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What Is the Best Diet for Longevity?

Analysis by Ashley Armstrong | July 09, 2024

STORY AT-A-GLANCE

- The rate of living theory, which suggests slowing metabolism extends lifespan, is based on limited studies and may not apply to humans in real-world conditions. Contrary to popular belief, higher metabolic rates are associated with longer lifespans in various animal studies, challenging the rate of living theory
- Caloric restriction can reduce your metabolic rate and lead to negative health consequences, as demonstrated by the Minnesota Starvation Experiment, which included loss of muscle and organ mass
- The Bioenergetic view proposes that aging results from a slowing metabolic rate, and maintaining a high metabolism promotes better cellular function and longevity
- High polyunsaturated fat (PUFA) consumption may contribute to inflammation and premature aging
- Strategies for improving your metabolism and promoting longevity include eating sufficient calories, reducing PUFA intake, strength training, stress reduction, and pursuing joyful activities

What is the best diet for longevity? How can we ensure good health as we age? Are caloric restriction and fasting actually required to live a long and healthy life?

In this article, let's discuss an alternative viewpoint to aging, one that is quite different than many of the "alternative health" longevity spheres. It's important to note that while

there is currently no general agreement in the scientific community on aging, metabolic rates certainly seem to play a role.

Some diet camps believe we want to slow the metabolic rate for longevity (rate of living theory), while the bioenergetic view, based on physiological principles, believes a faster metabolism is protective against aging.

The Rate of Living Theory

The main idea behind the proposed “life extension benefits” of caloric restriction and fasting is the “rate of living theory” — live fast, die young.

More specifically, organisms with fast metabolic rates have shorter lifespans than organisms with slower metabolisms. So, the idea here is to slow the metabolism down like a slow burning flame for longevity.

Some examples of this thinking include:

- Components in our car break down over time due to use, so we want to drive less

- Our heart can only beat so many times in a lifetime, so let's expand that as long as possible by slowing our heart rate

One of the rationales behind this thinking is the free radical theory — aging is a result of the cells in the body accumulating damage over time. The damage comes from free radicals, which are highly reactive atoms or molecules naturally produced by our body. Since free radicals are created by our metabolic processes, slower metabolisms could decrease the rate of free radical production (and thus extend lifespans).

This idea is, unfortunately, based on the results of a roundworm study that took place in a controlled environment … so, can we really extend these ideas to humans in the real world?

From Balaban et al., "It is important to note that the increased reliance on these alternative [backup] pathways can often result in energetically crippled, albeit long-lived animals … Reducing an organism's reliance on such pathways may allow a worm to survive for an extended period of time in the controlled laboratory environment but would probably place this animal at a significant disadvantage in the real world, where only the fastest and reproductively fittest survive."[1]

This free radical aging ideology is one the reasons why some promote caloric restriction for longevity.

The Hayflick Limit

Another rationale is what's called the "Hayflick limit," which was discovered in the 1960s.[2,3] The idea is that lifespan is determined by limits on cellular division, and since the cells can only divide a certain number of times, we want to slow down cell division and regeneration. Unfortunately, these study results are based on single cells in a cell culture and are not based on in vivo data.

Many researchers, however, are now questioning this idea of aging and the so-called "benefits" of caloric restriction.[4,5,6,7,8,9] One review article presents a large body of evidence disproving the rate of living theory.[10] Another study directly refutes the rate of

living with the title “Individuals with higher metabolic rates have lower levels of reactive oxygen species in vivo.”[11]

In fact, many researchers are now concerned that calorie restriction in humans could do more harm than good. One of the largest criticisms of these rate of living theory studies is how the control group is treated.

While the experimental groups are on a very restrictive diet — many studies allow the control group to eat as much as they want. The control group often end up eating a lot more than what they normally would in nature. It is then difficult to disentangle benefits due to calorie restriction from the harmful effects of massive overeating poor-quality food.

> *“In recent years, Weissman’s ‘wear-and-tear’ theory of aging, and Pearl’s ‘rate of living’ theory have been clearly refuted by metabolic studies that are showing that intensified mitochondrial respiration decreases cellular damage and supports a longer life-span.”* — Dr. Ray Peat

It is well documented in the literature that eating low-calorie for a long period of time will reduce your metabolic rate,[12] since the body slows to conserve energy. So, do we really want to slow metabolic rate to extend our lifespan? I don’t think so.

Faster Metabolism Is Associated With Longer Lifespan

Conflicting evidence to the rate of living theory that show positive correlations between metabolic rate and longevity (meaning, longer lifespans with faster metabolic rates):

Small dogs eat more food in proportion to their size than big dogs do, and small dogs have a much greater life expectancy than big dogs do, sometimes 2X as long[13]

Hamsters with a 20% higher metabolic rate live 15% longer than hamsters with an average metabolic rate[14]

Mice with a 30% higher metabolic rate lived 36% longer than those with a slower metabolic rate[15]
Hummingbirds have one of the fastest metabolisms and live disproportionately long relative to any other animals their size[16]
Antioxidant supplementation does not increase longevity (the antioxidants would reduce the ROS levels). Genetic over-expression of major antioxidants do not lead to lifespan extension[17]
The longest living rodents, the naked mole rats, have higher levels of oxidative damage than mice with the same chronological age[18]

Caloric restriction and fasting may have benefits relative to the Standard American Diet (SAD) with lifespan extension, but it is likely due to:

- Restriction of specific types of fats (polyunsaturated fatty acids — PUFAs)
- Restriction of amino acids that can be inflammatory if not balanced with glycine
- Less consumption of pollutants in our modern world that have been infiltrated into our food system

The Bioenergetic View on Aging

The Bioenergetic view is the exact opposite of the rate of living theory, and instead views that aging is the result of the slowing of the metabolic rate.

Instead of a slow burning flame (lowered metabolic rate), a high metabolic rate continually renews the organism due to higher ATP production. With sufficient energy production, the organism can maintain proper structure, and thus, function properly.

When energy production is hindered (with a lower metabolic rate), the body does not have adequate energy to maintain proper structure and function.

The idea is to emulate the metabolism of a child where systems are working optimally, and we can recover and repair very quickly. Aging is the slowing of the metabolic rate. And aging can be reversed by improving the metabolic rate.

Optimal values of both T4 and T3 appear to correlate with more robust and increased functional capacity in centenarians.[19] You cannot have good thyroid function without a strong metabolism since thyroid is the master regulator of the metabolism. If a human body was given 2 choices:

1. Caloric restriction/fasting/carb restriction
2. Regular consumption of healthy food with an abundance of vitamins and minerals required to make energy

Which option would the body thrive in? Option 1 may be better than a Standard American Diet with a bunch of processed funk food, but humans will not thrive in a calorically restricted state. Period. Nature thrives in abundance!

The Minnesota Starvation Experiment

In the Minnesota Starvation Experiment, the subjects consumed 1500-1600 calories for 5-6 months (meaning, the subjects were in a caloric deficit for a period of time).[20] They of course lost weight, but there were a lot of negative health consequences! Just a few examples include:

- Lowered metabolic rate and body temperature
- Increased rates of edema
- Decreased libido
- Loss of muscle mass
- Reduction in the size of various organs in the body like the gastrointestinal system, heart, and liver. (How can a liver that shrinks by 50% function properly? It can't! One consequence of a sluggish liver is poor detoxification, leading to a buildup of toxins and an increased risk of aging.) And more

(If you are interested in learning more about the Minnesota Starvation Experiment and the morphological, mental and biochemical consequences to the human body, check out our **podcast series here** for an in depth discussion!)

The better we improve our energy metabolism, the better our body will function, and the more we will slow aging. And you cannot have a robust metabolism if you chronically undereat for your needs! (Like what is promoted in some diet camps.)

Lessons From Centenarians

The diets of centenarians vary widely … but there are some commonalities when studying the reports and diaries of centenarians:

- **They do not stress out or worry too much —** Living in a stressed-out state is a sure way to accelerate aging as that hinders your ability to properly produce energy. But properly dealing with stress requires ENERGY! So having adequate energy reserves, from a well-functioning metabolism, will help you better cope with stress.
- **They eat real, whole foods at regular intervals —** You really don't hear of many centenarians reporting that fasting or ketogenic diets were the key to their long lives. Instead, they prioritized whole foods and didn't overly restrict the food they ate. You will find reports of many centenarians eating chocolate and ice cream regularly if not, daily!

  (**Note:** Quality chocolate and ice cream with good ingredients are good foods! Chocolate is rich in saturated fat, and real ice cream is made with just a few ingredients: cream, milk, egg yolks and sugar/honey/maple syrup. Unfortunately, a lot of options at the store these days can contain vegetable oils, gums, or other additives.)
- **They lived happy and fulfilling lives, making sure they do things that they loved doing!**

Take-Home Points

So, does this mean you can eat whatever and not stress about it? No! Being mindful of food quality and sourcing is of course important. The Standard American Diet (SAD) that is PUFA rich is clearly not working, as the life expectancy is declining[21] despite all of our "advanced" biotechnology and health care services.

But the SAD is quite different than it was 100 years ago, with one of the biggest dietary changes being the type of fats we are consuming. Polyunsaturated fats (PUFAs) now make up a much larger percentage of our diet, due to the introduction of vegetable oils (seed oils) and confinement animals fed high-PUFA diets.

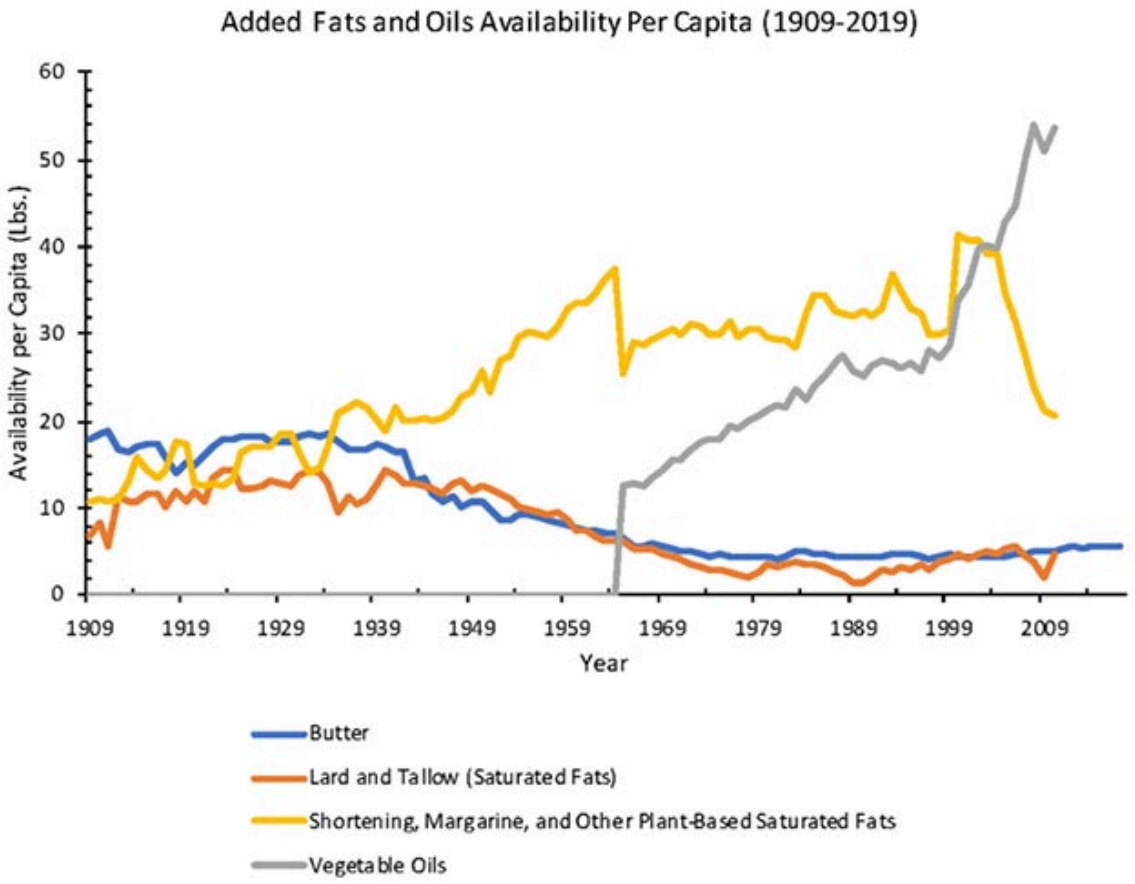

Image from Frontiers in Nutrition, 13 January 2022. Section: Nutritional Epidemiology.

Unfortunately, the metabolites of PUFA oxidation create a lot of systemic inflammation. And there are studies showing that activation of the "master" inflammation factor (NF-kB) can trigger premature aging.[22]

Of course you should eat real food, exercise, and move regularly! But you do not have to go to extremes to achieve optimal health. A strict fasting regimen, removing entire food groups, or extremely low-calorie diet are not going to be the “keys” to living optimally.

Instead, eat, live and exercise in a way that keeps your metabolic rate up so that you can ensure your body has high levels of ATP to maintain proper systemic function.

And in this previous article, I outlined how you can easily assess your metabolic rate at home using body temperature measurements. There is no single cookie-cutter approach to improving your metabolism, but here are a few tips to get started:

Eat enough calories for your needs (you will not thrive at chronically eating 1,600 calories)	Reduce PUFA consumption as much as you can
Eat sufficient carbs, and choose carb sources that work well for you	Consume glycine rich foods regularly (like bone broth)
Cook most of your meals	Strength train to build muscle
Lower stress in your life where you can	Pursue JOY and creation
Maintain meaningful relationships	

About the Author

Ashley Armstrong is the cofounder of Angel Acres Egg Co., which specializes in low-PUFA (polyunsaturated fat) eggs that are shipped to all 50 states (join waitlist here), and Nourish Cooperative, which ships low-PUFA pork, beef, cheese, A2 dairy and traditional sourdough to all 50 states. Waitlists will reopen shortly.

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