The primary difference between this current, pre-survival world, and the post-mortality world will be that our actions, and our future, have MORE [explicitly not less] meaning. The reckless abandon with which we sometimes live moments of our life, often to the detriment of ourselves and others, will no longer be universally justifiable with the calling excuse of "Oh, well. going to die someday anyway, might as well enjoy the moment".
-Jed Lye, Molecular physiologist, 2021 Medium.com.

This month's theme: Is Ultra-processed food (UPF) causing accelerated aging?

Introduction

Ultra-processed foods typically contain five or more ingredients, often incorporating additives and components uncommon in home cooking, such as preservatives, emulsifiers, sweeteners, and artificial colors and flavors. These products generally boast extended shelf life. Examples of ultra-processed foods include ice cream, ham, sausages, crisps, commercially produced bread, breakfast cereals, biscuits, carbonated beverages, fruit-flavored yogurts, instant soups, and certain alcoholic drinks like whiskey, gin, and rum.

Researchers frequently employ the NOVA classification, a four-part scale, to categorize foods based on their level of industrial processing. The classifications include unprocessed or minimally processed foods (encompassing items like vegetables and eggs), processed culinary ingredients (typically added to dishes and seldom consumed on their own, such as oils, butter, and sugar), processed foods (formed by combining elements from the first two categories, as seen in homemade bread), and ultra-processed foods (created using industrially modified raw ingredients and additives).

Harmful Effects

British Heart Foundation in 2023 conducted two studies observing the effects of ultra-processed food. In the initial study, which observed 10,000 Australian women over a span of 15 years, it was discovered that individuals with the highest intake of ultra-processed foods (UPF) in their diet faced a 39 percent higher likelihood of developing high blood pressure compared to those with the lowest consumption. The

second study, a comprehensive analysis encompassing 10 studies with a participant pool exceeding 325,000 men and women, revealed that individuals with the highest consumption of ultra-processed foods had a 24 percent increased risk of experiencing severe heart and circulatory events, including heart attacks, strokes, and angina.

A study, featured in the November 2022 issue of the American Journal of Preventive Medicine, indicated that these UPF items probably played a role in approximately 10% of deaths among individuals aged 30 to 69 in Brazil in 2019. Additional research, such as a study published in Neurology in July 2022, which revealed that a 10% rise in ultra-processed food consumption heightens the risk of dementia, has connected this category of food to significant health repercussions.

Direct Effect on Aging

Consuming ultra-processed foods has been linked to the shortening of DNA telomeres, a factor associated with increased vulnerability of skin cells to aging. An Experimental Dermatology study conducted on lab mice revealed that those with shortened telomeres were more prone to slow wound healing, skin ulcers, premature hair greying, and hair loss. Dr. Bes-Rastrollo has highlighted that common contributors to telomere atrophy include oxidative stress and inflammation, both of which are associated with dehydration—factors often found in ultra-processed foods. Oxidative stress can disrupt the balance between free radicals and antioxidants in the body, potentially compromising the immune system and accelerating the aging process, manifesting in the appearance of older skin.

Another study shows that higher consumption of UPF (>3 servings/d) was associated with a higher risk of having shorter telomeres in an elderly Spanish population of the SUN Project (886 participants (645 men and 241 women) aged 57-91 y). Those participants with the highest UPF consumption had almost twice the odds of having short telomeres compared with those with the lowest consumption

The primary conclusion from the study published in Springer in 2023 reveals a consistent trend: there is a rising odds of disease ratio associated with increasing consumption of processed and ultra-processed foods (UPFs) across quintiles, whereas an inverse pattern is observed for unprocessed or minimally processed foods. To put it in practical terms, the likelihood of nutritional frailty increases by nearly 50% with moderate daily consumption of processed foods and doubles for high versus very low consumption.

Similarly, there is an escalating probability linked to higher UPF consumption. Their study suggests that individuals with nutritional frailty phenotypes tend to have a greater inclination toward consuming processed foods and UPFs compared to their counterparts. While these food choices contribute to food security by ensuring immediate availability, especially beneficial in cases of disability, they fall short in terms of nutritional quality.

These items, primarily convenience foods or beverages, are composed mainly or entirely using food-derived substances and additives, often lacking natural, unaltered foodstuffs. Consequently, they are characterized as components of unhealthy dietary patterns associated with adverse health outcomes, including overall mortality, cardiovascular disease, metabolic syndrome, physical and cognitive decline, cancer, and other health issues.

Conclusion

Medical research progresses spectacularly. We constantly explore new ways to cure diseases and make lives healthier en longer. However, the maximal life expectancy has not risen anymore for decades. The oldest person ever, Jeanne Calment died 26 years ago when she was 122 years. The oldest person in the world now is "only" 116 years old.

We all know that one of the biggest sources of medical care is the drugs that we swallow. We know how much the combination of drugs can be influential good or bad. But we tend to forget that we swallow many other substances as air and food.

One global cause counterbalancing health progress could be all sorts of pollution we ingest. Air pollution is everywhere in the world, but happily globally decreasing in many aspects even if fine particles are deeply worrying. Food, especially ultraprocessed food could be also a major source of the decline. Actually, it could be the source of various damages: through preservatives, sugar, saturated fats... And because of "toxic cocktails" created from unknown combinations of products. There is an urgent need to learn more about these substances, because of the risks they present. Beware, however, that the risks may be overestimated out of fear of the 'artificial'. What's more, some rarer processed products may be beneficial without us yet having detected them.

The good news of the month: AI for longevity Research

The fast developments of Artificial Intelligence are everywhere in the news. In the last weeks, world leaders met to adopt the Bletchley Declaration. The recent discussions about AI are about the risks, but also the hopes for more resilience and health.

It is clear that using AI primarily for goals related to medical research, longevity progress, and more resilience... is one of the ways to mitigate the risks of AI. Companies and organizations are active in this direction. See for example the Longevity GPT website.

In Europe, the combination of high-level AI Health companies and high-level data from the European Health Data Space (EHDS) opens large perspectives. If European public Health Institutions get involved, breakthroughs for longevity for all (and not only for a few) could be around the corner.

For more information

- Heales, Longevity Escape Velocity Foundation, International Longevity Alliance, Longecity and Lifespan.io
- Heales Monthly Science News
- Heales YouTube channel
- AI-generated image
- Contact us