

MASTER Biology & Health
University of Montpellier



Aging
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Part 1



Aging is a topical issue

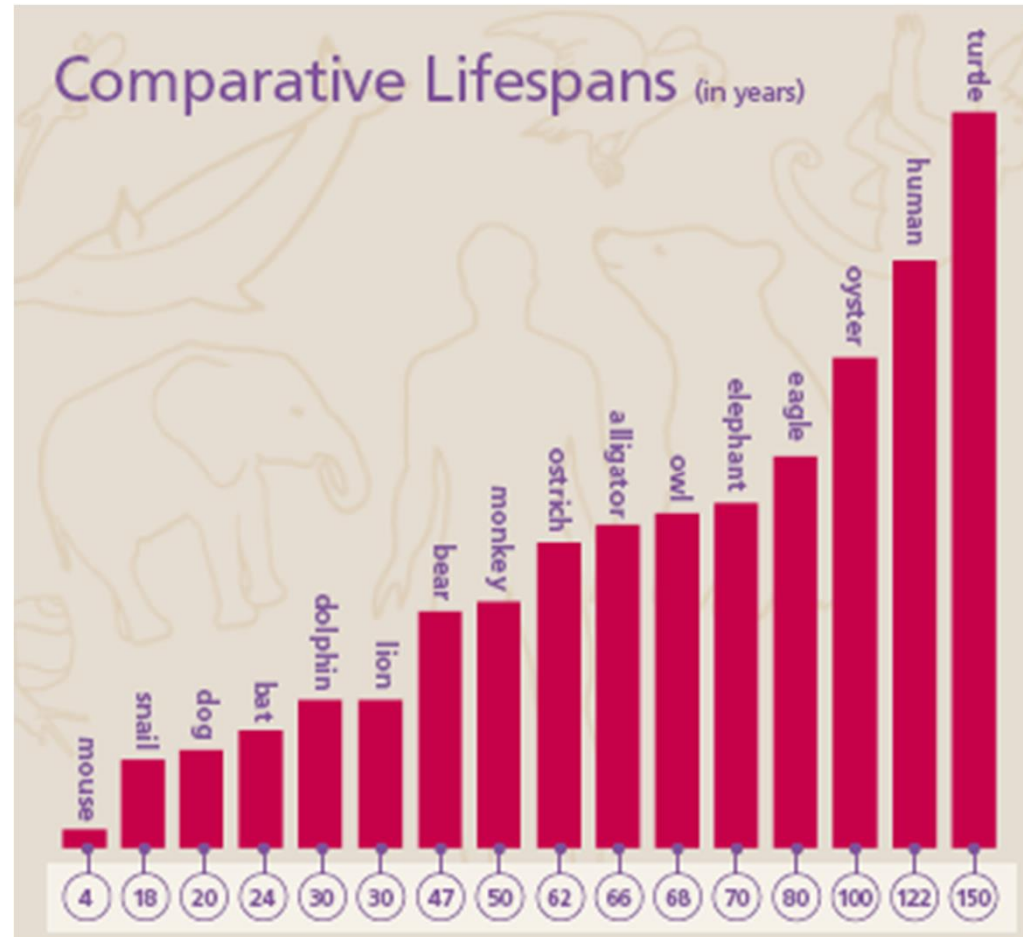


The average lifespan has drastically increased during the last century. This is a great success in our modern society. The percentage of elderly people has been increasing steadily in Western countries. More and more people are living until the age of 100 years. Nevertheless, people suffering from diseases associated with aging are also increasing.

What is aging ?

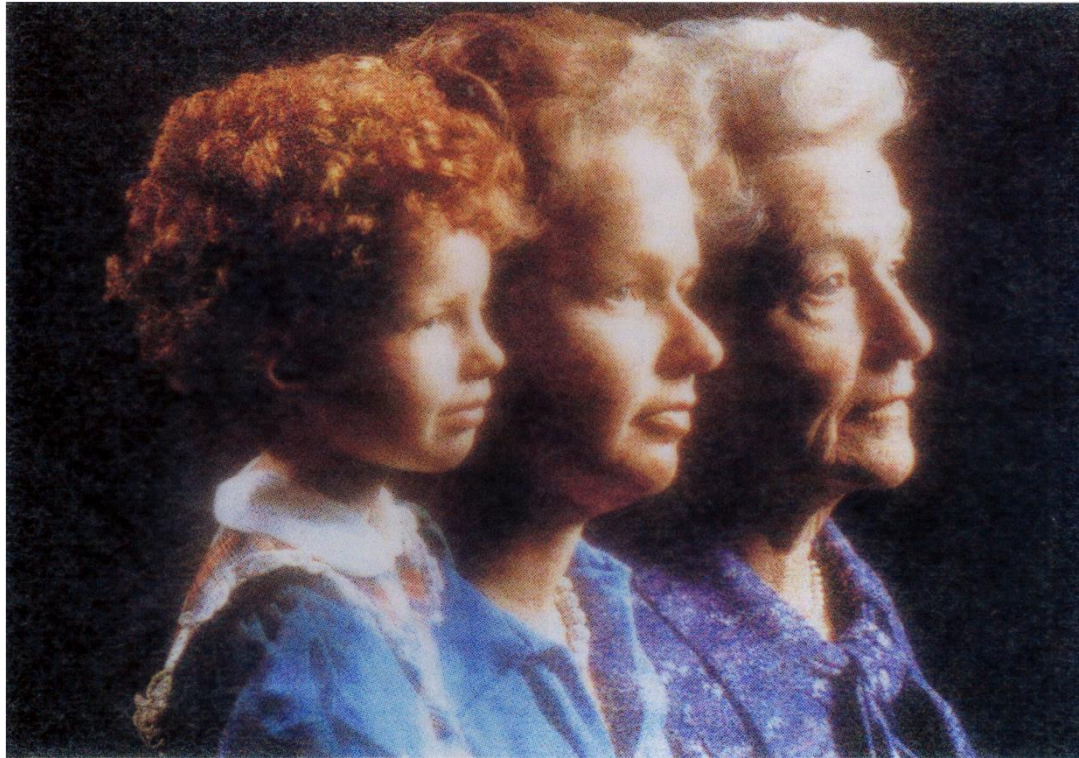


Longevity of different species



For each species, the lifespan depends on genetic and on environmental factors.

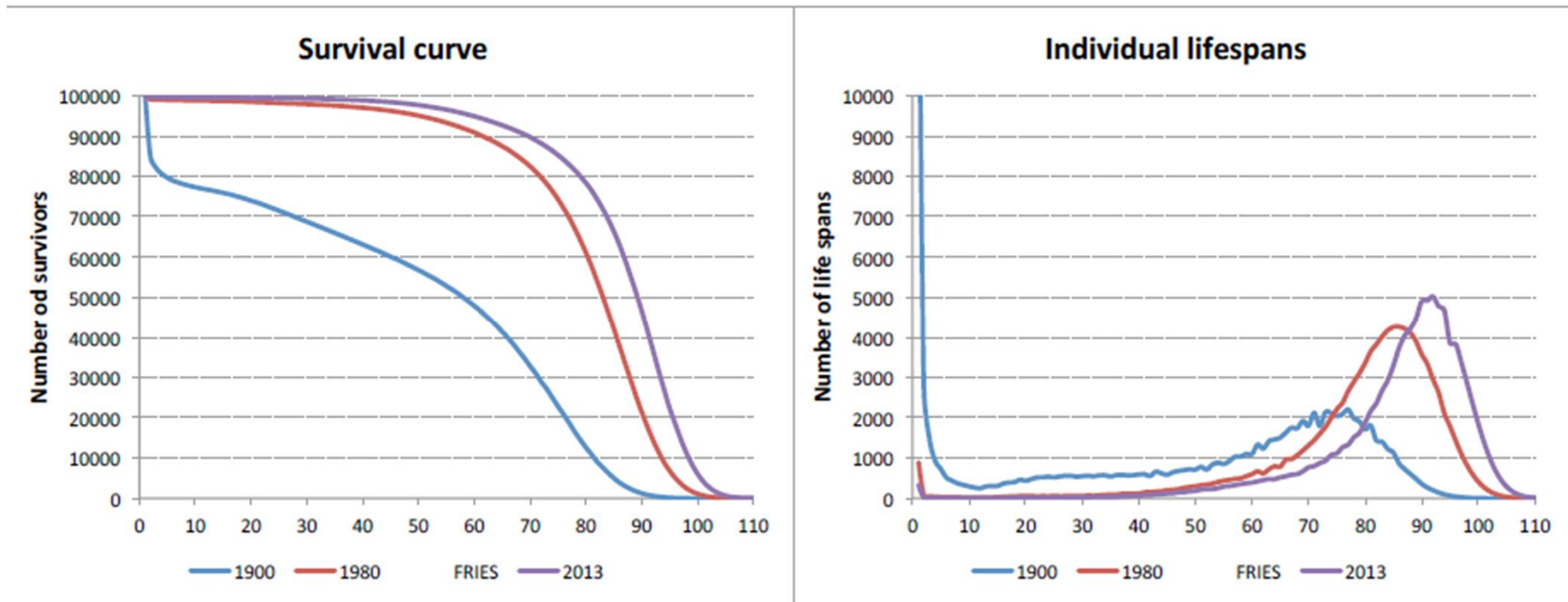
Aging is a natural process



Aging is an inevitable evolution of life induced by the passing of time
Human life cycle stages are divided into several main periods: childhood, adulthood, middle age and old age.

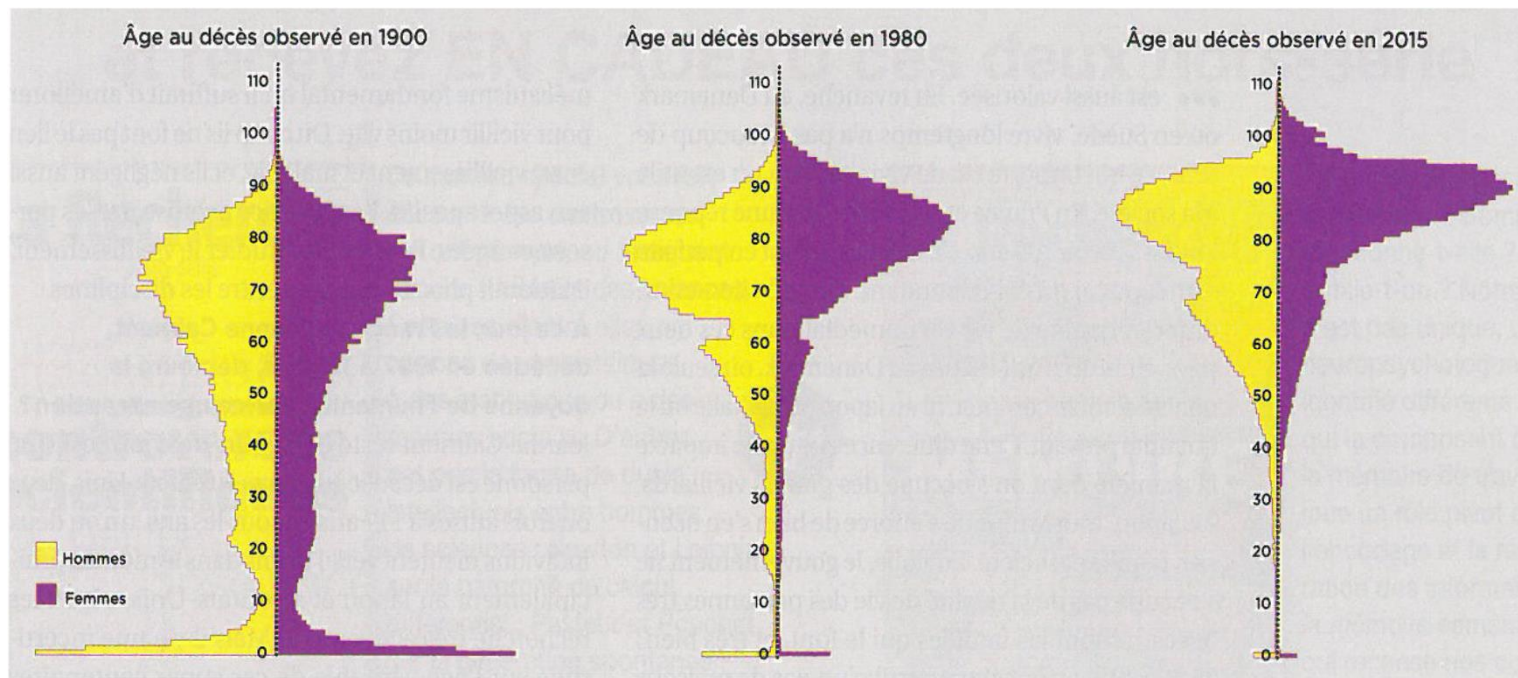
The increase in people's lifespans

century



French women cohorts

Evolution of the longevity in France



In the Western countries, the longevity has strongly increased. In 2016, the life expectancy was respectively 85,4 years for women and 79,3 years for men.

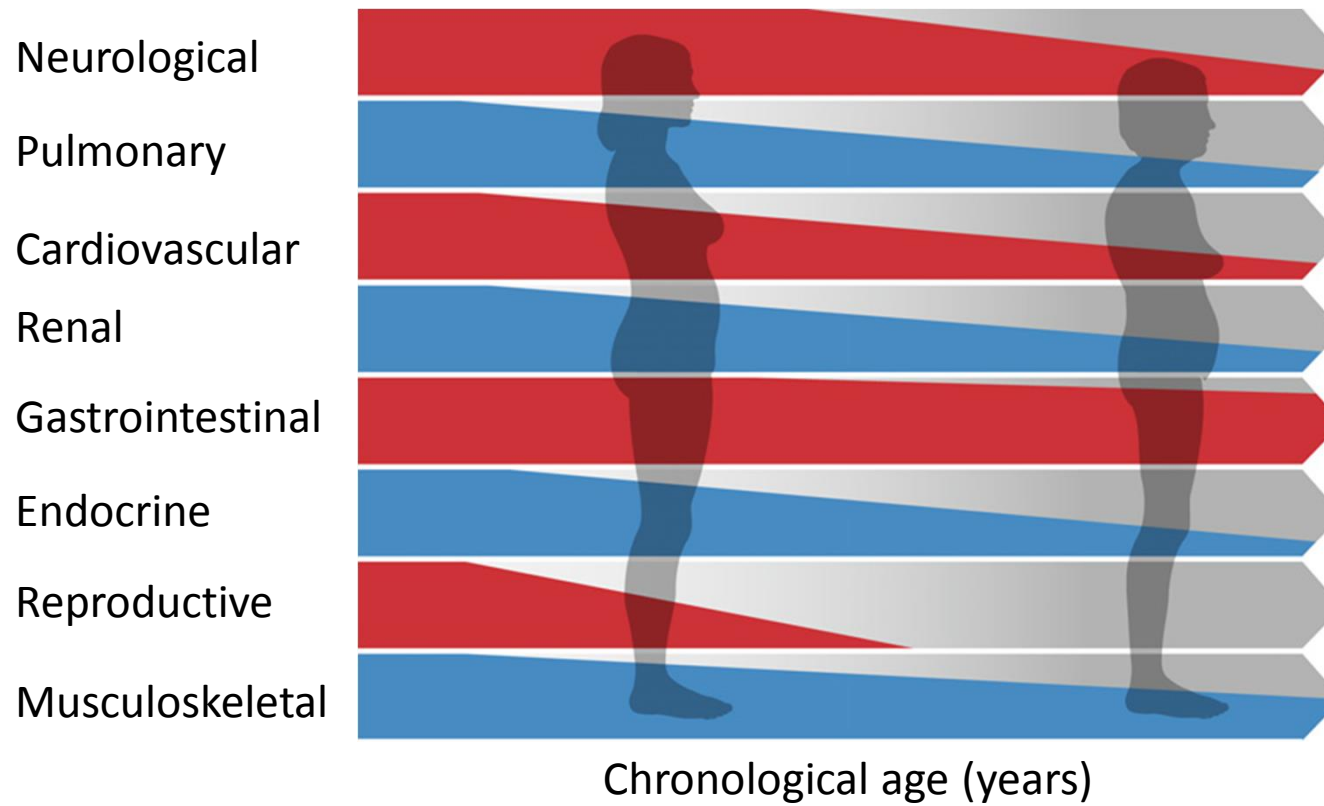
Influence of the stereotypes



Figure 1. Nuage de mots

*Les mots cités par les infirmiers en oncologie font référence à la personne âgée.
Plus le mot est fréquemment cité, plus il est grand.*

Relative rates of functional decline



D'après Kahn et al., Aging cell, 2017.

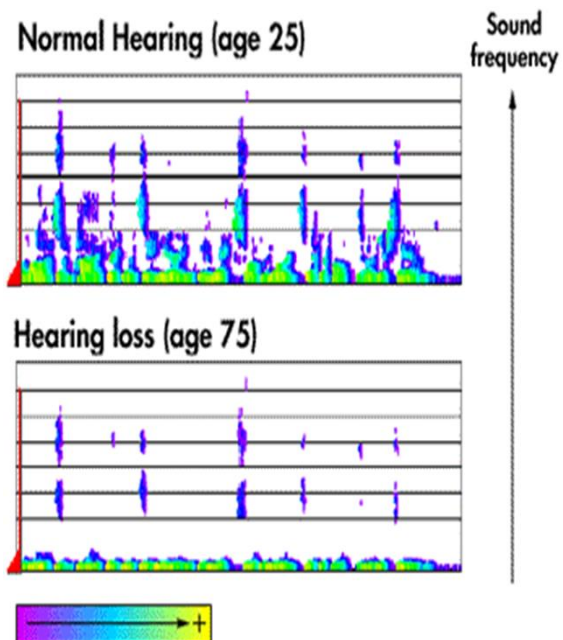
Sensoriality and aging

Vision

Presbyopia is a progressive loss of vision linked to the stiffness of the lens.

Hearing

The presbycusis is an irreversible loss of hearing in the higher frequencies



From the age of 60, a lot of people have difficulties with hearing frequencies above 10 000 Hz

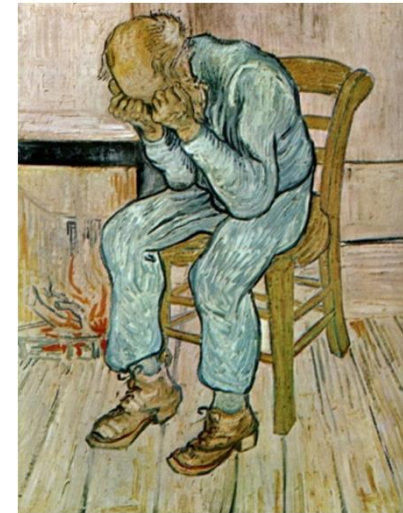
The consequence of these sensory disorders is social isolation.

From chronic diseases to the loss of autonomy

Aging is a complex and progressive process which induces changes in our physical abilities.

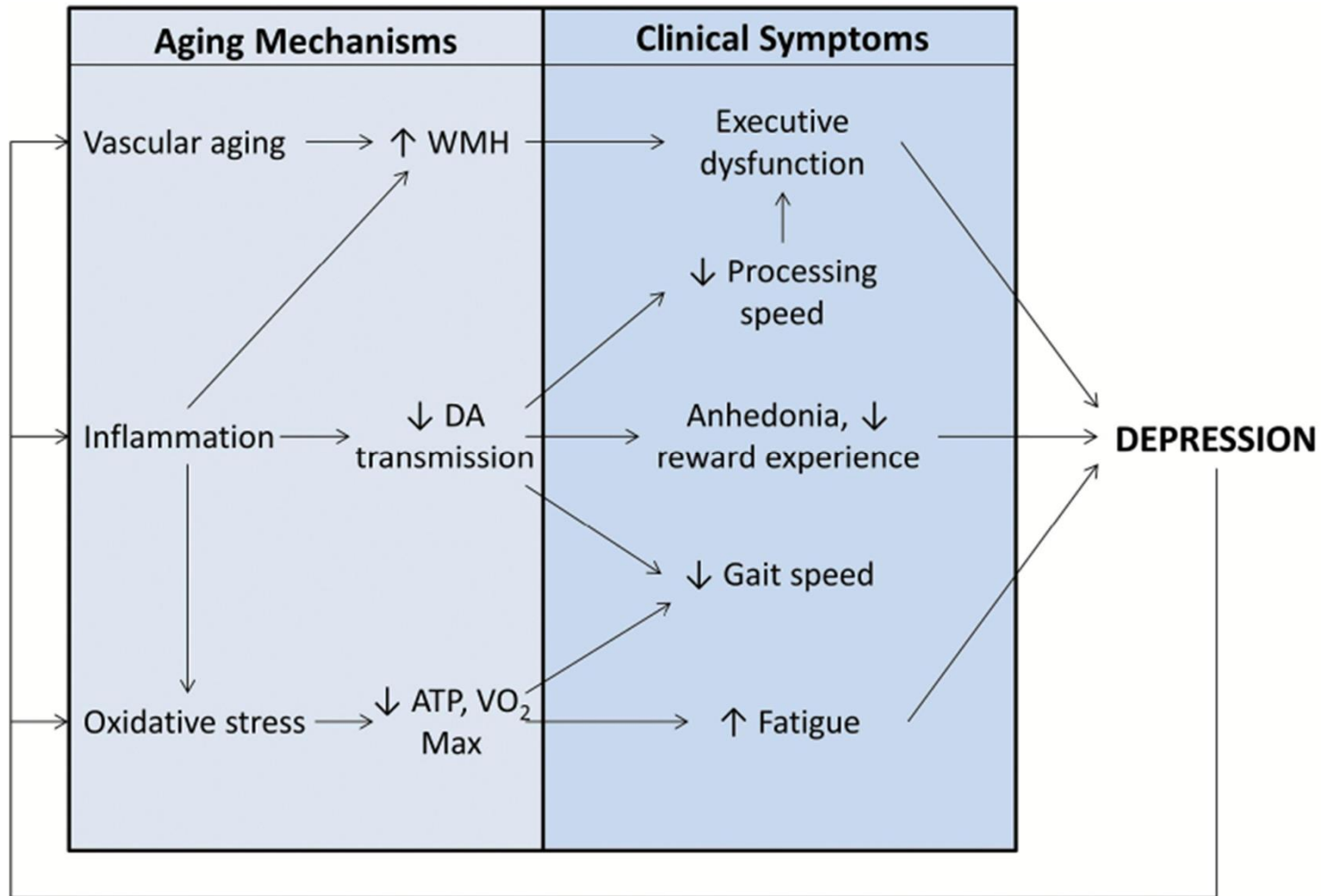
Deficiencies :

- “ Sensory systems
- “ Motricity
- “ Cognitive functions



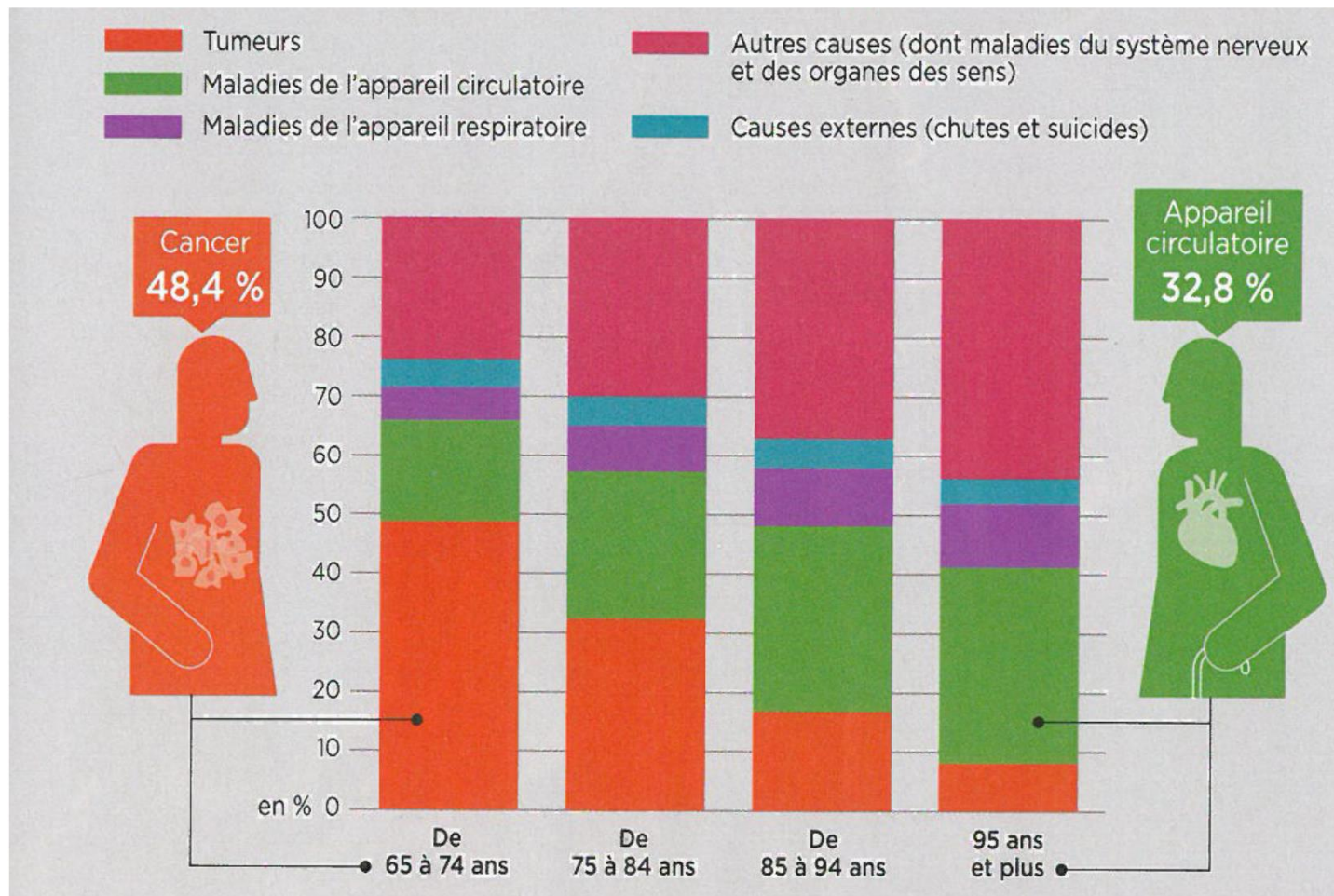
All along our lives we have to prepare for old age. We can do so by gaining experience, knowlege and building up our cognitive reserves.

But sometimes,
life is not easyõ
Many elderly people are
suffering from depression.

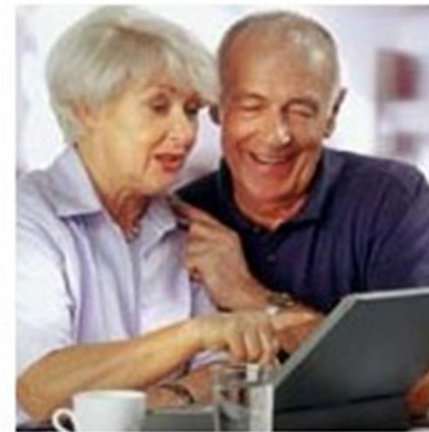
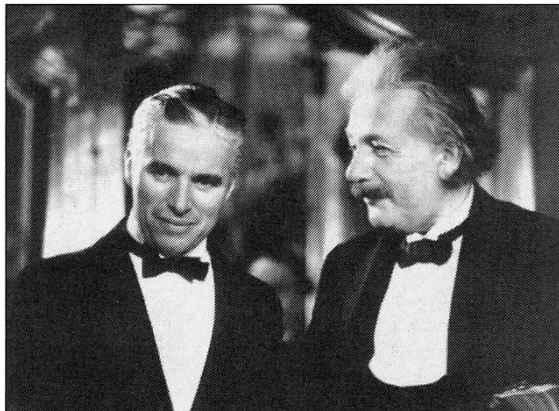
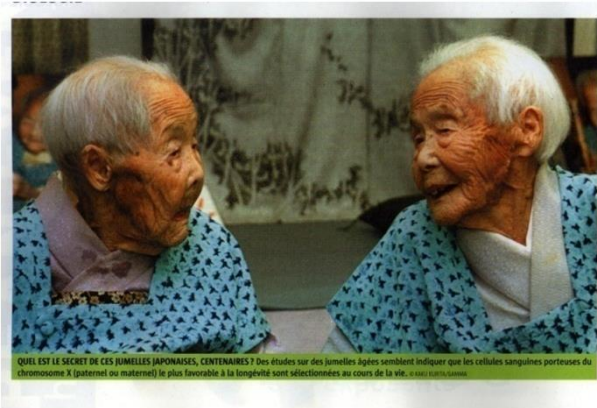


Reciprocal interactions between late-life depression and biological aging processes.
 ATP: adenosine triphosphate; DA: dopamine; VO₂ max: maximal oxygen consumption;
 WMH: white matter hyperintensities.

Causes of death of seniors related to age



Positive aging is the new challenge



What is healthy aging ?

