

TIME-RESTRICTED EATING (TRE)

The Science and Best Practices

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You may have heard of **time-restricted eating** (also referred to as intermittent fasting). Perhaps a friend or family member is doing it. They may be seeing some benefits too, like weight loss, improved blood sugar and better sleep. You may be surprised to know that TRE is the subject of scientific studies, and we are learning of many potential health benefits. Use this handout to explore this topic.

Some quick facts about time restricted eating (TRE):

- ❖ TRE doesn't restrict CALORIES, it just restricts the time when people eat (also known as the "eating window"). Dr. Stephen Phinney discusses this in [this Diet Doctor podcast](#).
- ❖ Eating windows (EW) are usually 8-12 hours.
- ❖ Carbohydrate foods may or may not be restricted, but choosing healthy foods is desirable.
- ❖ Having a shorter (8-12 hour), consistent daily EW is seen as an advantage over other fasting plans where you vary the days and times when you are fasting. One reason is that it helps you synchronize with your internal clock. Medications (if you take them) are also easier to manage. And it's more compatible with social schedules and life. Go to www.mycircadianclock.org to learn more about our circadian rhythms and the ways these impact our health.

Could simply not eating for 14 hours each day improve your health?

- ❖ According to leading researcher [Satchin Panda](#), PhD, the answer is a resounding "yes"! Listen to him here: [Diet Doctor Podcast #80 | Bret Scher, MD : The Science of Time-Restricted Eating](#).
- ❖ [Ted Naiman, MD](#) also believes this to be true! Check out the article he wrote for the Diet Doctor website: [Time-Restricted Eating – A Detailed Intermittent Fasting Guide](#).

EXAMPLES OF TIME RESTRICTED EATING PLANS:

Note: These are example time frames. You can adjust the eating window to suit your own life.

Hours for Eating Window	Example Eating Windows	Window For No Food/Caloric Beverages
12 hours	7a-7p / 8a-8p	7p-7a / 8p-8a
10 hours	10a-8p / 9a-7p	8p-10a / 7p-9a
8 hours	11a-7p / 10a-6p	7p-11a / 6p-10a

EXAMPLES OF THINGS THAT MAY BE CONSUMED OUTSIDE OF THE EATING WINDOW

- ❖ Water, coffee (black), tea (herbal and/or unsweetened)
- ❖ A squeeze of lemon or lime may be added to water
- ❖ A dash of cinnamon may be added to coffee or tea
- ❖ Salt (eaten alone or added to water) can help energize you
- ❖ A dash of heavy cream or MCT oil or powder is usually ok in coffee
- ❖ Sugar substitutes/plant-based sweeteners (like stevia) MAY be ok (individual tolerance)

Huberman Lab Podcast | Andrew Huberman

Take an even deeper dive into this subject by listening to Andrew Huberman, Professor of Neurobiology and Ophthalmology at Stanford School of Medicine, in this lengthy (2 hours, 11 minutes) but brilliant podcast where he walks us through some sound reasons for how to approach this:

[Effects of Fasting and Time-Restricted Eating on Fat Loss and Health | Episode 41](#)

Highlights of this podcast are presented below:

Note: If you don't have time to listen to the podcast, you may enjoy scrolling through this bulleted list - and other items that follow in this handout - to see key points discussed. A summary of all key points is at the end (page 4).

- ❖ **TRE limits daily food intake** to a shorter time-frame (~4-10 hours) and extends the overnight fast.
 - ❖ TRE can have a **profound impact** on various **weight loss** and **fat loss** parameters.
 - ❖ **Much has been learned in the past 10-15 years.** Satchin Panda's lab is responsible for most of what we know, but other labs are studying this too, with a wide range of applications.
 - ❖ Eating vs not eating. **WHEN you eat is as important as WHAT you eat.**
 - ❖ **Find a rhythm.** Health benefits of TRE result when certain conditions in the body are met for a certain amount of time. Must consistently set these conditions over a period of time.
 - ❖ **80% of our genes are on a 24-hour cycle.** We calibrate our genetic clock daily. When we view light it allows this match to occur. Food and when we eat is a second regulator of these genes. **Eating RANDOMLY disrupts these "clock genes"**. Negative health effects are the downstream result. Therefore, a goal is to view light and eat at the appropriate times.
 - ❖ **Liver health:** The liver suffers when you eat around the clock. More fatty deposits occur in the liver. TRE reverses this.
 - ❖ **Inflammatory markers:** These are increased when you eat around the clock. They are reduced when no (or very little) food is in the GI tract.
 - ❖ **Glymphatic system:** Active at night while we sleep. Responsible for cleaning up. Need to achieve a fasted state in order to optimize. Learn more about the glymphatic system [here](#) and [here](#).
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Potential health benefits of eating within an 8-12 hour interval:

- | | |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Weight loss | <input type="checkbox"/> Enhanced cellular repair (autophagy) |
| <input type="checkbox"/> Decreased cholesterol | <input type="checkbox"/> Improved gut microbiome |
| <input type="checkbox"/> Decreased blood pressure | <input type="checkbox"/> Improvements in irritable bowel and colitis symptoms |
| <input type="checkbox"/> Decreased blood sugar and A1c | <input type="checkbox"/> Increase in brown fat (metabolically active fat; favorable to have more) |
| <input type="checkbox"/> Better sleep quality | <input type="checkbox"/> Decreased risk for NAFLD (nonalcoholic fatty liver disease) |
| <input type="checkbox"/> Increased alertness | <input type="checkbox"/> Hormones can be optimized |
| <input type="checkbox"/> Increased endurance | |
| <input type="checkbox"/> Enhanced ability to burn body fat (partly due to increased hepatic lipase) | |

Would any of these benefits be meaningful to you? If so, learning how to shorten your eating window (and align your circadian clock) could be a worthwhile goal!

GETTING INTO THE FASTED STATE

How long does it take (after eating) to enter a fasted state?

This is the ultimate goal, or the “condition” we are shooting for in terms of the health benefits starting to occur. We think of “fasting” beginning the minute we stop eating. But our body won’t reach a fasted state for several hours after we take our last bite of food. Some things that affect when our body will enter the fasted versus fed state include **food volume and food type**.

- Large meals take longer to digest. Gauge for yourself what “large” means. If you typically eat a larger dinner meal, look for ways to modify this over time.
- Lots of fats in a meal will slow down digestive time.
- Calories in liquid form are digested faster.
- Carb and fiber content also affect the speed of digestion.

Using these points above, you may want to modify your final meal of the day so you can enter into the fasted state more quickly.

Other things we can do to accelerate the transition from the fed state to the fasted state:

- ❖ **Glucose Clearing Agents**
 - **Exercise/Activity:** Taking a light walk (or increased activity) after the dinner meal will help lower or “clear” blood sugar and push you toward the fasted state more quickly.
 - ❖ **Glucose Disposal Agents**
 - **Foods/Herbs/Acids:** Lemon or lime juice; apple cider vinegar; cinnamon; chromium. All of these have the ability to independently lower blood sugar. Try adding lemon or lime to your water; add apple cider vinegar to homemade salad dressing; add cinnamon to coffee or Greek yogurt. Try these options for a start, and look for other ways to use these to your advantage.
 - **Drugs/Compounds:** Metformin and berberine are 2 powerful drugs/compounds that lower blood sugar and will also push you into the fasted state more quickly.
 - **Metformin** is the most commonly used medication for managing diabetes; a doctor/medical professional must prescribe this for you.
 - **Berberine** is an over-the-counter supplement which has similar properties to metformin. See handout “**Berberine**” for more information.
 - **Note from the podcast:** If you take berberine and you have NOT consumed carbs, be careful that you aren’t clearing out blood sugar when it’s already low. Could be a double-sided coin. If you experience a splitting headache, this could be the reason.
 - **Caution:** It would be wise to discuss either/both of these options with a medical professional if you are interested in using them as part of your plan.
 - **Sodium:** Also has the potential to reduce blood sugar and/or stabilize blood volume, and can make you feel better/more energized. Try adding a pinch to your water, particularly when you are feeling hungry or shaky and in need of a boost.
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Parameters of an “Ideal” Time Restricted Eating Plan

- Don't ingest food (or calories) for at least 60 minutes after waking.
- Avoid ingesting food of ANY kind for 2-3 hours before bed.
- Ideally, spend 8 hours in bed; sleep-related fasting is VERY important.
- An 8-hour feeding window as a target is the best approach in an “ideal world” - but find the window that you can do CONSISTENTLY and stick with that, even if it's 10 or 11 hours.
- Be consistent about where you place the feeding window.
 - Try to make weekends look similar to weekdays so you aren't drifting all over the place.
 - Also, avoid having the entire window pushed too close to bedtime.
- Consider using glucose clearing/disposal agents to help you reach the fasted state sooner.
- Be sure to get light/sunlight into your eyes in the morning to help set your circadian clock.
- When you eat and drink will also calibrate your circadian (internal) clock.

These tips are discussed on the Huberman Podcast at 2:11; most come from Dr. Panda's research. All of this information and more can be found at www.mycircadianclock.org in the FAQs.

Also check out this podcast:

TED Talk | Episode 79 | [Satchin Panda Discusses Circadian Rhythms and Time-Restricted Eating to Improve Health and Even Reverse Disease](#)

NEXT STEPS:

If you would like to tighten up your eating window to reap these potential health benefits, here are some steps to take.

1. Establish what your current eating window is:

First food/caloric drink of the day is usually at _____ a.m.

Last food/caloric drink of the day is usually at _____ p.m.

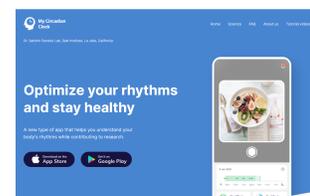
My current eating window is usually _____ hours long.

2. Goal: Tighten up the eating window to be _____ hours long.

First food/caloric drink of the day will be at _____ a.m.

Last food/caloric drink of the day will be at _____ p.m.

3. Give yourself 30 days and then reassess.



www.mycircadianclock.org

You may enjoy participating in this TRE study; you get free access to this app + TRE tips!

See if you can MAINTAIN this new eating window 95% of the time. We are looking for consistency. Give yourself 30 days to establish a new pattern (don't expect yourself to be “perfect” during this time). After 30 days, reflect and see if you would like to further tighten up your eating window - or perhaps you were aiming for too tight of a window and you need to give yourself a little more flexibility.
