

DR. SEARS'

# TELOMERE SECRETS

## Volume 4:

Extinguish the Fire of Inflammation



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# Uniquely Qualified to Keep You Healthier For Life



Al Sears, M.D. currently owns and operates a successful integrative medicine and anti-aging clinic in Royal Palm Beach, Florida, with over 25,000 patients. His cutting-edge therapies and reputation for solving some of the most difficult-to-diagnose cases attract patients from around the world.

As a graduate of the University of South Florida College of Medicine, Dr. Sears scored in the 99th percentile on his MCAT and graduated with honors in Internal Medicine, Neurology, Psychiatry, and Physical Medicine.

After entering private practice, Dr. Sears was one of the first to be board-certified in anti-aging medicine. As a pioneer in this new field of medicine, he is an avid researcher, published author, and enthusiastic lecturer. He is the first doctor licensed in the U.S. to administer TA-65, the most important breakthrough in anti-aging medicine today.

Dr. Sears is board-certified as a clinical nutrition specialist and a member of the American College of Sports Medicine (ACSM), the American College for the Advancement in Medicine (ACAM), the American Medical Association (AMA), the Southern Medical Association (SMA), the American Academy of Anti-Aging Medicine (A4M), and the Herb Research Foundation, (HRF). Dr. Sears is also an ACE-certified fitness trainer.

Dr. Sears currently writes and publishes the daily email broadcast, *Doctor's House Call*, and contributes to a host of other publications in the field. He has appeared on over 50 national radio programs, *ABC News*, *CNN*, and *ESPN*.

Since 1999, Dr. Sears has published 14 books and over 100 reports on health and wellness with a readership of millions spread over 163 countries.

In his first book, *The T-Factor, King of Hormones*, Dr. Sears perfected the use of natural and bio-identical testosterone boosters to help men restore the drive, ambition, muscle strength, vitality and sexual performance of their youth.

Dr. Sears followed up with *12 Secrets to Virility*, a full-blown strategy for male performance that includes his own patient-tested protocols for successfully dealing with men's health concerns like fighting excess estrogen, protecting the prostate, eliminating fat gain and keeping a sharp mind and memory.

In 2004, Dr. Sears was one of the first to fight against the conventional belief that cholesterol causes heart disease, proving that cholesterol is not the cause, but the part of the body that heart disease acts upon. In *The Doctor's Heart Cure*, Dr. Sears offers an easy-to-follow solution that effectively eliminates your risk of heart disease, high blood pressure and stroke.

In 2009, Dr. Sears shocked the fitness world by revealing the dangers of aerobics, "cardio" and long-distance running in his book, *PACE: The 12-Minute Fitness Revolution*. Expanding on the fitness principles in *The Doctor's Heart Cure*, he developed a fast, simple solution to restore muscle strength, guard against heart attack and burn excess fat. Today, PACE is practiced by thousands of people worldwide.

In 2010, Dr. Sears made history by bringing telomere biology to the general public. As the first U.S. doctor

licensed to administer a groundbreaking DNA therapy that activates the gene that regulates telomerase, his breakthrough book ***Reset Your Biological Clock*** shows how anyone can preserve the energy of youth by controlling the length of your telomere, the true marker of aging.

An avid lecturer, Dr. Sears regularly speaks at conferences sponsored by the American Academy of Anti-Aging Medicine (A4M), the American College for the Advancement of Medicine (ACAM), the Age Management Medicine Group (AMMG), and the Society for Anti-Aging, Aesthetic and Regenerative Medicine Malaysia (SAAARMM).

As the founder and director of Wellness Research Foundation, a non-profit research organization, Dr. Sears has made it his life's work to bring his patients the latest breakthroughs in natural therapies. As part of his ongoing research, Dr. Sears travels the world in search of herbs, novel cures and traditional remedies. Meeting with doctors and healers, Dr. Sears has brought back and revitalized much of the traditional knowledge considered endangered in today's modern world.

- During an expedition to the Peruvian Andes, Dr. Sears brought back a nutrient-dense oil made from the Sacha Inchi nut, containing the highest plant source of heart and brain boosting omega-3 fatty acids.
- In India, Dr. Sears studied at the oldest existing school of Ayurvedic medicine, the ancient Indian healing tradition, and was tutored by Ayurvedic doctors on the use of potent Indian herbs used to treat heart disease, cancer and Alzheimer's disease.
- While trekking through the Amazon rainforest in Brazil, Dr. Sears lived among the native Ashaninka Indians, incorporating their ancient knowledge of healing herbs into his own nutritional supplement formulas.
- In Jamaica, Dr. Sears met with the last living healer from the ancient and forgotten lineage known as the Maroons. Coming from West Africa 500 years ago, their knowledge was on the brink of extinction until Dr. Sears published a book showcasing their unique herbs and healing formulas.
- On the island of Bali, Dr. Sears had a meeting with the most famous of the ancient healers known as "Balians," – Ketut Leyir – and also met two of the country's foremost herbalists. Dr. Sears is publishing a book showing how to use Balinese herbs and make unique healing mixtures for the skin and body.

With a life-long interest in botany, herbology, physiology and anthropology, Dr. Sears has a unique capacity to investigate the evidence behind the stories and claims of traditional medicine from native cultures around the world.

By exposing the flaws of mainstream medicine and pioneering new solutions through innovative approaches to exercise, nutrition and aging, Dr. Sears continues to empower the lives of his patients and readers through his books, newsletters and regular media appearances.

# Dr. Sears' Telomere Secrets:

## Volume 4: Extinguish the Fire of Inflammation

It's the longest organ you've never heard of...

Running over 93,000 miles long, this thin barrier is so important that in one way or another, it can be linked to most heart-related diseases like high blood pressure and heart disease.

It's a living, intelligent and reactive system. It protects the vessels of every other organ system, even your eyes and your lymph nodes. Your blood brain barrier is part of it, too.

This organ is called the *endothelial cell barrier*, or ECB for short.

It's a dynamic system that also regulates the flow of almost every biologically active molecule in your body.

You could think of it as a relative of the largest organ in your body, your skin. It shields you from attacks on the outside, and your ECB does a similar job on the inside.

But there's a problem.

### This Forgotten Organ is Under Attack... And On Fire

Ignited by toxins, pollutants, and the rise of vegetable oils and unnatural fats, this "fire of inflammation" scorches and consumes the inner lining of your blood vessels, and is the primary cause of heart attack, stroke and a host of chronic diseases.

But new studies suggest inflammation has a deeper, little-known cause... a "cellular trigger" hiding deep within your DNA. This genetic material also provides an unlikely solution.

In this special report, I'll show you how these secret triggers — hiding deep within your cells — are the true culprit behind the modern epidemic of inflammation and the diseases that come with it.

You'll also find out how this same breakthrough gives you new options for healing and repairing your blood vessels... *even if you've already suffered a heart attack.*

PLUS you'll discover the "super nutrient" that mobilizes your body's secret store of "protector cells" that not only extinguish the fire but make repairs to damaged blood vessels.

First, let me show you what this "cellular trigger" really is.

### The Discovery of Our Time Unveils the True Mechanism Behind Inflammation

Deep within your DNA, located in the nucleus of each cell, are the building blocks or "blueprint" of every cell in your body.

At the end of each strand of DNA is a little bit of genetic material called the *telomere* (tee-lo-mere).

The telomere is the part of your chromosome that controls aging. And every time your cells divide, your telomeres get shorter. And when your telomeres finally run out, cell division stops and life comes to an end.

But there's more to it than that. As you age and your telomeres get shorter, your body produces cells that are older, weaker, and more decrepit.

In fact, the shorter your telomeres, the "older" your body is, regardless of your actual age. In this way, your telomeres "tell" or instruct your cells how to behave based on how old they are.

And for your endothelial cell barrier, or ECB, ***short telomeres light the match that ignites inflammation.***

But when you slow the loss of your telomeres, you can extend the youthful quality of your blood vessels and avoid disease altogether.

And that's the key.

Today, I'll show you HOW to influence your telomeres so you can reverse the damage to your ECB. ***And that includes getting rid of plaque buildup in your arteries.***

Here's what we know.

## **The Length of Your Telomeres Determines Your Risk for Chronic Inflammation**

At its most basic level, inflammation is a natural defense mechanism our bodies use to protect us.

Like when you cut your finger, the area around the cut becomes swollen or inflamed as a way to isolate the injury and trigger the release of white blood cells and other factors that promote a healing response.

And that's a good thing. ***A healthy inflammation response is essential for life.***

Chronic inflammation, on the other hand, is a condition where a particular area is ALWAYS irritated, swollen and inflamed.

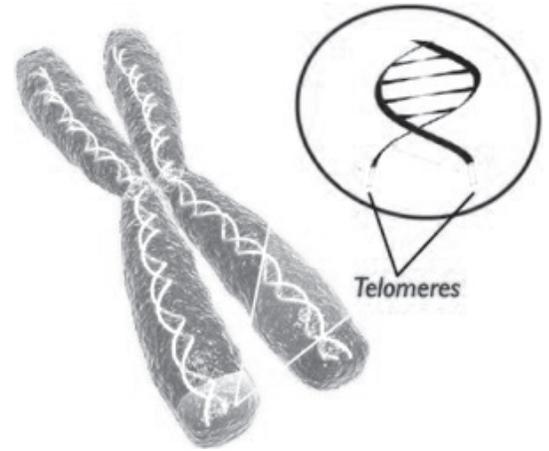
***And it's chronic inflammation that destroys the ECB.***

Your ECB can be as thin as a single layer of cells that wrap the inner lining of your blood vessels... and it's no wonder that chronic, round-the-clock inflammation can weaken and eventually destroy this vital, protective covering.

For years, doctors in the know have warned their patients about the causes of chronic inflammation like smoking, environmental toxins, and processed foods, like the vegetable oils in so many of our foods.

But new studies suggest ***the telomere is the controlling element***, and ultimate trigger for the kind of chronic inflammation that leads to heart attack, stroke, heart disease and mental decline.

That is a true breakthrough, because it means you have a lot more control over your health and your future than you may have thought. As you'll see, when you CONTROL the length of the telomere, you can stop and reverse the damage caused by chronic inflammation.



**Telomeres are the caps at the end of each chromosome.**

## Cells with Short Telomeres Produce the Factors that Cause Inflammation

A new, compelling study from the University of California at San Francisco gives us clear evidence that telomere length determines your risk and severity of inflammation.

After acknowledging that, “*cells with critically short telomeres produce pro-inflammatory factors*,” researchers studied 1,962 healthy men and women between the ages of 70 and 79.

And their findings confirmed previous research: People with short telomeres had high levels of two pro-inflammatory factors *interleukin-6* (IL-6) and *tumor necrosis factor alpha* (TNF-a).<sup>1</sup>

Both IL-6 and TNF-a are known as *cytokines*, a group inflammatory compounds that cause chronic inflammation... *and lead to disease*.

We also know from two separate studies, one published in the journal *Oncogene*, and the other published in the journal *Blood*, that TNF-a *blocks telomerase*, the enzyme that rebuilds your telomeres.<sup>2 3</sup>

From these studies, we learn that:

- Not only do short telomeres create a breeding ground for inflammatory compounds...
- But that once inflammation occurs, cytokines like TNF-a shut down telomerase.

These results show how short telomeres threaten your *endothelial cell barrier*, or ECB *in general*. But from other studies we can see how short telomeres cause inflammation to specific organs and tissues. Published in the journal *American Journal of Respiratory and Critical Medicine*, the study's title tells the whole story:

**“Telomere dysfunction causes sustained inflammation in chronic obstructive pulmonary disease...”**

In simplified terms, short telomeres drive and maintain the inflammation associated with the lung disease COPD.<sup>4</sup>

Part of the danger of inflammation, especially when it threatens the ECB, is that there's nowhere to hide. *Your ECB covers every inch of your body from head to toe*.

It's not surprising then, to find that short telomeres trigger all the familiar forms of heart disease, including *atherosclerosis* or hardening of the arteries... which, as you know, can clog any stretch of your vasculature, anywhere in your body.

A collection of studies confirm this, showing us that short telomeres are associated with *atherosclerosis, heart attack and high blood pressure*.<sup>5 6 7</sup> But here's the good news. You can ease inflammation and support your telomeres with a few high-powered nutrients.

### This “Super Nutrient” Mobilizes a Secret Army of Blood Vessel Builders

Here's great news for your ECB: Researchers uncovered “hidden” benefits from the popular heart and longevity nutrient *resveratrol*.

Turns out resveratrol stimulates the production of adult stem cells called *endothelial progenitor cells*.

These stem cells are so powerful, they have the ability to seek out, repair and heal the trouble areas in your ECB. Since the release of a landmark study published in the *New England Journal of Medicine* in 2003, scientists and researchers have focused more and more on the power of these endothelial progenitor cells.

And for good reason. The study from the *New England Journal of Medicine* showed a “strong correlation” between the number of progenitor cells circulating in the blood and a person’s overall risk of heart disease.<sup>8</sup>

The connection is so strong, many believe the number of progenitor cells will become the new “marker” of cardiovascular health, even replacing the two major forms of cholesterol, HDL and LDL.

Simply stated, the more of these progenitor cells you have, the more likely you are to avoid disease. This view is supported by the fact that patients with diabetes, high blood pressure and/or cardiovascular disease have low levels of progenitor cells.

Studies showed, “*the number of endothelial progenitor cells was significantly reduced in patients with hypercholesterolemia (extremely high cholesterol levels) compared with that in control subjects.*”<sup>9</sup>

In these patients with very high cholesterol, they found the ability of endothelial progenitor cells to proliferate, migrate, adhere to vessel walls and induce the regeneration of blood vessels was weakened.

***Resveratrol had the opposite effect.***

In numerous recent studies, resveratrol has been shown to **increase** the number of these endothelial progenitor cells.<sup>10 11 12 13</sup>

Resveratrol also has the distinction of **activating telomerase**, the enzyme that rebuilds your telomere.

These two critical functions are enabled by resveratrol’s ability to “turn on” genes that promote longevity, and “turn off” genes that promote disease.<sup>14</sup>

By influencing the way genes are expressed, resveratrol has the ability to activate anti-aging genes called *sirtuins*. Sirtuins transmit signals to every cell in your body that literally cancel out the effects of aging. They bring the processes that lead cell death to a crawl, buying your body more time to repair the DNA damage that brings life to an end.

Resveratrol is in the skin of grapes. It protects the grape from threats such as cold weather, UV radiation and microbes. The amount of resveratrol in wine differs. White wine is not made with the skins like red is – so white wine has little resveratrol. Red wines from colder regions have the most resveratrol.

Drinking one or two glasses of red wine is one way to benefit from resveratrol. To get the maximum amount choose wines from Burgundy and Argentina’s Cafayate Valley. Most red wines from California and Australia will have lower amounts.

If you’re not a fan of red wine, resveratrol is also in:

- Raisins
- Purple Grape Juice
- Peanuts
- Mulberries
- Eucalyptus Trees
- Japanese knot wood

The problem lies in getting sufficient amounts of resveratrol. You’d need to drink 1,000 to 3,000 glasses of wine to experience the life extending benefits of resveratrol.

Resveratrol supplements are a better option. They're inexpensive and completely safe. You can take it any time of day, with or without food. You can find them in health food stores or on line. ***I recommend taking around 10 mg to 20 mg per day for telomerase activation and the stimulation of endothelial progenitor cells.***

## **Resveratrol's Little-Known "Cousin" Helps Reduce Inflammation**

Resveratrol has made a lot of headlines for everything it can do for your body. And as you just discovered, it helps activate telomerase and mobilizes stem cells that repair and maintain healthy arteries.

Resveratrol used to be the only nutrient we knew of that could do this... *until now.*

Resveratrol has a cousin that may be even more effective. It's called pterostilbene (tero-STILL-bean). It can give you many of the same benefits, and when you look at the preliminary research, perhaps even a few more that resveratrol doesn't give you.

For example, studies have shown pterostilbene works harder to support the colon, brain, and cardiovascular system.<sup>15 16</sup>

In one study, researchers found that pterostilbene lowered cellular stress and improved cognition in animals.

Both resveratrol and pterostilbene have remarkable effects on learning and memory. Pterostilbene was the most effective resveratrol-like compound at preventing loss of the neurotransmitter dopamine from memory centers in aging animals.<sup>17</sup>

Supplementation with pterostilbene reversed cognitive behavioral deficits. This study showed working memory function was correlated with levels of pterostilbene in the hippocampus, a key brain location where memory is processed.

More to the point, pterostilbene may also be better than resveratrol at promoting a healthy, ***normal inflammatory response.***<sup>18</sup>

But there are a few other differences. For starters, pterostilbene is more bioavailable.<sup>19</sup> That means it gets absorbed into tissues more easily, so it can have its most beneficial effect.

And while resveratrol fights free radicals in your bloodstream, pterostilbene targets these inflammatory molecules in a different way. In clinical studies, pterostilbene seems to block an enzyme that ordinarily would make some free radicals stronger.<sup>20</sup>

You can get pterostilbene from some of the same sources as resveratrol. Red-skinned grapes have some, as do vaccinium berries like blueberries, cranberries, lingonberries, bilberries, and the sparkleberry. Pterostilbene and resveratrol are found together in nature, and also work together in your body. When you combine them, the results are even better than using one without the other.<sup>21</sup>

The problem is, it's very difficult to get an effective amount of both from drinking red wine or eating red grapes or bilberries. In cases like this, I recommend you take a supplement.

Make sure you get a supplement that has both resveratrol and pterostilbene listed on the label. ***I recommend at least 50mg of pterostilbene taken with resveratrol daily.***

## The Best Inflammation Fighter You've Never Heard Of...

One of the ways I measure inflammation in my patients is a protein your liver makes in response to the presence of inflammation. It's called C-reactive protein (CRP) and can be detected with a simple blood test.

C-reactive protein is recognized as an excellent predictor of heart disease. When part of your body is injured, it sends out signals asking for help. The immune system responds by sending white blood cells and inflammatory molecules (including CRP) to the injured area.

These defense cells try to fix the injured areas and fight off any intruders, but this defensive response causes inflammation. The inflammatory response requires energy in the form of oxidative "fire" that can damage surrounding tissues.

***Elevated CRP levels indicate that there is inflammation in the body.***

Using this measure, we can detect hidden heart disease using CRP better than with cholesterol levels.

The *New England Journal of Medicine* published a study on CRP that involved nearly 28,000 participants. Researchers tried to predict cardiac events (heart attack and stroke) using LDL cholesterol and CRP levels in the blood. They found that CRP predicted cardiac events better than LDL cholesterol.<sup>22</sup>

What can you do to keep your levels of CRP low? One of the best ways is exercise. We discovered that even moderate physical activity can lower CRP levels. People who went from not exercising at all to exercising a small amount five times a week ***cut their CRP levels by as much as 30%***.<sup>23</sup>

And there's compelling evidence that a carotenoid called astaxanthin can lower inflammation and thereby lower your levels of CRP. Astaxanthin is the pigment that gives salmon its pink color and acts as a powerful antioxidant.

In one study, volunteers took 4 mg of astaxanthin three times a day. Their ***CRP dropped almost 21%*** while the control group's level continued to creep up.<sup>24</sup>

Astaxanthin also protects your DNA, your "cellular blueprint" that determines whether you stay healthy or get sick. In this new study, volunteers took either a placebo or 2 mg or 8 mg of astaxanthin. After 8 weeks, the marker that determines DNA damage dropped by a third in the 2 mg group. In the 8 mg group, it ***dropped by 43%***.<sup>25</sup>

Like your ECB, your DNA is damaged by free radical molecules. These form when you're exposed to things like pollution, smoke, radiation and processed food.

Astaxanthin may just be the best antioxidant for DNA protection. It's 6,000 times more effective than vitamin C, 800 times more than CoQ10 and 550 times more than vitamin E or green tea.<sup>26 27</sup>

Salmon is a great source. But buy wild salmon. It contains far more astaxanthin. Four ounces of farm raised Atlantic salmon contains about 0.5 to 1.1 mg of astaxanthin. But wild-caught sockeye salmon contains a whopping 4.5 mg.<sup>28</sup>

You can also find astaxanthin in pink-colored seafood like lobster, crab and shrimp. Or you can pick up a supplement at your favorite vitamin store. I suggest you take 4 to 8 mg a day.

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