

GEROSCIENCE

A REVOLUTIONARY APPROACH TO HEALTHY AGING by addressing the biology of aging and age-related disease, together

The Geroscience **hypothesis** posits that since aging physiology plays a major role in many — if not all — chronic diseases, therapeutically addressing aging physiology directly will prevent the onset or mitigate the severity of multiple chronic diseases.

The **aims** of Geroscience are to understand how aging enables diseases and to exploit that knowledge to slow the appearance and progression of age-related diseases and disabilities.

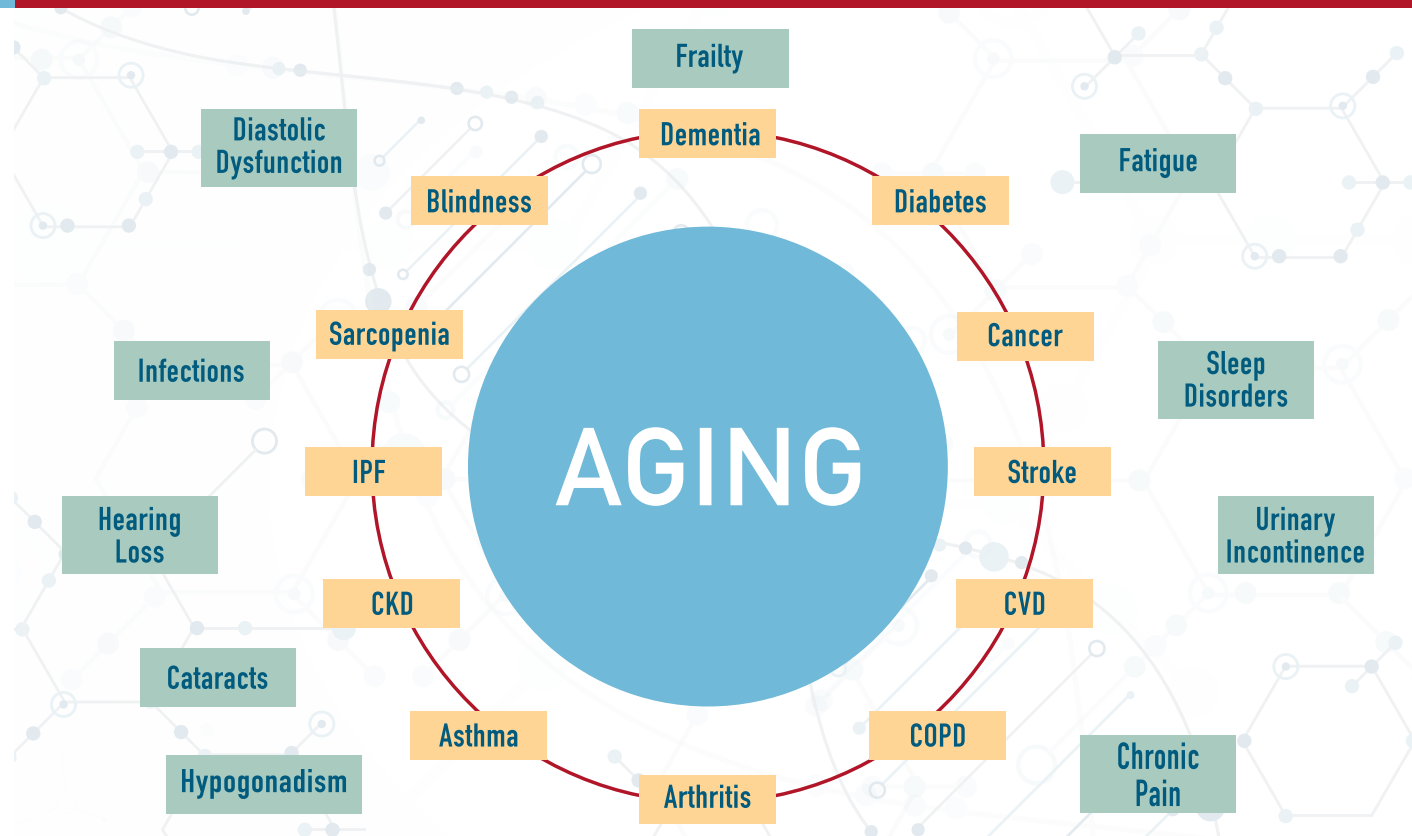
The **value** of the Geroscience approach lies on the well-established fact that older adults rarely suffer from a single disease but are rather afflicted by multimorbidity. Since aging biology is the main driver of disease susceptibility, **by reducing the rate of aging, it will be possible to delay the onset of multiple diseases at once.**

The main **goal** is to **develop interventions**, which are feasible, practical, and safe, to delay the appearance of multiple chronic diseases and conditions. Interventions that slow the aging process would dramatically **lower health care costs**, perhaps more than the cure of any one single disease, while significantly **improving quality of life.**

By addressing the biology of aging as the major risk factor for most chronic diseases facing older adults, Geroscience will improve disease management while extending years of health.

Economic Impact

- Geroscience research could be funded through a budget representing between **0.05 and 0.1% of the current spending in Medicare**, or between \$250-500M/year.
- By extending years of health as we grow older, Geroscience can **save trillions in healthcare costs.**
- Funding geroscience research is funding disease-specific research: a **two-for-one** approach.
- Individuals living healthier for longer can contribute to the **workforce longer.**



Prevention

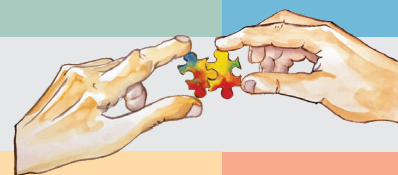
GEROSCIENCE

↓
Extension of Healthspan

Management

GERIATRICS

↓
Improved Quality of Life with Diseases



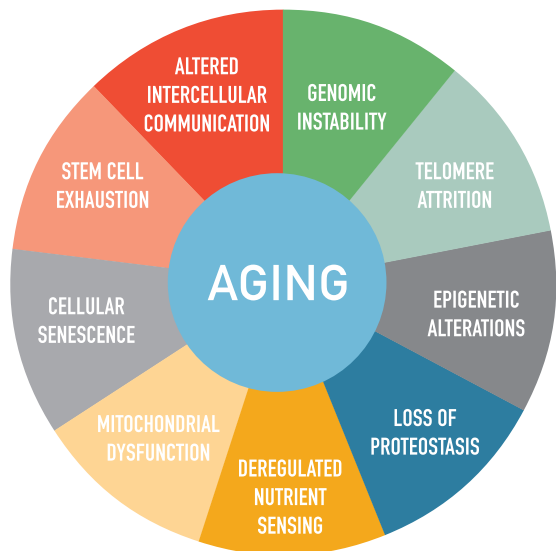
Policy Considerations

- Geroscience **transforms the “one disease at a time model”** that remains the current approach to biomedical research, most recently illustrated by the Cancer Moonshot and congressional funding for Alzheimer’s Disease. Counter-intuitively, this approach has played a role in the current increase in multimorbidity and decrease in health among the elderly.
- Research on aging biology is not as robustly developed as research on specific diseases. In addition to more funding, a **detailed plan** akin to the Alzheimer’s Disease NAPA needs to be developed for geroscience. This will require consultation with multiple constituents.

Philanthropic Opportunities

- Create a **funding consortium** to support basic and applied academic research in geroscience, especially for early innovators entering the field.
- Create a **biotech incubator** to provide small companies with seed money as well as professional, scientific, and entrepreneurial advice.
- Fund **innovative clinical trials** such as TAME (Targeting Aging with Metformin) whose disruptive, innovative nature may seem too risky to traditional or federal funders.
- Create a **Geroscience-focused foundation** that would leverage initial investments to produce sufficient patents and sustain long-term activities.

THE BIOLOGY OF AGING + DISEASE



Recent basic research and clinical trials addressing individual diseases have led to increases in life expectancy or lifespan. However, this has not always been accompanied by a parallel increase in healthspan, the portion of life spent in good health.

Scientists now have a good grasp of a handful of “pillars” or “hallmarks” of aging, such as inflammation, stress response, and epigenetics, which drive the physical symptoms and appearance of aging frailties. This in turn has allowed the recent development of promising pharmacological therapies such as rapamycin, senolytics, and NAD precursors, as well as dietary approaches that take into account circadian rhythms, to target these frailties.

Aging itself is by far the greatest risk factor for most of the chronic diseases and disabilities which affect older adults.

Despite our understanding that the biology of aging drives these diseases, financial and strategic support for aging research has traditionally separated the biology of aging from age-related disease.

IF WE COULD SIMULTANEOUSLY RESEARCH AND TREAT AGING AND AGE-RELATED DISEASE, WE CAN STAY HEALTHIER LONGER AS WE GROW OLDER.



The September 4-5, 2019 International Perspectives on Geroscience Meeting in Rehovot is presented by the **Weizmann Institute of Science** and the **Nathan Shock Centers of Excellence in the Biology of Aging**, in partnership with:

Weizmann Institute of Science.
The Sagol Institute for Longevity Research
<https://centers.weizmann.ac.il/SagolLongevity/>



Vetek (Seniority) -
The Movement for Longevity and Quality of Life
<http://www.longevityisrael.org/>



Due to the aging of the global population and the derivative increase in aging-related non-communicable diseases and their economic burden, there is an urgent international need to promote Geroscience, the study of intervention into aging to mitigate aging-related diseases as a way to improve healthy and productive longevity for the elderly population.

Israel can be an important contributor to these international R&D efforts, for which it can offer its proven record of scientific and technological achievements and innovation, its strong supportive infrastructure for research and development, its highly skilled scientific and technological work force, including leadership in diverse branches of biomedical research on aging and aging-related diseases.

2019 INTERNATIONAL PERSPECTIVES ON GEROSCIENCE MEETINGS

China: May 24-25, Shenzhen
 US: May 29-30, San Francisco
 Australia: Aug 26-28, Sydney
 Israel: Sept 4-5, Rehovot

Europe: Sept 13-14, Madrid
 Singapore: Sept 25-26, Singapore
 Chile: Nov 18-21, Puerto Varas



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GEROSCIENCE

Connecting the Biology of Aging and the Biology of Disease

