



**GIVINGCARE**  
Empowering Caregivers

# Ageing process

Module: Basic Concepts in caregiving

Sub-Module: Ageing process



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# Introduction

<b>Module</b>	Basic Concepts in caregiving
<b>Sub-module</b>	Ageing process
<b>Lesson nr.</b>	#1
<b>Duration</b> (minutes)	300
<b>Date</b>	To define

# Lesson Outcomes

1. Understand the concept of aging
2. Identifying the main effects and changes caused by the aging process
3. Recognize the problems and pathologies that affect adults and their multilevel effects

# Topics

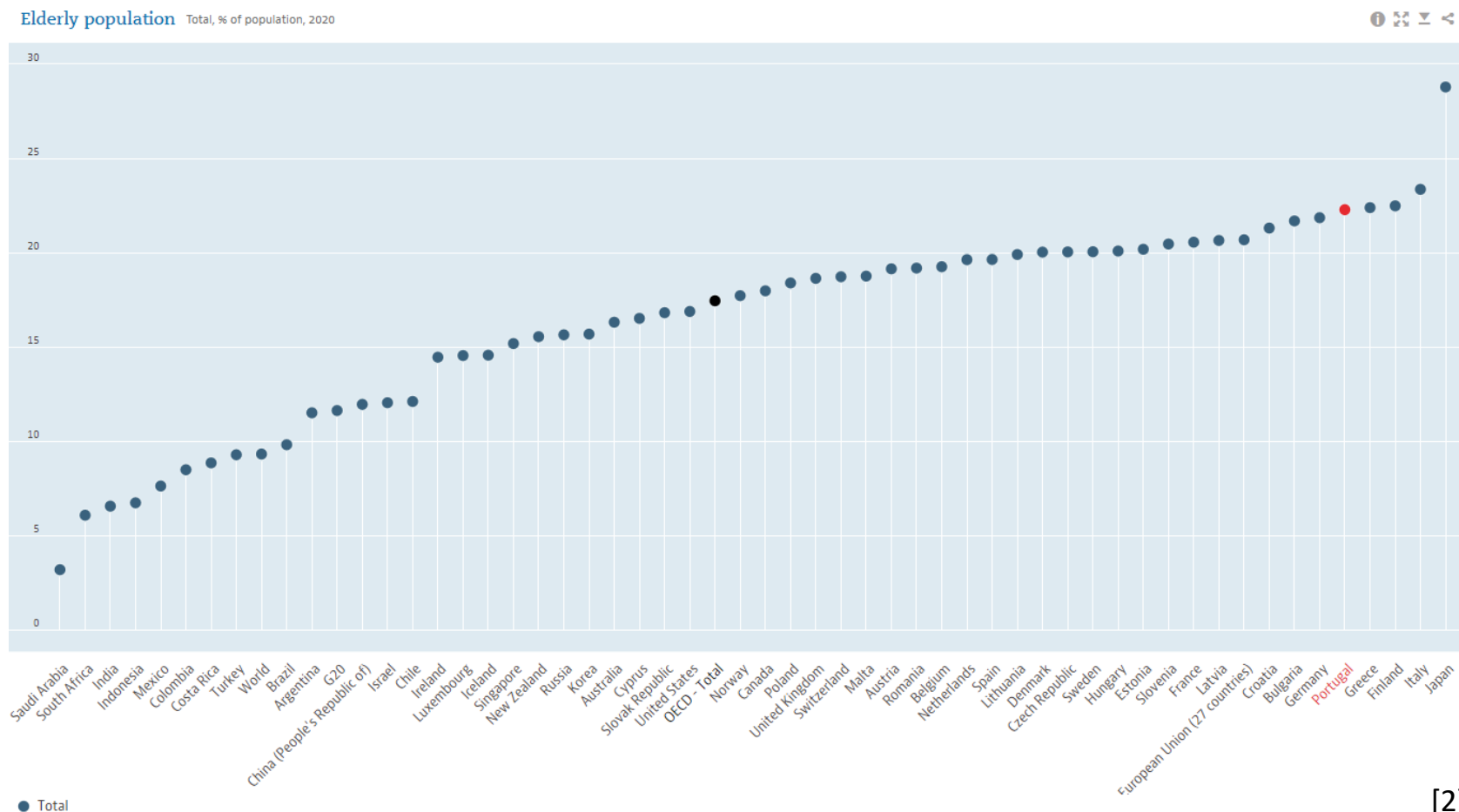


- Health and aging
- Theories of biological and psychosocial aging

- Physiological changes
- Psychological changes
- Social changes
- Healthy and active aging: concepts

# Introduction to health and aging

- ✓ Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22%.
- ✓ 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. [1]



[2]

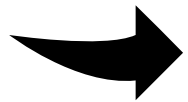
1. World Health Organization. (2021). *Ageing Data*. <https://www.who.int/data/maternal-newborn-child-adolescent-ageing/ageing-data>  
 2. OECD (2021), *Elderly population (indicator)*. doi: 10.1787/8d805ea1-en (Accessed on 13 December 2021)

# Introduction to health and aging

“Aging can be defined as a time-dependent series of cumulative, progressive, intrinsic, and harmful changes that begin to manifest themselves at reproductive maturity and eventually end in death (Arkinhg, 1998)” [3]

“Although aging is not itself a disease, it tends to increase susceptibility to disease.” [3]

“*Aging* refers to a process or group of processes occurring in living organisms that with the passage of time lead to a loss of adaptability, functional impairment, and eventually death.” [4]



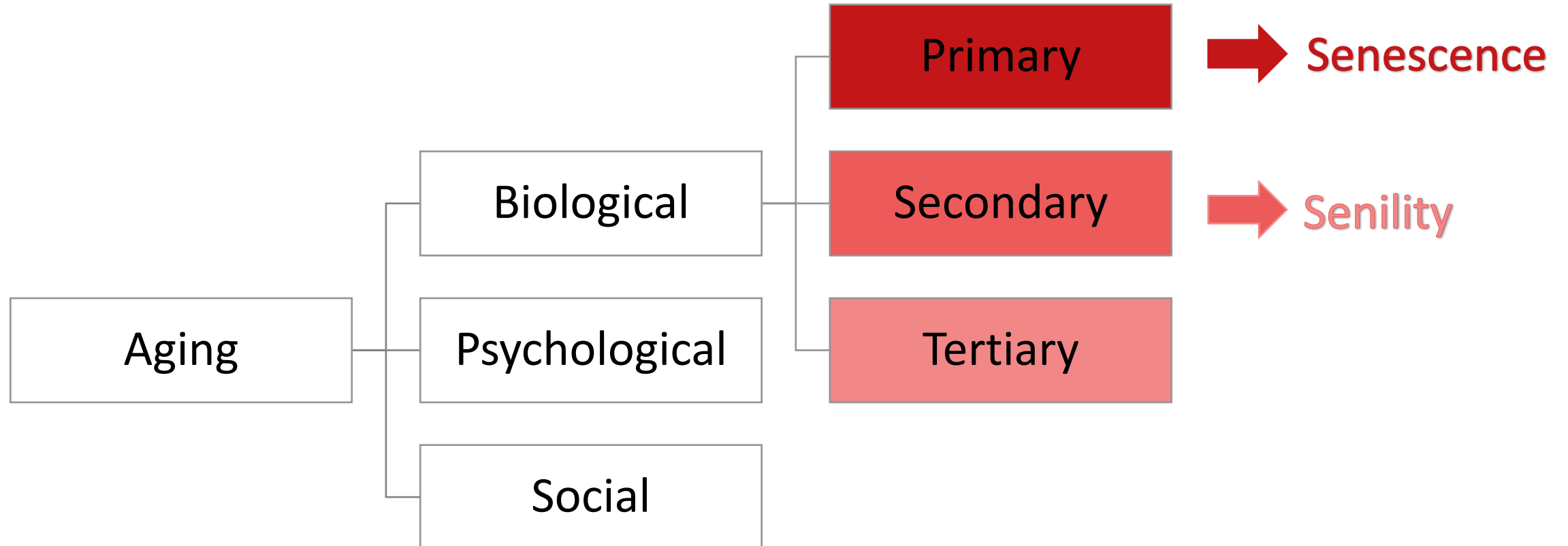
“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” [5]

3. Moody, H. R. (2002). *Aging. Concepts and Controversies* (4th ed.). Pine Forge Press.

4. Spirduso, W. W., Francis, K. L., & MacRae, P. G. (2005). *Physical Dimensions of Aging* (2 ed.). Human Kinetics.

5. Constitution of the World Health Organization, (1948). <https://www.who.int/about/governance/constitution>

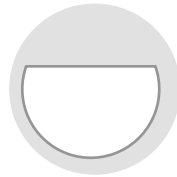
# Introduction to health and aging



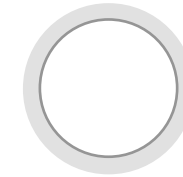
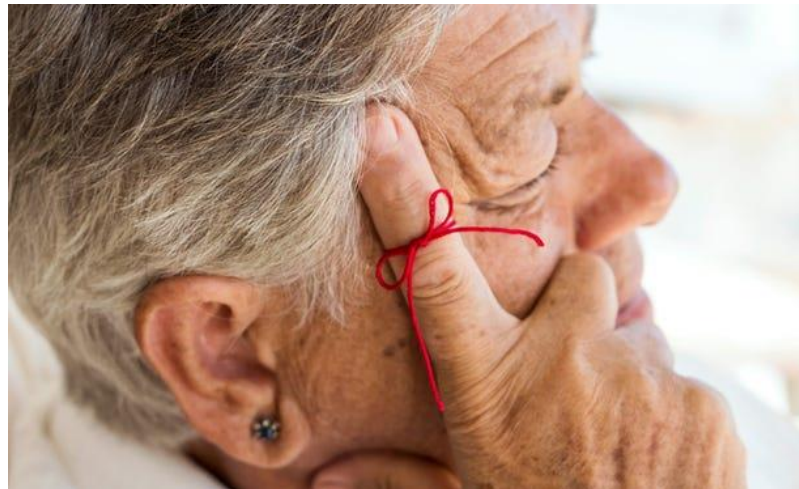
# Introduction to health and aging



**Biological**



**Psychological**

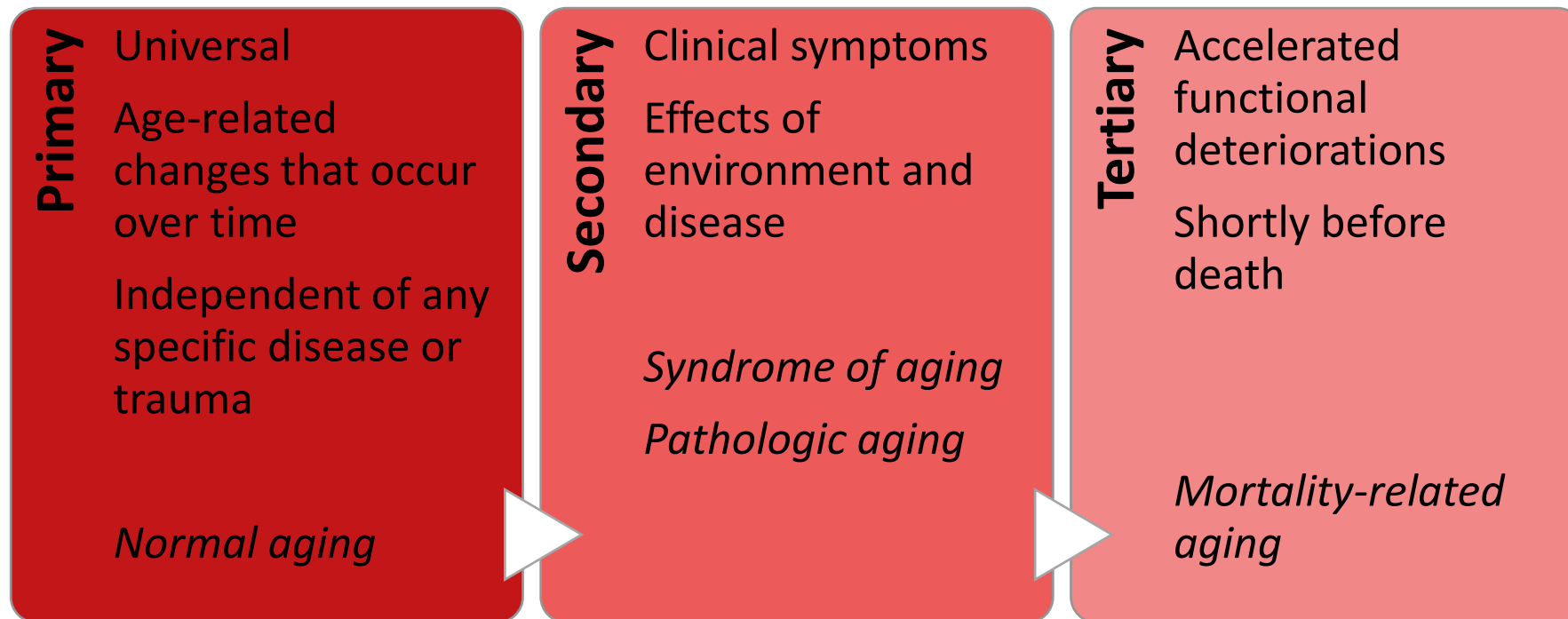


**Social**





# Introduction to health and aging



3. Moody, H. R. (2002). *Aging. Concepts and Controversies* (4th ed.). Pine Forge Press.

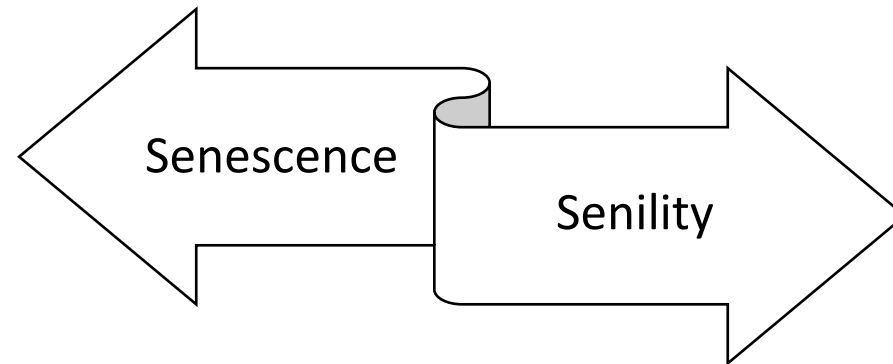
4. Spirduso, W. W., Francis, K. L., & MacRae, P. G. (2005). *Physical Dimensions of Aging* (2 ed.). Human Kinetics.

7. Ram, N., Gerstorf, D., Fauth, E., Zarit, S., & Malmberg, B. (2010). Aging, Disablement, and Dying: Using Time-as-Process and Time-as-Resources Metrics to Chart Late-Life Change. *Res Hum Dev*, 7(1), 27-44. <https://doi.org/10.1080/15427600903578151>

# Introduction to health and aging

“Senescence describes all postmaturational changes and the increasing vulnerability individuals face as a result of these changes”

“Senescence describes the group of effects that lead to a decreasing expectation of life with increasing age (Comfort 1979).” [8]

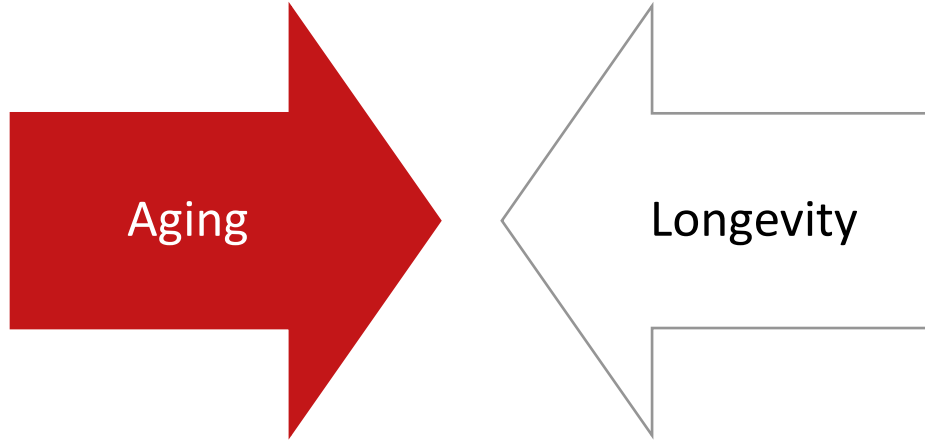


“The quality of being senile (= showing poor mental ability because of old age)” (*Cambridge Dictionary*)

6. Sequeira, C. (2010). *Cuidar de Idosos com Dependência Física e Mental*. Lidel.

8. Kart, C. S., & Kinney, J. M. (2001). *The Realities of Aging. An Introduction to Gerontology*. Allyn and Bacon.

# Introduction to health and aging



“Normal aging can be defined as an underlying time-dependent biological process that, although not itself a disease, involves functional loss and susceptibility to disease and death.”

→ **Gompertz Law**

# Introduction to health and aging: biological theories

## Wear-and-Tear Theory

Aging as result of chance

Each day, thousands of cells die and are replaced, and damaged cell parts are repaired

## Autoimmune Theory

The system may eventually become defective and no longer distinguish the body's own tissues from foreign tissues

## Aging Clock Theory

Aging is programmed into our bodies, like a clock ticking

Aging is seen as a normal part of a sequence leading from conception through development to senescence and finally to death

## Cross-Linkage Theory

The changes we see result from the accumulation of cross-linking compounds in the collagen, which gradually become stiff

Connective tissue in the body, such as the skin or the lens of the eye loses elasticity with advancing age

## Free Radicals

Free radicals are highly reactive and toxic when they come in contact with other cell structures, thus generating biologically abnormal molecules

Antioxidant substances

## Cellular Theory

Normal body cells have a finite potential to replicate and maintain their functional capacity (Hayflick limit)

Telomeres

# Introduction to health and aging: social theories

## Modernization Theory

- The role and status of the elderly are inversely related to technological progress.
- Factors such as urbanization and social mobility tend to disperse families, whereas technological change tends to devalue the wisdom or life experiences of elders, leading to a loss of status and power.

## Disengagement Theory

- It looks at old age as a time when both the older person and the society engage in mutual separations, as in the case of retirement from work.
- This process of disengagement is understood to be natural and normal tendency reflecting a basic biological rhythm of life

## Activity Theory

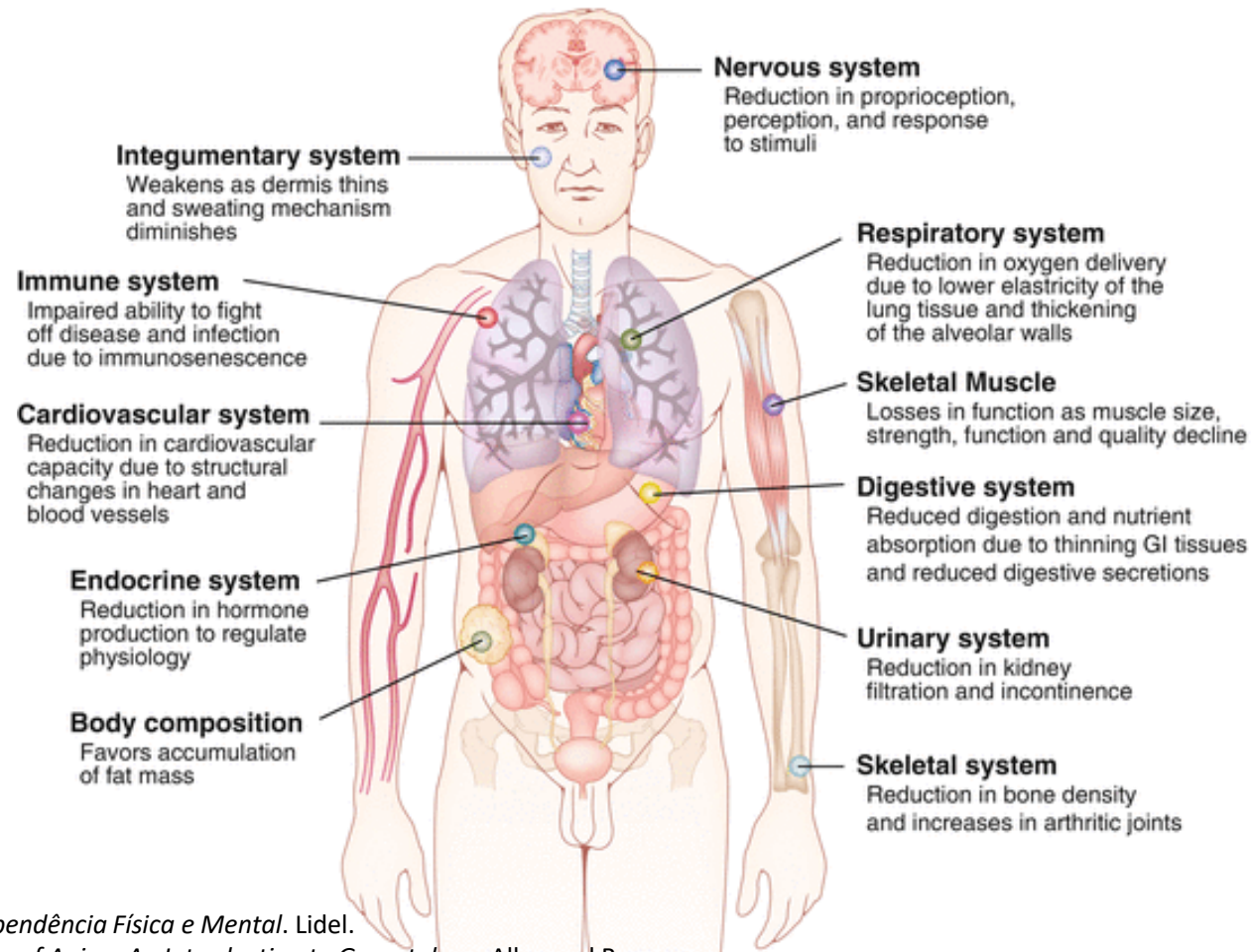
- Activity theory recognized that most people in old age continue with the roles and life activities established earlier because they continue to have the same needs and values.
- The continuity theory of aging makes a similar point, noting that people who grow older are inclined to maintain as much as they can the same habits, personality and style of life they developed in earlier years.

# Introduction to health and aging

1. Senility inevitable accompanies old age
2. Most old people are alone and isolated from their families
3. The majority of old people are in poor health
4. Old people are more likely than younger people to be victimized by crime
5. The majority of old people live in poverty
6. Old people tend to become more religious as they age
7. Older workers are less productive than younger ones
8. Old people who retire usually suffer a decline in health and early death
9. Most old people have no interest in, or capacity for, sexual relations
10. Most old people end up in nursing homes and other long-term care institutions

## Ageism

# The aging processes: physiological changes



6. Sequeira, C. (2010). *Cuidar de Idosos com Dependência Física e Mental*. Lidel.

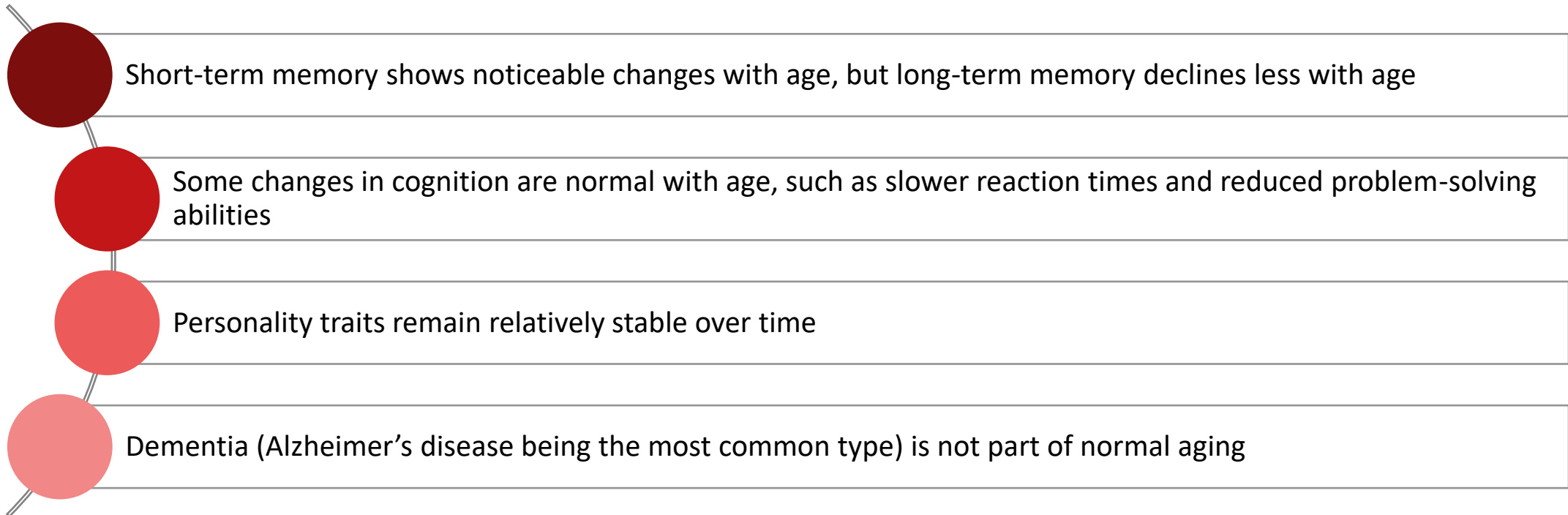
8. Kart, C. S., & Kinney, J. M. (2001). *The Realities of Aging. An Introduction to Gerontology*. Allyn and Bacon.

9. Fragala, M. S. (2015). The Physiology of Aging and Exercise. In G. M. Sullivan & A. K. Pomidor (Eds.), *Exercise for Aging Adults: A Guide for Practitioners* (pp. 1-11). Springer International Publishing.

10. Spirduso, W. W., Francis, K. L., & MacRae, P. G. (2005). *Physical Dimensions of Aging* (2 ed.). Human Kinetics.

11. Shephard, R. J. (1997). *Aging, physical activity, and health* (1 ed.). Human Kinetics.

# The aging processes: psychological changes





# The aging processes: social changes

Retirement

Grandma/Grandpa  
Role

Dependency and  
Disease

Changes in familiar  
relations

Social Support  
Network

Death

# The aging processes: key concepts

**Autonomy** is the perceived ability to control, cope with and make personal decisions about how one lives on a day-to-day basis, according to one's own rules and preferences.

**Independence** is commonly understood as the ability to perform functions related to activities daily living (ADL) – i.e. the capacity of living independently in the community with no and/or little help from others.

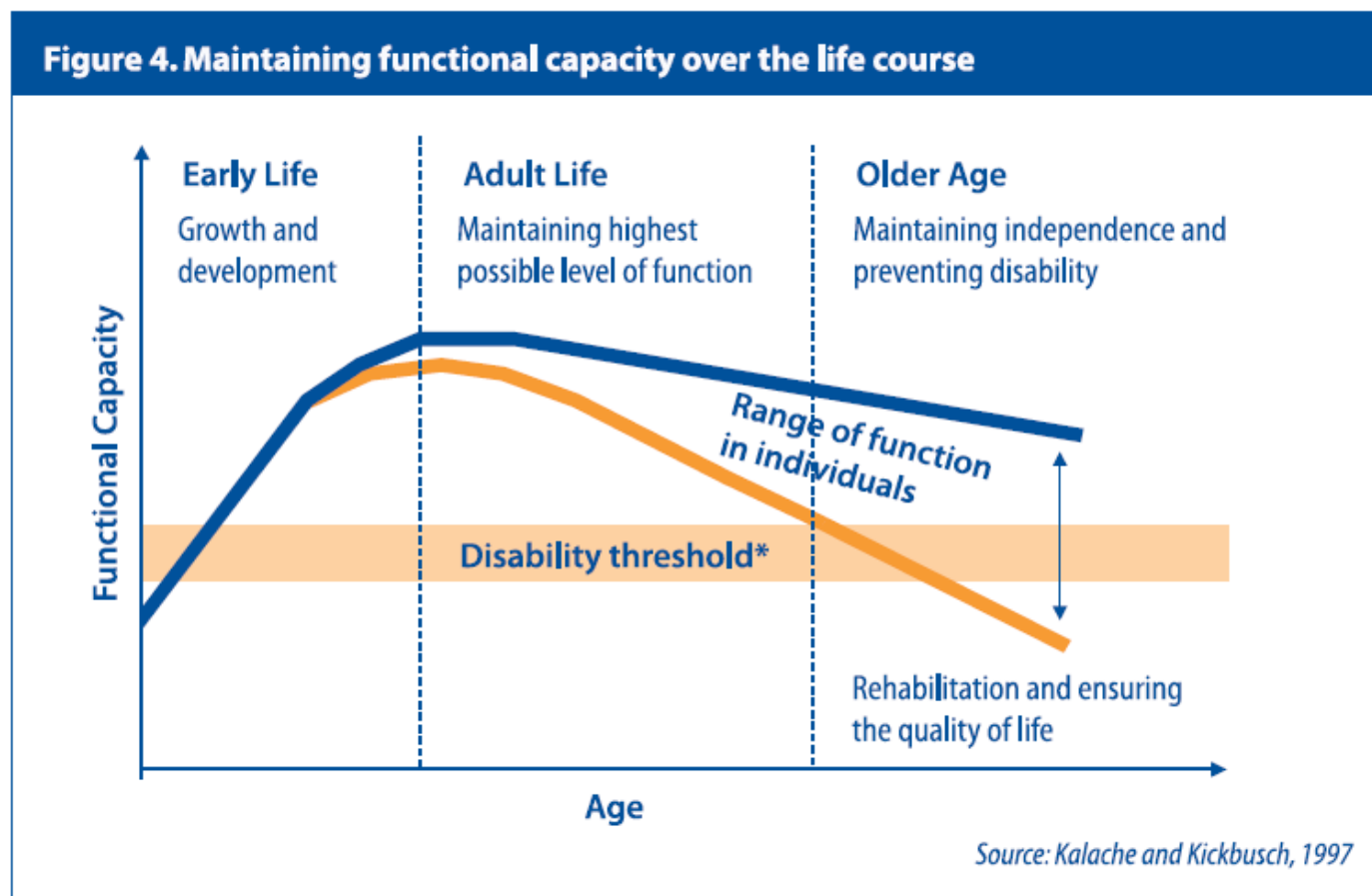
**Quality of life** is “an individual’s perception of his or her position in life in the context of the culture and value system where they live, and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept, incorporating in a complex way a person’s physical health, psychological state, level of independence, social relationships, personal beliefs and relationship to salient features in the environment.” (WHO, 1994).

**Healthy life expectancy** is commonly used as a synonym for “disability-free life expectancy”. While life expectancy at birth remains an important measure of population ageing, how long people can expect to live without disabilities is especially important to an ageing population.



ADL (basic)  
IADL (instrumental)

# The aging processes: active aging



*“Active ageing is the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age.”*  
 [13]

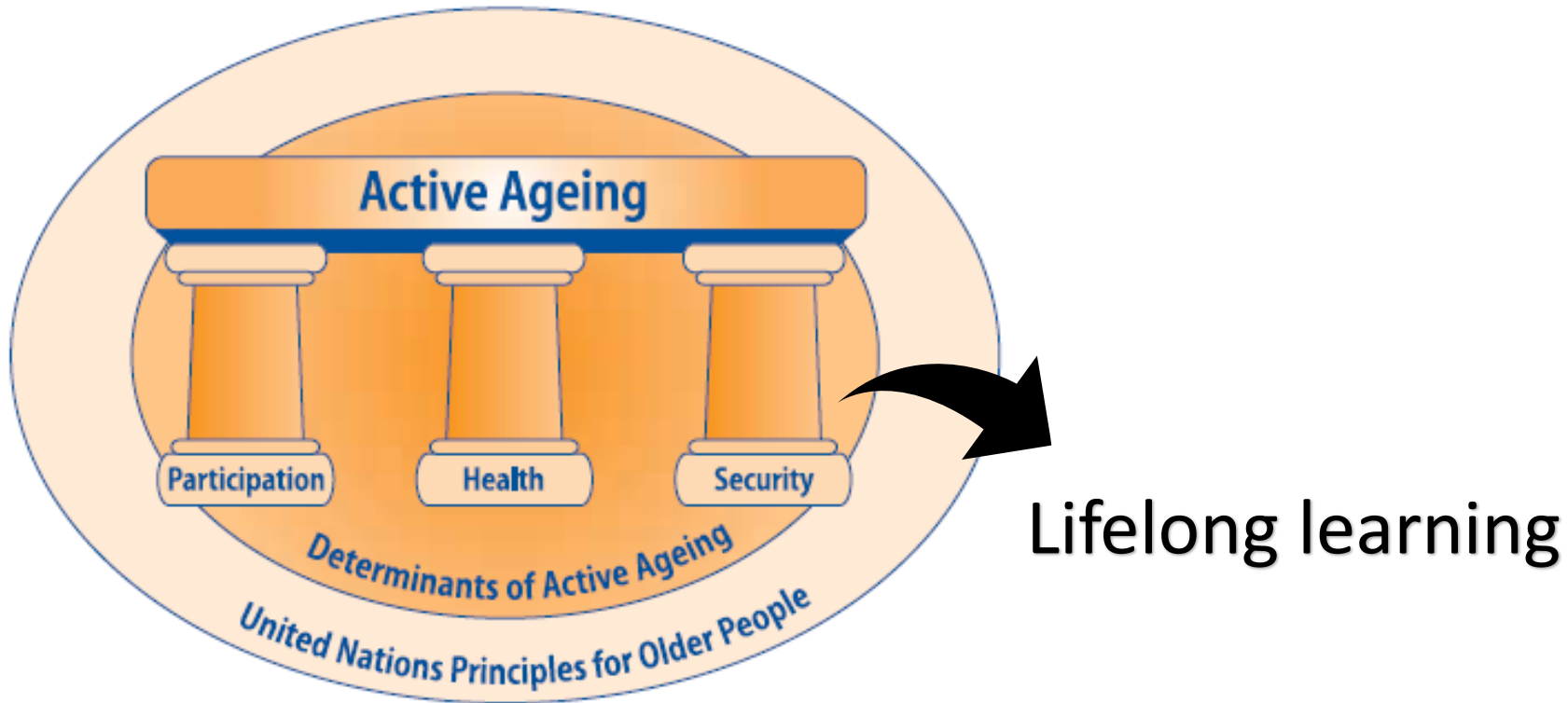
\*Changes in the environment can lower the disability threshold, thus decreasing the number of disabled people in a given community.

# The aging processes: active aging

**Figure 8. The determinants of Active Ageing**



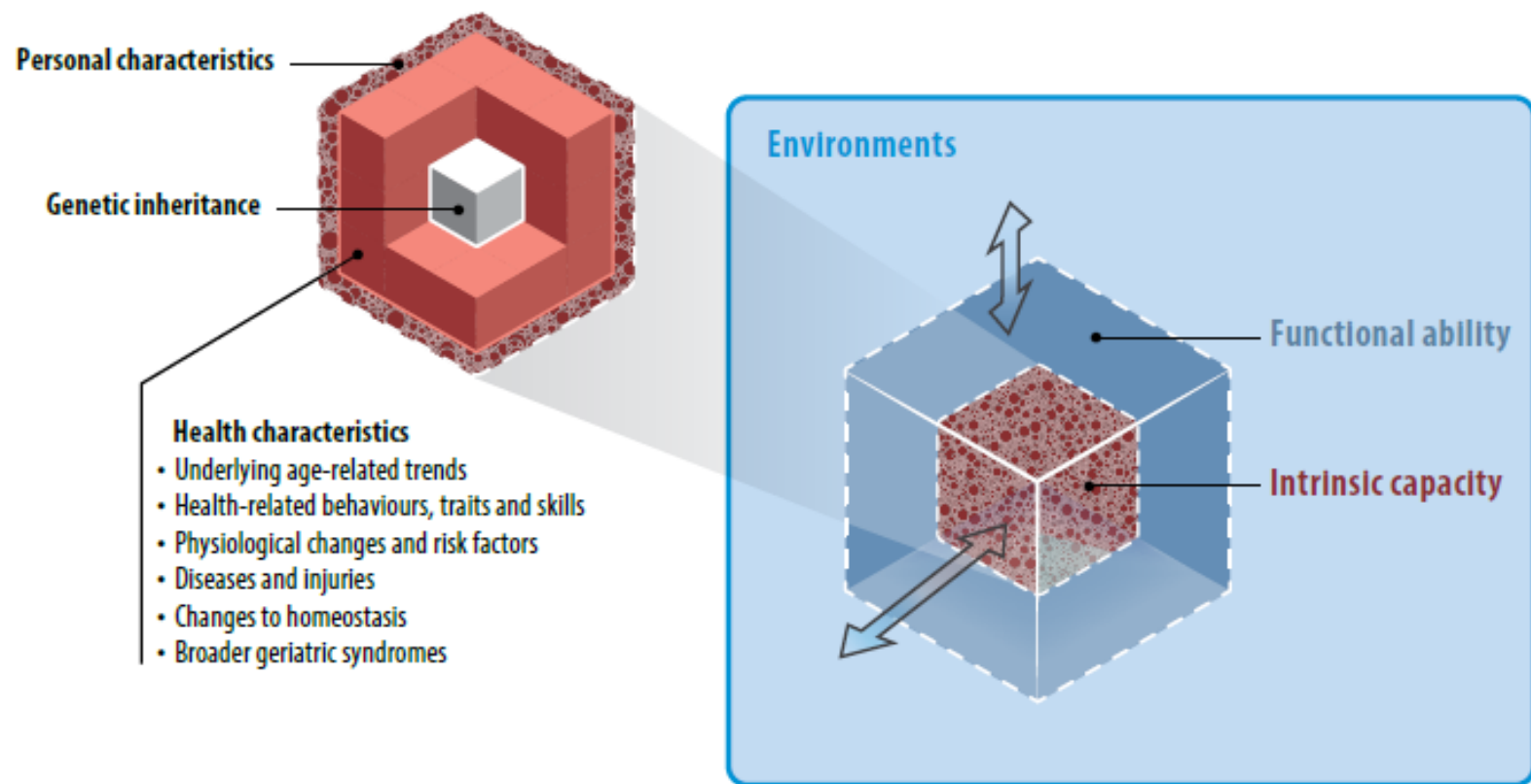
# The aging processes: active aging



Lifelong learning

# The aging processes: healthy aging

**Fig. 2.1. Healthy Aging**

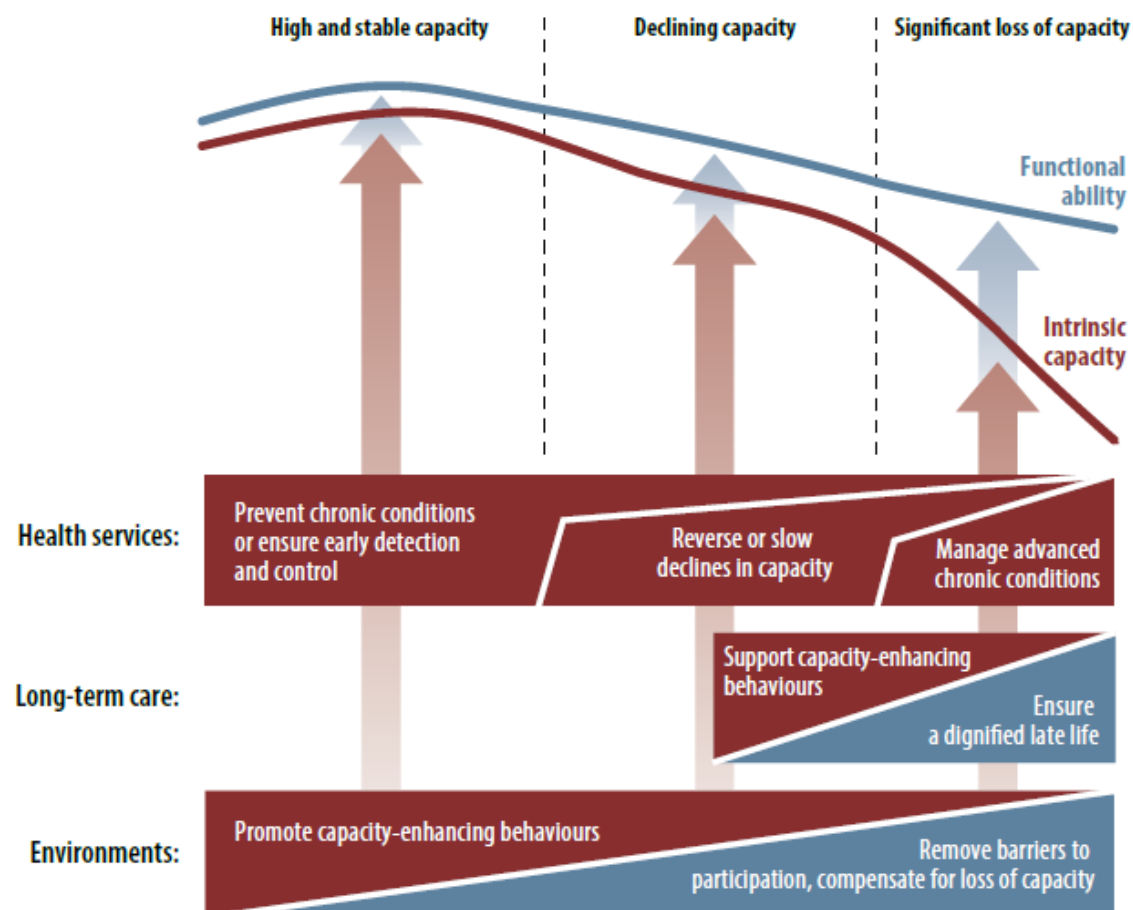


14. World Health Organization. (2015). *World Report on Ageing and Health*. Geneva. WHO.

15. World Health Organization. (2020). *UN Decade of Healthy Ageing*. Retrieved 13/12/2021 from <https://www.who.int/initiatives/decade-of-healthy-ageing>

# The aging processes: healthy aging

**Fig. 2.4.** A public-health framework for *Healthy Ageing*: opportunities for public-health action across the life course



## Key issues for public health action:

- Dealing with diversity
- Reducing inequity
- Enabling choice
- Aging in place

14. World Health Organization. (2015). *World Report on Ageing and Health*. Geneva. WHO.

15. World Health Organization. (2020). *UN Decade of Healthy Ageing*. Retrieved 13/12/2021 from <https://www.who.int/initiatives/decade-of-healthy-ageing>

# The aging processes: healthy aging

**Table 1. Guiding principles for the *Decade of Healthy Ageing***

Interconnected and indivisible	All implementing stakeholders address all the Sustainable Development Goals together instead of a list of goals from which they pick and choose.
Inclusive	Involves all segments of society, irrespective of their age, gender, ethnicity, ability, location or other social category.
Multistakeholder partnerships	Multistakeholder partnerships are mobilized to share knowledge, expertise, technology and resources.
Universal	Commits all countries, irrespective of income level and development status, to comprehensive work for sustainable development, adapted to each context and population, as necessary.
Leaving no one behind	Applies to all people, whoever and wherever they are, targeting their specific challenges and vulnerability.
Equity	Champions equal, just opportunities to enjoy the determinants and enablers of healthy ageing, including social and economic status, age, gender, place of birth or residence, migrant status and level of ability. This may sometimes require unequal attention to some population groups to ensure the greatest benefit to the least advantaged, most vulnerable or marginalized members of society.
Intergenerational solidarity	Enables social cohesion and interactive exchange among generations to support health and well-being for all people.
Commitment	Sustains work over the 10 years and into the longer term.
Do no harm	Commits countries to protect the well-being of all stakeholders and minimize any foreseeable harm to other age groups.



Click Here!

14. World Health Organization. (2015). *World Report on Ageing and Health*. Geneva. WHO.

15. World Health Organization. (2020). *UN Decade of Healthy Ageing*. Retrieved 13/12/2021 from <https://www.who.int/initiatives/decade-of-healthy-ageing>



# The aging processes: healthy aging

## Healthy ageing:

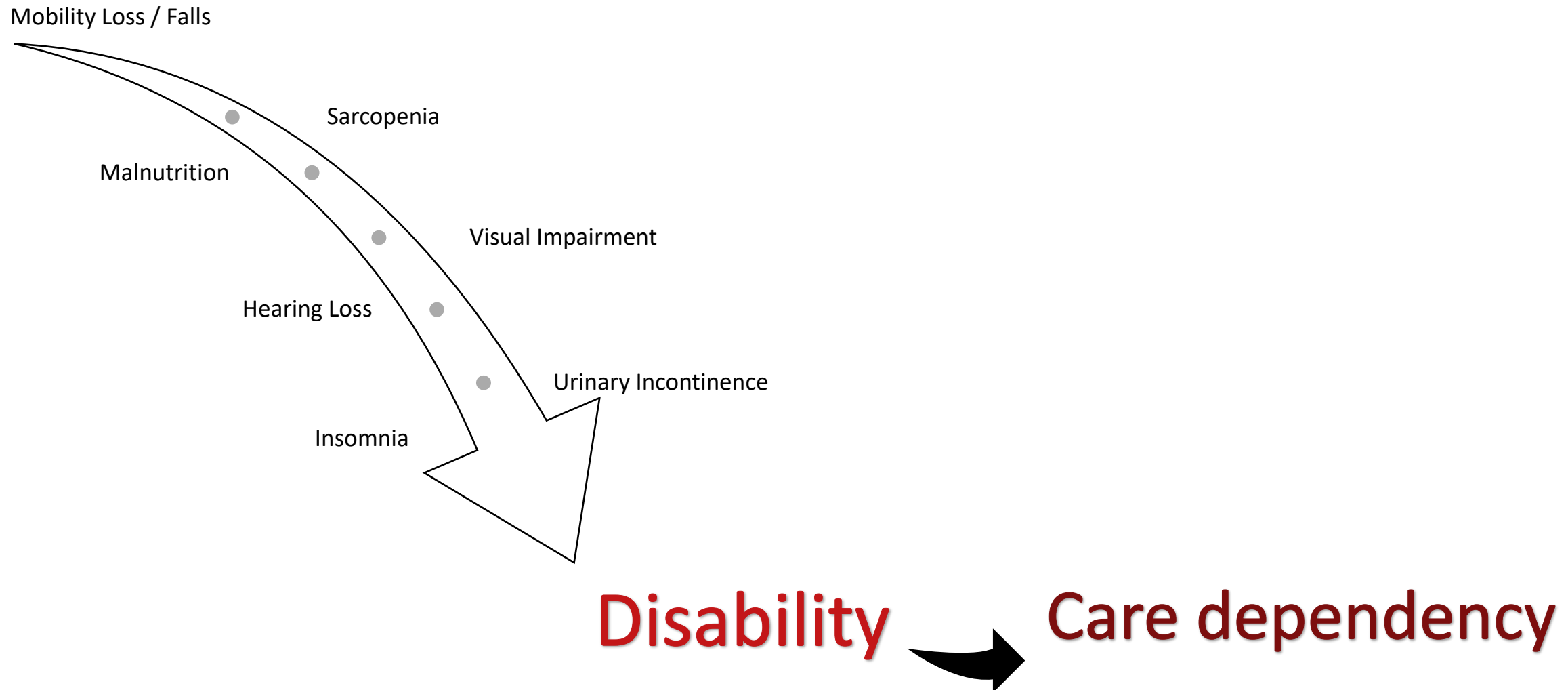
- ❖ is a rights-based response to population ageing;
- ❖ embraces human development;<sup>11</sup>
- ❖ includes all persons, including those who experience disease or disability;
- ❖ enables older people to have a central role including decision-making about their own lives;
- ❖ mitigates inequities accumulated over the life course;
- ❖ optimizes functional ability with a whole-of-society approach; and
- ❖ addresses governments' concerns for sustainable and cost-effective approaches.

14. World Health Organization. (2015). *World Report on Ageing and Health*. Geneva. WHO.

15. World Health Organization. (2020). *UN Decade of Healthy Ageing*. Retrieved 13/12/2021 from <https://www.who.int/initiatives/decade-of-healthy-ageing>

16. World Health Organization. (2021). *Decade of healthy ageing: baseline report*. Geneva. WHO.

# Main health related issues



# Main health related issues: impact on family, society and health services

Top 10 causes of DALY in Portugal for both sexes aged 85 years and above (2019)

[Hide filters](#) | [Top-10 deaths](#) | [Top-10 DALYs](#) | [Underlying data](#) | [Download with OData API](#)

## Filters

Country

Portugal

Year

2019

Sex

Both sexes

Age group

85 years and above

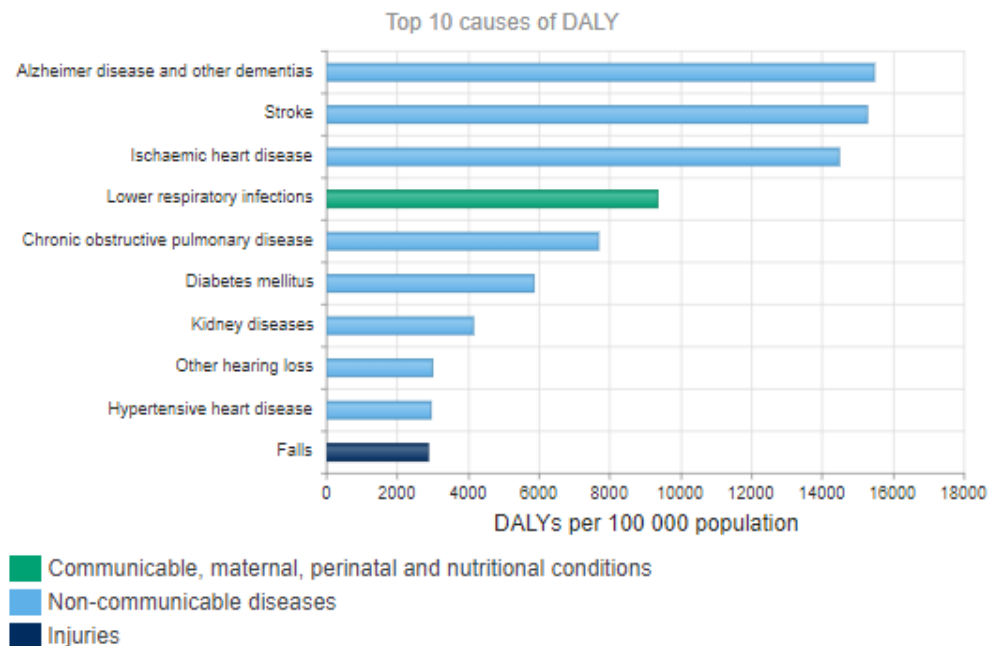
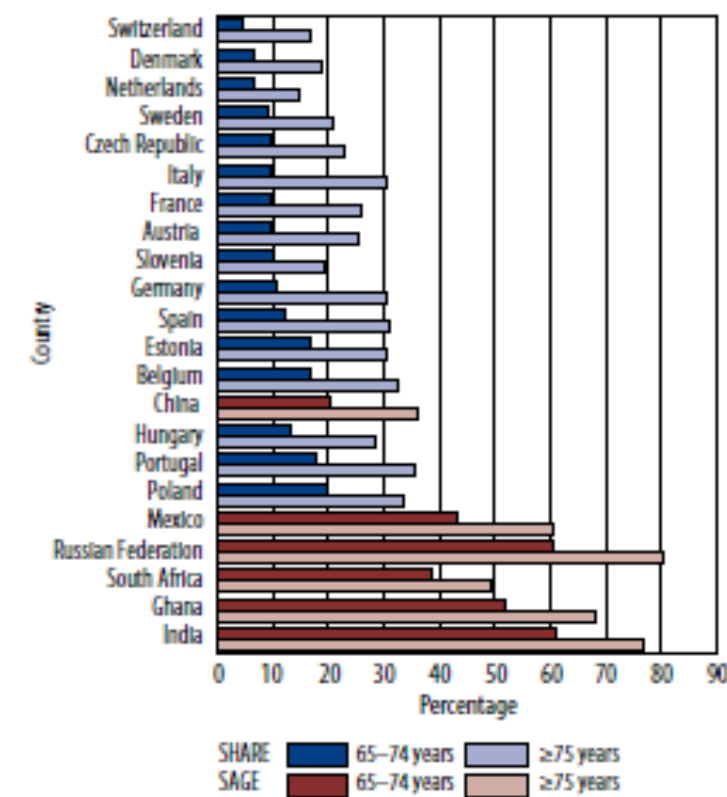


Fig. 3.20. Percentage of the population aged 65–74 years and aged 75 years or older with a limitation in one or more of five basic activities of daily living (ADL), by country



Note: The five basic ADL items included in the analysis were eating, bathing, dressing, getting in and out of bed, and using the toilet.

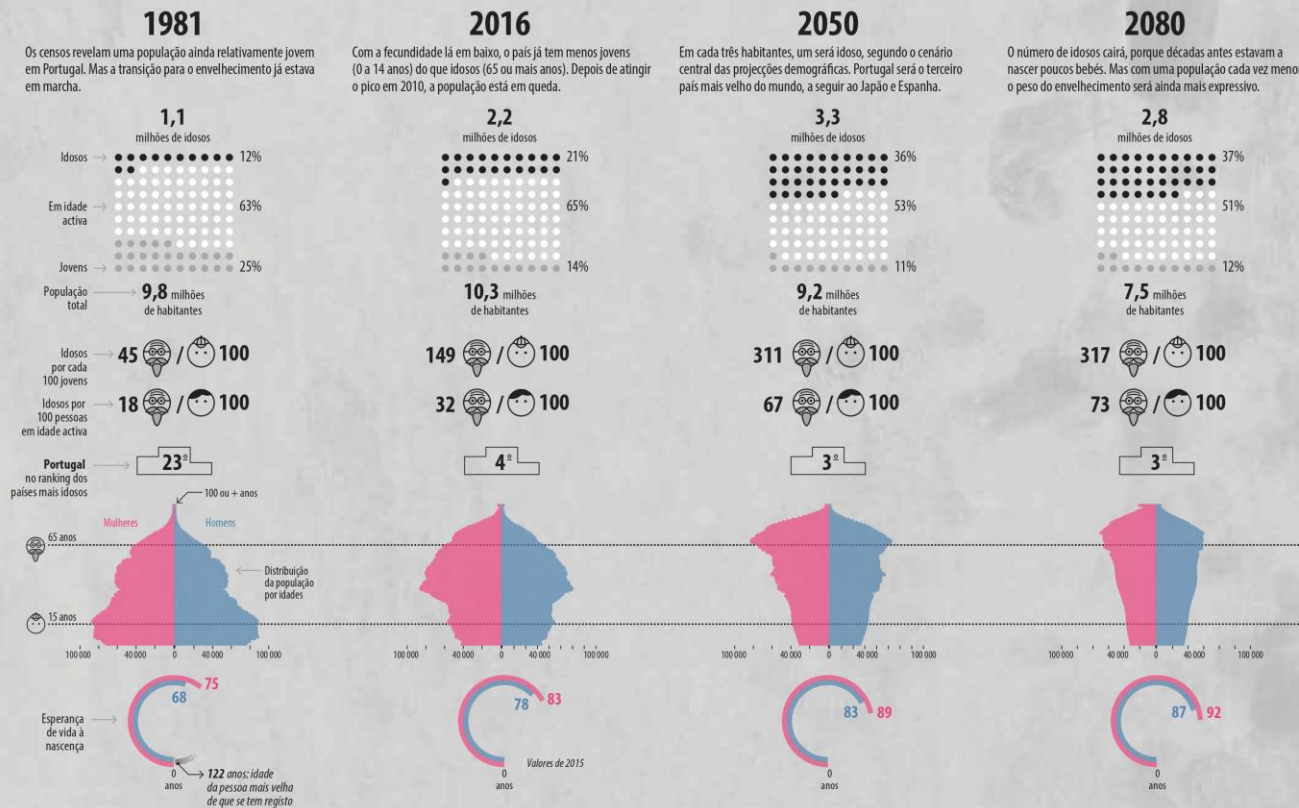
14. World Health Organization. (2015). *World Report on Ageing and Health*. Geneva. WHO.

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<https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/global-health-estimates-leading-causes-of-dalys>

# PORTUGAL, UM PAÍS A ENVELHECER

O PAÍS É HOJE O QUARTO DO MUNDO COM MAIS IDOSOS E AINDA IRÁ SUBIR MAIS UMA POSIÇÃO. EIS UM RETRATO DO QUE ESTÁ A ACONTECER.



## DE QUE MORREM OS IDOSOS

O cancro e as doenças dos aparelhos circulatório ou respiratório são as principais causas de morte depois dos 65 anos. (Dentro de cada grupo estão representadas apenas as doenças mais comuns, em % dos óbitos).



HOMENS

APARELHO CIRCULATÓRIO	29%
AVC e outras doenças cerebrovasculares	11%
Enfarte e outras doenças isquémicas do coração	7%
Outras doenças cardíacas	6%



MULHERES

APARELHO CIRCULATÓRIO	35%
AVC e outras doenças cerebrovasculares	13%
Outras doenças cardíacas	8%
Enfarte e outras doenças isquémicas do coração	6%

**A MORTE TAMBÉM ENVELHECE**

A queda na mortalidade infantil e a melhoria dos cuidados de saúde concentraram a esmagadora maioria dos óbitos nos idosos com mais de 70 anos.

1970	2016
Dois em cada cinco mortes	Quatro em cada cinco mortes

**CANCROS** 27%

Pulmões, traqueia e laringe	5,1%
Próstata	3,8%
Colón	2,9%
Estômago	2,3%
Sistema linfático	2,2%

**CANCROS** 17%

Mama	2,3%
Colón	1,8%
Sistema linfático	1,8%
Estômago	1,5%
Pulmões, traqueia e laringe	1,4%

**APARELHO RESPIRATÓRIO** 15%

Pneumonia	6%
Doenças crónicas	4%

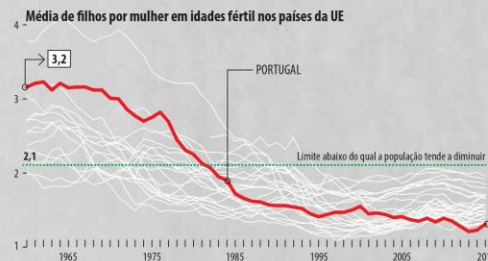
**APARELHO RESPIRATÓRIO** 13%

Pneumonia	6%
Doenças crónicas	2%

## RAZÕES DO ENVELHECIMENTO

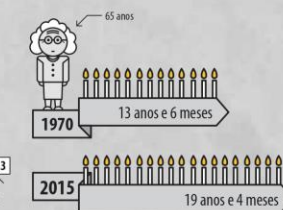
### MENOS FILHOS

A fecundidade em Portugal caiu abruptamente e agora é a menor da União Europeia. A fatia jovem da população encolheu, aumentando o peso da população idosa.



### MENOR MORTALIDADE

A morte ocorre menos em idades precoces e, com isso, mais pessoas atingem os 65 anos. E, uma vez aí, chegado, vivem mais anos agora.



### MAIS EMIGRANTES

Cerca de **846 mil pessoas a menos** é o saldo entre os emigrantes e imigrantes em Portugal desde 1960. Os que emigram normalmente estão em idade activa, o que contribui para o envelhecimento.



## DESAFIOS PARA O FUTURO

**SAÚDE**

Os sistemas de saúde devem adaptar-se a necessidades mais complexas, com cuidados integrados, pessoal treinado e estruturas de apoio a longo prazo. A tecnologia traz oportunidades de monitorização da saúde dos idosos em tempo real.

**TRABALHO**

Com o prolongamento da vida activa, é preciso eliminar barreiras à contratação dos idosos. Os locais de trabalho devem ser adaptados às necessidades desta população e as aptidões profissionais e tecnológicas atualizadas ao longo da vida.

**CIDADES**

Muitas cidades já estão a adoptar estratégias para o envelhecimento. Incluem medidas nas áreas da habitação, transportes, espaços públicos, lazer, comunicação, serviços e apoio social. Planos de ordenamento devem integrar estas e outras preocupações.

**DINHEIRO**

O envelhecimento cria um enorme problema para a protecção social dos idosos, pois há menos população em idade activa para sustentar as pensões. Muitos países estão já a aumentar a idade da reforma, mas a um ritmo ainda modesto perante os desafios que se colocam.

**DISCRIMINAÇÃO**

É um problema transversal que é preciso combater no trabalho, nos serviços, na comunidade, na família. Envolve campanhas públicas de sensibilização contra o estereótipo do idoso e legislação que defenda os direitos dos mais velhos.

# Main health related issues: impact on family, society and health services

Age-friendly  
Environments

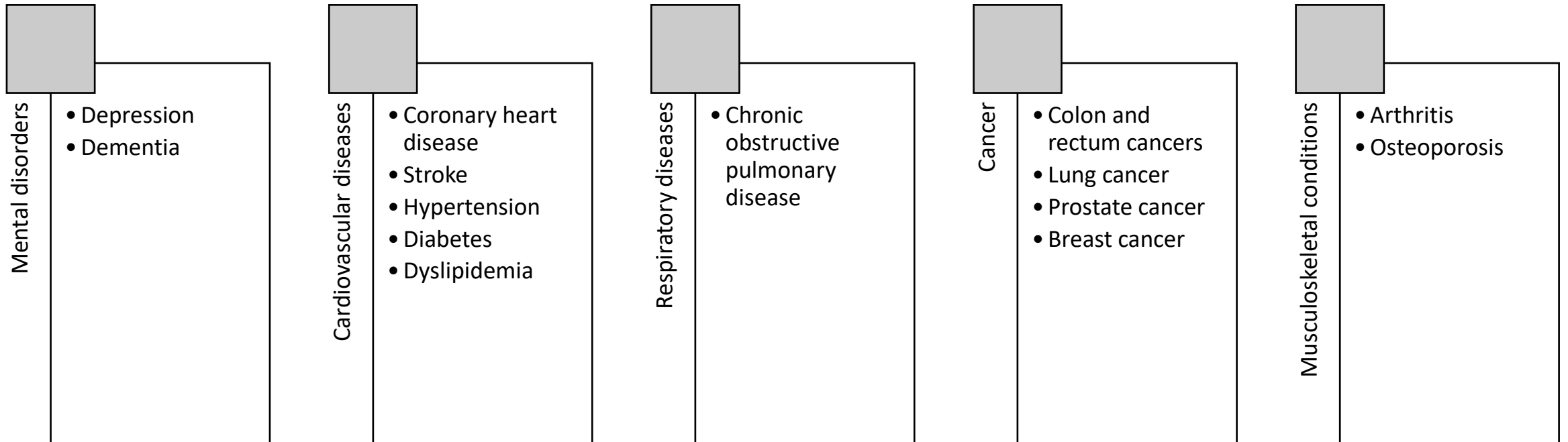
Combatting  
Ageism

Integrated Care

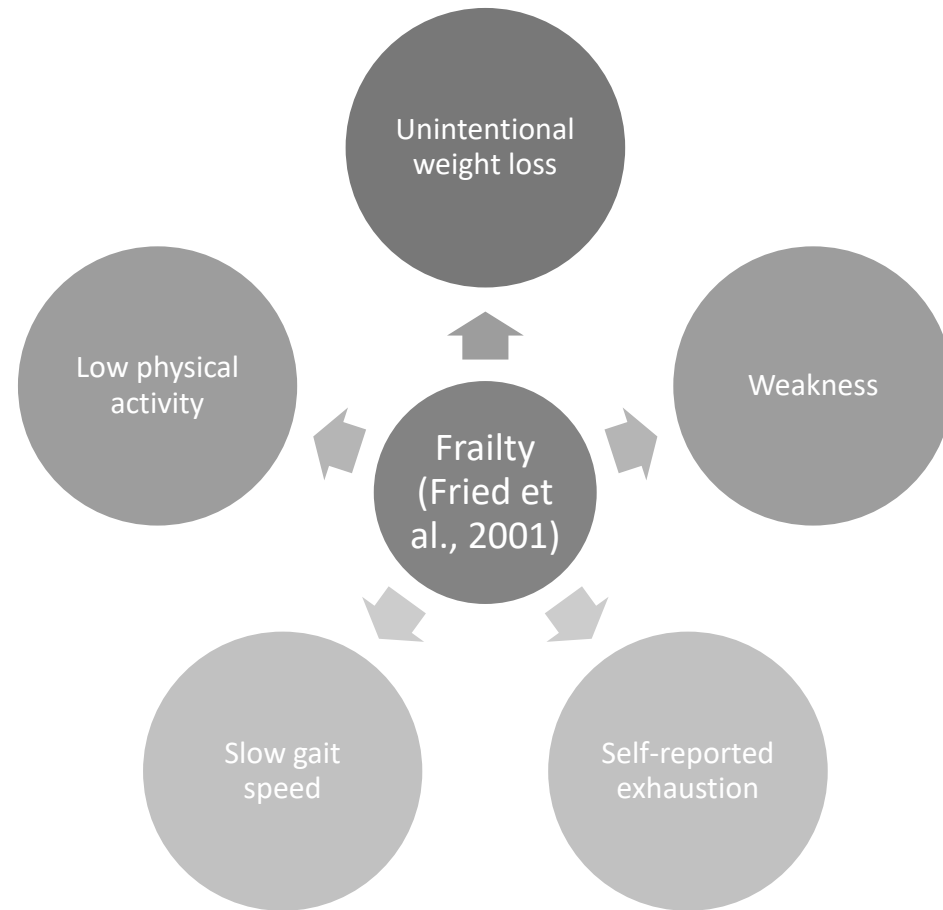
Long-term Care



# Aging and chronic illness/conditions



# Aging and chronic illness/conditions

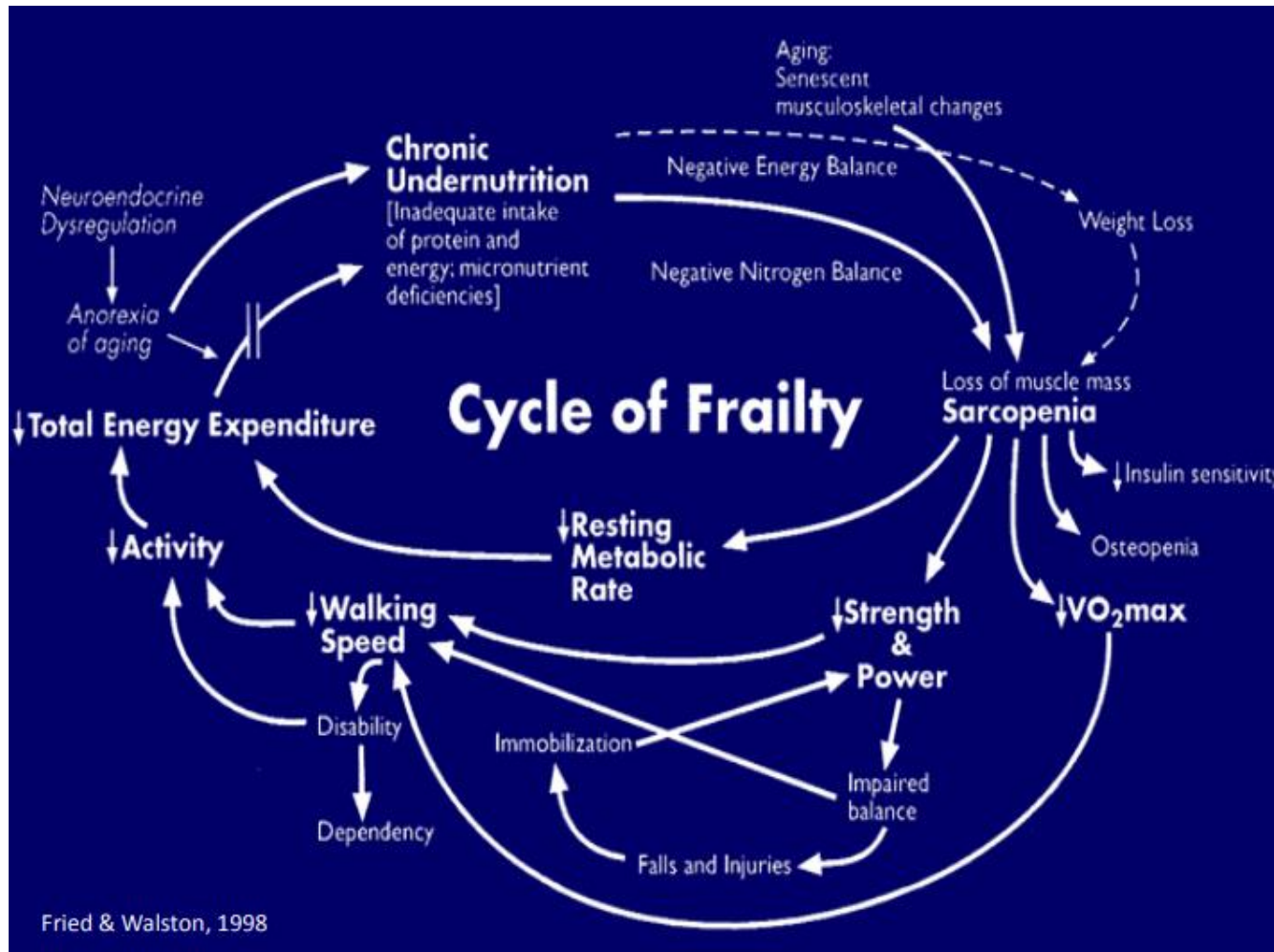


“Frailty may be conceptually defined as a clinically recognizable state in older people who have increased vulnerability, resulting from age-associated declines in physiological reserve and function across multiple organ systems, such that the ability to cope with everyday or acute stressors is compromised” (World Health Organization, 2016)

19. Fried, L. P., Tangen, C. M., Walston, J., Newman, A. B., Hirsch, C., Gottdiener, J., Seeman, T., Tracy, R., Kop, W. J., Burke, G., & McBurnie, M. A. (2001). Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci*, 56(3), M146-156. <https://doi.org/10.1093/gerona/56.3.m146>

20. World Health Organization. (2016). *WHO Clinical Consortium on Healthy Ageing: Topic focus - frailty and intrinsic capacity*. WHO.

# Aging and chronic illness/conditions



Elevated risk for:  
 Mortality  
 Hospitalization  
 Institutionalization  
 BADL Disability  
 IADL Disability  
 (Vermeiren et al., 2016)

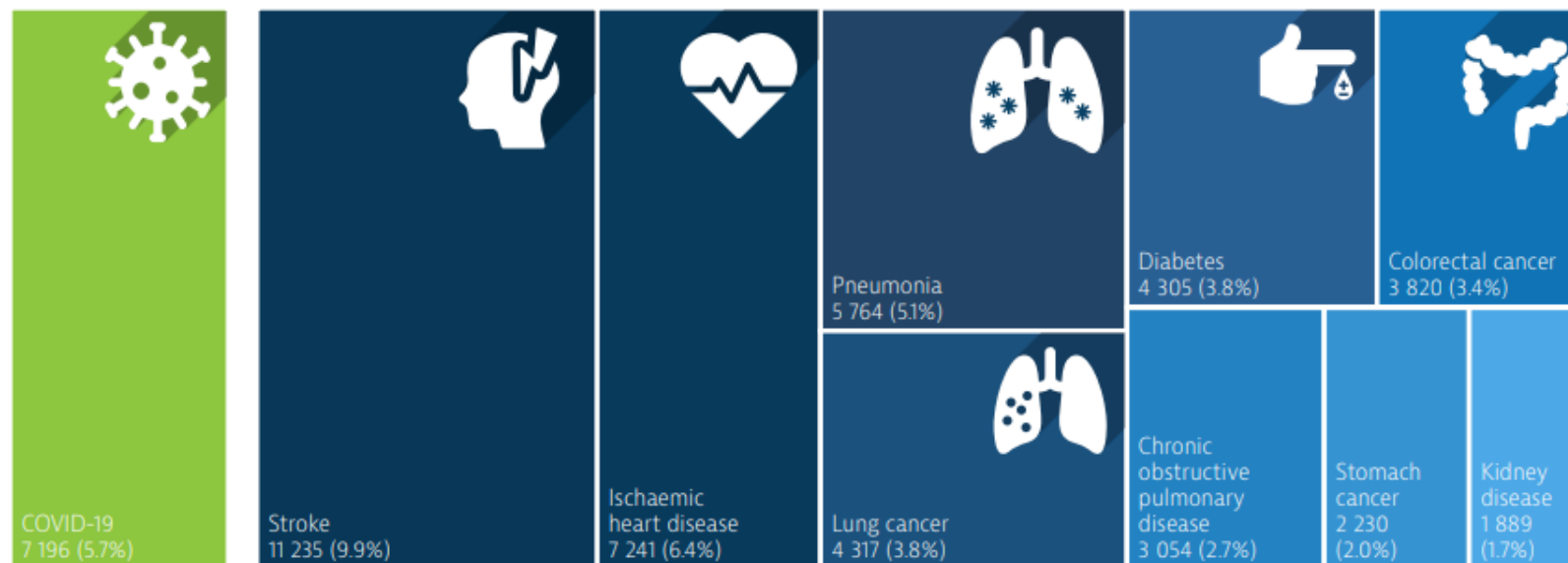
19. Fried, L. P., et al. (2001). Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci*, 56(3), M146-156. <https://doi.org/10.1093/gerona/56.3.m146>

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# Aging and chronic illness/conditions

Figure 3. Stroke and ischaemic heart disease are the main causes of death, but COVID-19 led to many deaths in 2020

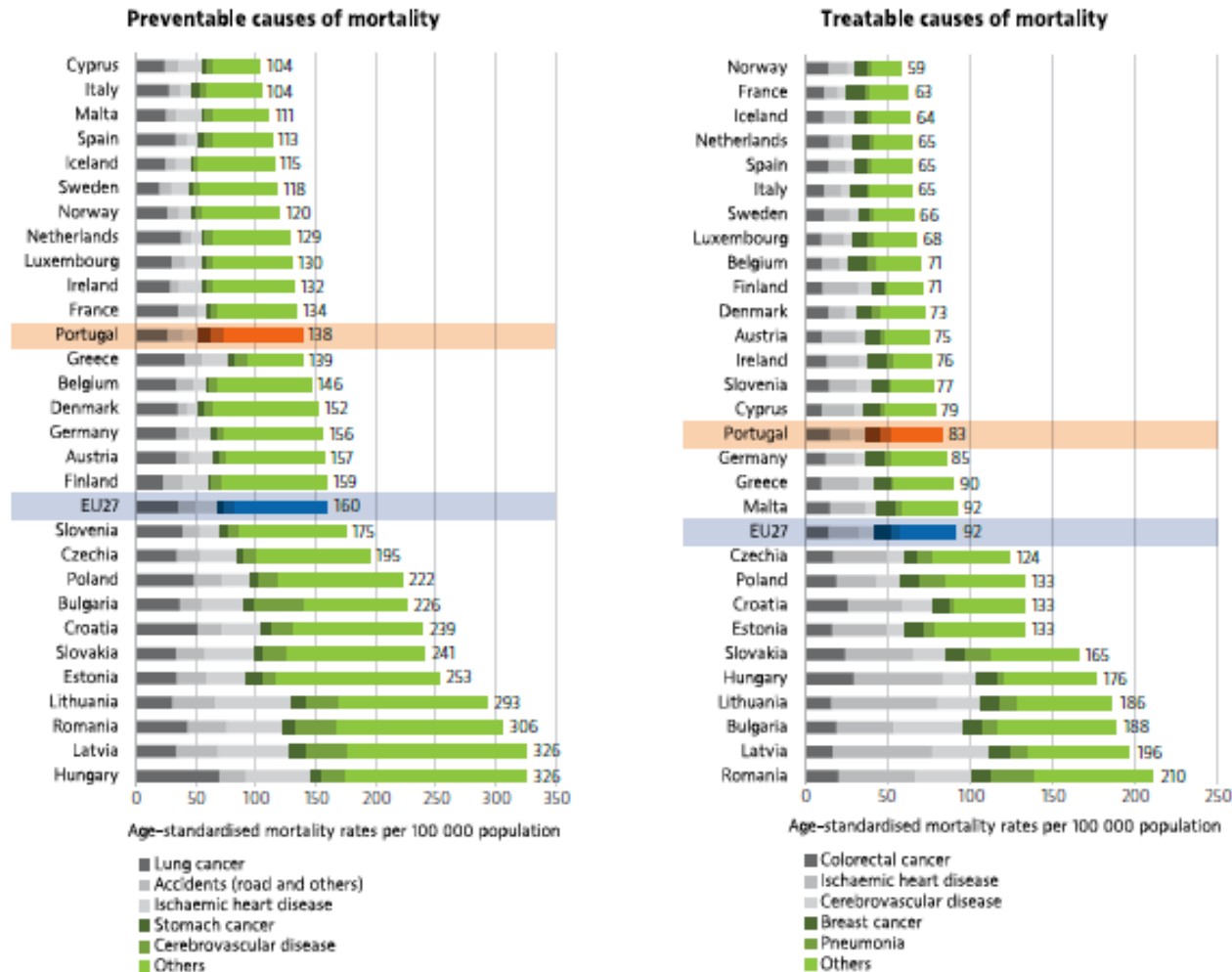


Note: The number and share of COVID-19 deaths refer to 2020, while the number and share of other causes refer to 2018. The size of the COVID-19 box is proportional to the size of the other main causes of death in 2018.

Sources: Eurostat (for causes of death in 2018); ECDC (for COVID-19 deaths in 2020, up to week 53).

# Aging and chronic illness/conditions

Figure 11. Portugal has lower levels of preventable and treatable mortality than the EU average



Preventable and treatable mortality rates are only slightly below the EU averages

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Thank you!

Flávia Machado

f\_93\_machado@live.com.pt

