

The Hidden Secret To Health, Wellness, and Aging

Congratulations on joining our family of people dedicated to searching out the truth about health and healing. We hope you will enjoy this article, and that it will help you in your quest for better health.

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What if there was a common denominator to all disease, degeneration and aging? Would that be something you would want to know about? Would you be interested to know what you could do to improve your health and to avoid disease? If so, it will be worth your time to read this blog. I'm going to reveal to you the "bottom line" of health, wellness and aging.

There is a lot of money spent researching "cures" to all sorts of "conditions" such as cancer, diabetes, arthritis, Alzheimer's, and the list goes on. Yet we continue to see the number of people affected by almost all diseases increase rather than decrease. The numbers are on the rise and staggering:

- Autism 1:45
- Attention Deficit Disorder 1:10 (70% are medicated)
- Asthma 1:10
- Allergies 1:4
- Diabetes 1:4
- Obesity 1:3
- Major Depression 1:2
- Cancer 1:2
- Dementia 1:1

Health care costs are out of control. National health expenditures hit \$3.35 trillion in 2016, which works out to \$10,345 for every man, woman and child. Medical bills are the number one cause of bankruptcy in the U.S. Let's face it, what we're doing in healthcare isn't working.

What if we're looking for health in all the wrong places?

It turns out that's *exactly* what's happening. Let's take cancer as an example. Cancer research has been focused on the genetic aspects of the disease. There is now mounting evidence that the genetic changes seen in the DNA of cancer cells are secondary to cellular changes taking place outside the nucleus of the cell and the DNA. Otto Warburg, a German physiologist, cell biologist, and medical doctor who was awarded the Nobel Prize for his discoveries about cellular metabolism in 1931, first proposed this idea. Warburg discovered that cancer cells produce energy through a process known as *respiratory fermentation*, which allowed them to grow and develop in

the absence of oxygen. The genetic changes seen in cancer cells were an adaptation to this metabolic shift from aerobic to anaerobic respiration. Cancer researchers have largely ignored Warburg's groundbreaking work, and focused on the genetic changes instead of the metabolic change that preceded them. This is why we are losing the war on cancer: all cancer research is based on a faulty premise. That premise being that cancer is a genetic rather than a metabolic disease.

American researcher Thomas Seyfried whose work has culminated in his book "Cancer as a Metabolic Disease" published in 2012 has resurrected Warburg's work. His 30 years of research has shown that Warburg was correct. In the preface to his book he says, "Cancer treatments are often feared as much as the disease itself. The view of cancer as a genetic disease has confounded the problem and is *largely responsible for the failure to develop effective therapies.*" (*Italics mine*).

While this blog isn't specifically about cancer, the reason we don't have effective treatments for cancer is the very reason we are losing the battle with ***all diseases***. And that is the failure to recognize the underlying cause of disease. It is also why Otto Warburg's work almost 100 years ago is so important because it points to the fact that ***all disease can be linked to the breakdown of energy production inside the cell.***

Lets take a look at how that happens...

We cannot produce energy on our own. Our bodies are dependent on the little energy factories in our cells known as ***mitochondria***. Mitochondria are actually not part of us. They have different DNA than we do, and are actually foreign organelles inside our own cells. They are so important to health, aging, and disease that it's important to give you a little background on what they are and how they work. To do that, we need to dive into evolutionary biology, since mitochondria are responsible for the rise of life as we know it on earth.

For over two billion years, the only life forms on earth were bacteria. About 1.5 billion years ago, something happened that allowed the rise of more complex life forms like plants and animals. That event was the advent of the first ***eukaryotes***. Eukaryotes are cells that have a true nucleus and depend on mitochondria for energy production. DNA evidence points to the fact that mitochondria are bacterial in origin. It seems that one type of bacteria actually engulfed another bacteria, which then developed into mitochondria. Bacteria are limited in their ability to produce energy because of their size and simplicity. The more complex eukaryotes escaped the restraints of bacterial energy production, which eventually led to the development of multicellular organisms.

Not only do mitochondria produce our energy, they play a huge role in many other cellular functions, and even influence our genes. In order to understand their function in health and disease we need to consider 3 things:

1. How mitochondria produce energy.
2. How mitochondria affect cell function through the processes of **autophagy** and **apoptosis**.
3. How we can affect mitochondrial function to live a healthier life and avoid the diseases usually associated with aging.

Mitochondrial Respiration

This is a complex subject, so I want to make it as simple as possible without leaving out the essential facts. Mitochondria take the food we eat and convert it to energy. They do this through a process called *mitochondrial respiration*. Mitochondrial respiration can only use two fuel sources: sugar and fat. Burning sugar can be compared to heating your house with wood; it's dirty. There is smoke and ash, which in the cell are known as AGE's (advanced glycation end products). Burning sugar results in inflammation at a cellular level. In contrast, burning fat can be compared to burning natural gas; it is clean and efficient, and reduces mitochondrial stress. ***Inflammation resulting from mitochondrial stress is now known to be the root of all disease processes.***

Autophagy and Apoptosis

Mitochondria directly control these two processes. **Autophagy** is the process by which the cell cleans itself up, removing toxins and parts of the cell that are worn out and need to be replaced. This happens mainly during sleep, which is one reason why good sleep is crucial to good health. **Apoptosis** is the process of programmed cell death, basically cell suicide. We all lose about 10 million cells daily to this process, and it allows for healthy turnover of cells in the body. As the number and function of the mitochondria go down in a cell, energy production decreases until a critical point is reached and the mitochondria trigger the release of a cascade of enzymes that dissolve the cell. This is a normal process. If apoptosis accelerates too quickly, cells die more quickly than they can be replaced and we begin to suffer degeneration of different tissues.

Keeping Your Mitochondria Happy

By now, it should be clear that the mitochondria run the show at the cellular level. While our DNA provides our genetic blueprint, the mitochondria are the operating system. ***Putting as little stress as possible on our mitochondria is foundational to health.***

A long history of both animal and human studies has shown that the one thing that reduces mitochondrial stress is **caloric restriction**. I want to be clear that there is a distinction between caloric restriction and dieting.

Studies show that caloric restriction can increase life span in some species by as much as 50%. The studies also show that with prolonged life span, there is also a considerable decrease in the degenerative conditions associated with aging such as arthritis, heart disease, dementia, and cancer. This has huge implications for all of us. We know that some humans do age without the degeneration and diseases normally associated with aging.

Studies have also shown that caloric restriction stimulates the mitochondria to induce **autophagy**, which is crucial to cellular health. Caloric restriction also inhibits **apoptosis** from eliminating cells more quickly than they can be replaced.

So exactly what does caloric restriction mean, and how is this different than "dieting"?

Dieting usually means eating a reduced amount of calories on a daily basis, but still eating the same number of calories day in and day out. One of the problems with dieting is that our bodies adapt to the reduced food intake by slowing our metabolism. This is the main reason dieting doesn't work.

Caloric restriction mimics the feast -famine cycles that are part of our evolutionary heritage. As my friend Dr. Dan Pompa says: "It's not about eating less, but rather eating less often." This is called **diet variation**. Before the advent of agriculture, supermarkets and refrigeration, our ancestors were well adapted to an inconsistent food supply. There were periods of plenty and scarcity depending on the seasons, animal migrations and other factors. Our biology is still geared to these cycles, but in this modern age of a steady supply of food, we have overridden our own biology to our detriment.

Scientific research has validated that **diet variation** has a beneficial effect on our mitochondria and therefore our health. Diet variation is achieved through various forms of fasting. Fasting has a long history as an ancient healing strategy. Animals do this instinctively when sick or injured. The bible is full of references to fasting. Diet variation and fasting avoid the metabolic slowdown associated with dieting, and actually will increase your energy levels by improving mitochondria function. It's even been shown to stimulate mitogenesis; an increase in the number of mitochondria in our cells. There are several strategies you can use to reap the benefits of [fasting](#):

1. Eliminate snacking. This is the easiest strategy to implement. Not eating between meals and especially at night before bed is very helpful.

2. [Intermittent fasting](#). This is going longer between meals. For instance eating supper in the evening and skipping breakfast the next day and then having a light lunch would give you the benefit of an 18 hour fast.
3. Block fasting. These are longer periods of fasting, anywhere from 1 to several days. Consuming only water or bone broth are the most effective ways to block fast. There is extensive [scientific data](#) on the benefits of prolonged fasting. Some research suggest that 4-7 days fasts done a few times a year can reduce cancer risk by 80% or more!
4. [Becoming fat adapted](#): The foods we eat have a big impact on mitochondrial health. Shifting our metabolism from sugar burning to fat burning is one of the best strategies for improving our health. Remember that the more sugar we feed our mitochondria, the more inflammation we produce at the cellular level. Becoming fat adapted will help you fast more easily and effectively, while reducing cellular inflammation.

For more in depth information on fasting, watch this video with Dr. Jason Fung, a leading authority on the health benefits of fasting: <https://youtu.be/aKT4C2GVk3E>

Here are some other strategies known to increase mitochondrial numbers and function:

- [High intensity exercise](#): Also known as "burst training", doing short bursts of high intensity movement or exercise has been shown to increase mitochondrial density in muscles, and to release Human Growth Hormone which increases lean muscle mass and a host of other health benefits.
- [Gut Health](#): Remember that mitochondria are bacterial in origin. We now know that the bacteria in you gut (your microbiome) communicate with your mitochondria and vice versa. A healthy and diverse microbiome increases mitochondrial health and function. Avoid GMO foods because they can decimate your microbiome. Most processed foods contain GMO's and their toxic residues such as glyphosate. Eat whole organic foods as much as possible. Add fermented foods to your diet as well.
- [Cold Thermogenesis](#): Exposure to cold temperatures decreases inflammation as well as stimulating mitochondrial function and numbers. Similar to the idea behind diet variation, exposure to variations in temperature are very beneficial. This can range from cold showers to ice baths and other forms of cold exposure.
- [Avoid industrial oils](#): There are a number of reasons to avoid industrial processed oils like soy, canola, safflower, and corn oils. These are used in almost all processed foods, baked goods, salad dressings, chips etc. These oils interfere with mitochondrial respiration, and with the signaling between mitochondria and the nuclear DNA, and the cell receptors for hormones and neurotransmitters.
- Get checked regularly with NIS ([Neurological Integration System](#)): Your nervous system monitors every cell in your body. Your mitochondria send and receive

signals not only to the cell nucleus, but receive input from receptors at the cell surface. Having optimal neurological signaling helps insure optimal mitochondrial function.

Conclusion

Hopefully you now understand the significance of the mitochondria to your health. It is possible to age gracefully without the diseases and conditions usually associated with old age. Paying attention to your mitochondria and keeping them happy and healthy is learn to be "mitochondriacs".