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12-4-2020

## Diet and Successful Aging

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# Reminders

- Submit your recipes!
- DFEND 3.0 starting in January
  - Submit Feedback via Qualtrics Survey
- Post DFEND assessment questionnaire
  - Watch your inbox and the DFEND website this month.

# DFEND 2.0

## *Diet and Successful Aging*

December 4<sup>th</sup>, 2020

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# Objectives

- Define successful aging
- Understand the components of successful aging
- Diets and dietary patterns for successful aging
- Physical activity and successful aging

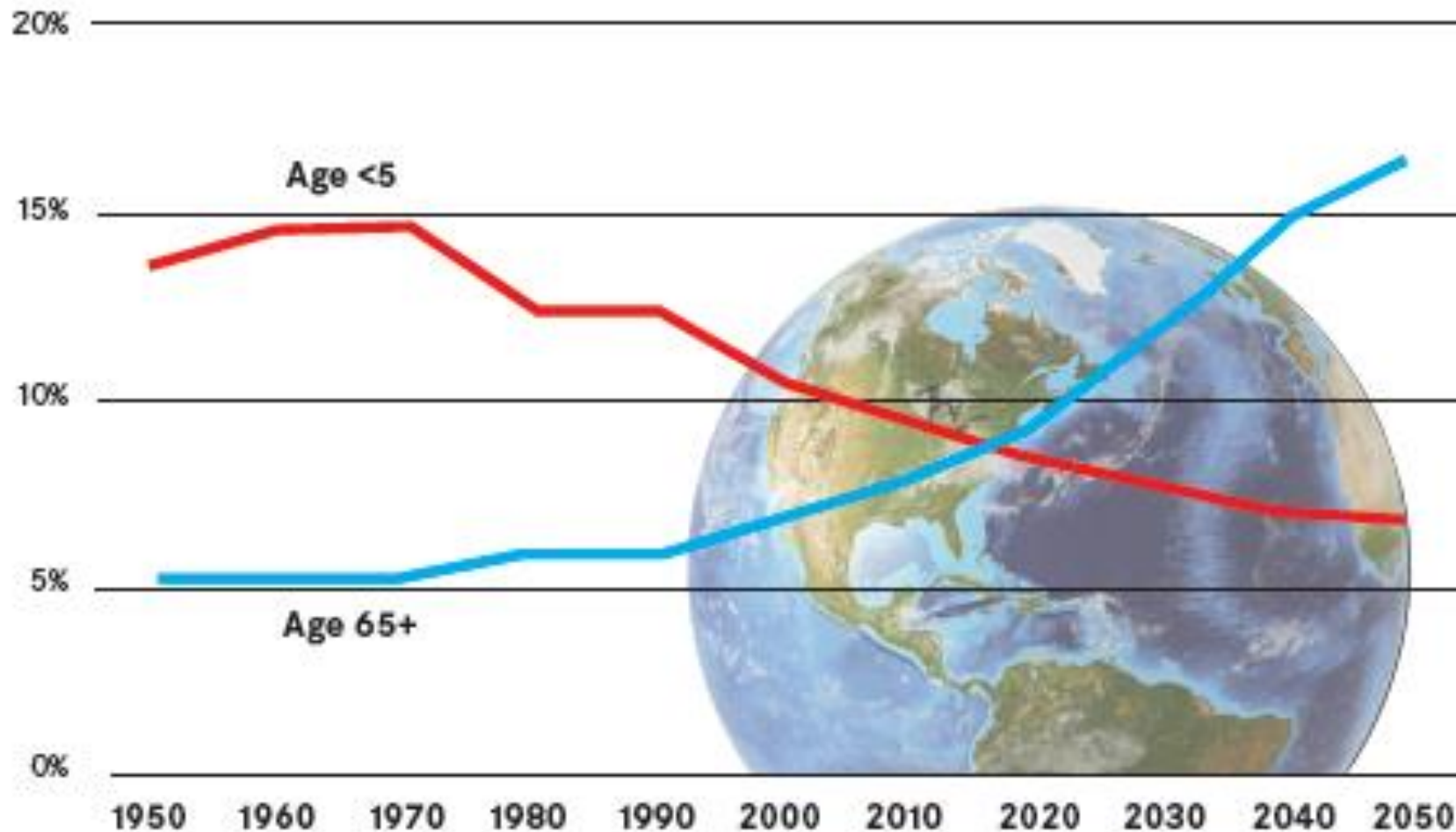
Image: <https://www.poz.com/article/successful-aging-hivaid>s

# Aging



- Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22%. By 2050, the world's population is expected to total 2 billion people.
- By 2020, the number of people aged 60 years and older will outnumber children younger than 5 years.
- In 2050, 80% of older people will be living in low- and middle-income countries.
- The pace of population ageing is much faster than in the past.
- All countries face major challenges to ensure that their health and social systems are ready to make the most of this demographic shift.

**FIGURE 1: YOUNG CHILDREN AND OLDER PEOPLE AS A PERCENTAGE OF THE GLOBAL POPULATION: 1950-2050<sup>1</sup>**



Source: *World Population Prospects: The 2010 Revision*, United Nations.  
Adapted from *Global Health & Aging*, World Health Organization, 2011.

<https://www.pharmacytimes.com/publications/issue/2016/January2016/The-Aging-Population-The-Increasing-Effects-on-Health-Care>



# Aging in the United States

- Americans are living longer and in greater numbers
  - We are living active lives and contributing to the economy.
  - The added years to the lifespans have resulted in a longer middle age—extending the period when workers are at their most productive and creative.
- 10,000 people are turning 65 a day
- 80 percent of people age 50 and older plan to work past 65
- People over 50 in the US contribute \$7.6 trillion to the economy annually

# Biology of Aging

- Aging results from the impact of the accumulation of a wide variety of molecular and cellular damage over time.
- This leads to a gradual decrease in physical and mental capacity, a growing risk of disease, and ultimately, death.
  - But these changes are neither linear nor consistent, and they are only loosely associated with a person's age in years. While some 70 year-olds enjoy extremely good health and functioning, other 70 year-olds are frail and require significant help from others.
- Beyond biological changes, ageing is also associated with other life transitions such as retirement, relocation to more appropriate housing, and the death of friends and partners.
- In developing a public-health response to ageing, it is important not just to consider approaches that ameliorate the losses associated with older age, but also those that may reinforce recovery, adaptation and psychosocial growth.



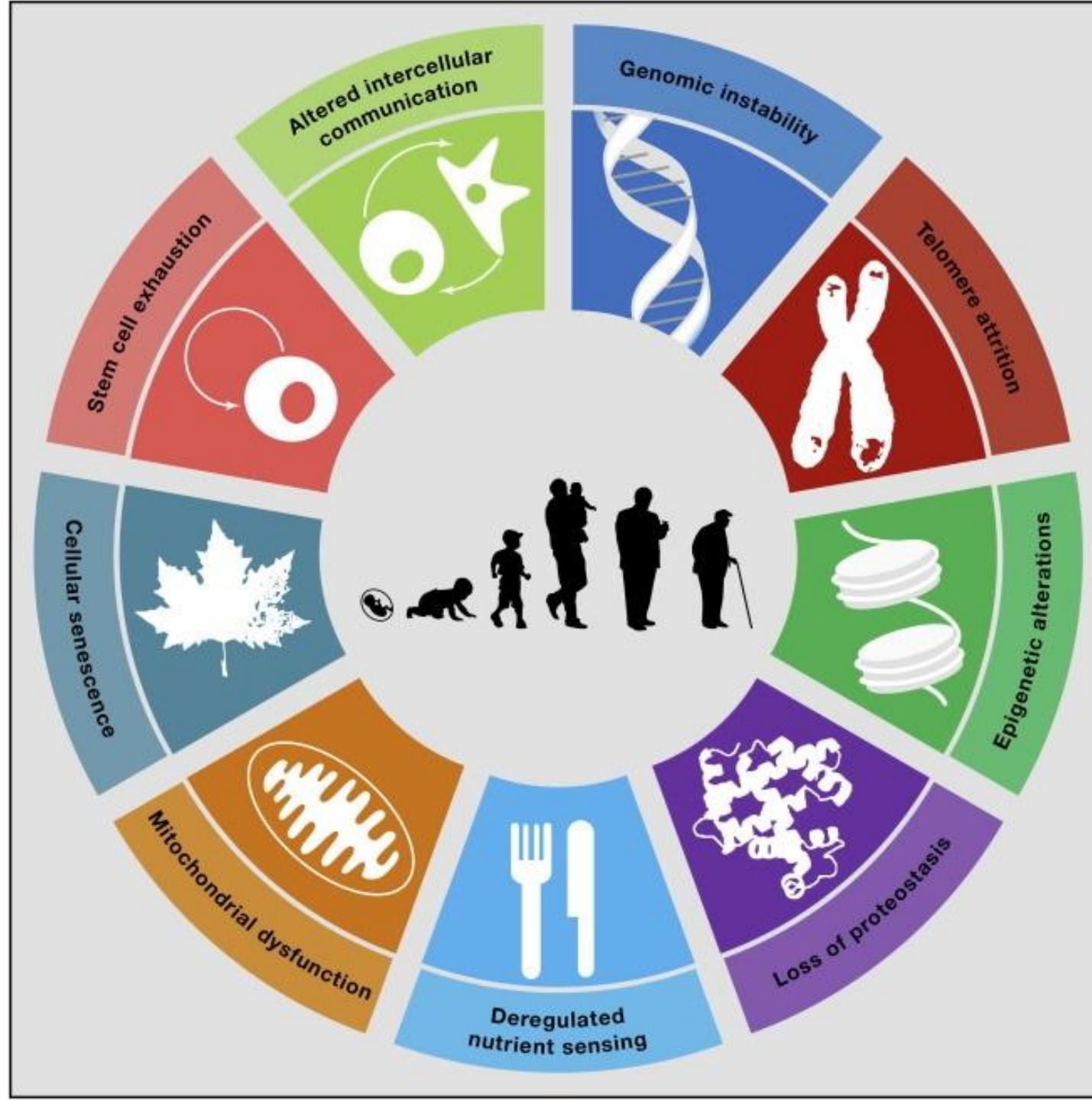
# The Science of Aging

- Aging reflects all the changes that occur over the course of life.
- Aging is a series of interconnected processes.
- The biomedical research field focuses on the **Hallmarks of Aging**.
  - These hallmarks are considered the core underlying machinery of how our bodies age.



NATHAN SHOCK CENTERS  
OF EXCELLENCE IN THE  
BASIC BIOLOGY OF AGING

<https://nathanshockcenters.org/biology-of-aging>



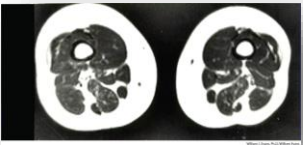
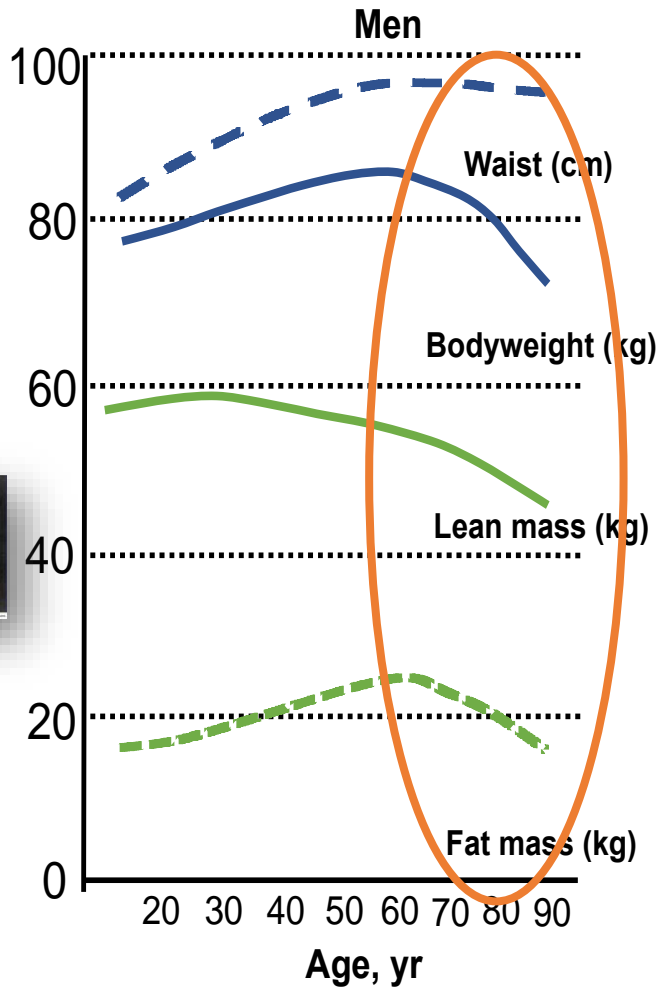
# Aging Brings Challenges

- Aging brings an increase in the prevalence of chronic diseases, such as hypertension, diabetes, arthritis, and dementia.
  - For example, Alzheimer's disease, the most common type of dementia, is the 5th leading cause of death among older Americans.
  - Older adults also face more challenges with everyday living activities.
- 80 percent of older adults have at least one chronic health condition
- 1 in 3 older adults has limitations in activities such as preparing meals and housekeeping

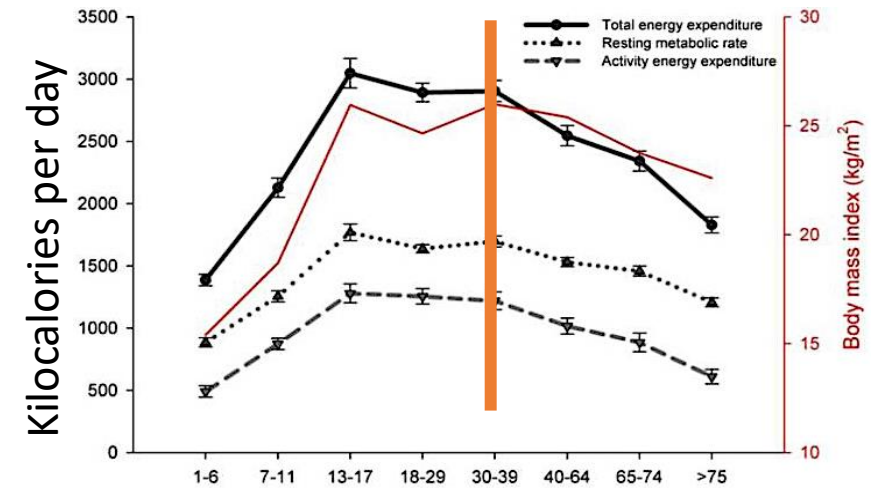
# Health Risks with Age

- Age brings a higher risk of chronic diseases such as dementias, heart disease, type 2 diabetes, arthritis, and cancer.
  - 22 million adults aged 65 or older have arthritis
- These are the nation's leading drivers of illness, disability, deaths, and health care costs.
- Alzheimer's disease and other dementias are most common in adults 60 and older, and the risk increases with age.
  - 6 million adults have Alzheimer's disease
- In 2019, health care and long-term care costs associated with Alzheimer's and other dementias were \$290 billion, making them some of the costliest conditions to society.

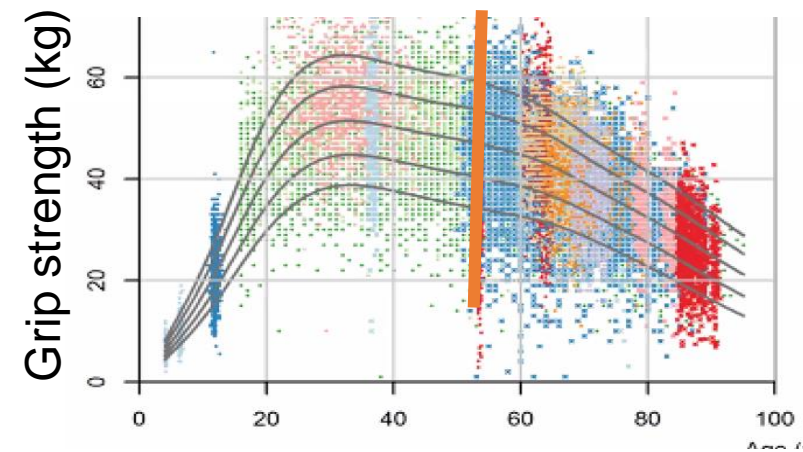
# Physiological changes occurring with age



## Energy Expenditure (EE)



## Strength



# Main Components of Successful Aging

## Theoretical definitions

- Life expectancy
- Life satisfaction and wellbeing (includes happiness and contentment)
- Mental and psychological health, cognitive function
- Personal growth, learning new things
- Physical health and functioning, independent functioning
- Psychological characteristics and resources, including perceived autonomy, control, independence, adaptability, coping, self esteem, positive outlook, goals, sense of self
- Social, community, leisure activities, integration and participation
- Social networks, support, participation, activity
- Spirituality

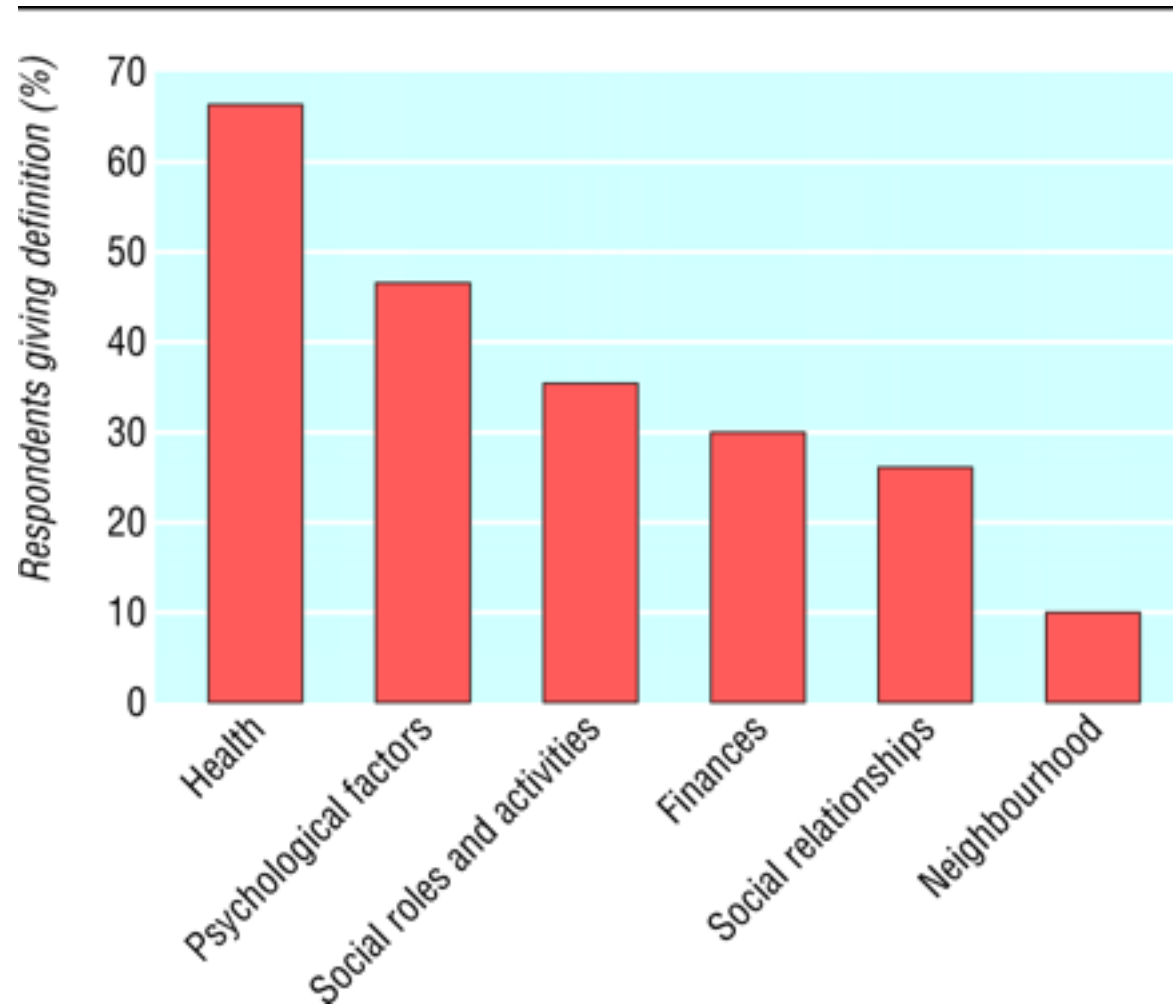
## Additional lay definitions

- Accomplishments
- Enjoyment of diet
- Financial security
- Neighborhood
- Physical appearance
- Productivity and contribution to life
- Sense of humor
- Sense of purpose

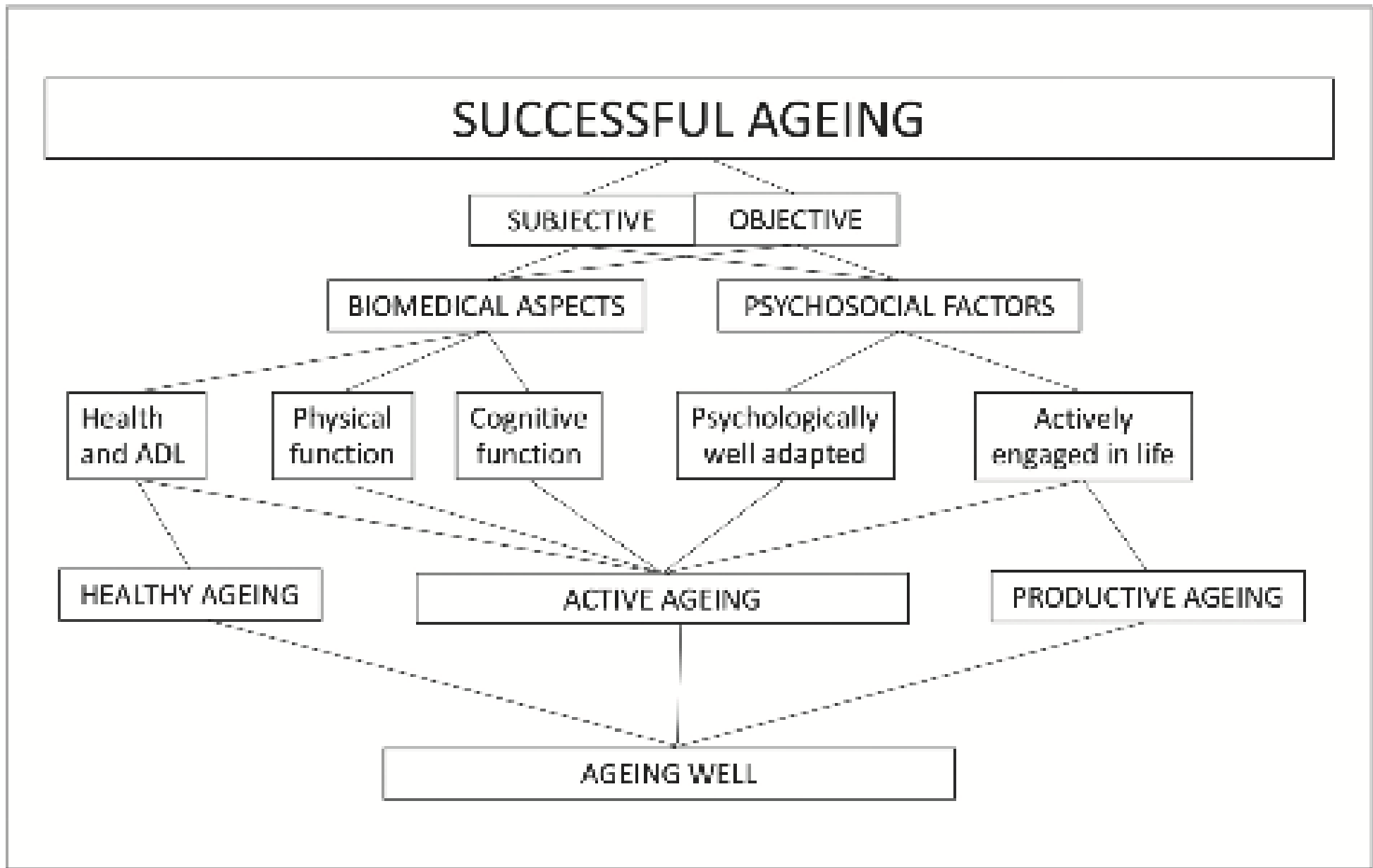
*BMJ* 2005; 331 doi: <https://doi.org/10.1136/bmj.331.7531.1548> (Published 22 December 2005) Cite this as: *BMJ* 2005;331:1548



# Most common definitions of successful ageing given by 854 people aged $\geq 50$ in Britain







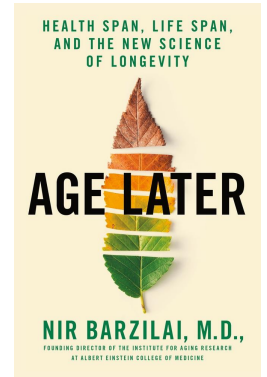
# Super Agers

- Super agers are people who are still living independently by age 95
  - Genes account for 75-80% for how they age
  - Environment is responsible for 20-25% of how they age
- Cognitive and physical super agers

Regular physical and mental activity reduces health risks.

- Embrace mental challenges
- Increase your exercise capacity
- Don't let your age deter you
- Get going with a group
- Get sleep
- Reduce Anxiety

<https://www.health.harvard.edu/healthy-aging/what-does-it-take-to-be-a-super-ager>



# 6 Tips for Healthy Aging

1. Eat and Drink Healthy
2. Move more, sit less throughout the day
  - Aim for moderate physical activity, like walking at least 150 minutes a week and muscle strengthening activity, like carrying groceries, at least 2 days a week.
3. Don't use tobacco
4. Get regular checkups
5. Know your family history
6. Be aware of changes in brain health

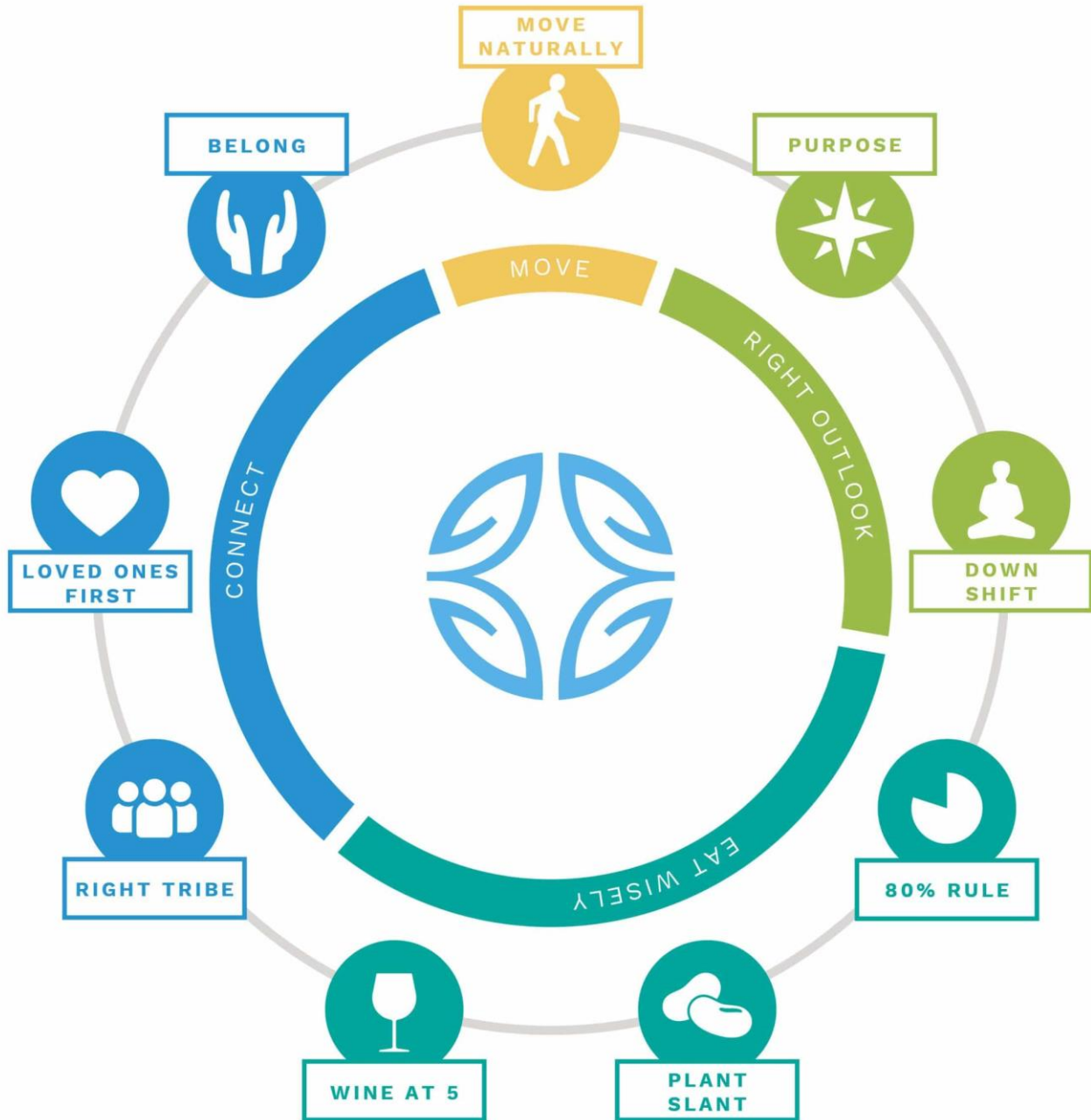
# Blue Zones

<https://www.bluezones.com/>



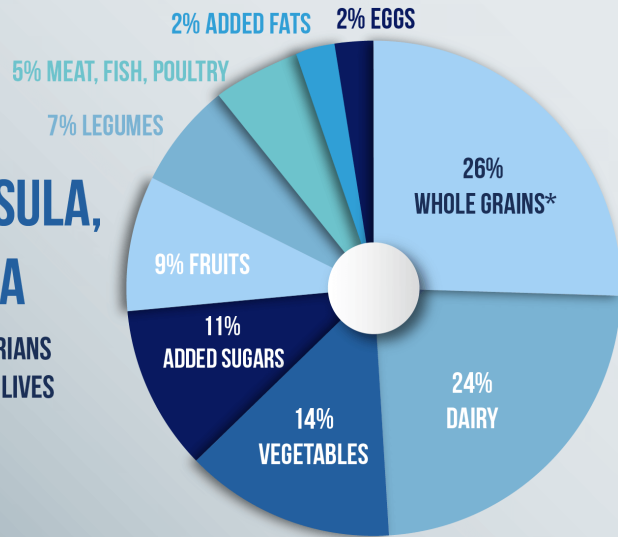
# Blue Zones

<https://www.bluezones.com/2016/11/power-9/>  
Dan Buettner



## NICOYA PENINSULA, COSTA RICA

HOW NICOYAN CENTENARIANS  
ATE FOR MOST OF THEIR LIVES

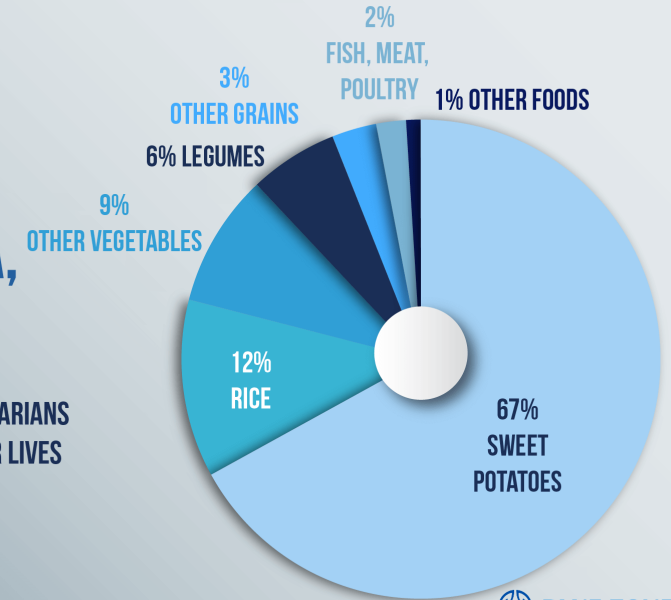


\*MOST COMMON SOURCE OF GRAINS: CORN

BLUE ZONES™

## OKINAWA, JAPAN

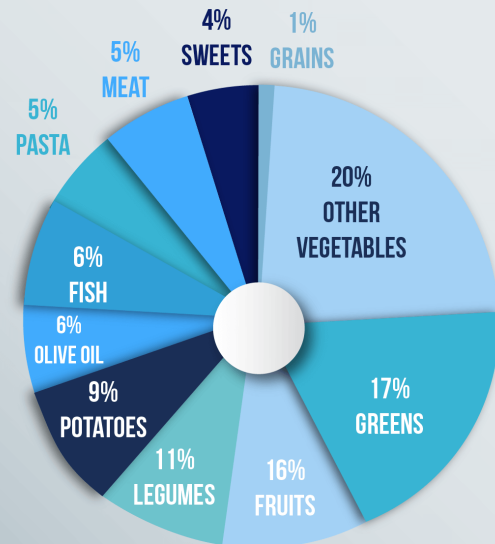
HOW OKINAWAN CENTENARIANS  
ATE FOR MOST OF THEIR LIVES



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## IKARIA, GREECE

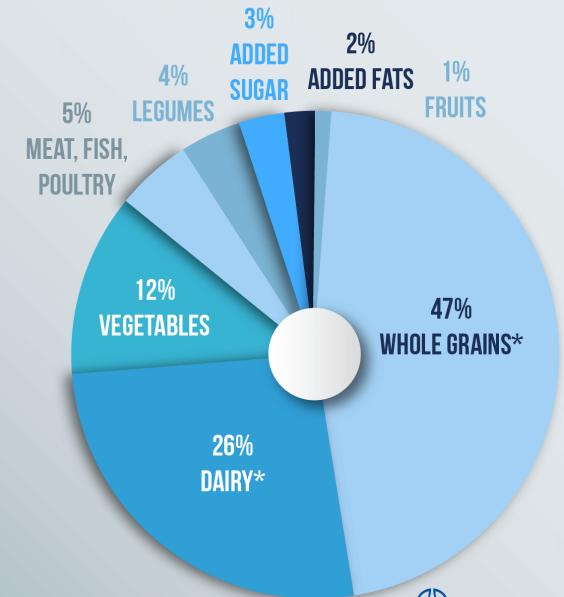
HOW IKARIAN CENTENARIANS  
ATE FOR MOST OF THEIR LIVES



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## SARDINIA, ITALY

HOW SARDINIAN CENTENARIANS  
ATE FOR MOST OF THEIR LIVES



\*PRIMARILY SHEEP AND GOAT'S MILK  
\*MOST COMMON SOURCE OF GRAINS: BARLEY

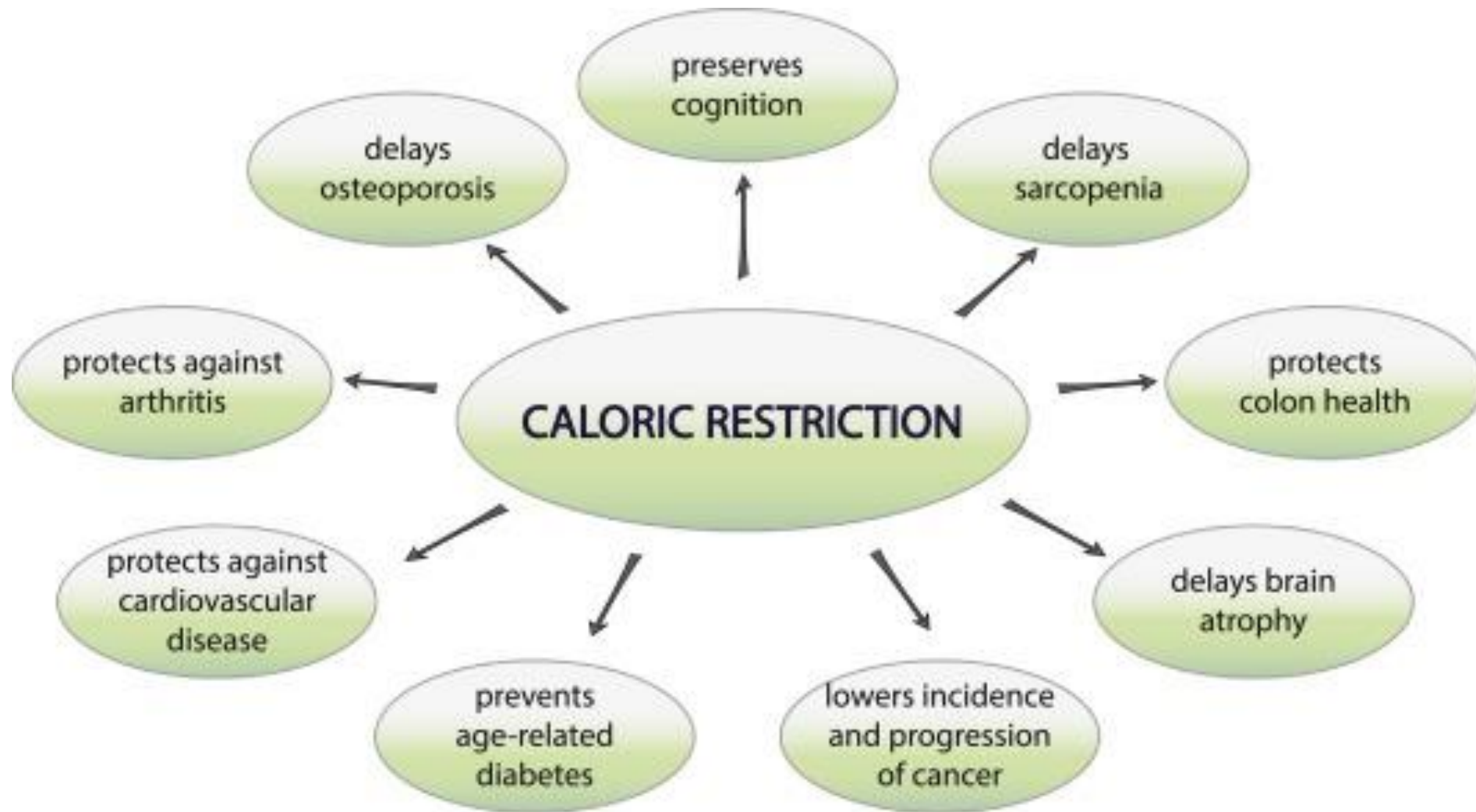
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# Calorie Restriction

<https://www.nap.edu/resource/24641/interactive/>

- Scientists have been able to alter both the onset and progression of aging by restricting daily total caloric intake in animal models.
- They are now studying the effects of intermittent fasting and time restricted eating on the aging process.



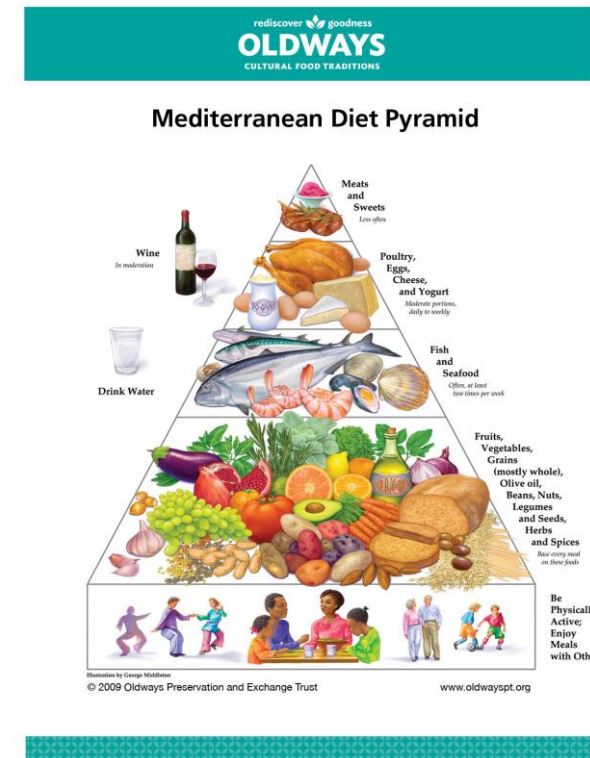
<https://doi.org/10.1016/j.ebiom.2017.06.015>

<https://www.sciencedirect.com/science/article/pii/S2352396417302505>

# Mediterranean Diet

[Clin Interv Aging](#). 2008 Mar; 3(1): 97–109.

- Reduce risk of chronic diseases like heart disease and diabetes
- Increased antioxidant capacity (e.g. reduced inflammation)
- Positive association with quality of life
- Improve the gut microbiome
- Reduced overall mortality



# MIND Diet

- For cognitive health

[https://www.pfizer.com/news/featured\\_stories/featured\\_stories\\_detail/the\\_mind\\_diet\\_a\\_guide\\_for\\_beginners](https://www.pfizer.com/news/featured_stories/featured_stories_detail/the_mind_diet_a_guide_for_beginners)



# Increased Protein Intake and Physical Activity

## Dietary protein intake

- Older adults have greater protein needs to compensate for anabolic resistance and hypermetabolic disease.
- Older adults may also have decreased intake due to age-related appetite loss, medical conditions, financial limits.
- Optimal intake of at least 1.0 to 1.5 g protein/kg BW/day is recommended; individual needs depend upon the severity of malnutrition risk.

## Exercise

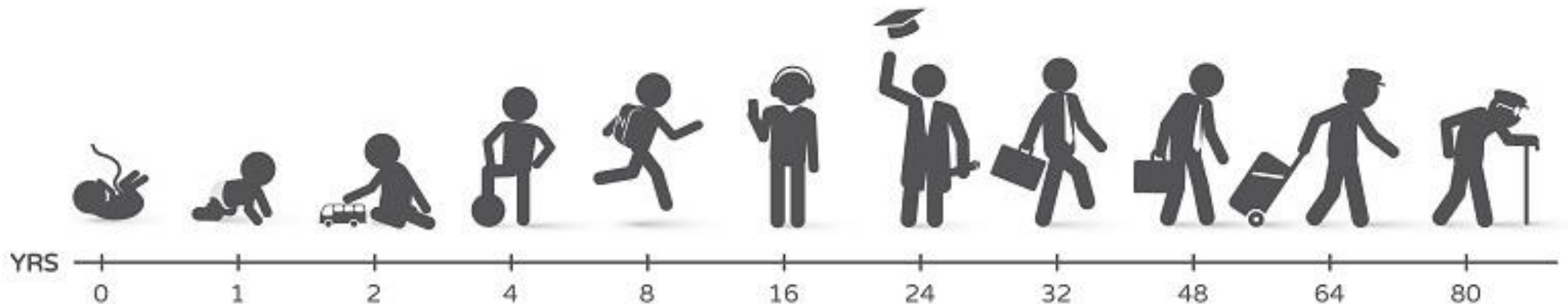
- Regular exercise helps maintain skeletal muscle strength and function in older adults.
- Resistance training has limited but positive effects on recovery of muscle in older people.
- A combination of resistance training and adequate dietary protein/amino acid intake for healthy muscle aging is recommended.

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# Useful Resources

- National Institute on Aging - <https://www.nia.nih.gov>
- Centers for Disease Control and Prevention - <https://www.cdc.gov/grand-rounds/pp/2017/20170919-senior-aging.html>





Can we prevent or delay  
aging?

Yes!

