

Genetic Lifehacks

Learn. Experiment. Optimize.

Hi everyone,

I've been fascinated for the past few years by the research on aging as a disease. We naturally accept that between the ages of 60 to 80 that health will suddenly take a nosedive. We accept the inevitability of heart disease, cancer, dementia, arthritis, bone fractures, and more.

But why do we fall apart at age 70 or 75? Why not 100 - or 200?

Every species has an average lifespan. Larger mammals, such as elephants, usually live longer than smaller mammals, like chipmunks.

The outliers, though, are fascinating. For example, an average mouse lives for 2 to 3 years. But naked mole-rats, which are similar sized rodents, can live for 30+ years. Researchers are looking at the differences in genetics and epigenetics of long-lived species to figure out different mechanisms that cause aging. (Hydra are considered [immortal!](#))

Some researchers consider aging itself as a disease. This fundamental shift in perspective opens up the idea of treating the disease of aging, rather than focusing on drugs for the symptoms of aging such as heart disease, dementia, or frailty. Example: The biggest risk factor for Alzheimer's is age, and focusing on preventing the disease of aging could prevent Alzheimer's.

For me, the goal is not necessarily to extend lifespan. Rather, my interest is in extending **healthspan** - avoiding those final years when everything in the body and mind falls apart.

My interest in longevity science goes beyond the genes associated with longer lifespan, which I've written about in the Genetic Lifehacks [longevity section](#).

Thus, I am launching a second website - [LongevityLifehacks.me](#) - with articles focused on current healthspan research along with 'lifehacks' for possibly extending lifespan or healthspan. The Longevity Lifehacks website is still a bit rough around the edges, but I plan to add to it, as time permits, with articles on interventions for extending healthspan. Check it out, bookmark it, and share it with friends :-)

Wishing you all well,

Debbie



Personalized interventions for the win

Clinical trial showing reversal of early Alzheimer's

A [pre-print study](#) posted in May 2021 shows positive results for a [clinical trial](#) with the goal of reversing early Alzheimer's disease.

This is big!

An attitude of acceptance that Alzheimer's is a non-reversible fate prevails in medical practices, and a positive clinical trial showing **marked improvement** in many participants is wonderful to see.

[Read the full article...](#)



Alpha-ketoglutarate for longevity

Alpha-ketoglutarate (α KG) is a molecule that cells produce. It has several important functions in the body:[\[ref\]](#)

- It is involved in the **Krebs cycle** for energy production
- α KG is important in **epigenetic regulation** of the production of other molecules in the cells
- It is involved in stem cell proliferation and formation of bone cells
- α KG is important in **regulating inflammation**

All of these come together as essential in preventing the diseases of aging.

The key, before we get further into the science, is that α KG (alpha-ketoglutarate) levels are decreased in aging. In fact, there is a **10-fold decrease in α KG between ages 40 and 80.**[\[ref\]](#)

[Read the full article](#)



Luteolin: neuroprotective and anticancer flavonoid

Luteolin is a flavonoid found in herbs and vegetables. Research shows that it has numerous anti-inflammatory and antimicrobial effects. Additionally, some research shows that luteolin may help to stop the proliferation of certain cancer cells.

The goal here is to simply present a balanced view of the studies and clinical trials on luteolin as a supplement. You can decide if it is worthwhile to add it to your arsenal of natural supplements.

[Read the full article](#)

What I've been reading:

1) [Sleep evolved before brains. Hydras are living proof.](#)

Article about the new research showing that hydra, a simple freshwater creatures without a brain, go through periodic rest states that are like sleep. Why is this interesting? For a long time, researchers have thought that one of the main reasons for sleep was to let the brain go through cycles that allow for neurons to reorganize - essentially consolidating memory and clearing out waste products in the brain. So a brain-less creature sleeping is interesting - and points to a much broader function of sleep.

2) [BCG treatment seems to reduce the risk of Alzheimer's disease](#)

This is a study on Alzheimer's and dementia that caught my eye this week. The researchers looked back at data on people given BCG treatment for bladder cancer to determine the rate of Alzheimer's or other dementia. The data showed that people who had BCG treatment in the bladder had a 60% lower incidence of Alzheimer's or dementia compared to a similar group without BCG treatment.

BCG (Bacillus Calmette-Guérin) is a live attenuated strain of a *Mycobacterium* that has been used as a vaccine for tuberculosis since the 1920s. It has also been used in the bladder for treating cancer since 1972. Essentially, the attenuated cow *Mycobacterium* causes an increase in the immune system response -- fighting off tuberculosis (another *Mycobacterium* strain) or cancer cells.

The new study on BCG, bladder cancer, and dementia follows several other studies, such as [this one](#), that point to a causal role of the immune system response in Alzheimer's disease. The BCG shot (or cancer treatment) upregulates systemic IL-2 and increases T-regulatory cells.

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Cameron, MT

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