



Title: The Longevity Paradox: Why the Greatest Advances in Healthspan May Not Come From Technology

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The science of longevity has advanced at an unprecedented pace over the past two decades. Innovations in genomics, biomarkers, artificial intelligence, precision medicine, and age-modifying therapeutics have expanded our understanding of the biological mechanisms of aging and generated optimism about extending human lifespan. Public interest in longevity has similarly grown, fueling a rapidly expanding industry focused on health optimization, disease prevention, and age-related interventions.

Despite these advances, a paradox has emerged. Rates of obesity, type 2 diabetes, cardiovascular disease, cognitive decline, and other chronic conditions continue to rise globally, while healthcare expenditures reach record levels. Although scientific knowledge regarding aging has increased substantially, improvements in population healthspan have not kept pace. This discrepancy raises important questions regarding the relative contributions of technological innovation and the everyday behavioral, social, and environmental factors that shape health outcomes across the lifespan.

This article and presentation examine how emerging longevity technologies relate to the foundational determinants of health, including nutrition, physical activity, sleep, social connection, purpose, and chronic inflammation. Drawing on evidence from lifestyle medicine, epidemiology, and studies of long-lived populations, the article argues that meaningful improvements in healthspan may depend less on increasingly sophisticated interventions and more on restoring the conditions that support human health. Rather than viewing technology and lifestyle as competing approaches, the article advocates a prevention-first framework in which scientific innovation complements—not replaces—the fundamental behaviors and environments that enable individuals to live longer, healthier, and more fulfilling lives.

Dr. Eugene Antenucci is a dentist, educator, health and wellness coach, and author with more than 40 years of clinical experience. He serves on the faculty of LSU Health Sciences Center School of Dentistry, where he teaches clinical dentistry and patient care. His work focuses on the intersection of lifestyle, prevention, oral-systemic health, and longevity, emphasizing how daily habits influence long-term vitality and healthspan. Dr. Antenucci is the author of multiple books on wellness and longevity, including *Living Longer, Living Better*. Drawing from clinical practice, scientific evidence, and lessons from long-lived cultures, he advocates a prevention-first approach to healthy aging.