

Time Restricted Eating & Cancer Risk

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Ideally, the total time we spend eating in a day should be limited to a defined timeframe, which then leaves periods of fasting that coincide with our sleep. Fasting both intermittently and for longer periods of time, such as days, has been shown to result in benefits ranging from prevention to the enhanced treatment of diseases (Panda, S. 2016). This is because during a fasting-state our body is able to enter into alternative metabolic processes, which rely less on glucose and more on ketones. This shift from sugar metabolism to utilizing fatty acids (beta oxidation) is important in cancer, as cancer cells use the process of fermentation to drive their growth and replication. Similarly, Time-Restricted Eating (TRE), known in the scientific literature as “Time-Restricted Feeding”, in which feeding time is restricted to 9 to 12 hours, allows the daily fasting period to last more than 12 hours. This may impart multiple metabolic and physiologic benefits. In the area and implication of TRE’s role in cancer, recent studies in rodents have shown slowed tumor growth in mice that eat only within certain times.

“...in time-restricted fed mice, if we just implant a tumor, then the tumor will not grow as much as the mice that eat randomly the same number of calories.”

Dr. Satchin Panda, Salk Institute for Biological Studies

In humans, researcher Dr. Ruth Patterson demonstrated that women who fast for 13 hours overnight have a 36% lower breast cancer occurrence (Patterson, R. 2015).

Besides its potential benefits for cancer, TRE has shown promise in its overall health benefits. There is a natural and seemingly effortless reduction in caloric intake without need to actually count calories. For example, if a person’s target to stop eating is 7:00 pm, then late night snacks that used to be their usual habit have to be stopped. Thus, two positive things can be accomplished with implementation of TRE. The first is reduction of caloric intake and the second is improving nutrition quality; “late night snacks” are not typically healthy choices. Weight loss is also typically seen but more importantly improvement in blood biomarkers can occur. Dr. Satchin Panda, a lead researcher at the Salk Institute for Biological Studies, has done research in animals has showed that animals that are restricted to eating within a 9 to 12-hour window have improved glucose metabolism, improved lipid profiles, improved cholesterol,

increased lean muscle mass, decreased fat mass, decreased fatty liver and favorable gene expression patterns.

Anecdotally, those with irritable bowel syndrome have experienced a lessening of their symptoms after implementation of TRE, as have those with acid reflux disease. The benefits to eating within a window where insulin-sensitivity is at its highest has far reaching effects as well. Eating later in the day, when we are less insulin sensitive can cause increased levels of inflammation because blood glucose levels may be higher. Even in those without diabetes or pre-diabetes, spikes in glucose have been found to be detrimental to one's overall health.

Research done on gut health has pointed toward there being some amount of gut "leakiness" in most people that is normally repaired during a fasting state. When food consumption is not restricted to a certain time frame as with TRE, some of the bacterial proteins or bacterial membrane components, like lipopolysaccharides (LPS) can leak through our gut lining into circulation. LPS is normally found in the gut because it is part of the bacterial membranes but it should not be in the bloodstream where it can create extraordinary destruction and can prompt an immune response. Therefore, TRE may protect the immune system from flaring against antigens and other substances that do not belong in the bloodstream.

Immune activation can cause increased inflammation which is typically implicated in all types of cancer.

Therapies such as TRE that protect and optimize the gut, the body's foundation of health, are employed at The Connors Clinics. Implementing a strategy as easy as consuming food in a 10 to 12 hour window requires little to no effort on behalf of a patient. Typically, patients experience a subjective increase in overall well-being, noted by reported increased energy levels and better mood. The benefit from TRE can also be immense in terms of immunologic, metabolic and physiologic changes in the body as well.

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2. Norris, J. (2014). "Mix of Bacteria in Gut May Depend More on Diet than Genes" UCSF
3. Carmody, R. (2015). Diet Dominates Host Genotype in Shaping the Murine Gut Microbiota. *Cell Host & Microbe*. **Volume 17, Issue 1, p72–84.**
4. Panda, [Satchidananda](#), PhD (2016). Fasting, circadian rhythms, and time restricted feeding in healthy lifespan. [Cell Metab. Volume 23\(6\): 1048–1059.](#)