

What if We All Aged Well?

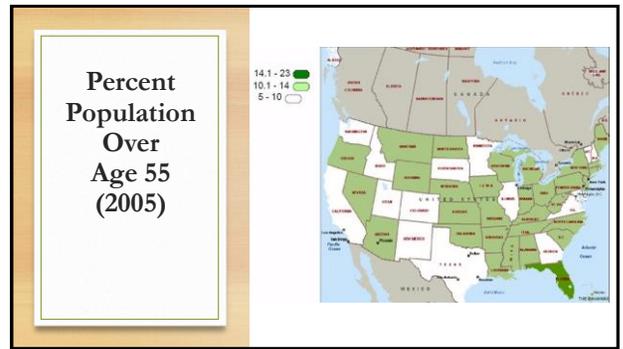
The Future of Gerontology in a Healthy Society



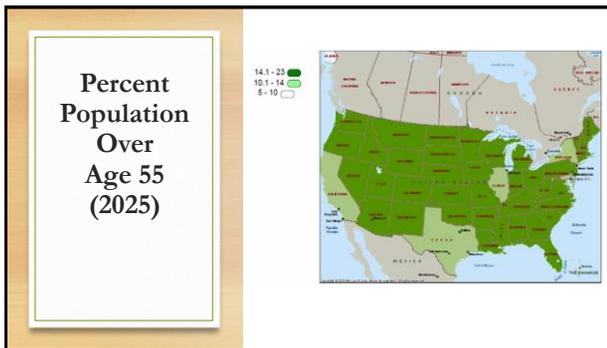
BETTER TOGETHER
MGS 47TH ANNUAL CONFERENCE
MARCH 20-21, 2023

Adriane Berg

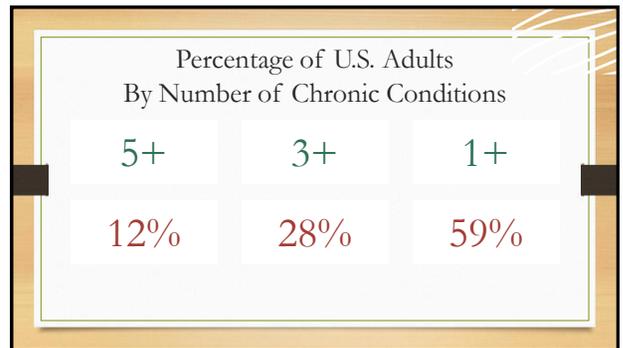
1



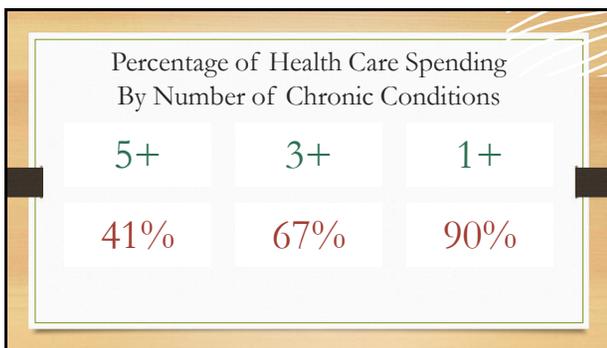
2



3



4



5



Amazing Breakthroughs in Geroscience and Gero-Interventions

6

Let's Fortify the older adult host!

Hallmarks of Aging

We need to:

- 1) Increase immunity and decrease inflammation
- 2) Increase the older adult ability to sustain severe disease.

This is important against COVID-19.

This is important for the success of COVID-19 vaccine

This is important against the next virus.

This is important against all diseases.

7

Information Theory of Aging

"THERE'S A CLOCK IN YOUR BODY THAT CAN BE RESET"

DR. DAVID SINCLAIR

David Sinclair: "[A]ging is the result of losing critical instructions that cells need to continue functioning..."

In the Information Theory of Aging: "Underlying aging is information that is lost in cells, not just the accumulation of damage... That's a paradigm shift in how to think about aging."

Age Reversal: turned back the clock about 57%, enough to make the mice youthful again.

8

Yamanaka Factors

Shinya Yamanaka
2006 Nobel Prize Winner

Discovered the set of four genes cells that are able to self-renew by dividing and developing into the three primary groups of cells that make up a human body

9

Ocular Regenerative Therapies

Ocular Regenerative Therapies are on track to revolutionize treatment of numerous blinding disorders, including corneal disease, cataract, glaucoma, retinitis, pigmentosa and age-related macular degeneration.

National Library of Medicine

10

Nir Barzilai
Director, Institute for Aging Research
Albert Einstein College of Medicine

Let's Fortify the older adult host!

Hallmarks of Aging

We need to:

- 1) Increase immunity and decrease inflammation
- 2) Increase the older adult ability to sustain severe disease.

This is important against COVID-19.

This is important for the success of COVID-19 vaccine

This is important against the next virus.

This is important against all diseases.

11

Repurposed Drugs

Metformin

The TAME Study—Use of the diabetes drug to prevent age-related conditions such as cardiovascular disease, cancer, impaired cognition, and mortality

Rapamycin

Heart transplant medication as a promising longevity drug

Sprycel

With the flavonoid Quercetin to treat cellular senescence

Resveratrol

Resveralogues to delay aging

12

Exosomes

Exosomes are messenger particles that release naturally from a cell. These particles are responsible for cell-to-cell communication. Exosomes carry genetic information and proteins to cells throughout your body, and they create paths for communication between cells.

13

Gene Therapies

Liz Parrish is one of the bravest and most controversial figures in the exploding field of Longevity. She is not a scientist but may have more impact on geroscience than those who are. Liz is called "Patient Zero" because she has used herself as a guinea pig for gene therapy to reverse aging.

14

Epigenetics & Social Determinants of Aging

Epigenetic alterations are related changes in gene expression that harm the fundamental functions of cells, and, increase the risk of cancer and other age-related diseases.

15

Aiming Where the Rabbit Was

Declining health and cognitive or physical functioning may necessitate moving to supportive care environments that drain financial resources.

Losing friends or loved ones, grappling with the meaning of life, maintaining quality of life in the face of increasing disability, adapting to retirement and contemplating death are just a few of the challenges that aging adults face

16

Disengagement Theory

By disengaging, older adults are freed from social responsibilities and gain time for internal reflection, while the transition of responsibility from old to young maintains a continuously functioning society unaffected by lost members.

The outcome of disengagement is a new equilibrium that is ideally satisfying to both the individual and society.

Sociologists Cumming and Henry (1961) asserted that aging is characterized by gradual disengagement from society and relationships. The authors contended that this separation is desired by society and older adults, and that it serves to maintain social equilibrium.

17

I Hope I Die At Age 75

"But here is a simple truth that many of us seem to resist: living too long is also a loss. It renders many of us, if not disabled, then faltering and declining, a state that may not be worse than death but is nonetheless deprived. It robs us of our creativity and ability to contribute to work, society, the world. It transforms how people experience us, relate to us, and, most important, remember us. We are no longer remembered as vibrant and engaged but as feeble, ineffectual, even pathetic."

Ezekiel Emmanuel, *The Atlantic*

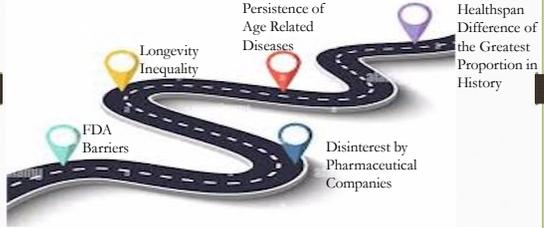
18

With Your Permission



19

The Road to Healthspan Warfare



20

Biophysical Therapeutics

- 2006 decreasing body temperature by 0.34°C increased lifespan by 20% in female mice and other species.
- 2017 the first Metabesity Conference
- 2023 Biophysical Therapeutics' drug might, by dose-dependently reducing metabolic heat generation, increase thermal comfort in hot places, possibly slowing aging



George Church, Bruno Conti, Michael Forrest

"Cosmetics that contain an antiaging compound that works much better might capture much of the market. And possibly grow it."

21

Solutions Require Positive Deviance

Each (covid vaccine) was approved by the FDA 10 times faster than the vast majority of therapeutic products, and finally, the cost per vaccine has been as low as \$2 per dose for the United Nations' COVAX global access program.



"Implementation science is the unsung handmaiden of biomedical discovery!"

George Church

22

Workforce Tech



A Tool to Counteract Age Discrimination in the Workplace

- Apps for training: 49 million older adults in the USA are estimated to use an average of 24 different apps in a given month..
- Wearable sensor that detects when aging workers perform their task in a way that is likely to cause injury would alert a worker to the potential hazard and give them time to adjust their physical approach to their task.
- A system that diagnoses mild cognitive impairment at work and devices that slow cognitive decline in older workers would also improve performance.

© Wikipedia

23

New Training for Medical Professionals



Researchers discover seventeen predictive longevity markers that can be obtained during a doctor visit, so they could be a useful guide for clinical care.

Constantin Aliferis and Siu Ma at the University of Minnesota, Virginia Byers Kraus, M.D., Ph.D., Duke University

24

Longevity Policies

 FDA Drug and Food Regulations	 International United Kingdom, Singapore, Italy, Sweden
 IRS Retirement Fund Distribution Age	 United Nations Decade of Healthy Aging
 Discrimination Older Americans Act	 NGO Committees

25

Healthy Longevity Grand Challenge



By 2030, for the first time in recorded history, the old will begin to outnumber the young. This demographic shift poses significant social, economic, and health challenges, but also presents an unprecedented opportunity for accelerating research, innovation, and entrepreneurship in the field of healthy longevity – thereby building more vibrant societies and economies worldwide.

The Healthy Longevity Global Competition will kickstart innovation to support healthy longevity through a series of monetary awards and prizes. In the tradition of international races to fly across the Atlantic or walk on the moon, the competition will rally the world's greatest minds to achieve what may at first seem an impossible goal.

healthylongevitychallenge.org

26

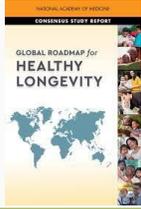
Surprising Coalitions and New Stakeholders

 Space Travel	 Environment
 Artificial Intelligence	 Structural Engineering

27

What is the Role of Gerontology in This New Future?

How do we sustain Healthspan Equity and Healthy Longevity for all?



28

If Not You...Who?

Fewer than 20 percent of surveyed internists and family medicine physicians reported being very familiar with the term "sarcopenia."

Sarcopenia affects 10 to 20% of older adults, causing muscle mass and strength loss which can impact quality of life and lead to a reduced ability to perform ADLs, loss of independence, hospitalization and need for long-term care.

Journal of American Geriatric Society

29



An economist is a man who knows everything about women...but doesn't know any women!

— Art Buchwald —

30

Age Norms Must Be Advanced

<p>No More:</p> <p>Senior Moments She looks good for her age Act your age</p>	<p>Adjust Social Clocks</p> <p>End the school, work, retire cycle</p>	
<p>Re-sequence</p> <p>End the given order of life events</p>	<p>New Old Age</p> <p>Restructure learning and technology</p>	<p>Shift Values</p> <p>No lifestage with a role</p>

31

Pickleball Nation

Delbert Webb and Over 55 Communities



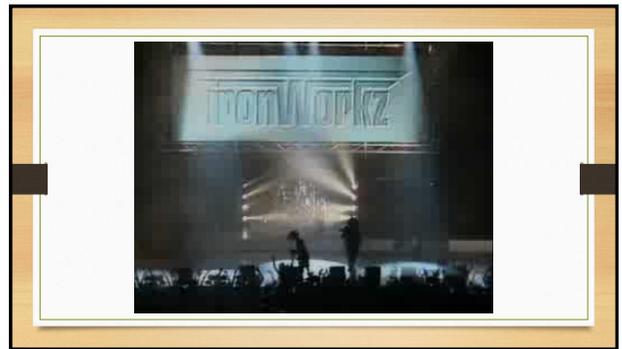
<p>The Villages in Florida now features more than 220 pickleball courts.</p>	<p>There are currently 10,320 places to play pickleball in the US.</p>	<p>For retirees, pickleball can help restore a sense of purpose. Prof Johnathan Casper, UNC</p>
--	--	---

32

Who Says I am Invisible?

<p>Posture Body Shape Gait Elasticity Dress Voice Hair References</p>		<p>“The worse fashion <i>faux pas</i> is to look in the mirror and not see yourself.”</p> <p>- Iris Apfel</p>
---	--	---

33



34

How Can I Assist You?



Adriane Berg

**Essential Resources on the
Future of Aging**



Use this QR Code to send Adriane an email and access more information.

adrianeberg@gmail.com
Adriane@ero.com

35