

How Toxins Make You Age

Biological aging can be defined as aging that occurs as our cells and tissues accumulate damage over time. Think of it as the pace at which your body has physically aged for each year that you've been alive. Your cells and tissues can be biologically "younger" or "older" than you are in years, depending on factors such as your diet, lifestyle, and genetics.

If you are biologically "younger" than your chronological age, you have a lesser risk of experiencing age-related health issues; conversely, having a biological age that is "older" than your chronological age places you at greater risk for declining health.

Factors that Contribute to Biological Aging

Ongoing infection/Endotoxin	Lack of sleep
Cigarette smoke	Processed and artificial foods
Solar radiation	Stress
Gene mutations	Ongoing psychoemotional challenges

Toxins and Aging

So where do toxins fit in? Environmental toxins contribute to biological aging by triggering inflammation, damaging DNA, shortening telomeres, and disrupting the function of your mitochondria, the "powerhouses" of your cells.

Certain toxins, called "endocrine disruptors," also trigger body fat accumulation by disrupting hormone signaling. Many toxins are fat-soluble, lodging themselves in your fat tissue. Higher body fat levels are associated with an accelerated rate of biological aging, indicating another mechanism through which toxins make you age. (1)

Toxins that contribute to biological aging:

- Low-dose **BPA** exposure accelerates telomere shortening, a hallmark of biological aging. (2) BPA is found in canned foods, children's toys, cash register receipts, and plastic food containers.
- **Phthalates** oxidatively damage DNA, another hallmark of aging. (3) Phthalates are found in many personal care products, food packing, and IV bags and tubing.
- **Lead** exposure induces telomere instability. (4) Houses built before 1978 may harbor lead-based paint. Lead is also found in soil, particularly near busy roadways.
 - Heavy metal toxicity in a woman of child-bearing years may shorten her children's telomeres, accelerating their biological aging process from the get-go! (5)
- **Air pollution**, too, accelerates aging and age-related health declines. (6)

Toxin exposure is a modifiable risk factor for aging. (7) If you want to stay healthy and spry throughout your lifespan, then minimizing your toxin exposures and detoxifying your body through AMPK and Nrf2 activation is a proactive step to take. Check out the AMPK and Nrf2 education page to learn more about these important biochemical longevity mechanisms.