

# Reset Your Biological Clock

*"Every time a cell replicates, its telomeres become shorter and when totally consumed the cells are destroyed."*

Aging is when the body shifts from a constructive anabolic state to a destructive catabolic state. Anabolism is the replenishing of the body's systems with new and stronger tissue, a rejuvenating or building mode. Catabolism is the breaking down of the body's physiological systems. New technology now exists to actively assess one's biological age versus their chronological age by measuring telomeres. Our biological age reflects how our body is actually aging versus our age in years.

Telomeres are sections of DNA at the end of each chromosome that serve as a cap to our genetic material. Every time a cell replicates, its telomeres become shorter. When the telomeres are totally consumed, the cells are destroyed through a process called apoptosis. Telomeres on the end of your chromosomes can determine present biological age and correlate with the rate of aging.

We now have a hard biological marker that reflects the inter-



nal process of aging. The clinical question becomes what do we do if we find telomeres are shortened? What's happening in our body that is causing accelerated aging? Previous studies have reported that telomeres are highly susceptible to oxidative stress. We know an inflammatory diet and sedentary life style will induce oxidative stress. We have to increase physical activity to reset proper metabolic tone. If weight issues particularly obesity are present, we must address them due to their inflammatory nature.

Part of that process is to address and treat insulin re-

sistance if it's a factor. Next, ensure adequate levels of key nutrients associated with the prevention of telomere shortening.

Other factors in anti-aging are the sirtuin genes. Sirtuin genes are located in the cell nucleus and possess an ability to repair double stranded DNA breaks that occur as we age. They play an important role in controlling the length of the telomere, which in turn protects the ends of the chromosome from destruction.

The sirtuins are considered regulators of the cellular defense systems and play a ma-

major role in longevity. In animals; sirtuins have been shown to be important in gene silencing, DNA repair and RDNA recombination. In aging, sirtuins are associated with increased rates of stress-induced apoptosis, cell survival, energy metabolism, and the response to stressors.

Dr. Mark Houston holds fellowships in internal medicine, hypertension and anti-aging. He regularly teaches post graduate courses sharing research on the relationship between nutrients and how they can affect the rate of aging. Based on his research, Dr. Houston worked with Biotics Research to formulate VasculoSirt to support healthy telomere and sirtuin function. Interestingly, VasculoSirt also supplies the nutrients that are essential for mitochondrial and endothelial repair.

VasculoSirt is designed as an anti-aging multi-vitamin mineral supplement. Besides bio-available forms of the basics, VasculoSirt contains therapeutic levels of: Coenzyme Q10, R-lipoic acid, acetyl-L-carnitine, EGCG in green tea extract, trans-resveratrol, polyphenols, vitamins C, D, B complex, selenium, zinc, lycopene, lutein, and vitamin K2 as MK-7.

Dr. Houston also helped develop ResveraSirt-HP which contains 250 mg of trans-resveratrol and 25 mg of quercetin to slow down the degradation process of resveratrol.

What are some of the clinical benefits? Resveratrol is: cardioprotective by reducing platelet aggregation and decreasing NFk-B; vasculoprotective, increases e-nitric oxide synthase and nitric oxide, reduces reactive oxygen species (ROS), reduces oxidized LDL and TNF- $\alpha$ , and decreases endothelial dysfunction; anti-hypertensive, increases e-nitric oxide synthase and nitric oxide which creates a vasodilatation effect; anticarcinogenic, as it inhibits angiogenesis; antioxidant, increases catalase and glutathione peroxidase., acts as an ROS scavenger; anti-inflammatory, reduces COX-2; neuroprotective,

is an immune modulator, helps regulate insulin and reduces dyslipidemia.

Resveratrol has post menopausal benefits as well. It exhibits bone-protective effects equivalent to those exerted by hormone replacement therapy and to decrease the risk of breast cancer both in vivo and in vitro models. Resveratrol exists naturally in the trans form which is bio-available. However, when exposed to ultraviolet light it is denatured and converts to the cis form.

Unfortunately, all resveratrol products are not equal. Biotics has tested many sources of raw materials and found contamination with mercury common. Their testing discovered a green tea mislabeled and sold as a 50% solution of resveratrol and an inactive cis resveratrol labeled the active form trans-resveratrol. My point is that unless you have an in-house phytochemistry lab like Biotics who tests for purity and bio-availability, you may not be getting what you think you are purchasing.

On the link below, Dr. Mark Houston did a great job of summarizing the factors that reset your biological clock. There's also a link to his speaking schedule.

The measuring of telomeres promises to be an exciting marker but it all comes back to the basics of what makes someone healthy, what builds cellular reserves allowing the body to experience stress in a healthy way. Today's patient is looking for this kind of health care. Start building your cell's reserves.

It's challenging as we age but since we have nutrients that can increase mitochondrial, endothelial function as well as protect telomeres and sirtuins, let's do it now when we are healthy. Older adults can experience life with passion, clarity and flexibility vs. struggling in pain and fatigue with end-stage diseases.

Thanks for reading this week's edition of the Tuesday Minute. I'll see you next Tuesday.