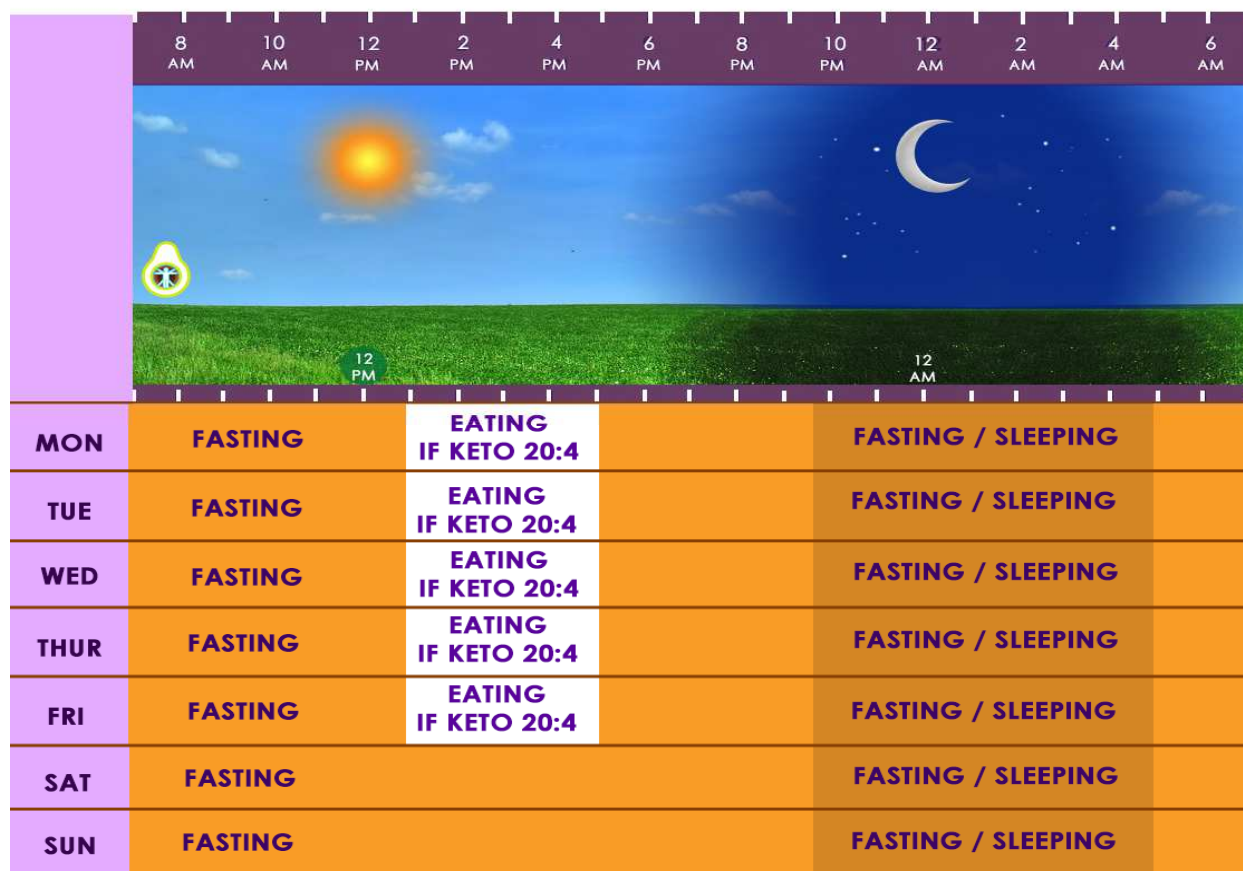




## IFKETO 5:2 Diet Weekly Intermittent Fasting

The weekly programs are rather more challenging methods of IFKETO and are usually utilized by professional athletes under supervision of sports nutrition professionals for weight cutting purposes. Yet, with a weekly routine, you will see considerably more of the benefits we've already talked about, faster. The graphic below shows the example of how a weekly IFKETO 5:2 might play out.

### IF KETO 5 & 2 - 20:4 WEEKLY EATING / FASTING CYCLE



In this example, your last meal of the day is your second and last meal on Friday. You then fast until lunch on Monday.

This schedule has the advantage of allowing you to eat 5 days of the week within a 8, 6 or 4 hour eating window (depending on which IFKETO program you chose) , or eat One Meal A Day (OMAD) on five days. You water fast the remaining 2 days.

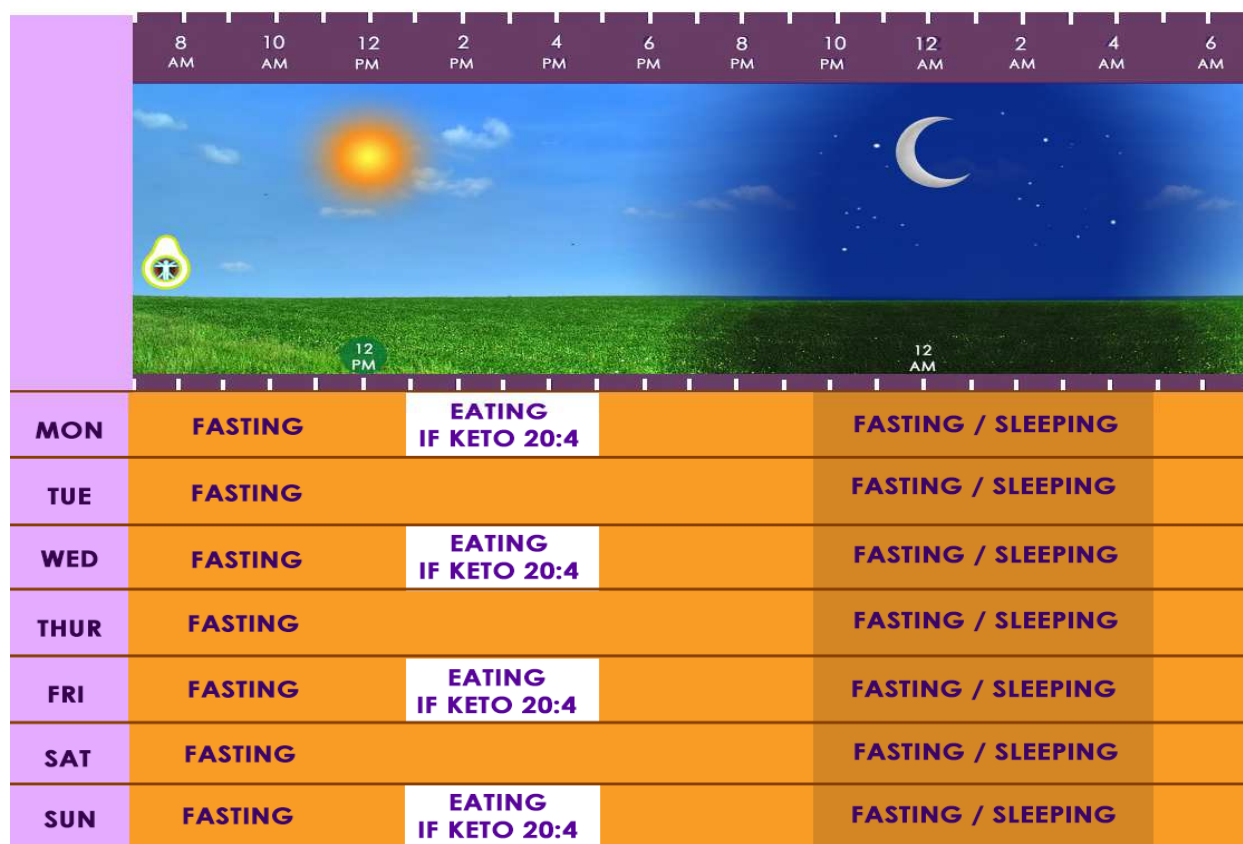




## IFKETO Alternate Day Weekly Intermittent Fasting

Alternate day intermittent fasting incorporates longer fasting periods on alternating days throughout the week. For example, in the graphic below, it is suggested that you would finish your dinner on Monday and then not eat again until Wednesday. You would then start the 24-hour fasting cycle again after dinner on Wednesday evening. This method allows you to get long fasting periods on a consistent basis while also eating at least one meal every other day of the week.

### IF KETO ALTERNATE DAY - 20:4 WEEKLY EATING / FASTING CYCLE



This style of intermittent fasting seems to be used often in research studies, but it isn't very popular in the real world. The benefit of alternate day intermittent fasting is that it gives you longer time in the fasted state. Hypothetically, this would increase the benefits of fasting and autophagy.

Based on our experience, teaching yourself to consistently eat more is one of the harder parts of intermittent fasting. You might be able to feast for a meal, but learning to do so every second day of the week takes a little bit of planning, a lot of cooking, and consistent eating. The end result is that most people who try intermittent fasting end up losing some weight because the size of their meals remains similar even though a few meals are being cut out each week.



## Some Valuable Thoughts About Intermittent Fasting

Intermittent fasting isn't just a weight loss strategy or a hack that bodybuilders use to lose fat quickly while maintaining lean muscle mass. It is at its best a healthy lifestyle informed by human evolution and the study of metabolism. It asks the human body to be much more efficient and self-protective than it is accustomed to being in modern times.

There are many things that happen when we fast that either don't happen when we are always in a fed state, or that happen very slowly in the background of glucose metabolism.

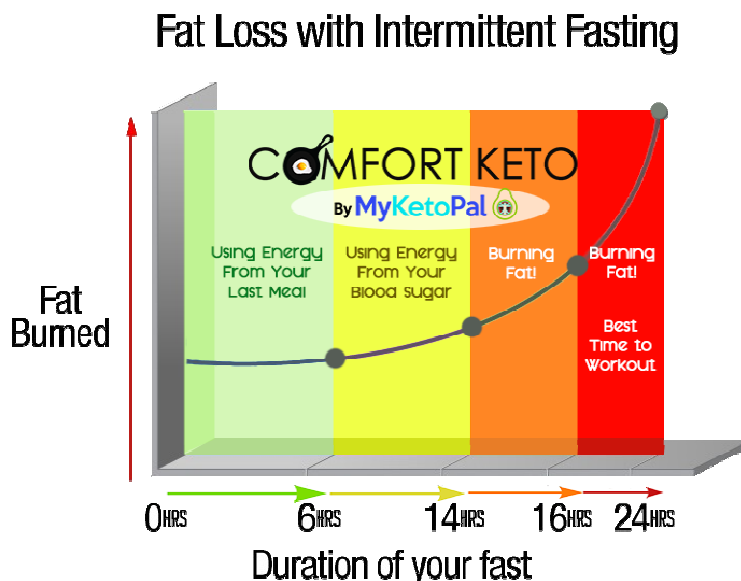
You may have heard people say that you should have six meals per day or eat every 3 hours or so. Here's the problem with that: You will be keeping your liver continuously occupied with the food processing duty. That leaves no time for your liver to attend repair duties.

Fasting has been practiced by various religious groups for centuries. Medical practitioners have also noted the health benefits of fasting for thousands of years. In other words, fasting isn't some new fad or crazy marketing ploy. It's been around for a long time and it actually works.

Fasting seemed foreign to many of us in the recent decades simply because nobody talked about it that much. The reason for this is that nobody stands to make much money by telling you to not eat their products, not take their supplements, or not buy their goods. In other words, fasting isn't a very marketable topic and so you're not exposed to advertising and marketing on it very often. The result is that it seems somewhat extreme or strange, even though it's really not.

Third, you've probably already fasted many times, even though you don't know it. Have you ever slept in late on the weekends and then had a late brunch? Some people do this every weekend. In situations like these, we often eat dinner the night before and then don't eat until 11am or noon or even later. There's your 16-hour fast and you didn't even think about it.

We also suggest doing one 24-hour fast even if you don't plan on doing intermittent fasting frequently. It's good to teach yourself that you'll survive just fine without food for a day. Plus, there are a lot of health benefits of fasting as we stated earlier.





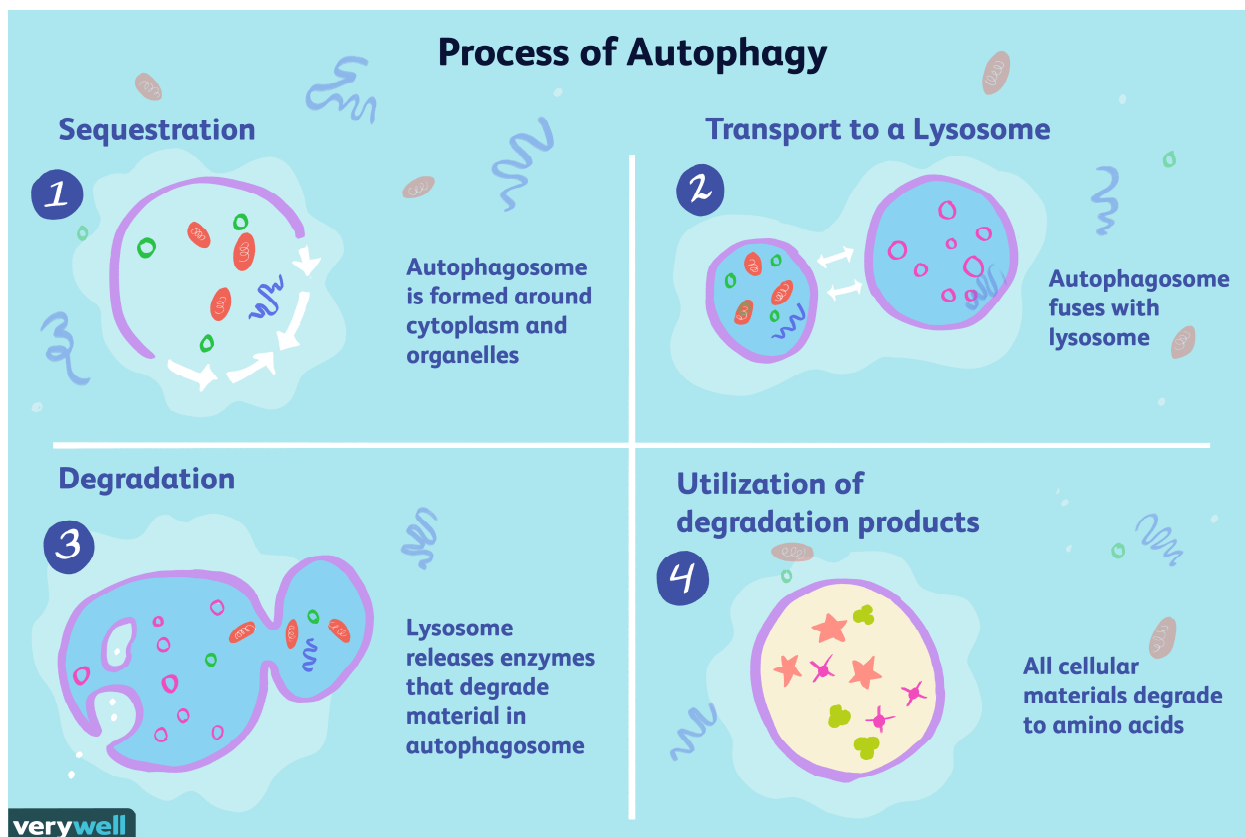
## Autophagy: The Real Way to Cleanse Your Body

Forget juice cleanses and detox diets. They're fluffy nonsense methods. While there's probably nothing wrong with drinking your weight in liquid kale, it won't flush out toxins any faster than if you were eating actual food.

The good news: There's a little-known way your body does cleanse itself, and it's a process that you can control. All you need to do is practice a little self-cannibalism. Yes, you can actually train your body to eat itself—and believe it or not, you want it to.

It's a natural process called autophagy (literally “self-eating”), and it's the body's system of cleaning house: Your cells create membranes that hunt out scraps of dead, diseased, or worn-out cells; gobble them up; strip 'em for parts; and use the resulting molecules for energy or to make new cell parts.

Think of autophagy as our body's innate recycling program. Autophagy is key to slowing the aging process and makes us more efficient machines to get rid of faulty parts, stop cancerous growths, and stop metabolic dysfunction like obesity and diabetes. There's also evidence that the process plays a hand in controlling inflammation and immunity.





## Three Main Ways To Boost Your Autophagy

### 1. Lower Your Carb Intake: Ketogenic Diet

Ketogenic diet reduces carbohydrates to such low levels that the body has no choice but to use fat as a fuel source instead. Ketosis is like an autophagy hack. You get a lot of the same metabolic changes and benefits of fasting without actually fasting. IFKETO enhances the benefits exponentially. Of course people are looking for ways to induce autophagy through chemicals, because it would be easier than dieting and fasting, but the science on that is a long way off.

In the recent years, anti-epileptic drugs are being developed that mimic the effects of ketosis. If and when they become available to the broader public, there's a chance we'll be able to pop a pill that cranks up autophagy with practically no effort. But don't get your hopes up.

### 2. Fasting

Ironically for folks who "cleanse" by drinking juice, the act of eating actually works against autophagy. Skipping meals is another stressful act that the body may not immediately love but ultimately benefits from. We covered the benefits in preceding sections.

Research studies prove that fasting promotes autophagy in the brain, suggesting that it could be an effective way to lower the risk of neurodegenerative diseases like Alzheimer's and Parkinson's.

In some studies, intermittent fasting was shown to improve cognitive function, brain structure, and neuro-plasticity, which may help the brain to learn more easily.

### 3. Exercise

Exercise puts stress on the body. Regular exercise is the most popular way that people unintentionally help their body to cleanse.

Working out actually damages your muscles, causing tiny microscopic tears that the body then rushes to heal, making the muscles stronger and more resistant to any further "damage" you might put it through.

Determining the level of exercise needed to stimulate autophagy is a hard question to answer at the present time. But exercise has clearly many benefits, aside from the possible role of autophagy, so that is probably a good bet in general.

The safest way of getting your exercise on while keeping your cortisol levels in check is to avoid high intensity cardio workouts. Walking, cycling, swimming, resistance bands and free weights are all low impact workouts which do not spike your cortisol levels.



## The Five Stages of Prolonged Water Fasting (for information purposes only)



By **12 hours**, you enter the metabolic state of ketosis. Your body starts to break down and burn fat.

Some of this fat is used by the liver to produce ketone bodies. Ketone bodies, or ketones, serve as an alternative energy source for your brain cells and cells in other tissues when glucose isn't readily available.

Your brain uses up some 60% of your glucose when your body is in the resting state. When you are fasting, ketone bodies generated by your liver replace glucose as fuel for your brain as well as other organs. This ketone usage by your brain is one of the reasons that fasting is often claimed to promote mental clarity and positive mood – ketones produce less inflammatory products as they are being metabolized than does glucose, and they can even kick-start production of the brain growth factor BDNF!



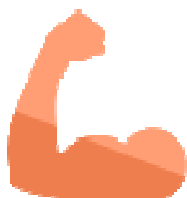
By **18 hours**, you've switched to fat-burning mode and are generating significant ketones. You can now begin to measure blood ketone levels above your baseline values (for example, around a value of 0.6 to 1.0).

As ketone level in your bloodstream rises, ketones can act as signaling molecules, similar to hormones, to tell your body to ramp up stress-busting pathways that reduce inflammation and repair damaged DNA for example.

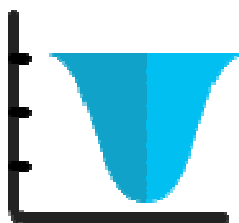


By **24 hours**, your cells are increasingly recycling old components and breaking down misfolded proteins linked to Alzheimer's and other diseases. This is a process called **autophagy**.

Autophagy is an important process for cellular and tissue rejuvenation – it removes damaged cellular components including misfolded proteins. Fasting activates the AMPK signaling pathway and inhibits mTOR activity, which in turn activates autophagy. This only begins to happen naturally, however, when you substantially deplete your glucose stores and your insulin levels begin to drop. NOTE: When you are continuously in fed state, your cells don't initiate autophagy, bad things happen, including neurodegenerative diseases.

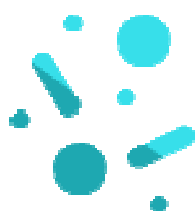


By **48 hours** without calories, carbs or protein, your growth hormone level is up to five times as high as when you started your fast. Reason for this is that ketone bodies produced during fasting promote growth hormone secretion, for example in the brain. **Ghrelin**, the hunger hormone, also promotes growth hormone secretion which helps preserve lean muscle mass and reduces fat tissue accumulation, particularly as we age. It also appears to play a role in mammalian longevity and can promote wound healing and cardiovascular health.



By **54 hours**, your insulin has dropped to its lowest level point since you started fasting and your body is becoming increasingly insulin-sensitive.

Lowering your insulin levels has a range of health benefits both short term and long term. Lowered insulin levels put a brake on the insulin and mTOR signaling pathways, activating autophagy. Lowered insulin levels can reduce inflammation, make you more insulin sensitive (and/or less insulin resistant, which is especially a good thing if you have a high risk of developing diabetes) and protect you from chronic diseases of aging including cancer.



By **72 hours**, your body is breaking down old immune cells and generating new ones. Prolonged fasting reduces circulating IGF-1 levels and PKA activity in various cell populations. IGF-1, or insulin-like growth factor 1, looks a lot like insulin and has growth-promoting effects on almost every cell in the body. IGF-1 activates signaling pathways including the PI3K-Akt pathway that promotes cell survival and growth. PKA can also activate the mTOR pathway (and, of interest, too much caffeine during a fast may promote activation of PKA).

You might see where this is leading – pressing the brakes on IGF-1 and PKA through nutrient restriction and fasting can turn down cellular survival pathways and lead to breakdown and recycling of old cells and proteins. Studies in mice have shown that prolonged fasting (greater than 48 hours), by reducing IGF-1 and PKA, leads to stress resistance, self-renewal and regeneration of hematopoietic or blood cell stem cells. Through this same mechanism, prolonged fasting for 72 hours has been shown to preserve healthy white blood cell or lymphocyte counts in patients undergoing chemotherapy.

### **Final stage after Prolonged Water fasting is "Re-feeding!"**

The last and perhaps most important stage of prolonged fasting is the re-feeding stage! It's important to break your fast with a nutritious, balanced meal that will further improve the function of cells and tissues that went through cleanup while you were fasting.

We don't recommend to break your fasts ever with carbs and sugars, which may in fact lead to problematic blood sugar spikes. Avoid simple sugars and processed/packaged foods. It's best to break your fast with bone broth followed by a balanced meal including vegetables, plant fibers, moderate healthy proteins, and healthy fats. Learn what works best for your body, and what you feel best eating following your fasts.

Finally, we recommend that you talk to your physician first before starting any prolonged fasting protocol.