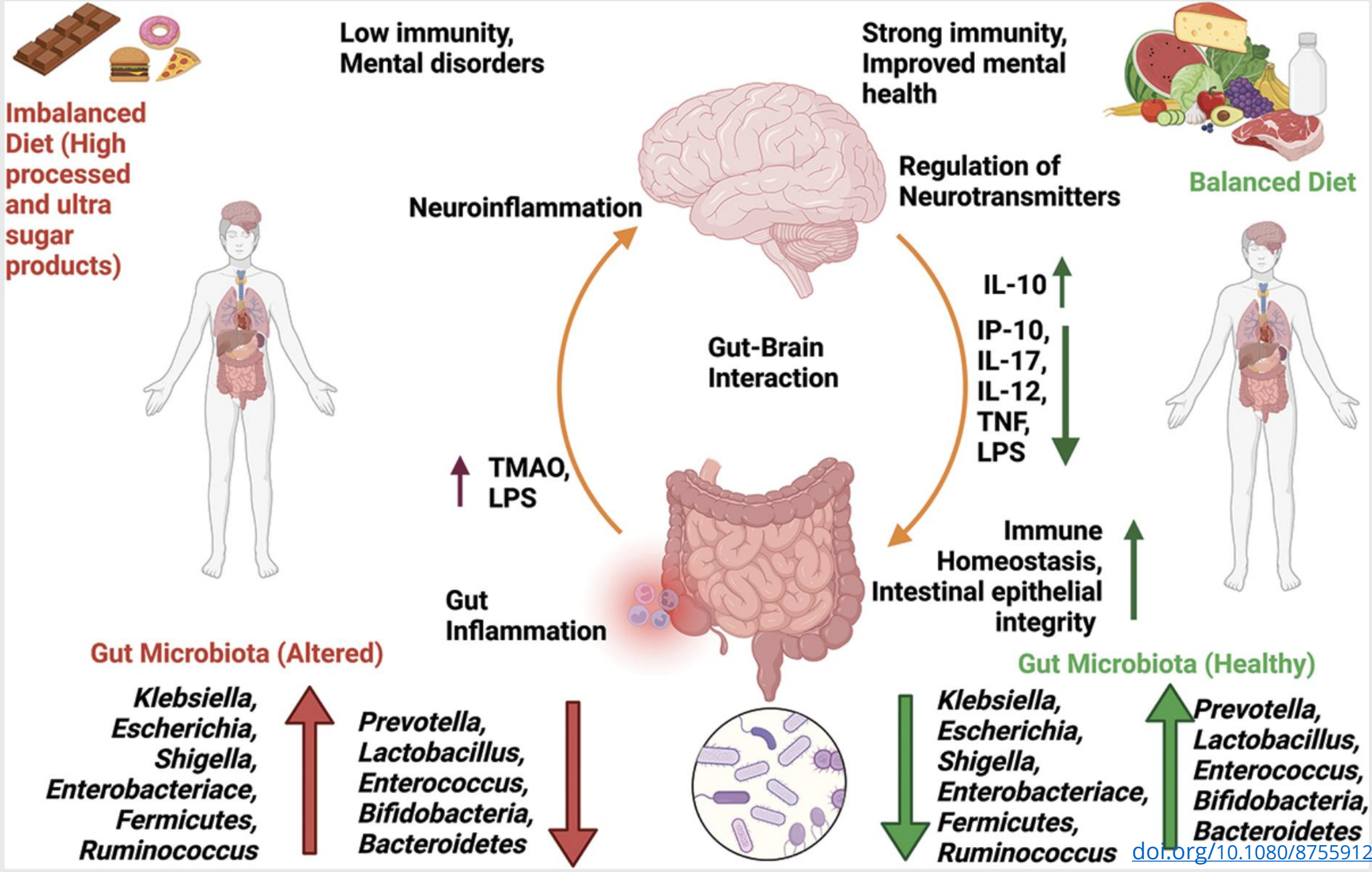
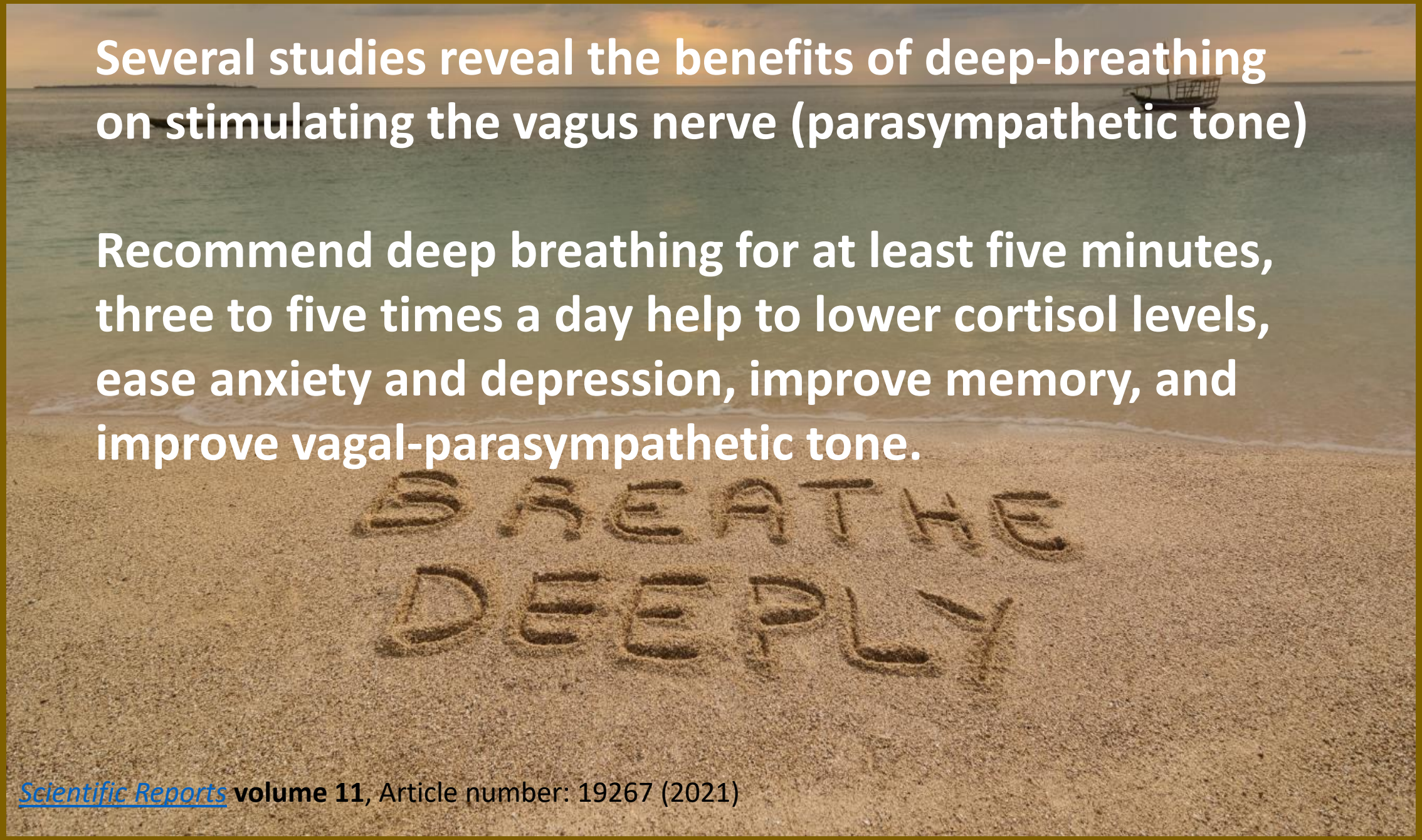


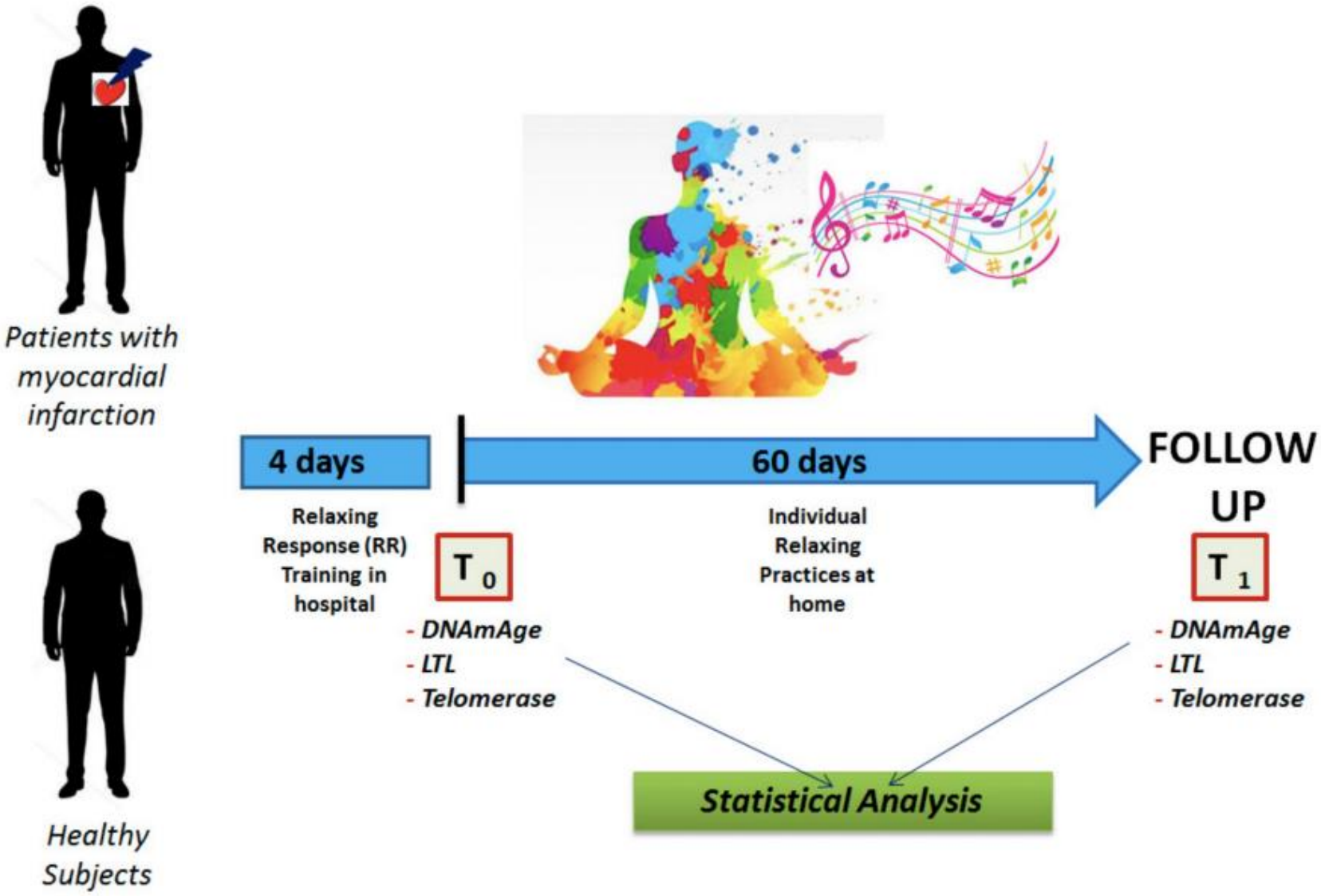
doi.org/10.1080/87559129.2025.247



Several studies reveal the benefits of deep-breathing on stimulating the vagus nerve (parasympathetic tone)

Recommend deep breathing for at least five minutes, three to five times a day help to lower cortisol levels, ease anxiety and depression, improve memory, and improve vagal-parasympathetic tone.

Scientific Reports **volume 11**, Article number: 19267 (2021)



Exploring Epigenetic Age in Response to Intensive Relaxing Training: A Pilot Study to Slow Down Biological Age
Int. J. Environ. Res. Public Health 2019, 16, 3074; doi:10.3390/ijerph16173074

- **Studies published between 2013 and 2023.**
- **RCT Pranayama interventions with non-yoga control groups.**
- **Primary outcomes : psychological well-being, quality of life, physiological parameters, and treatment-related side effects.**
- **Pranayama has been shown to be an effective complementary therapy for cancer patients, enhancing their well-being and quality of life**

Cureus. 2024 Feb 22;16(2):e54688. doi: 10.7759/cureus.54688

Effects of Pranayama on Cancer Patients: A Narrative Review of Clinical Outcomes

Social connection, whether with other people or through “compassionate attention” to yourself, is one of the most important ways to activate the vagal parasympathetic network.

- **23 meta-analyses published between 1994 and 2021, which include 1,187 longitudinal and cross-sectional studies with more than 1,458 million participants**
- **Loneliness is comparable to smoking up to 15 cigarettes a day**
- **Low social support is a significant predictor of inflammation.**
- **Chronic inflammation associated with low social integration impacts multiple diseases that represent the leading causes of disability and mortality worldwide: cardiovascular disease, cancer, diabetes mellitus, CKD, NAFLD, and autoimmune and neurodegenerative disorders.**

Social Support and Longevity: Meta-Analysis-Based Evidence and Psychobiological Mechanisms
https://doi.org/10.3389/fpsyg.2021.717164

- Lower levels of loneliness and higher levels compassion, social support, and social engagement were associated with greater diversity of the gut microbiome

- Increased gut microbial diversity is associated with greater emotional well-being, positive affect, larger social networks, and improved health and longevity

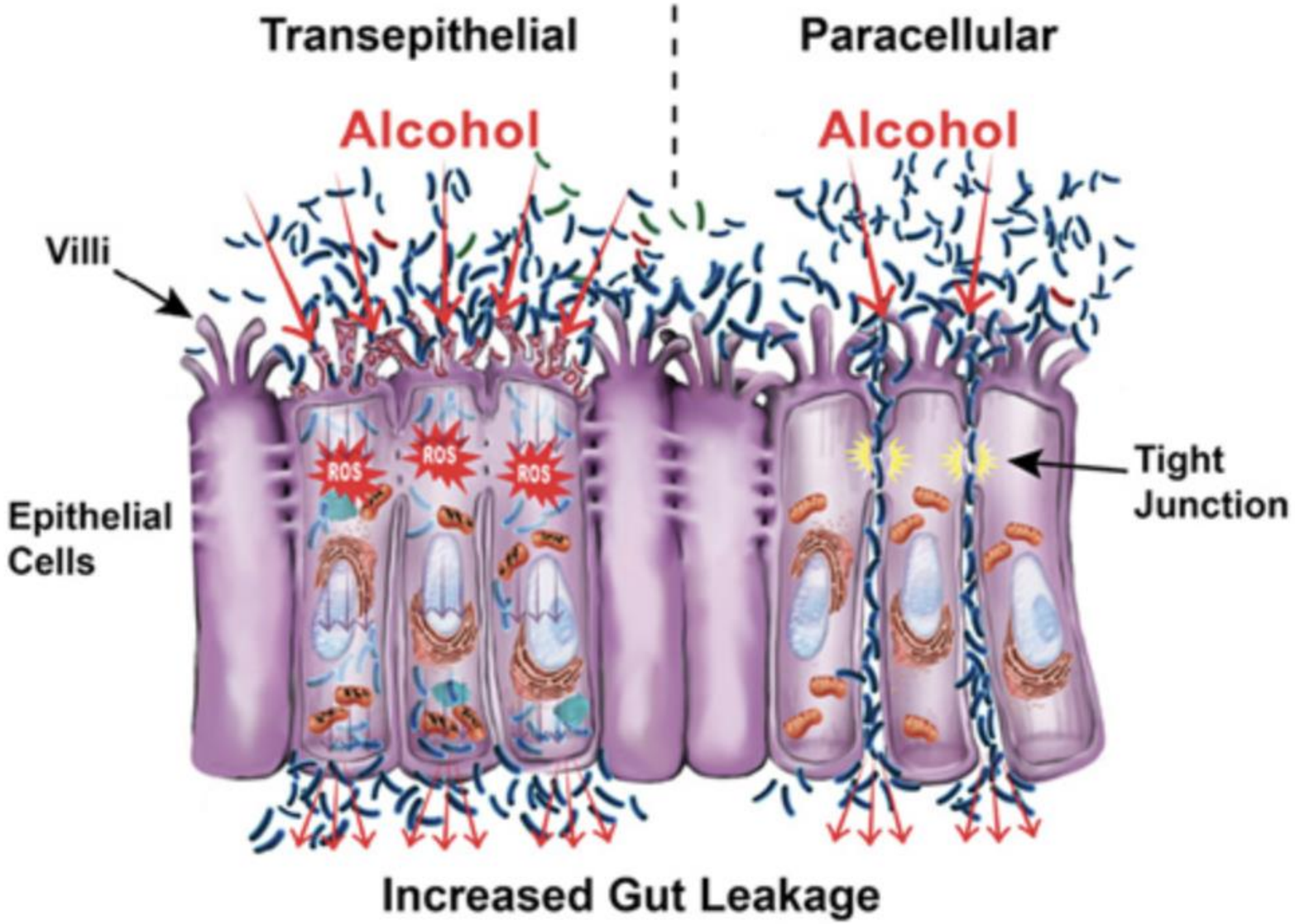
Association of Loneliness and Wisdom With Gut Microbial Diversity and Composition: An Exploratory Study
Front. Psychiatry, 25 March 2021

Epigenetic aging is accelerated in alcohol use disorder and regulated by genetic variation in APOL2

Neuropsychopharmacology (2020) 45:327 – 336

- Epigenetic clock alcohol study on 331 individuals with Alcohol Use Disorder (AUD) and 201 healthy controls.

- Heavy, chronic alcohol consumption caused epigenetic age acceleration (EAA)



Alcohol and Intestinal Microbiota studies show that alcohol promotes both dysbiosis and bacterial overgrowth which in turn leads to an increase in the release of endotoxins, produced by gram-negative bacteria

Carskadon et al. BMC Res Notes (2019) 12:583
https://doi.org/10.1186/s13104-019-4633-1

BMC Research Notes

RESEARCH NOTE Open Access

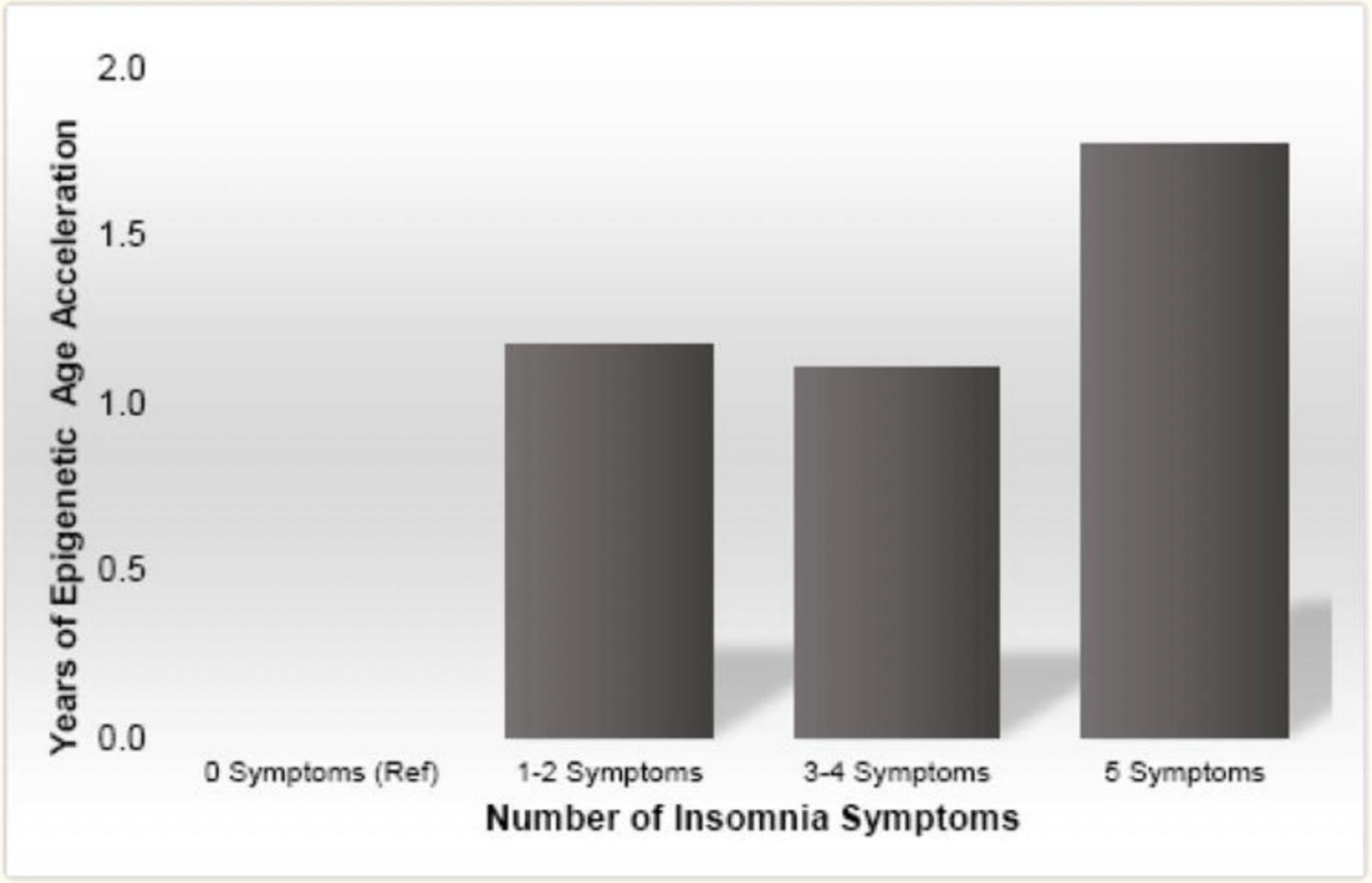
A pilot prospective study of sleep patterns and DNA methylation-characterized epigenetic aging in young adults

Mary A. Carskadon[1,2*], Kenneth R. Chappell[5], David H. Barker[2,3], Anne C. Hart[4], Kayla Dwyer[5], Caroline Gredvig-Ardito[1], Caitlyn Starr[5] and John E. McGeary[2,5]

- **Poorer sleep was associated with marked acceleration of epigenetic aging while better sleep was associated with decelerated epigenetic aging**
- **Participants with longer and more regular sleep showed reduced age difference by 2.48 years**
- **Those with shorter and more irregular sleep showed an increased age difference by 4.13 years**

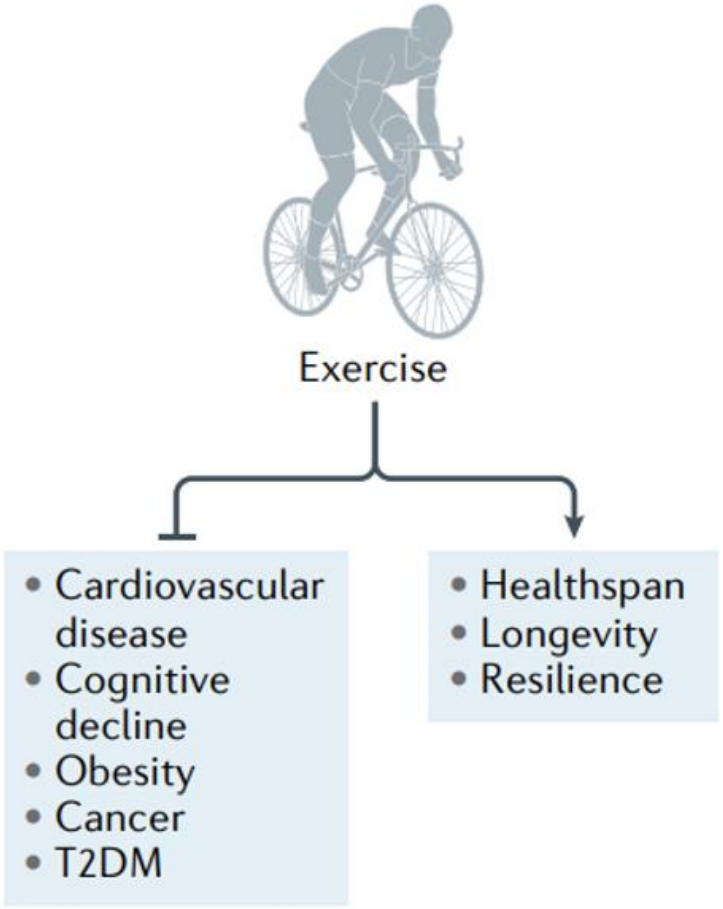
Epigenetic aging and immune senescence in women with insomnia symptoms: Findings from the Women's Health Initiative Study

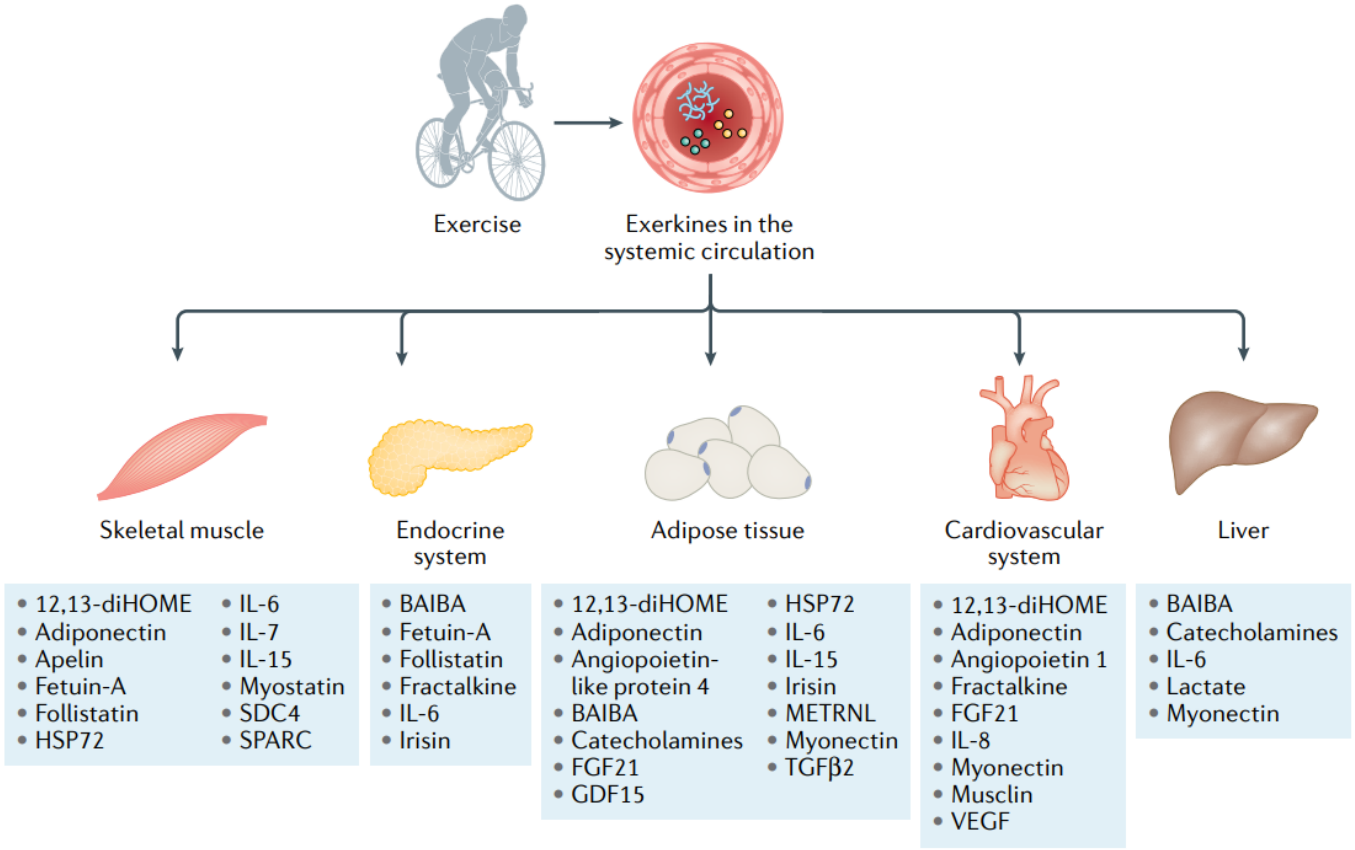
Biol Psychiatry. 2017 Jan 15; 81(2): 136–144.

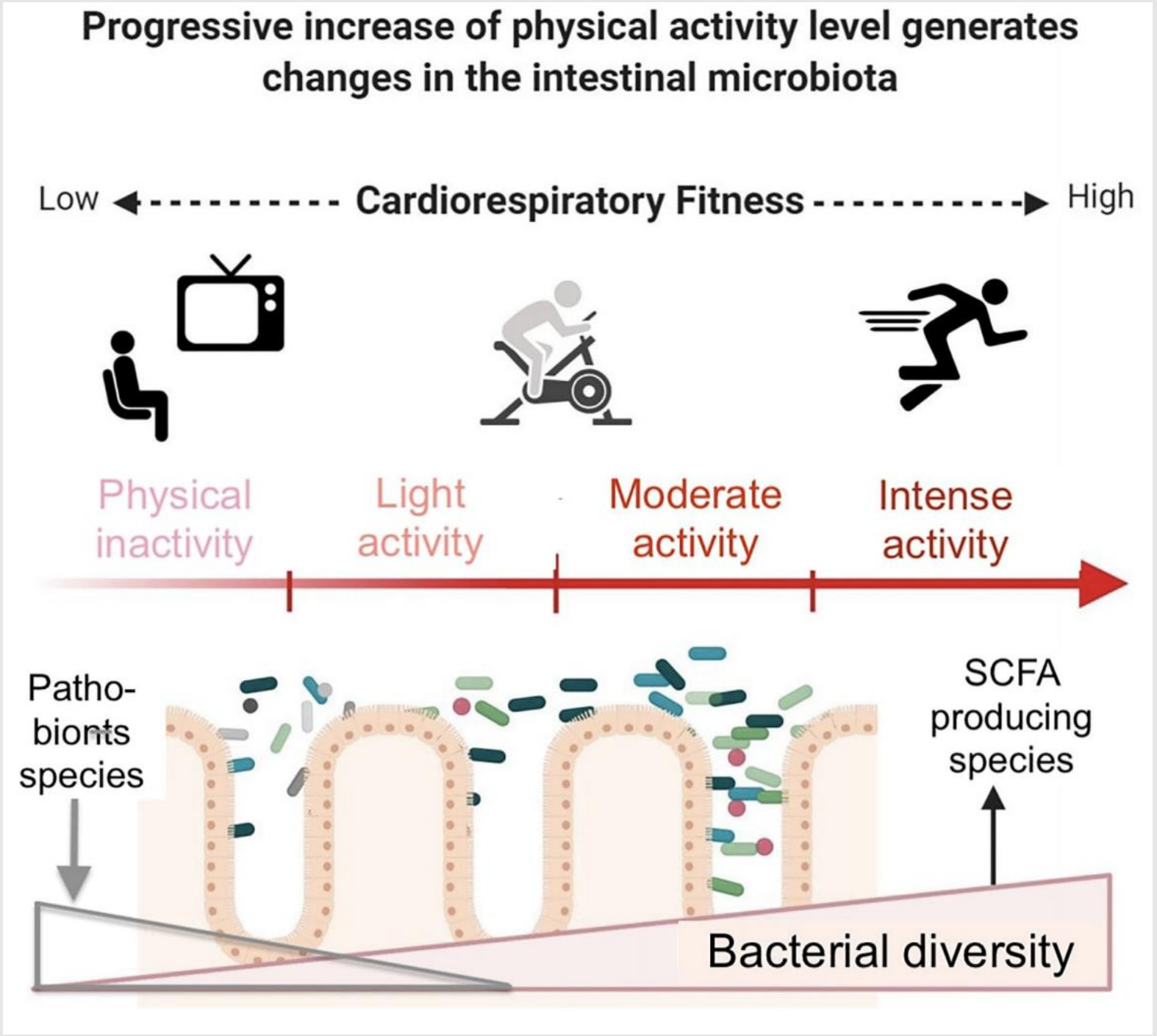


Exerkines in Health, Resilience and Disease

Nature Reviews Endocrinology Volume 18 | May 2022 | 273







Interplay Between Exercise and Gut Microbiome in the Context of Human Health and Performance
Front. Nutr., 10 June 2021


Food Is Medicine