

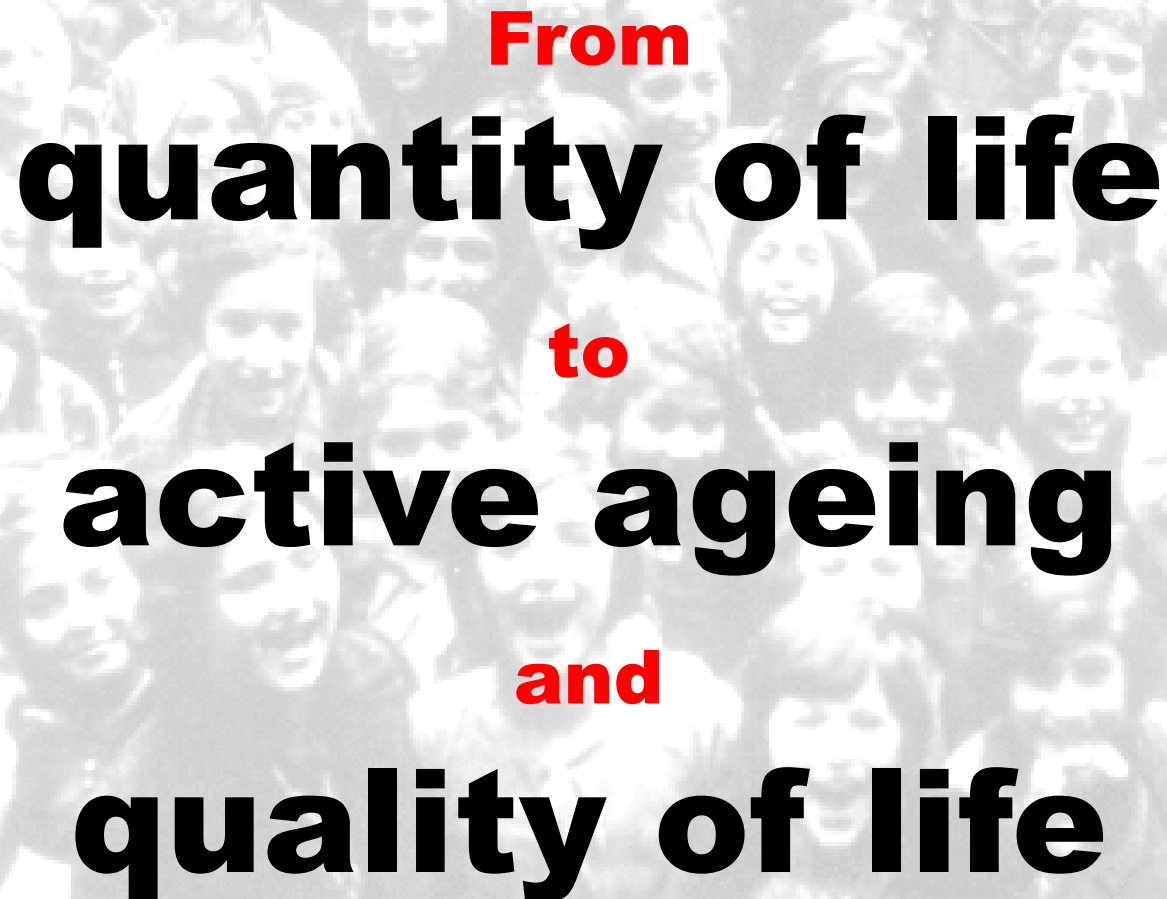
**MANY THANKS for your INVITATION**



A large crowd of young people, mostly teenagers, smiling and cheering. The image is in black and white, with the text overlaid in red. The crowd is dense, and many individuals are looking towards the camera with joyful expressions.

**The tomorrow old people  
are  
already born**

**The tomorrow old people  
are  
already born**

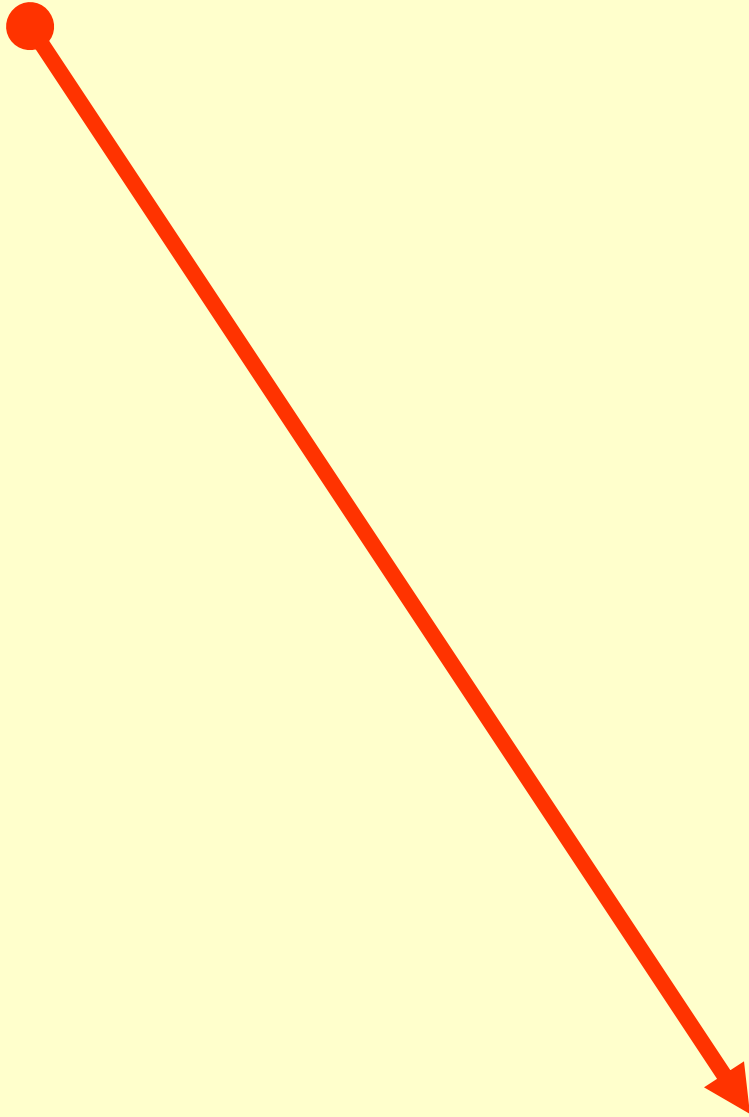


**From  
quantity of life  
to  
active ageing  
and  
quality of life**

A large, dense crowd of people, primarily young women, are shown from the chest up. They are all smiling and many have their mouths open as if cheering or shouting. The image is in black and white. A red rectangular border is superimposed over the top portion of the image, containing the text 'NUMBER of YEARS of LIFE' in a bold, black, sans-serif font.

# **NUMBER of YEARS of LIFE**

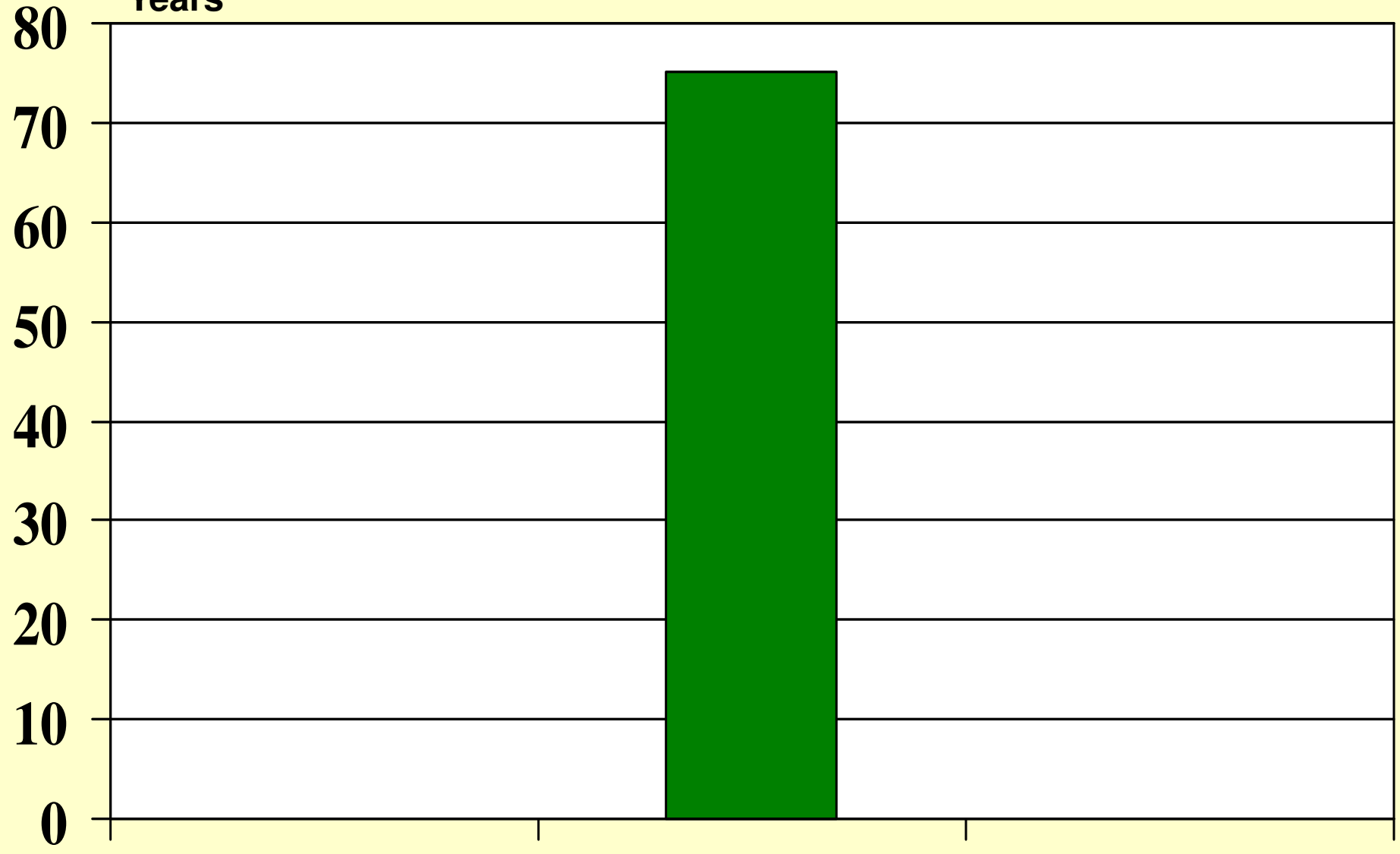
**ALIVE (healthy or not)**



**Dead**

**Life Expectancy**

**Years**

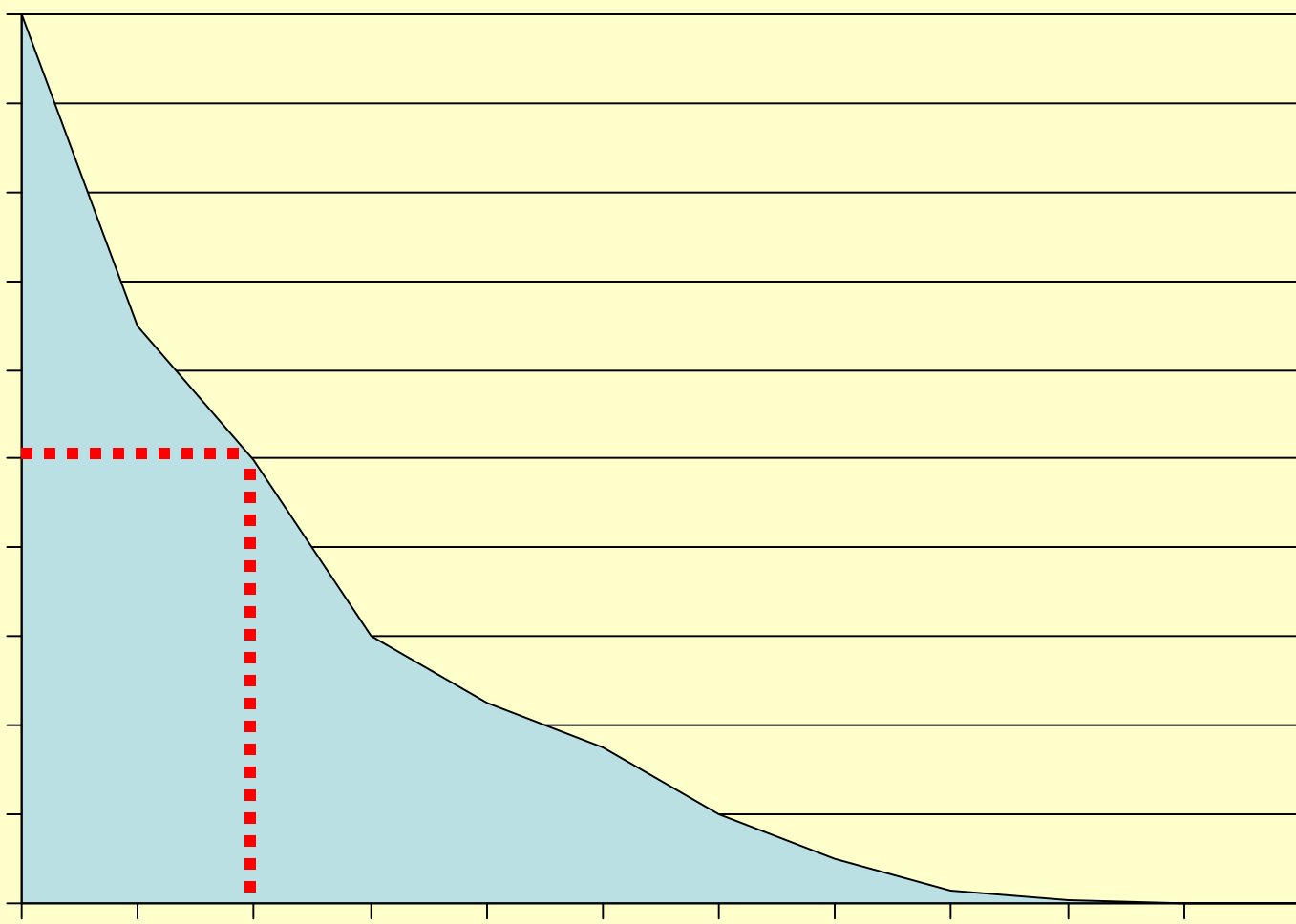


# SURVIVAL CURVE

## Middle ages

Survival

1000  
900  
800  
700  
600  
500  
400  
300  
200  
100  
0



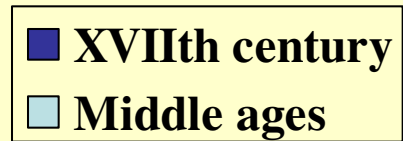
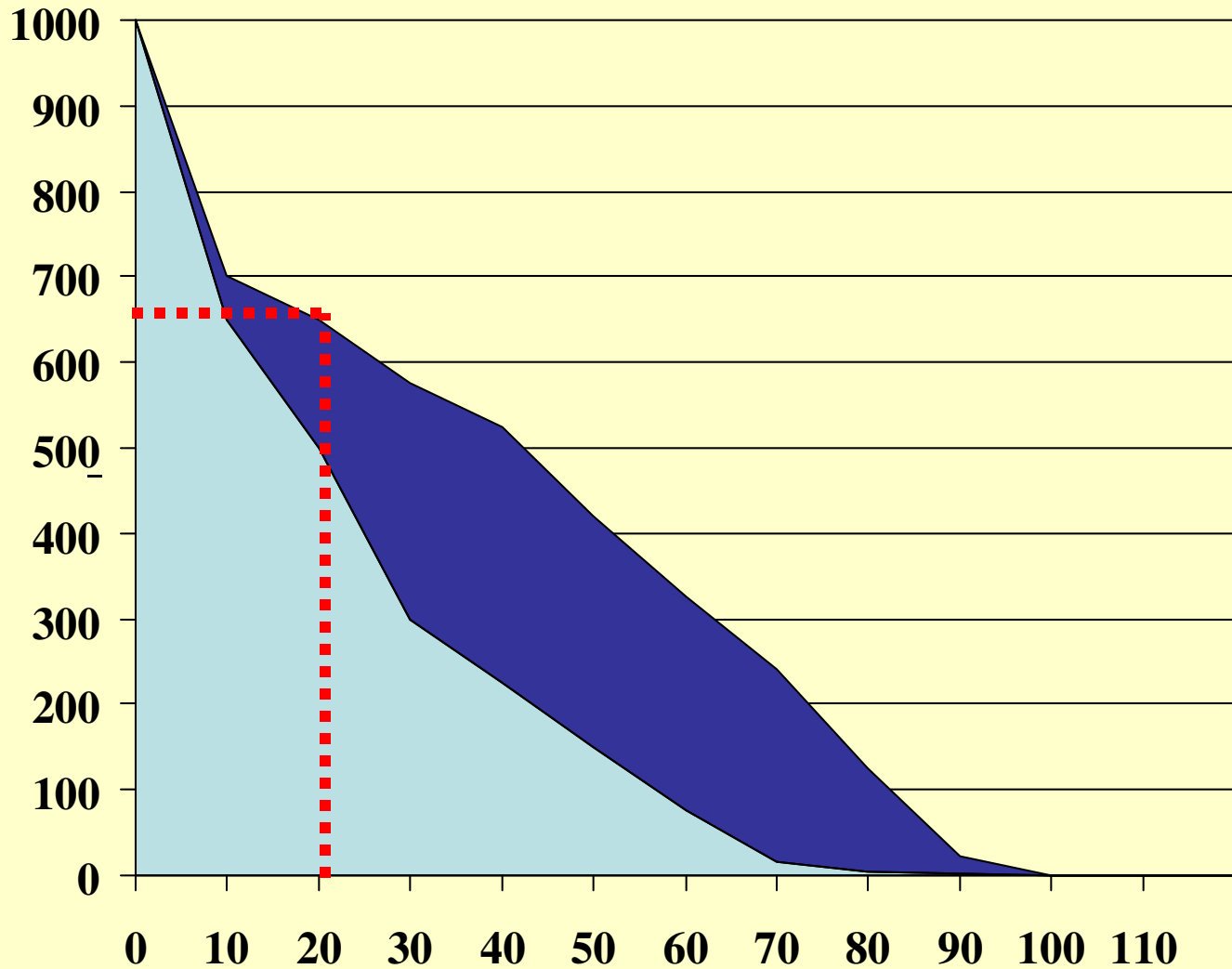
Survivals

Years

# SURVIVAL CURVE

## XVIIth century

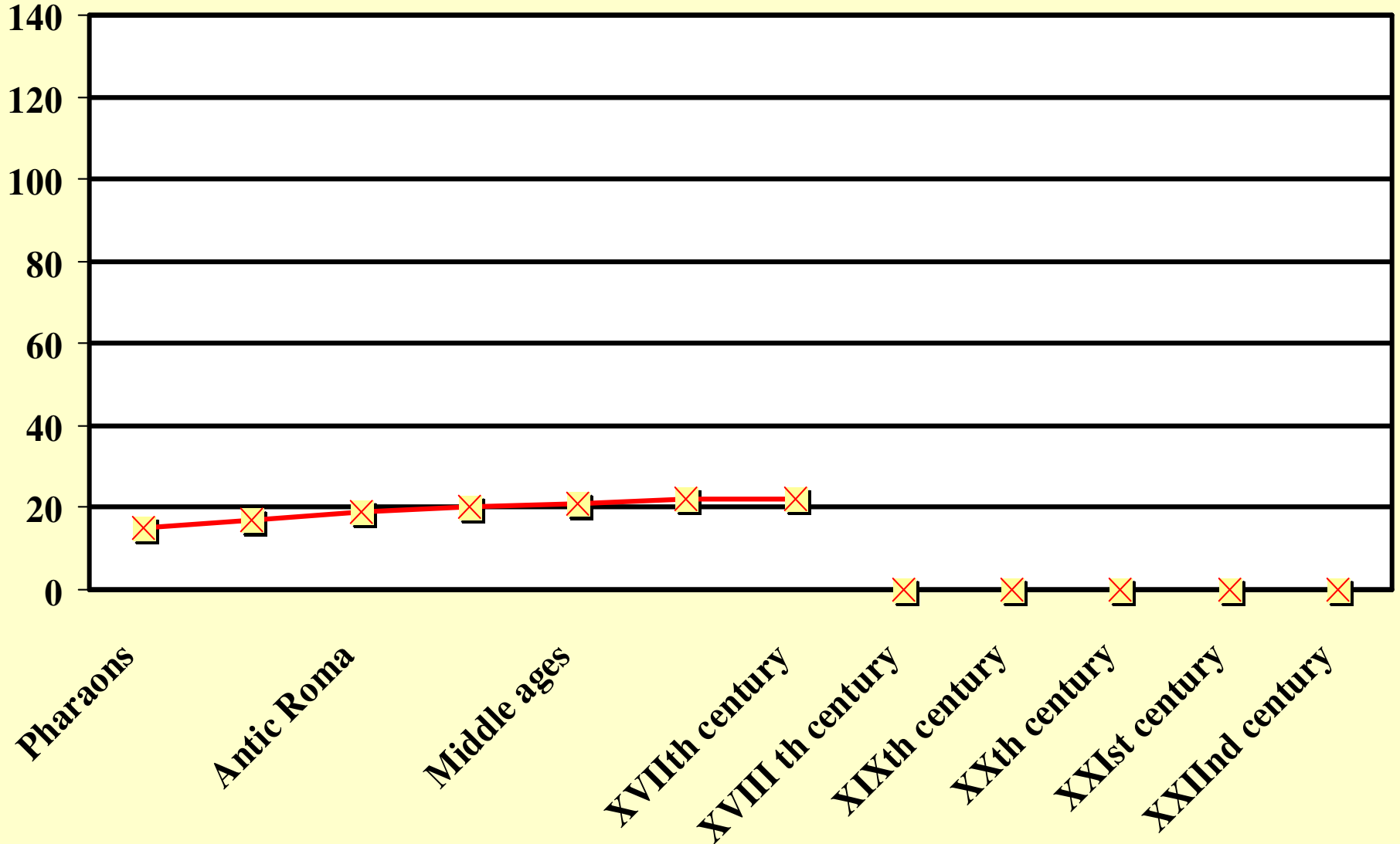
Survival





# HUMAN LONGEVITY

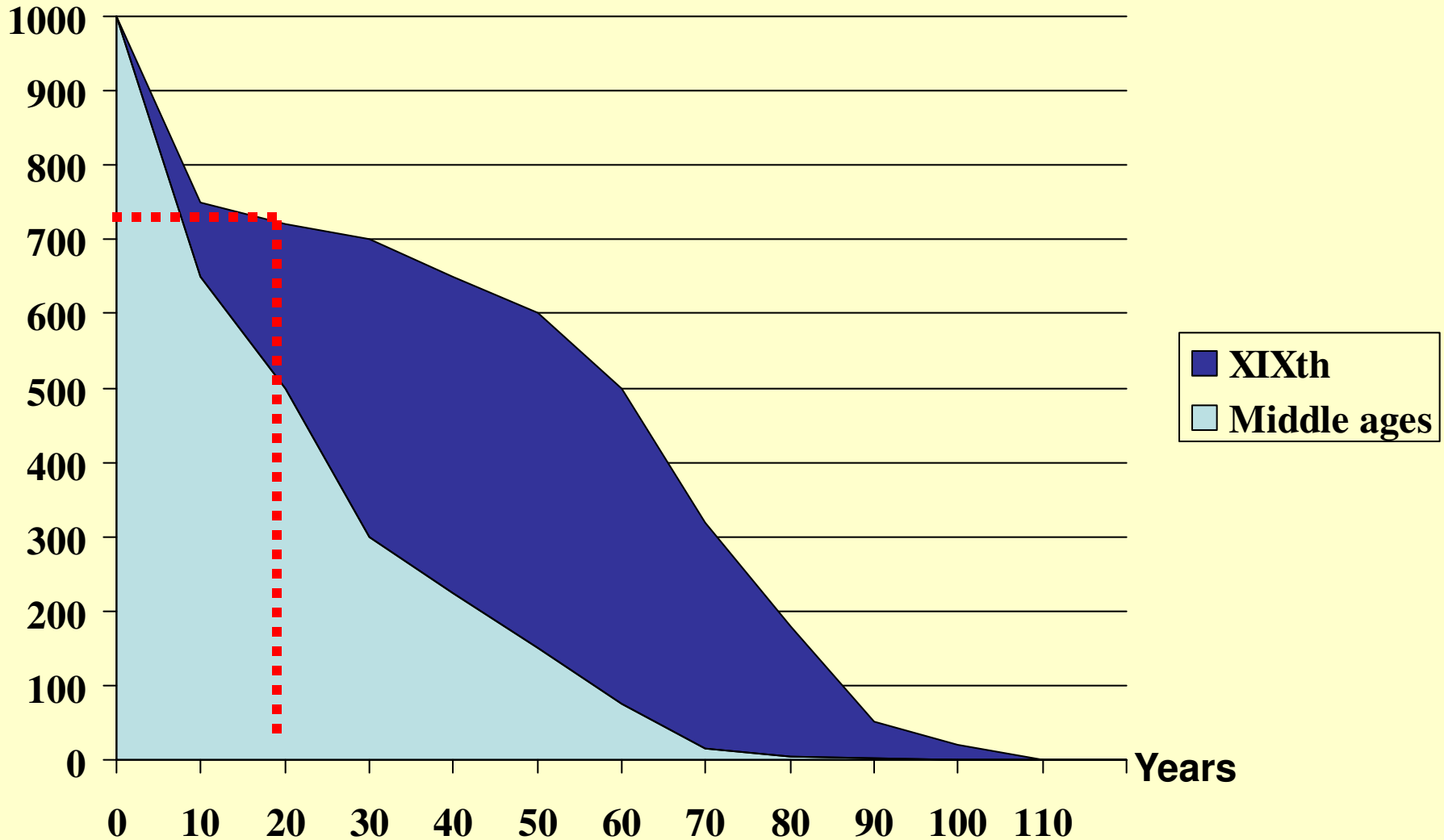
Number of years of life



# SURVIVAL CURVE

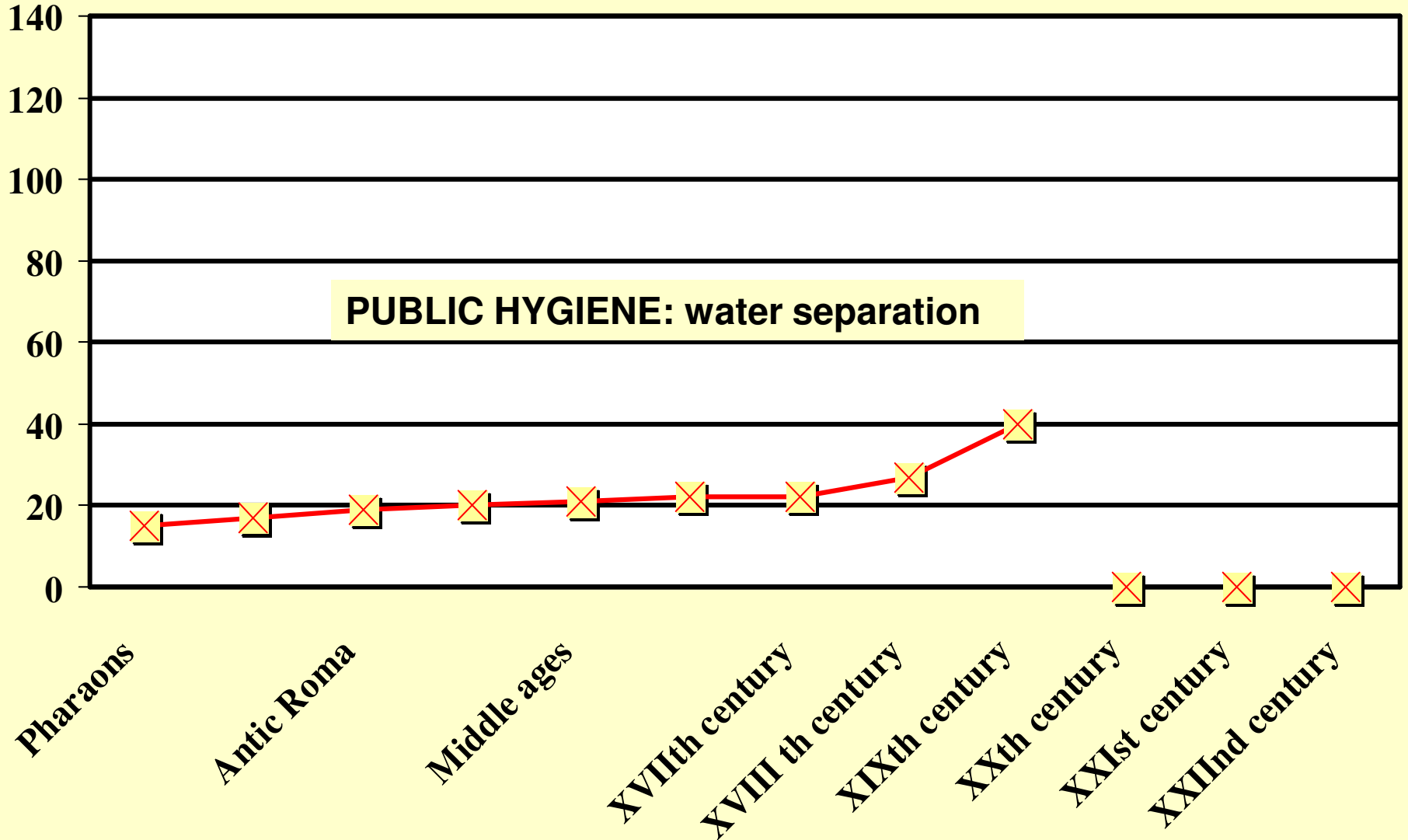
## XIXth century

Survival



# HUMAN LONGEVITY

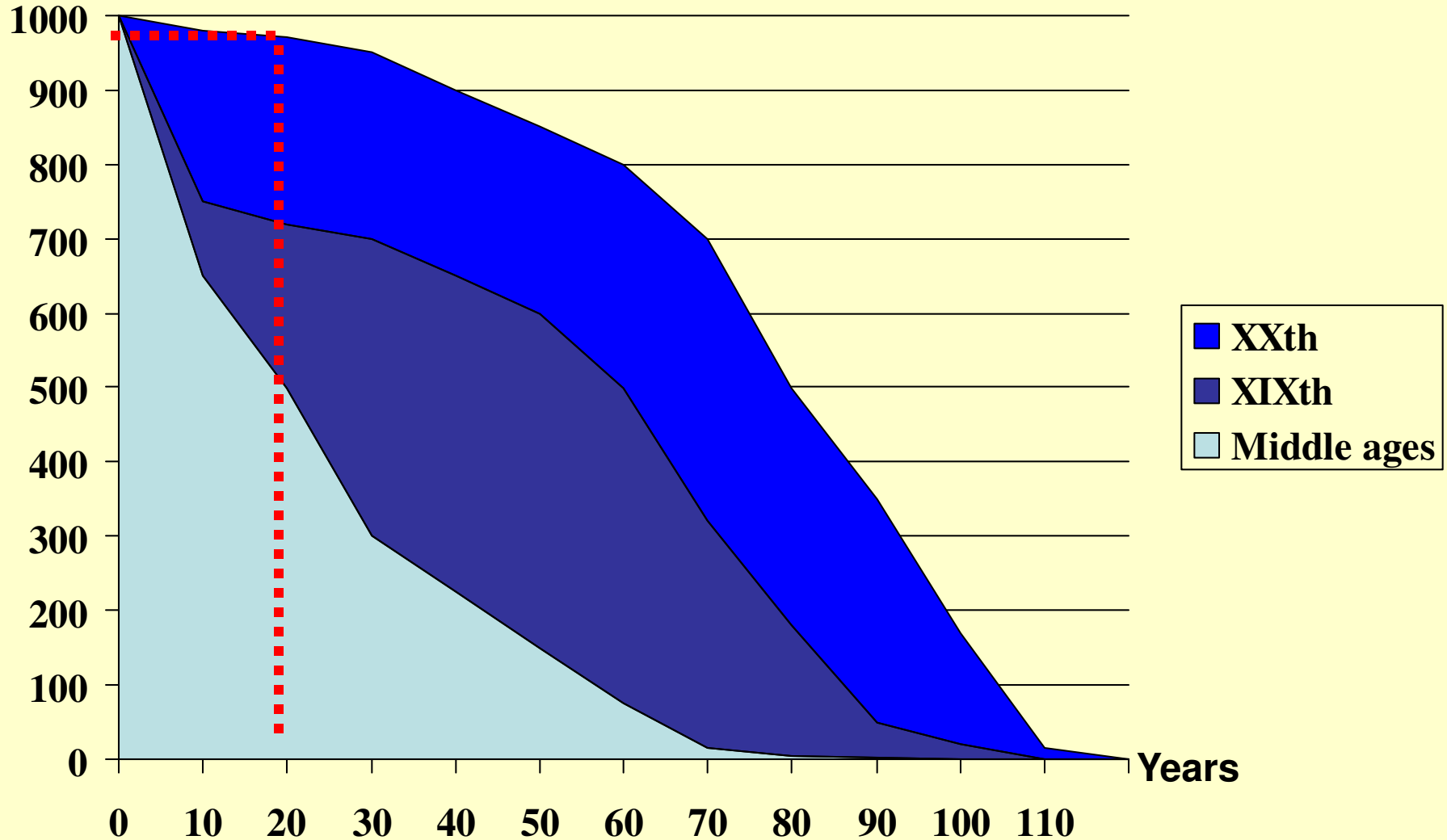
Number of years of life



# SURVIVAL CURVE

## XXth century

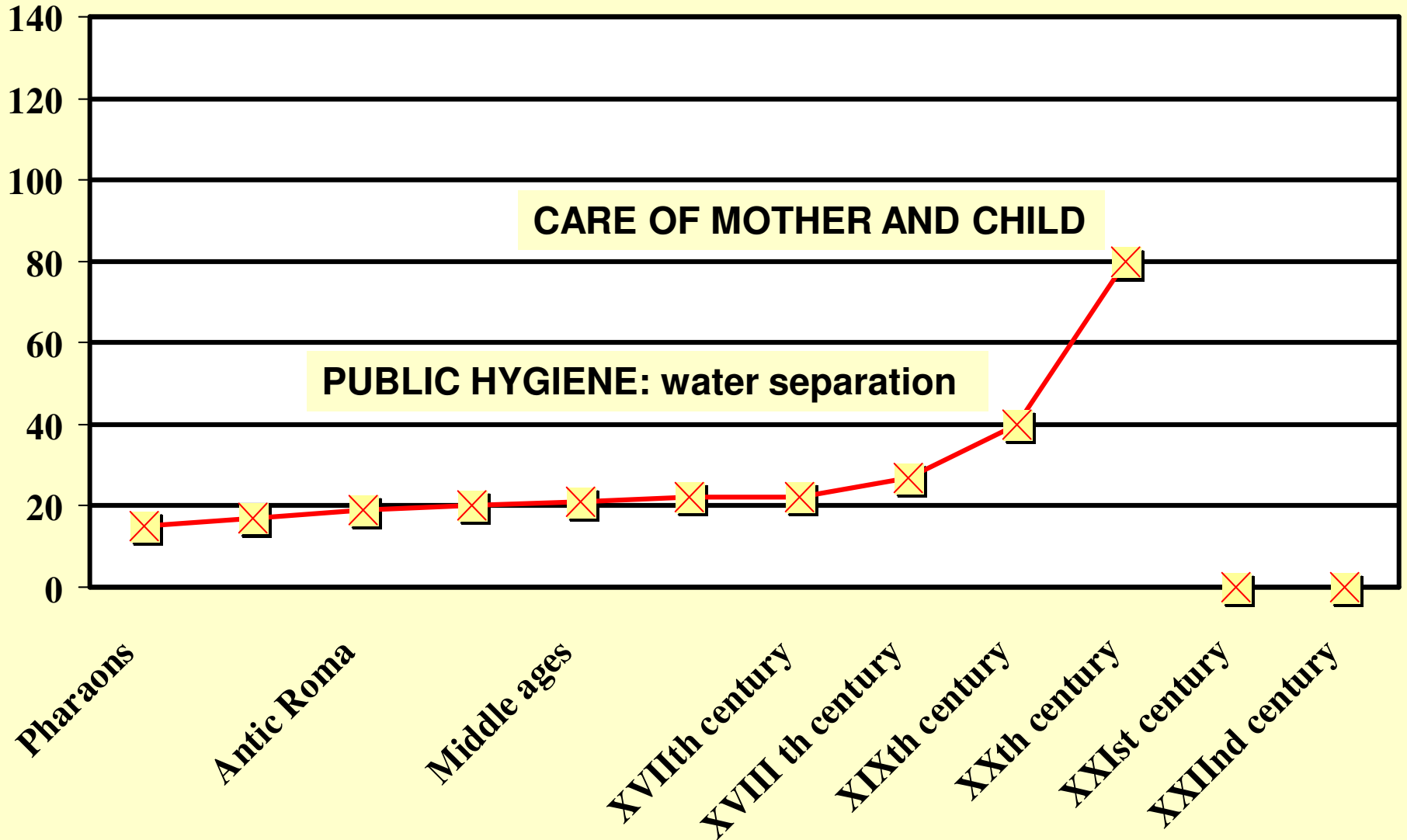
Survival



Years

# HUMAN LONGEVITY

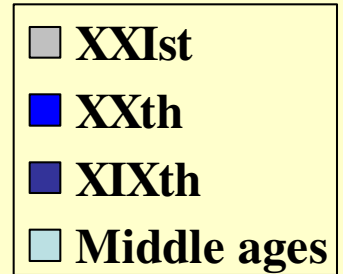
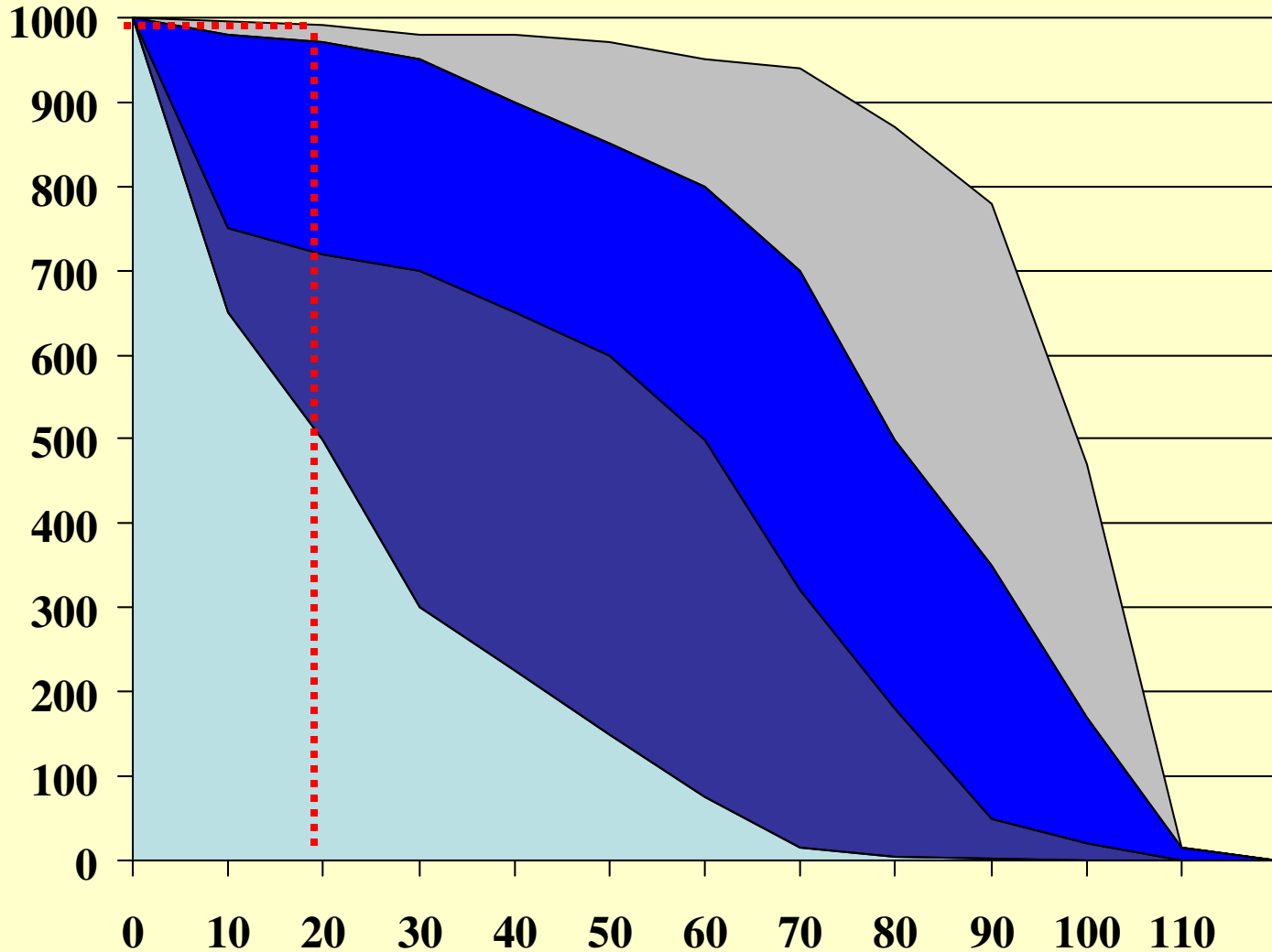
Number of years of life



# SURVIVAL CURVE

## XXIst century

Survival

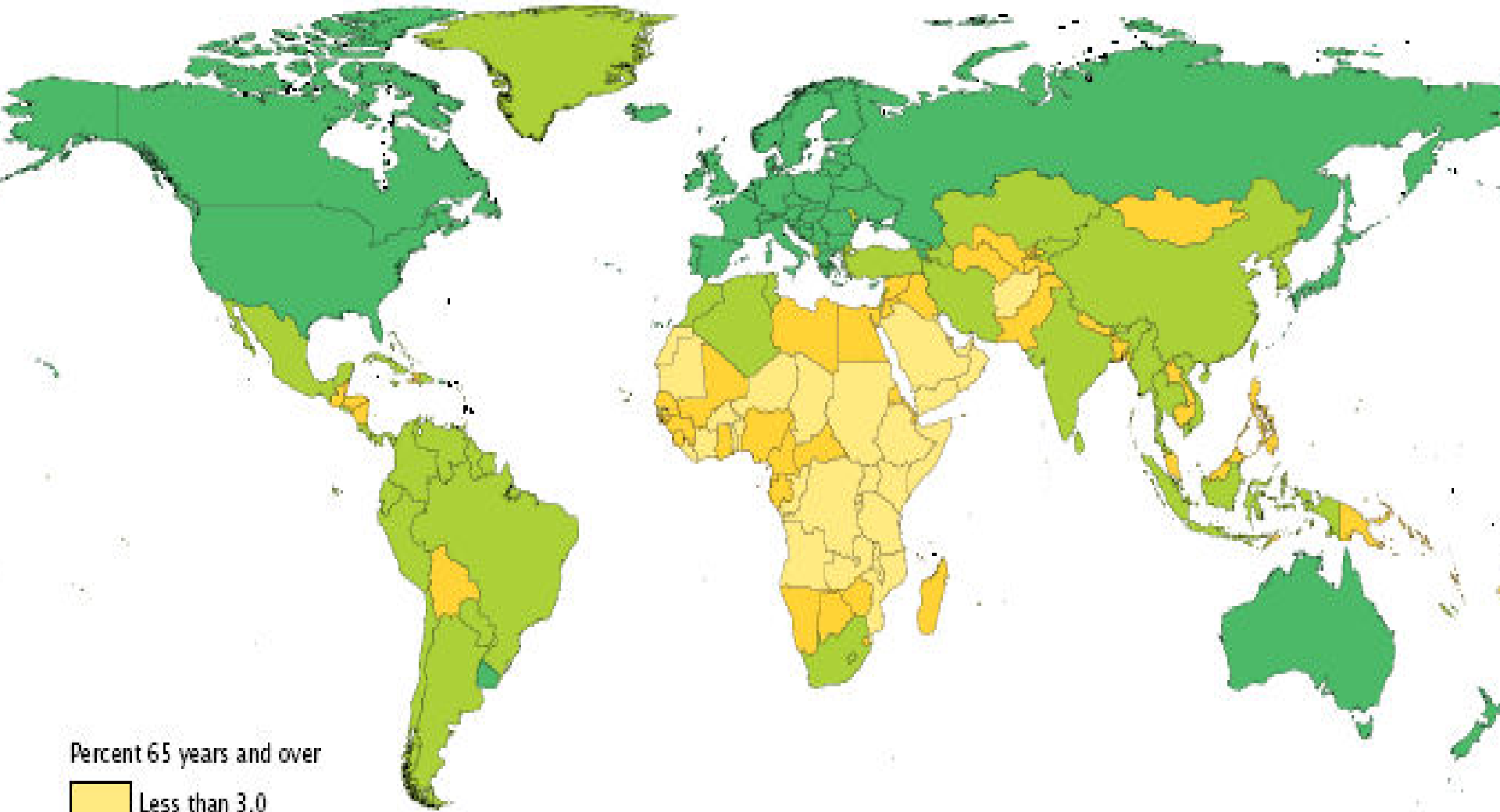


Years

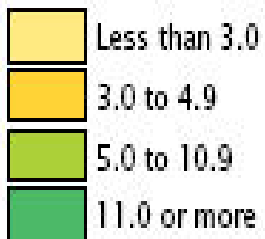
**The tomorrow old are already born**



# Percent POPULATION aged 65 and over: 2008



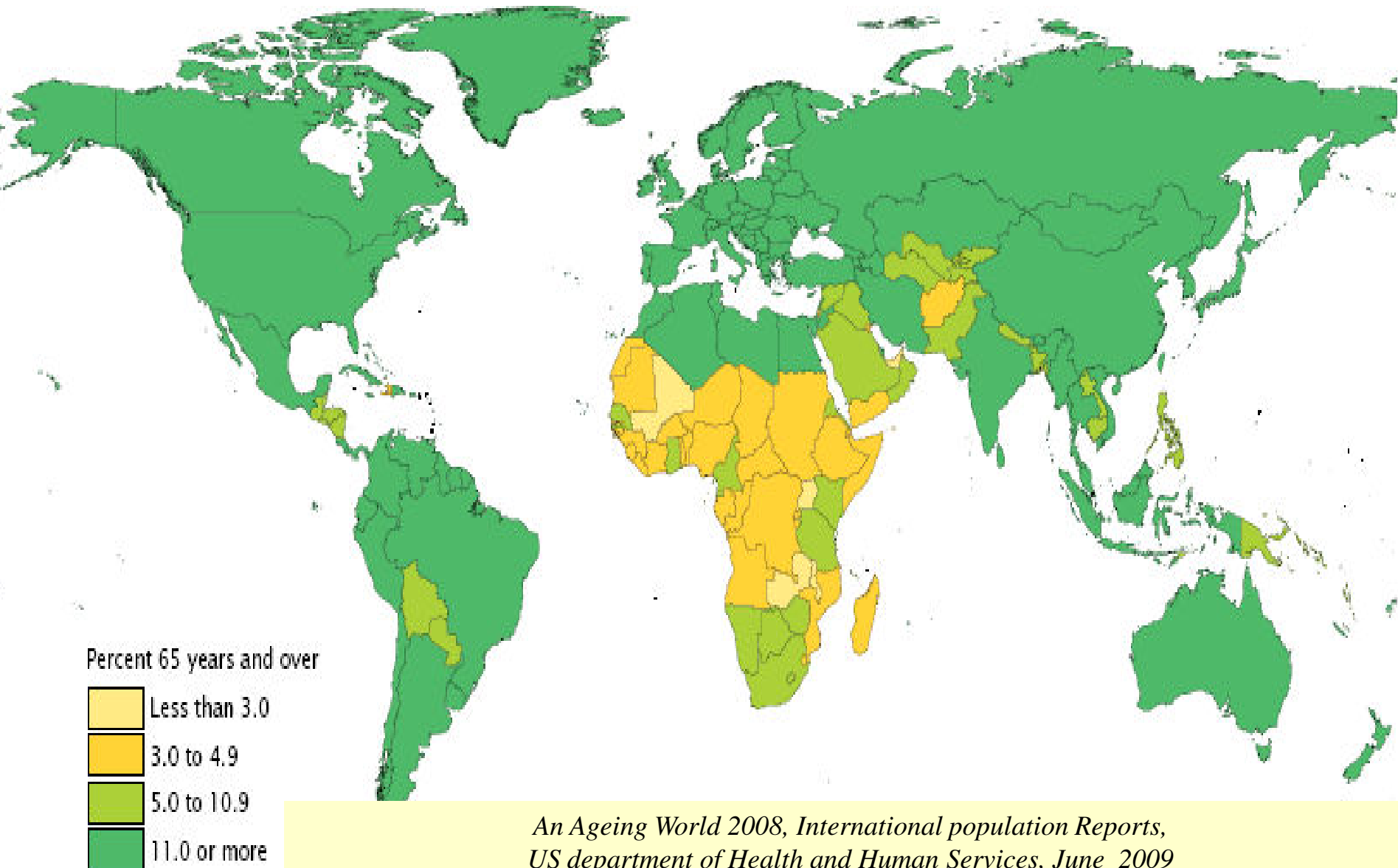
Percent 65 years and over



*An Ageing World 2008, International population Reports,  
US department of Health and Human Services, June 2009*

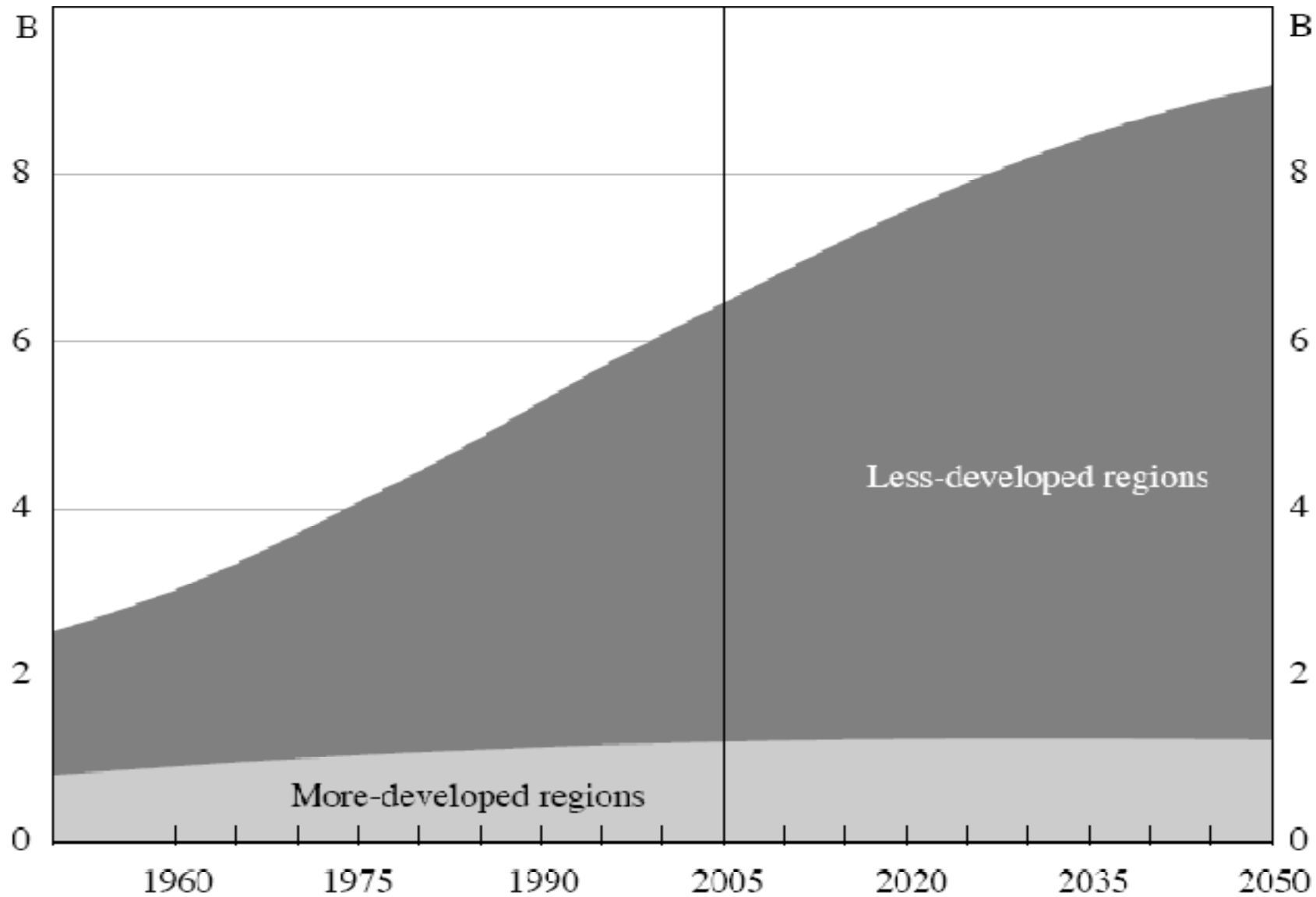


# Percent POPULATION aged 65 and over: 2040



*An Ageing World 2008, International population Reports,  
US department of Health and Human Services, June 2009*

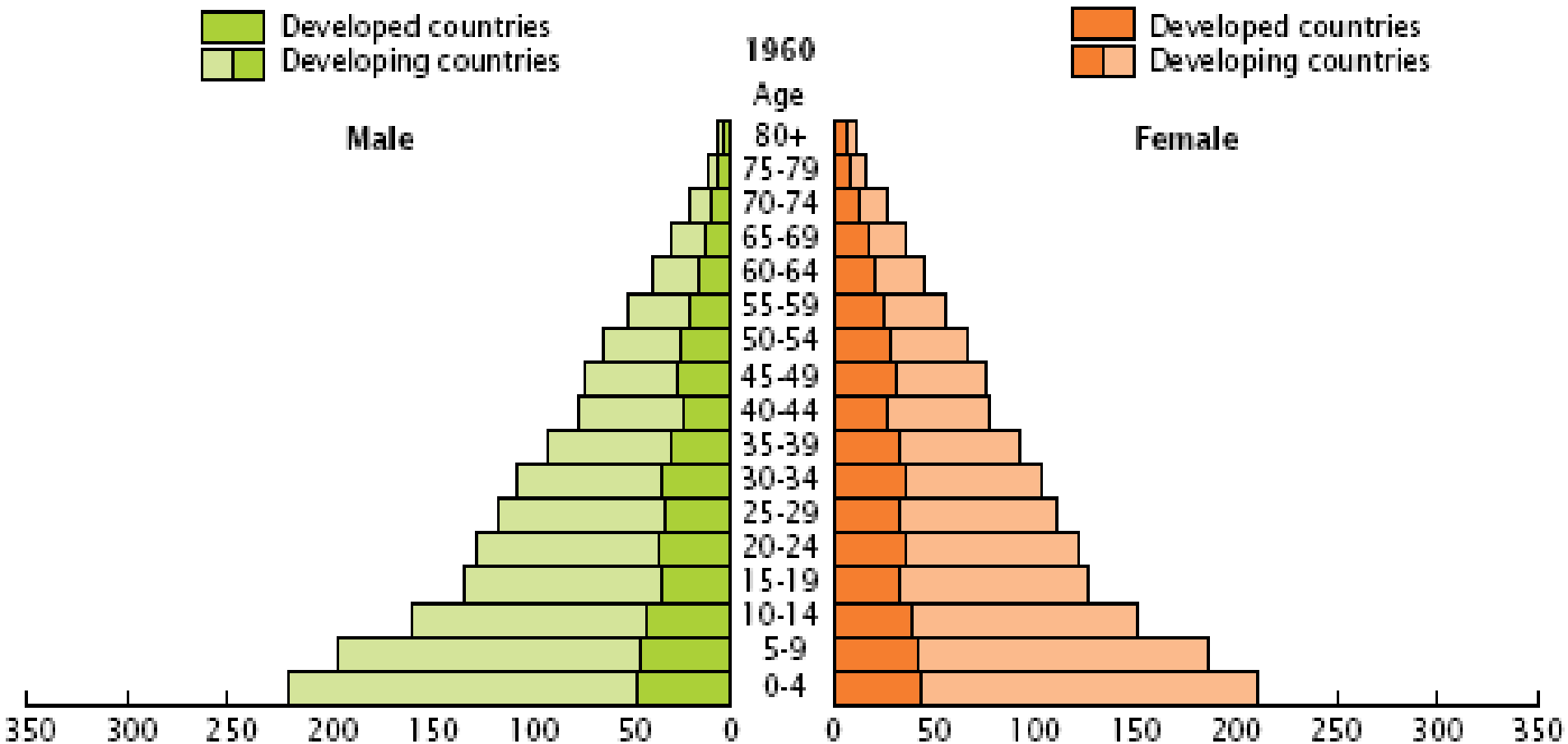
# Figure 1: World Population



Note: Data after 2005 are based on projections.

Source: UN Population Division (2005)

# Population in DevelopED and developING countries by age and gender 1960



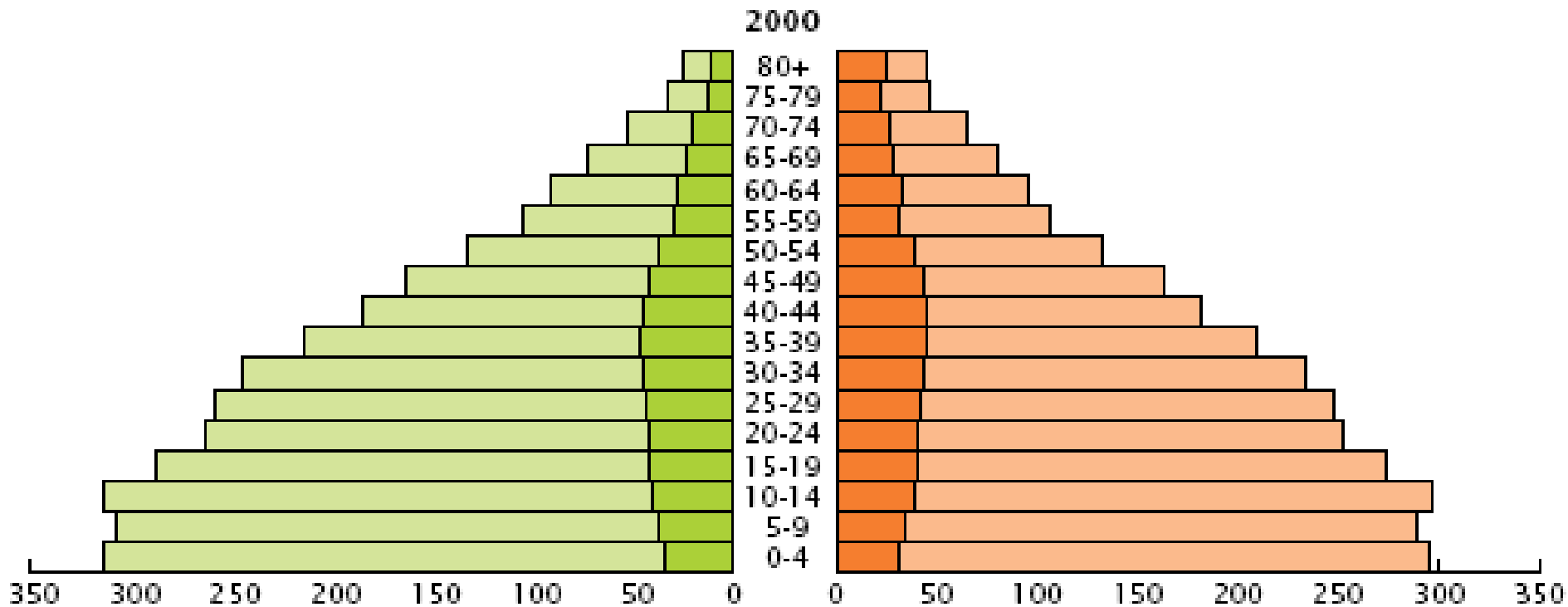
# Population in DevelopED and developING countries by age and gender 2000

Developed countries  
 Developing countries

Developed countries  
 Developing countries

Male

Female



# Population in DevelopED and developING countries by age and gender 2040

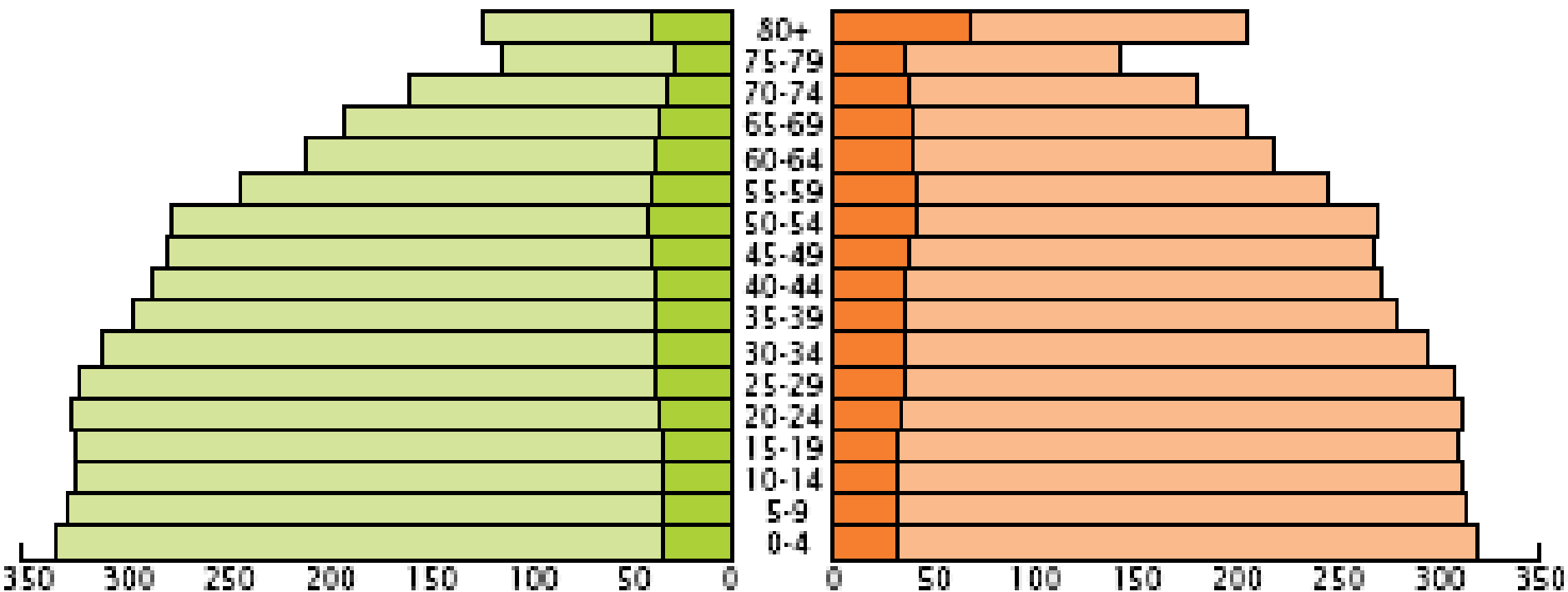
Developed countries  
 Developing countries

Developed countries  
 Developing countries

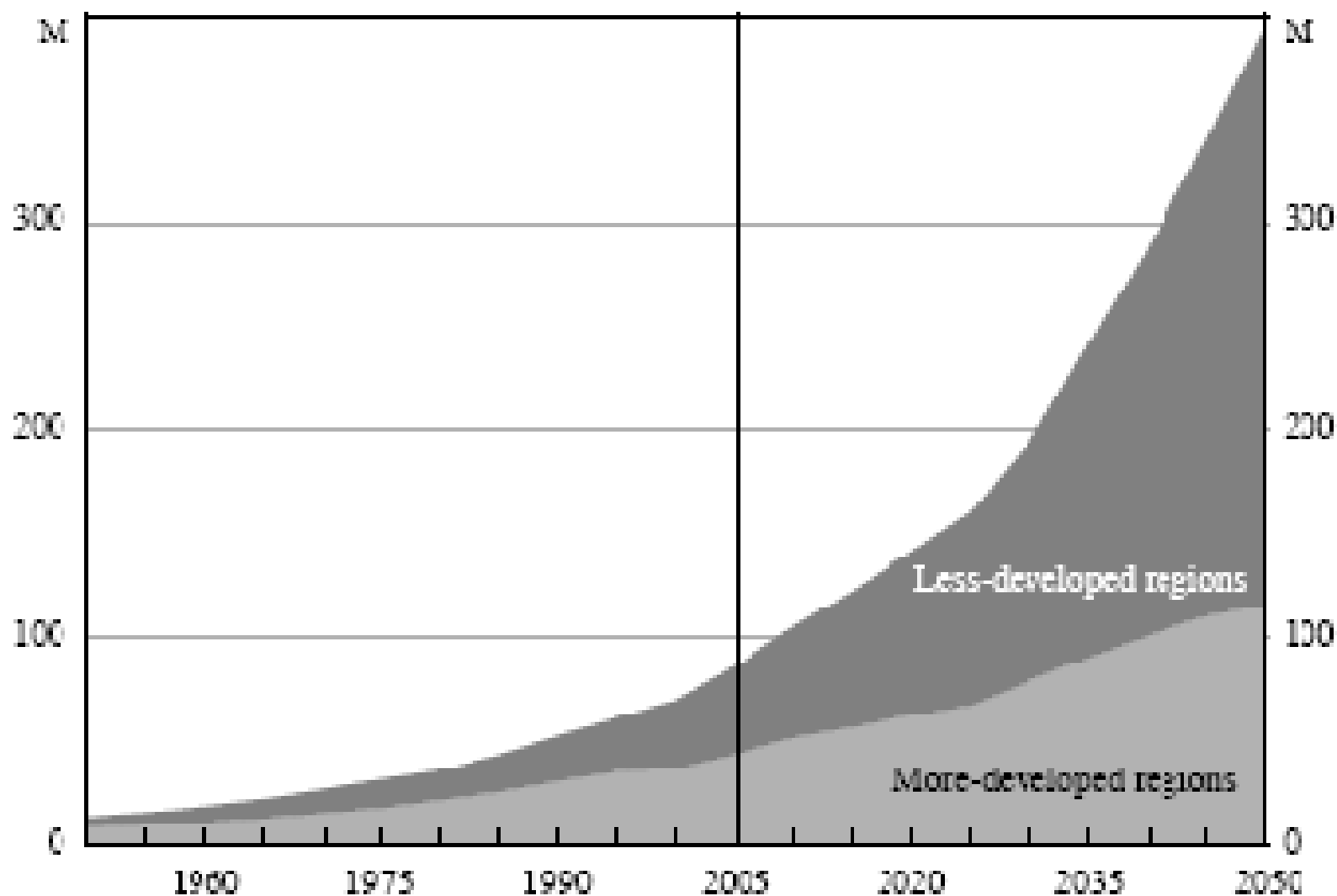
Male

Female

2040



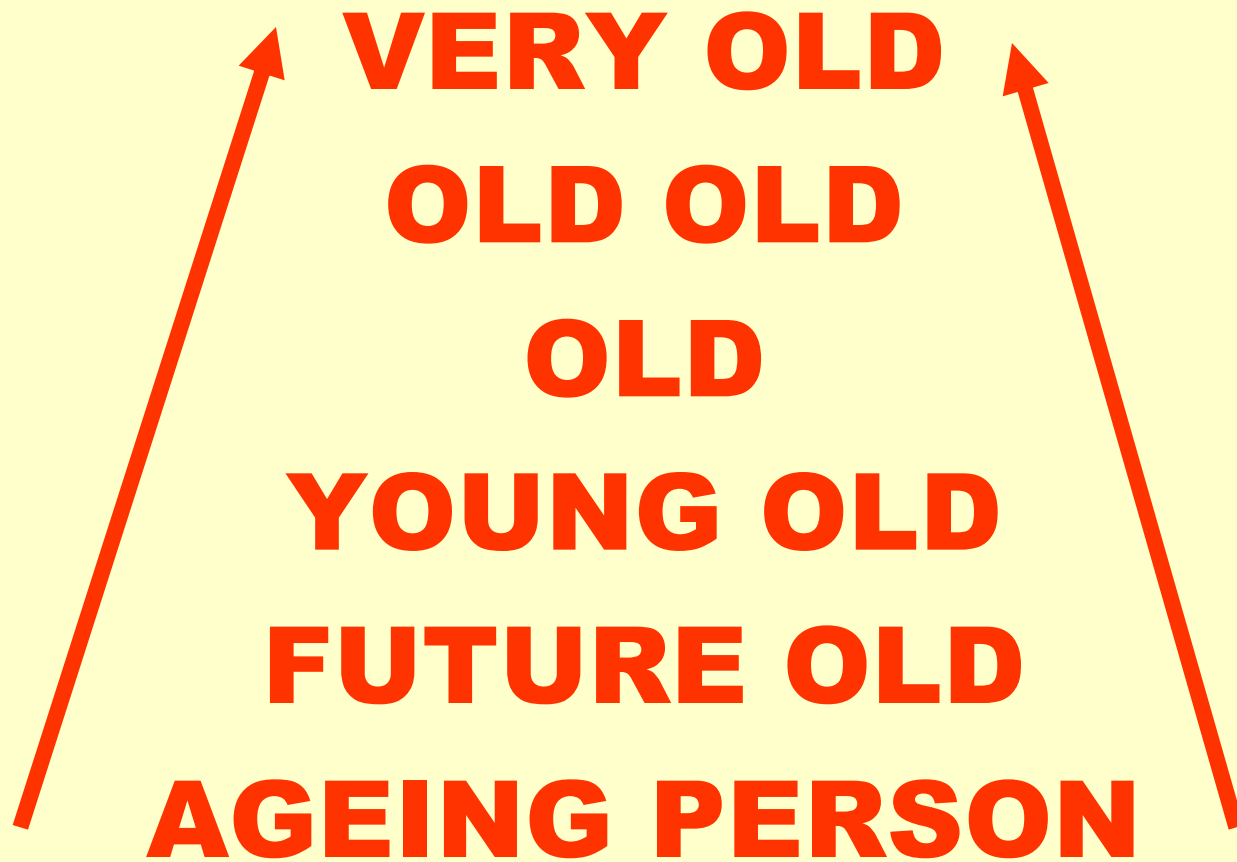
**Figure 10: Number of People Aged 80 or Above**



Note: Data after 2005 are based on projections.

Source: UN Population Division (2005)

# AGEING PROCESS

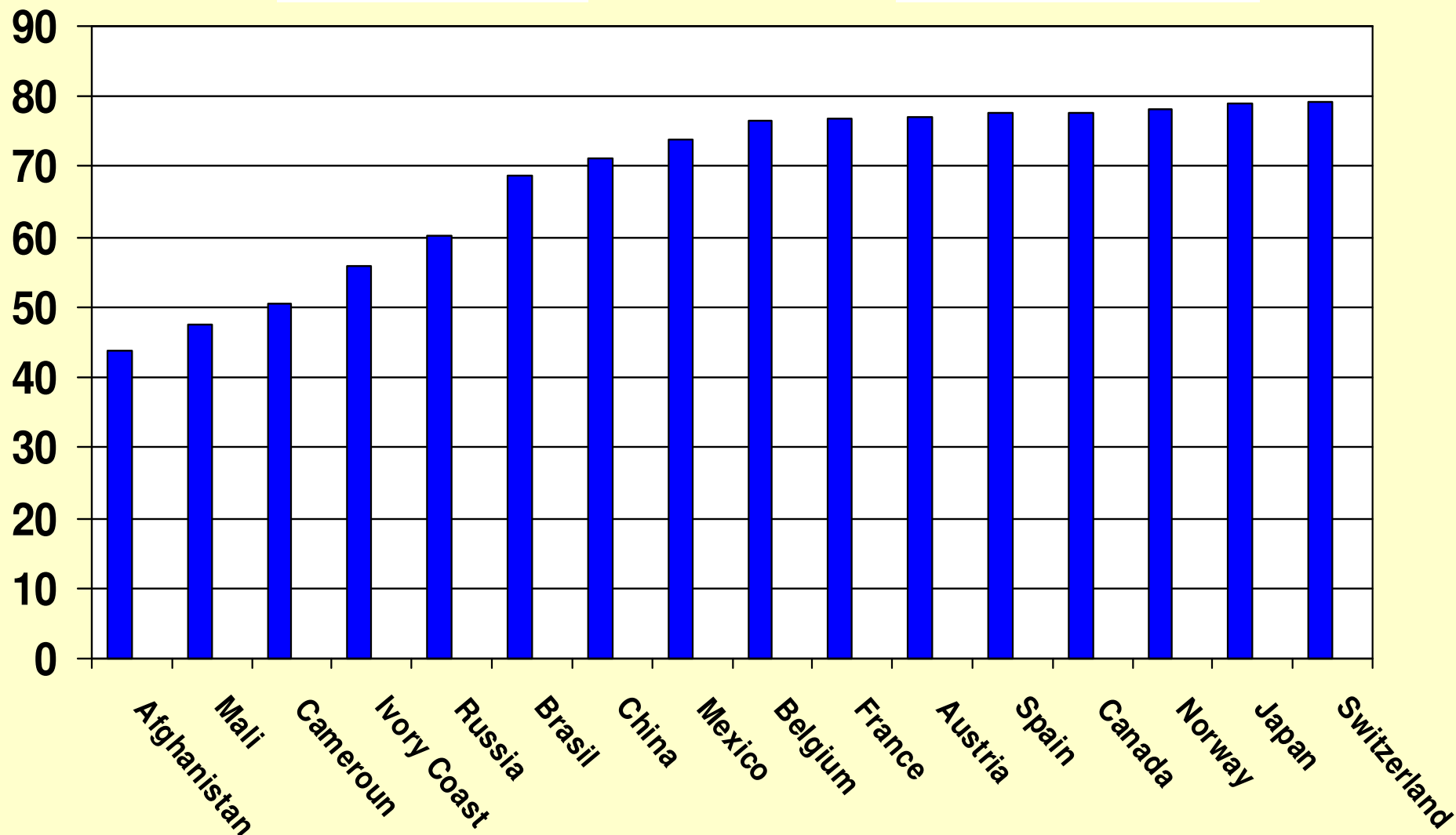


Culture, Socio-economic conditions, Anticipation

# 2005 – LIFE EXPECTANCY (LE)

■ LE of Men at birth

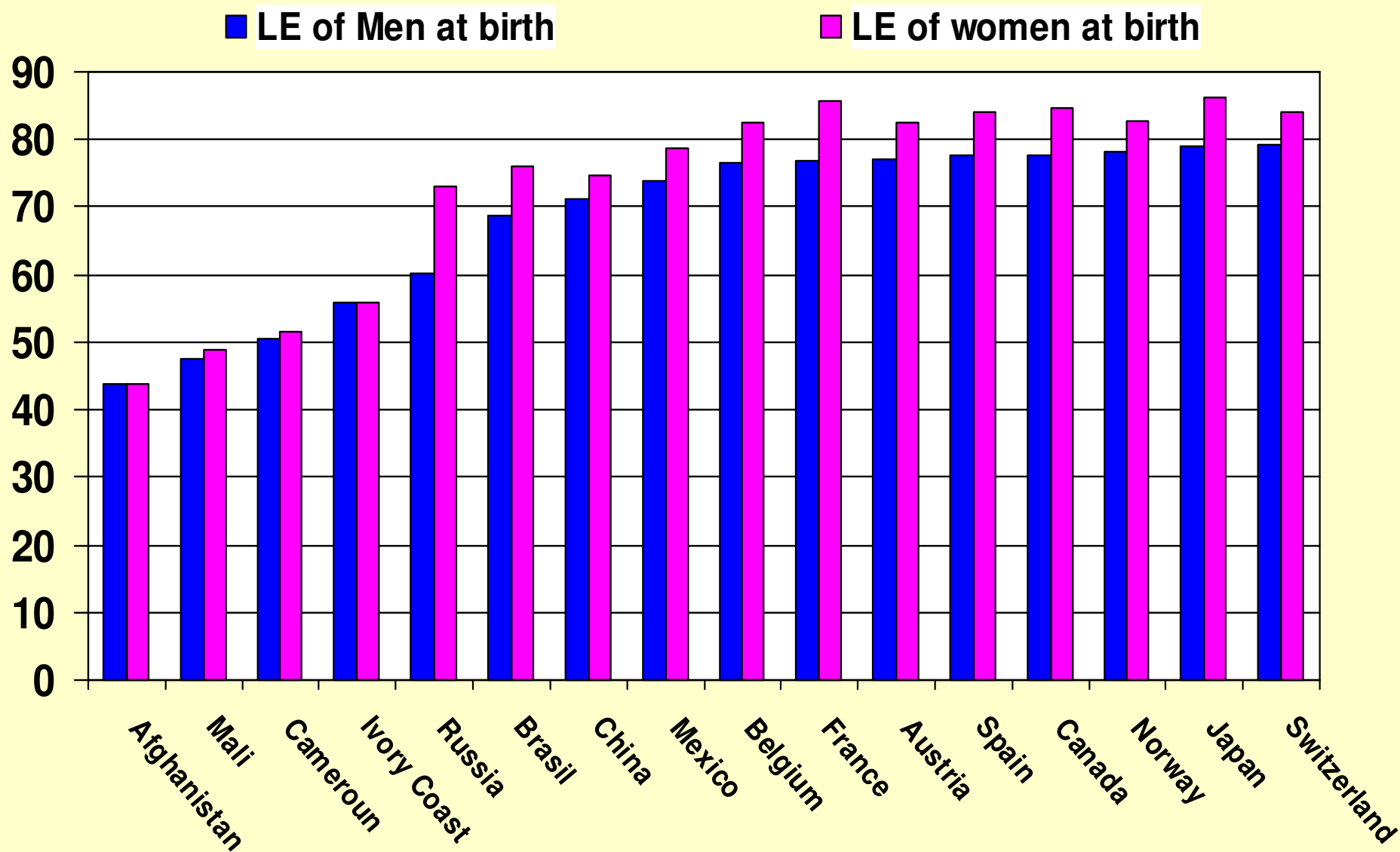
■ LE of women at birth



*An Ageing World 2008, International population Reports,  
US department of Health and Human Services, June 2009*



# 2005 - LIFE EXPECTANCY (LE)



*An Ageing World 2008, International population Reports,  
US department of Health and Human Services, June 2009*

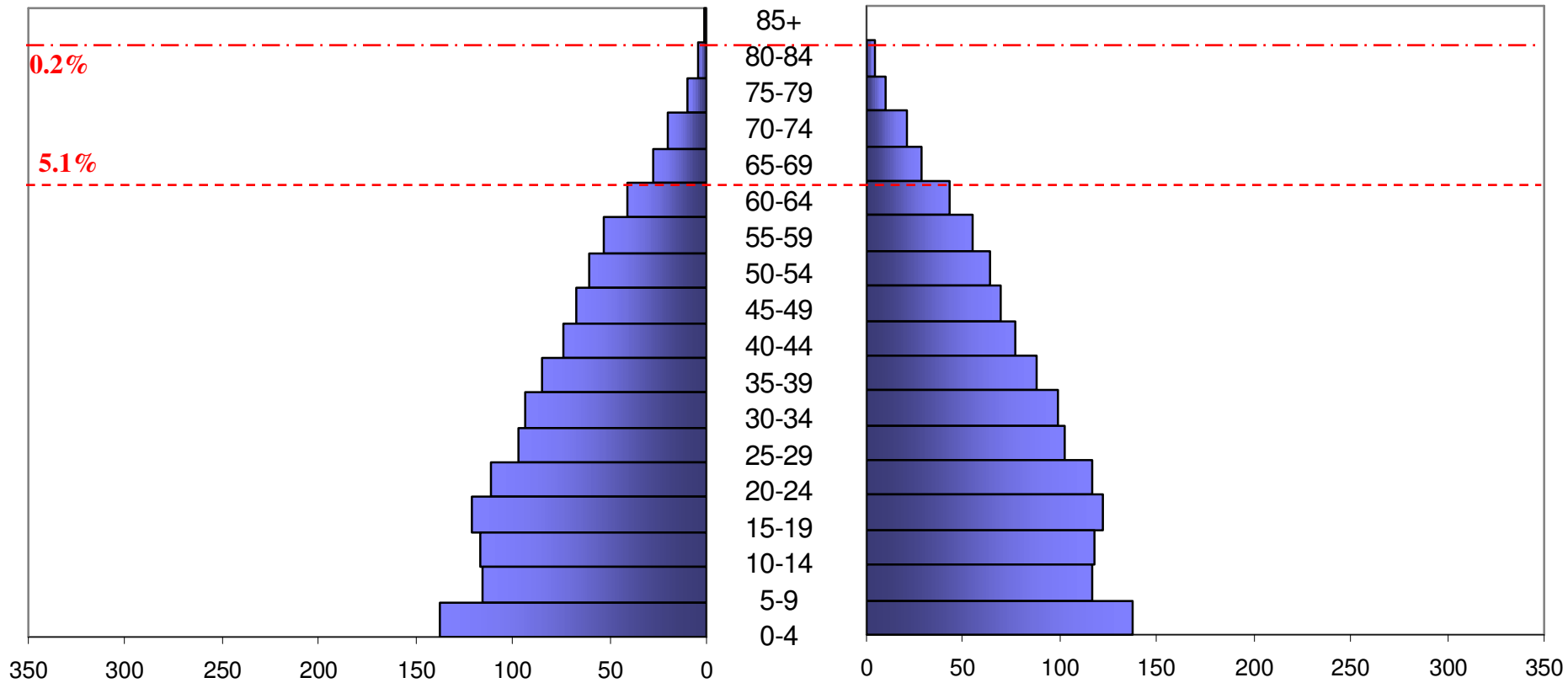
# Switzerland

2.5 million inhabitants

Hommes

1860

Femmes



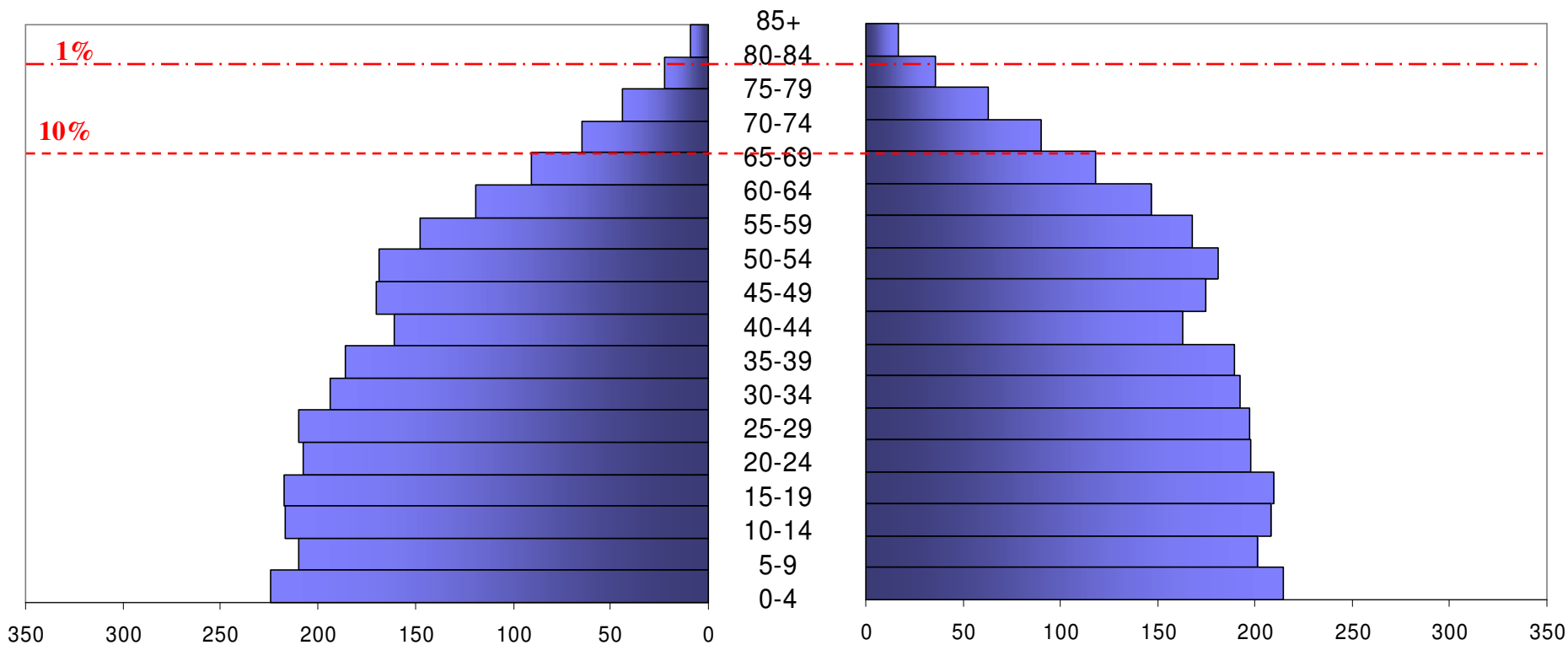
# Switzerland

5.4 million inhabitants

Hommes

1960

Femmes



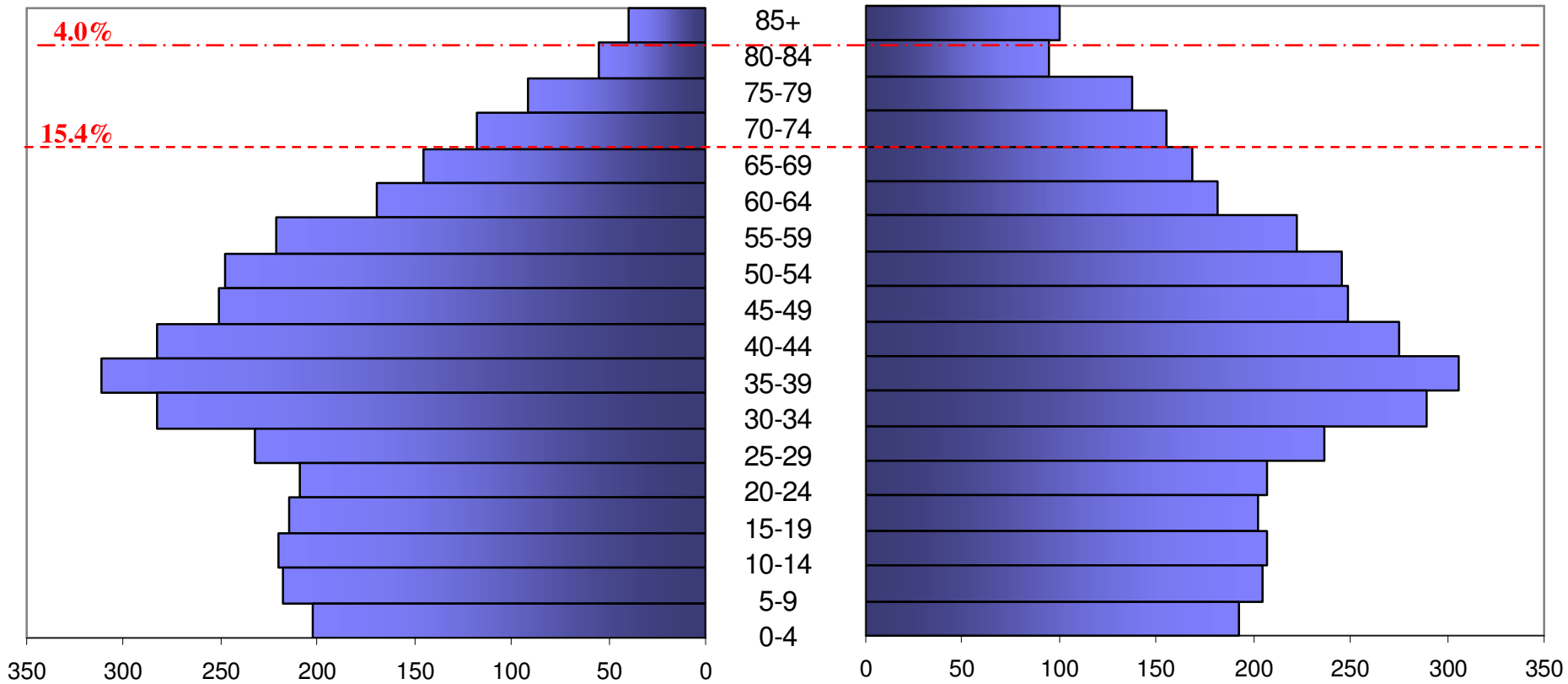
# Switzerland

7.2 million inhabitants

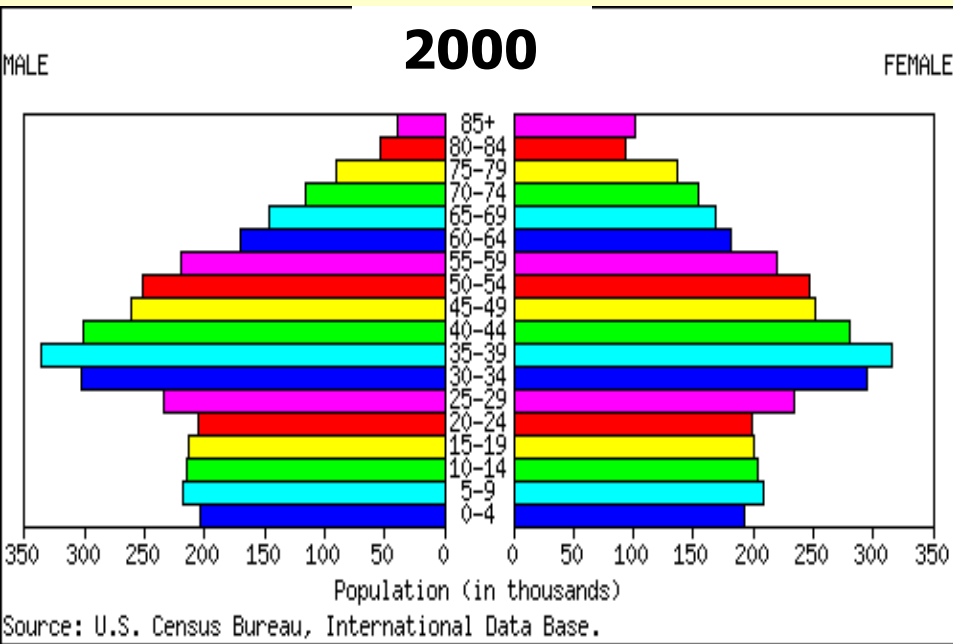
Hommes

2000

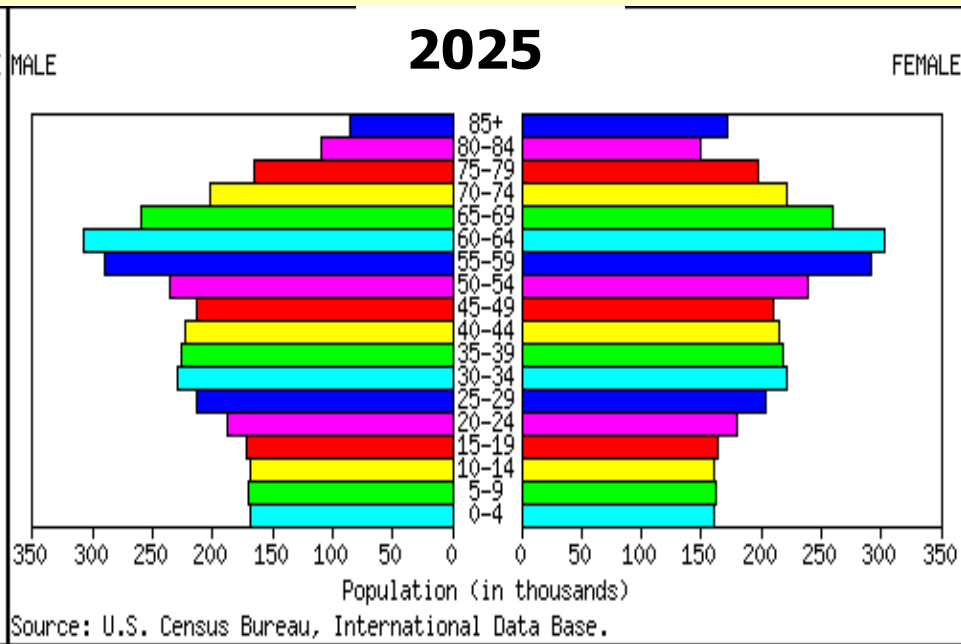
Femmes



# SWITZERLAND 2000 and 2025

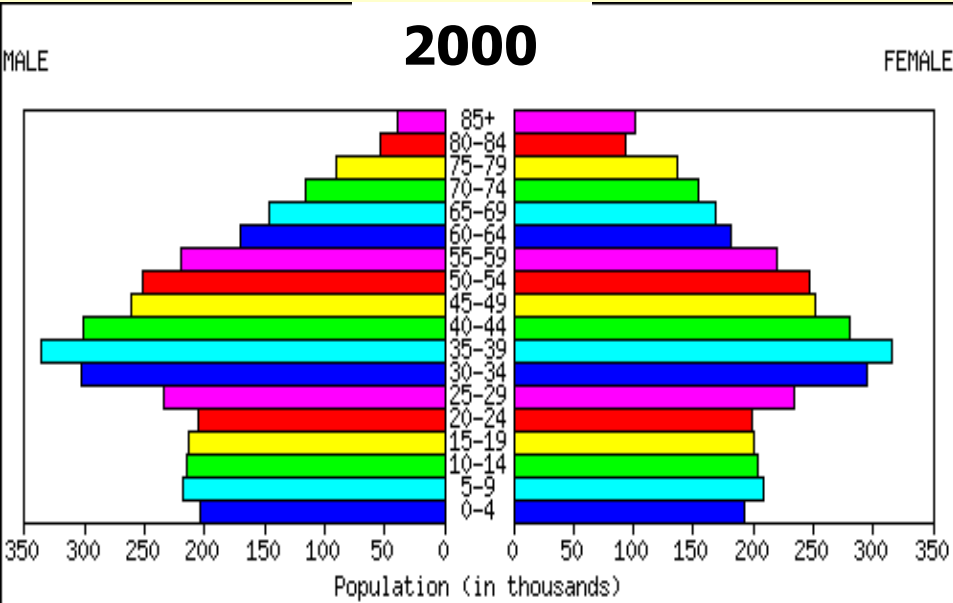


Source: U.S. Census Bureau, International Data Base.

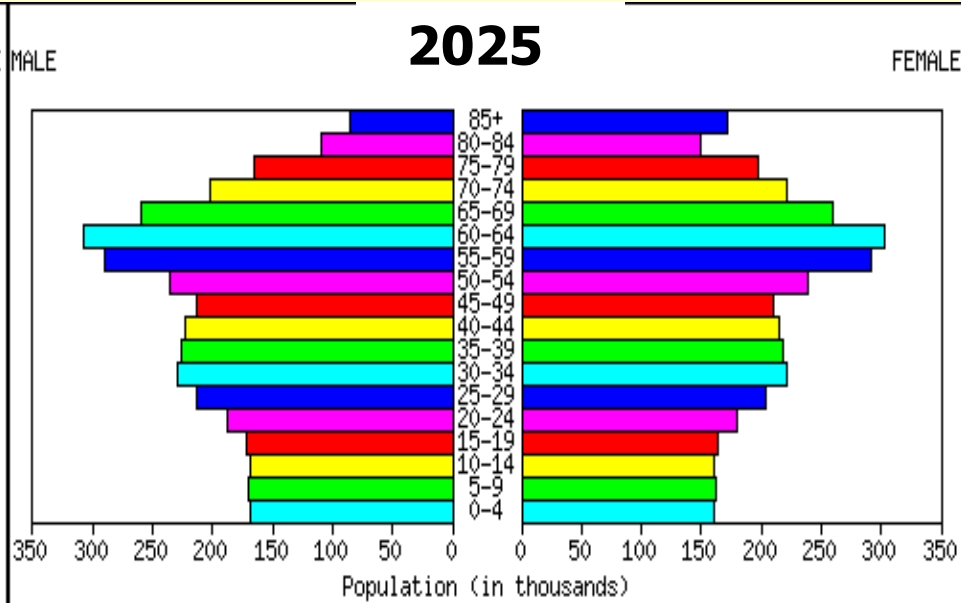


Source: U.S. Census Bureau, International Data Base.

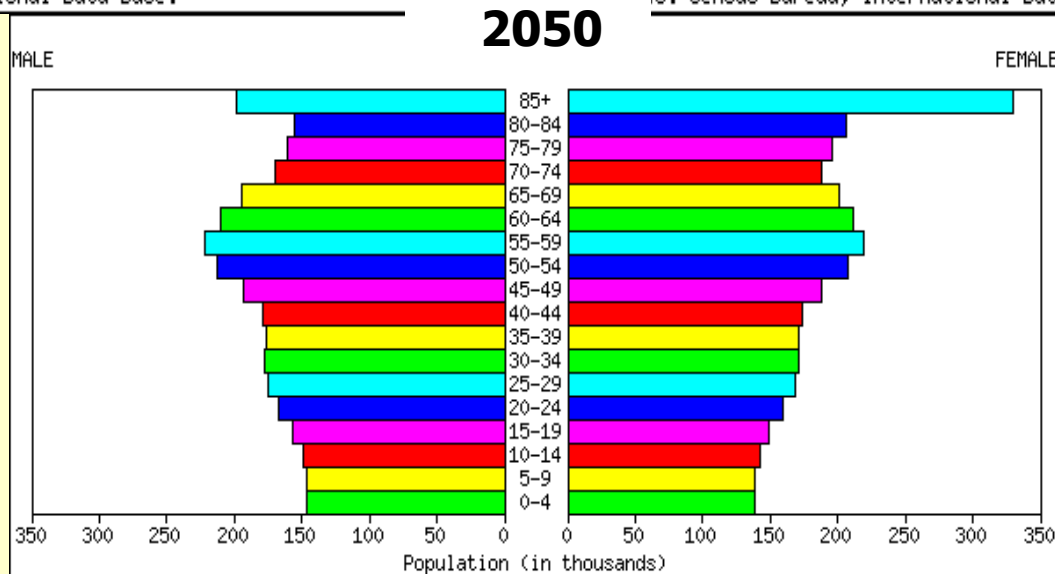
# SWITZERLAND 2000, 2025 and 2050



Source: U.S. Census Bureau, International Data Base.

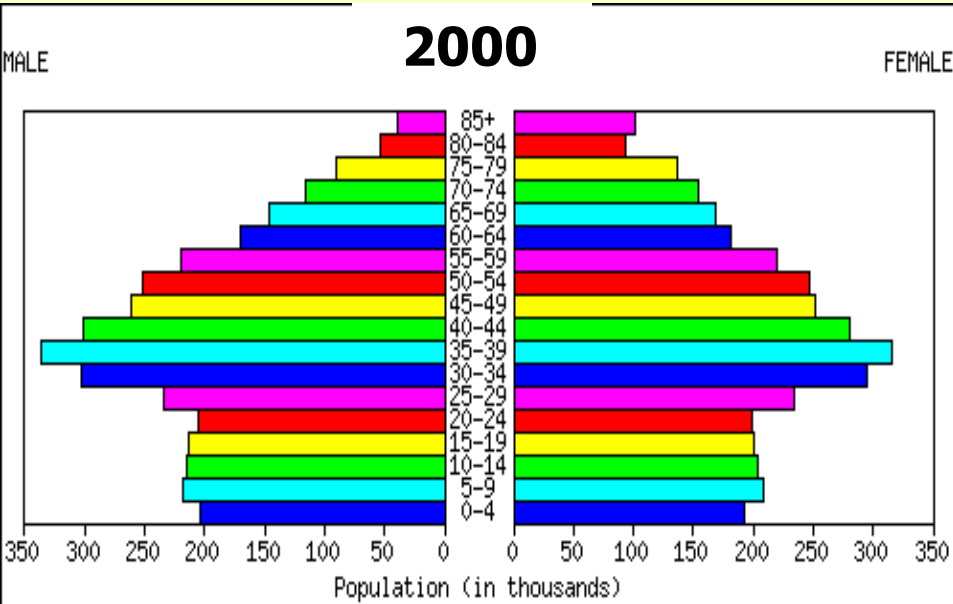


Source: U.S. Census Bureau, International Data Base.

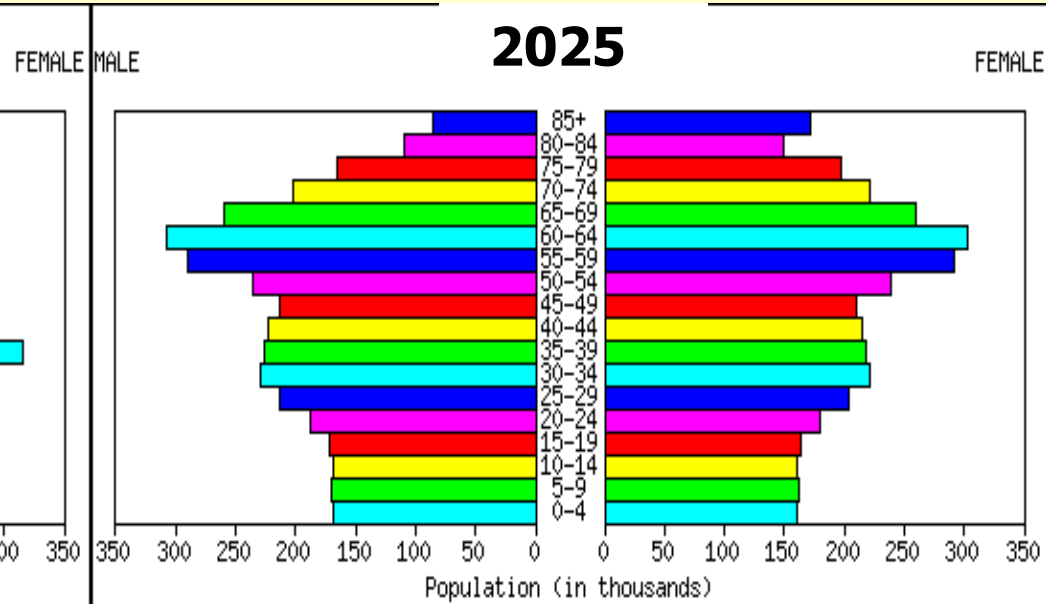


Source: U.S. Census Bureau, International Data Base.

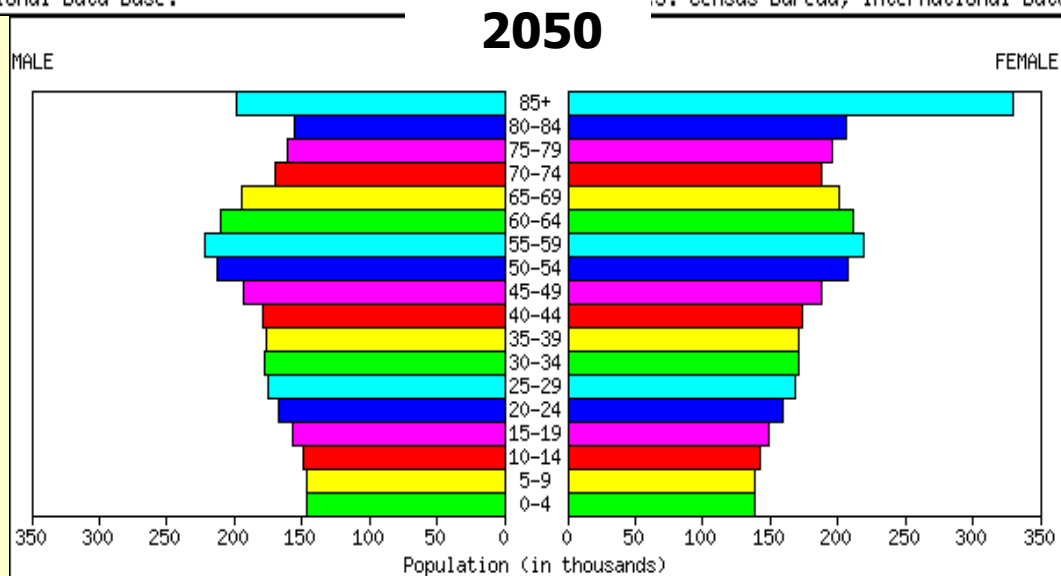
# SWITZERLAND 2000, 2025 and 2050



Source: U.S. Census Bureau, International Data Base.



Source: U.S. Census Bureau, International Data Base.



Source: U.S. Census Bureau, International Data Base.

**The tomorrow old are already born**

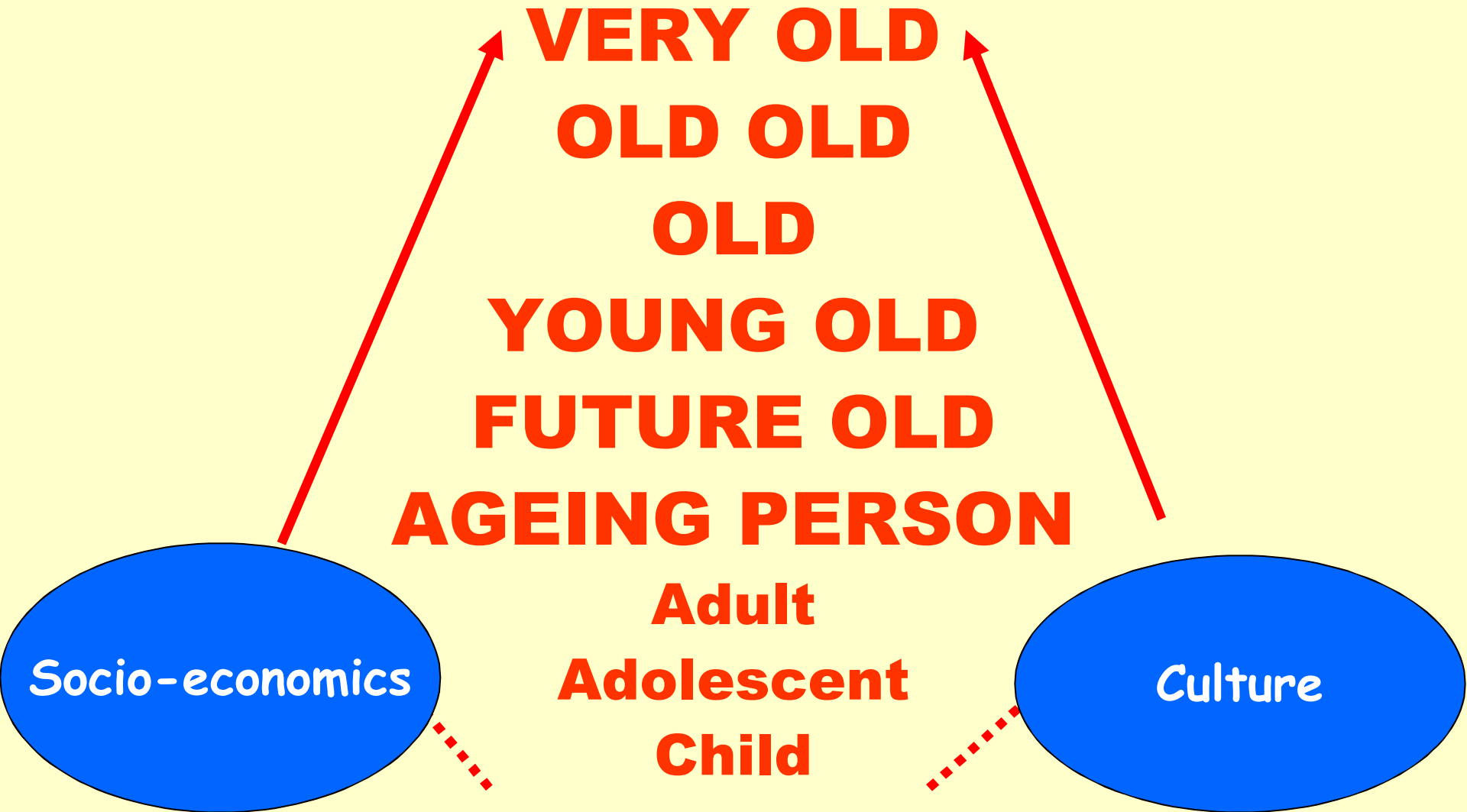


**We are preparing our  
own future old age**



# AGEING:

## Life course perspective



# AGEING EVIDENCE !



**Life course perspective**

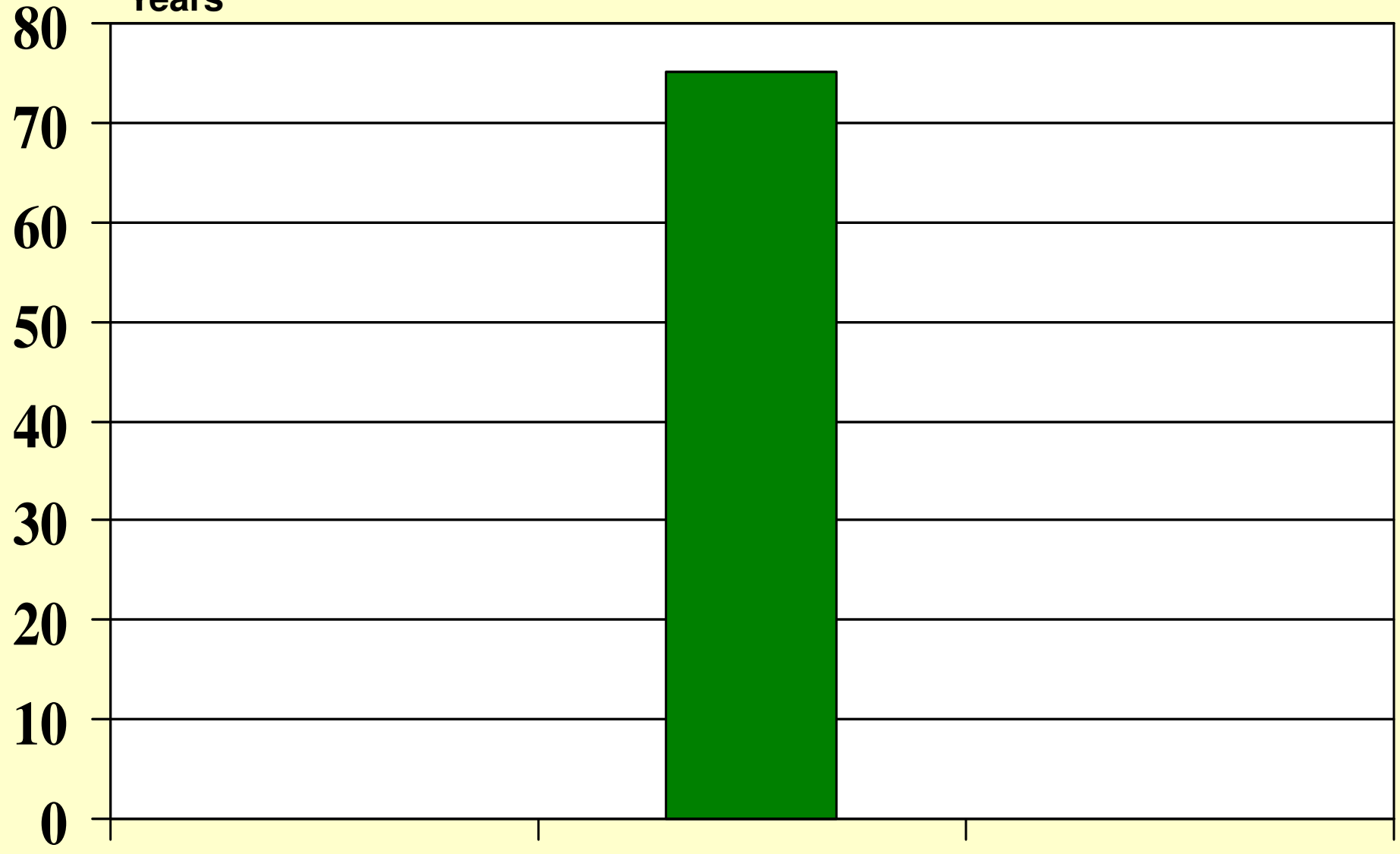


**NUMBER of YEARS of LIFE**

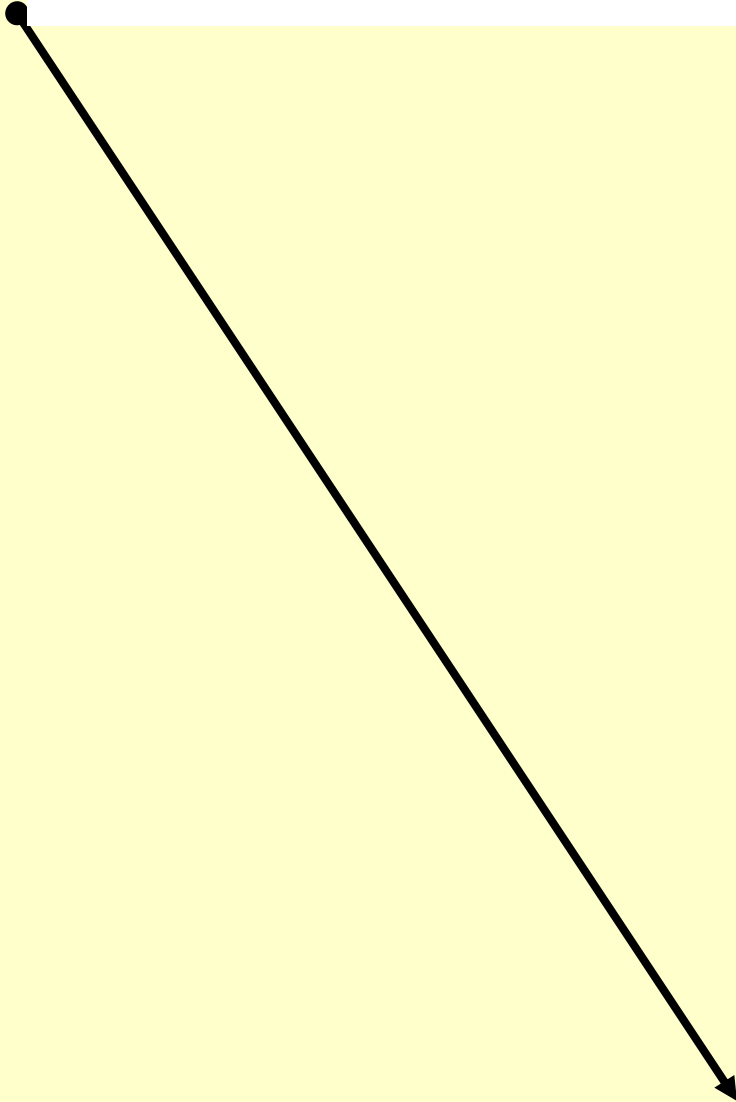
**NUMBER of YEARS of LIFE  
without disability**

**Life Expectancy**

Years



**PATHOLOGICAL PROCESS**



**DEATH**

# PATHOLOGICAL PROCESS

**IMPAIRMENT**

Social  
identity

Coping  
ability

Activities of Daily Living

**DISABILITY**

Situational  
condition

**HANDICAP**

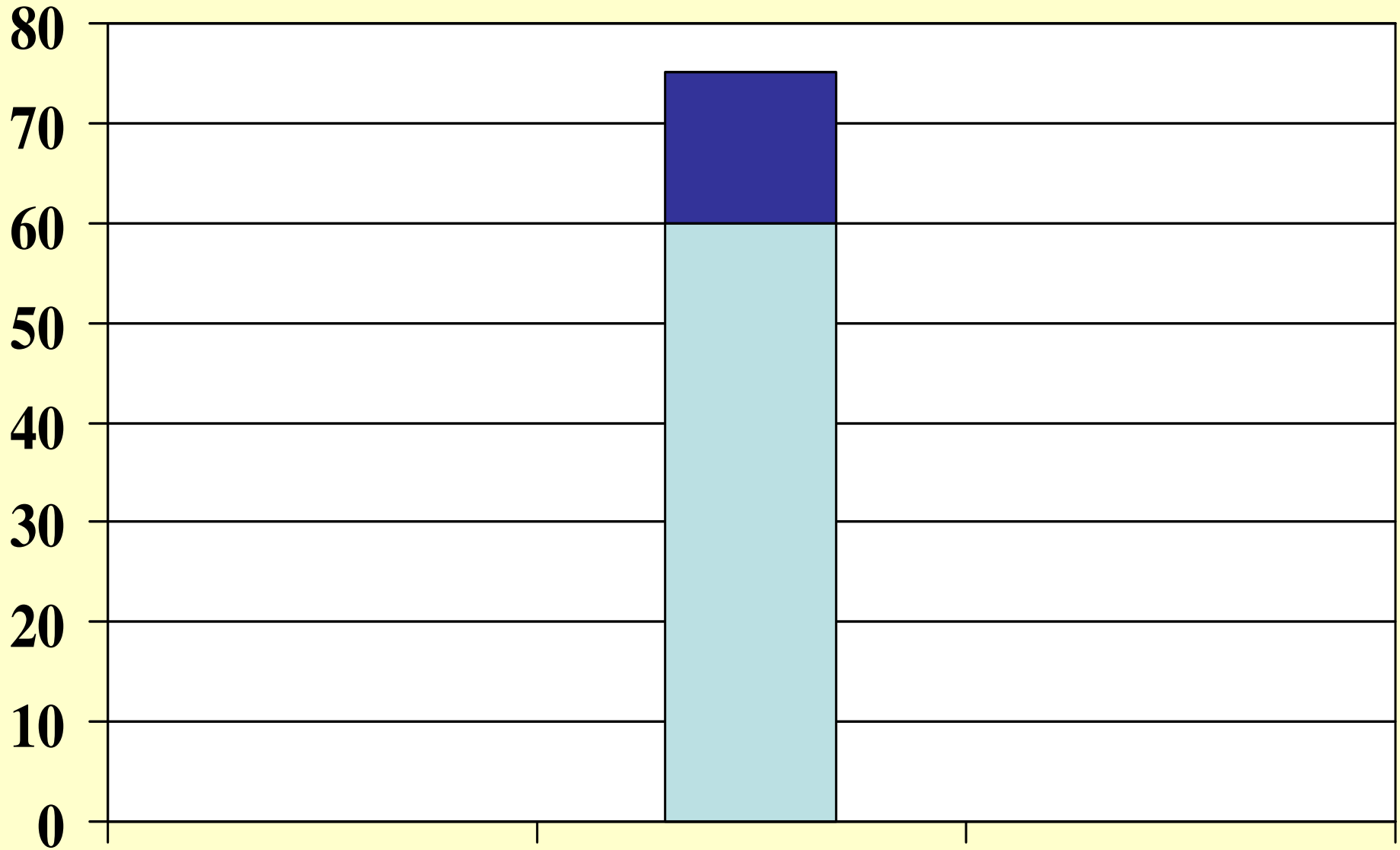
**DEATH**

**ORGAN**

**INDIVIDUAL**

**SOCIETY**

■ Disability Free Life Expectancy ■ Life WITH Disability



# Aging successfully until death

*Study of predictors of dying without disability  
in 1'097 US citizens who died in late old age with known disability*

<b>For a <u>NON</u>-disabled 65 y.o.</b>	<b>Man</b>	<b>Woman</b>
<b>the probability of surviving to age of</b>		
<b>and being <u>NON</u>-disabled before death was</b>		



# CAUSES of DISABILITY ?

Which  
are the main causes  
of  
the inability of accomplishing alone  
the Activities of Daily Living (ADL)

Life styles ?

Age by itself ?

Diseases ?

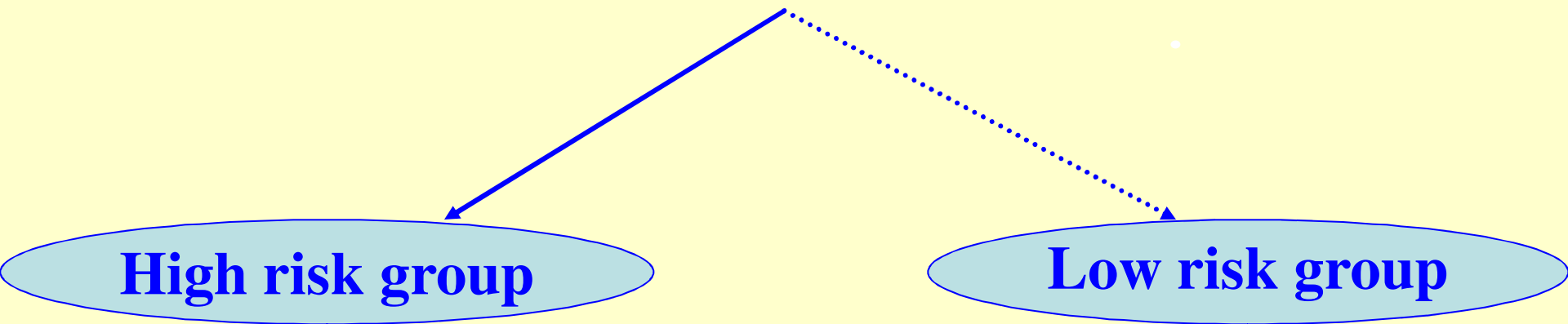
# **LIFE STYLES** and **ADL functioning**

*32 year-follow-up (1962-1994)  
of 1741 students born between 1913 and 1925*

**3 “modifiable” risk factors**



**PHYSICAL EXERCISES  
WEIGHT  
SMOKING**



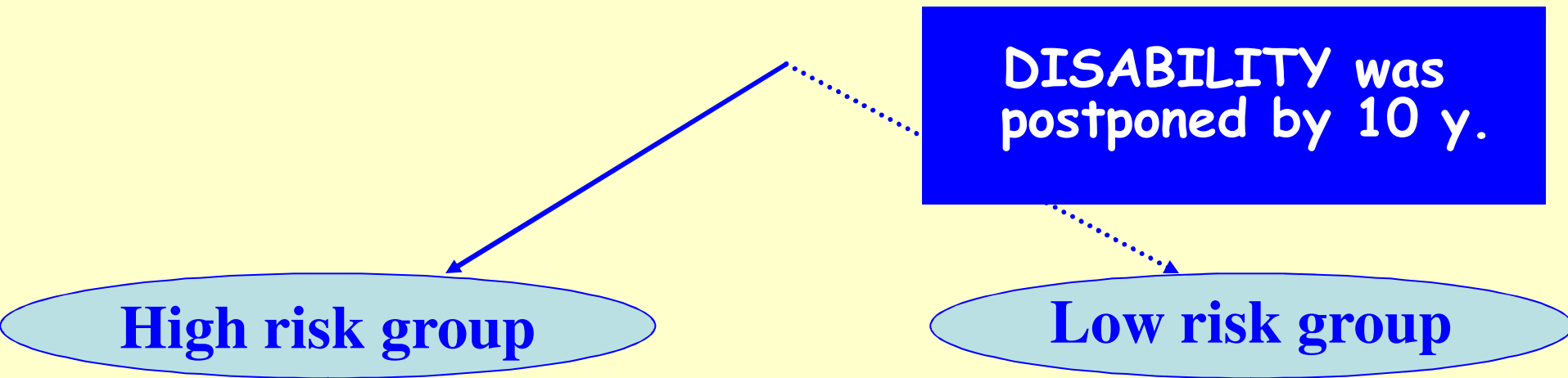
# LIFE STYLES and ADL functioning

*32 year-follow-up (1962-1994)  
of 1741 university alumni born between 1913 and 1925*

## 3 “modifiable” risk factors



**PHYSICAL EXERCISES  
WEIGHT  
SMOKING**



**Longitudinal 32-years survey (1962-1994)**

**1,741 university alumni**

***(cumulative disability)***

**Bias of the study cohort ???**

***White men***

***Highly educated***

***Good socioeconomic status***

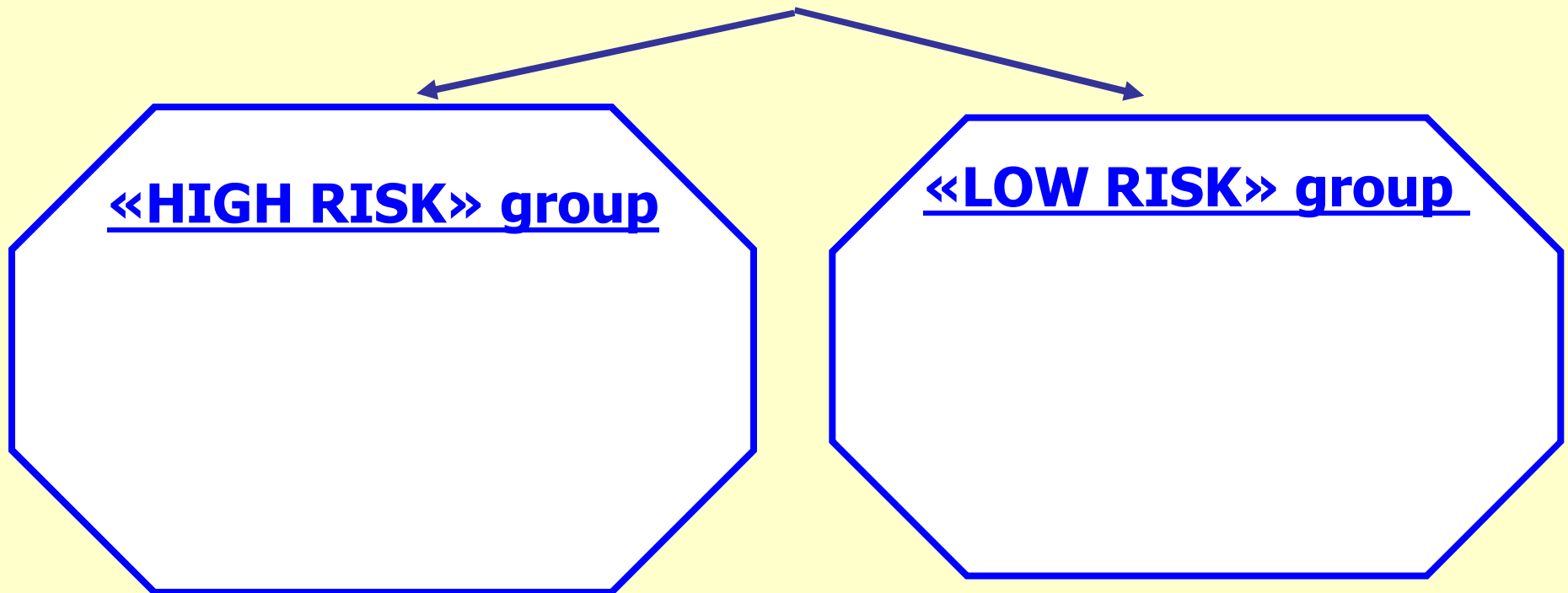


**GENERALIZABILITY of the FINDINGS ?**

# LIFE STYLES and ADL functioning

*12 year-longitudinal study of a 65+ community dwelling population → 418 death registered between 1986 and 1998*

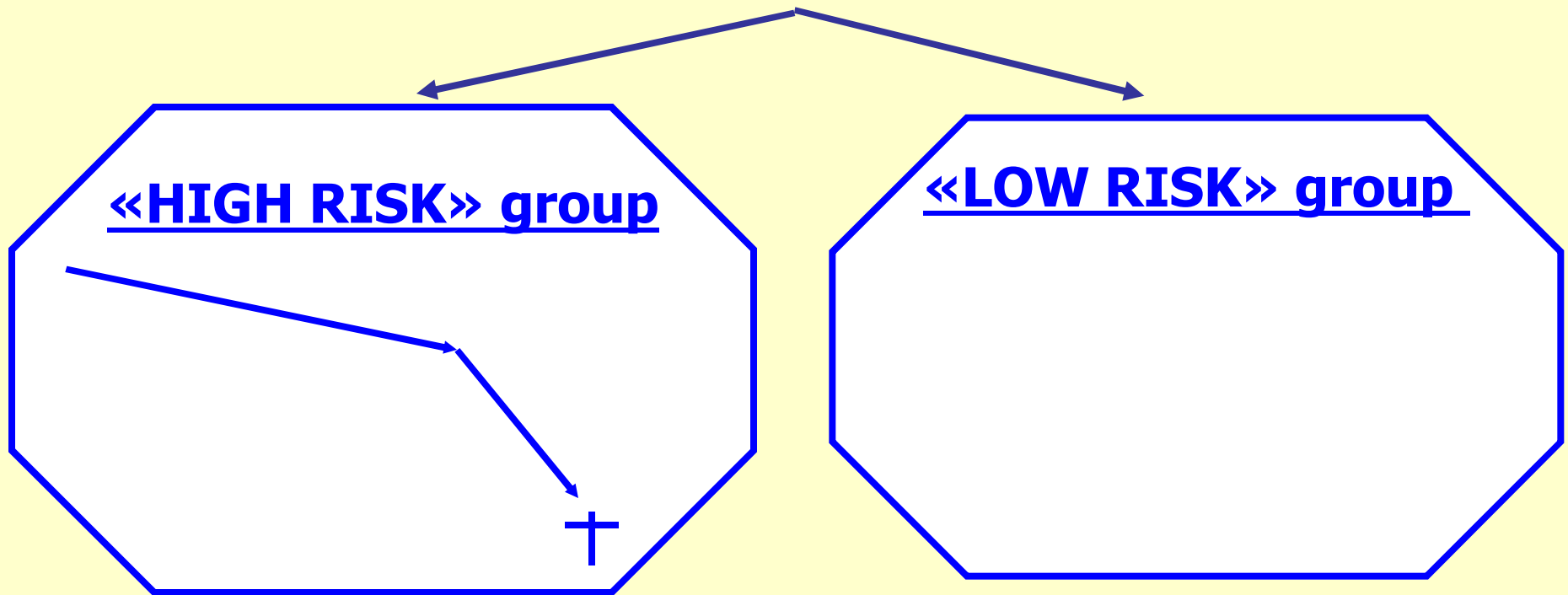
ADL were analyzed considering 3 « modifiable » risk factors:  
**physical exercices, weight and smoking habit**



# LIFE STYLES and ADL functioning

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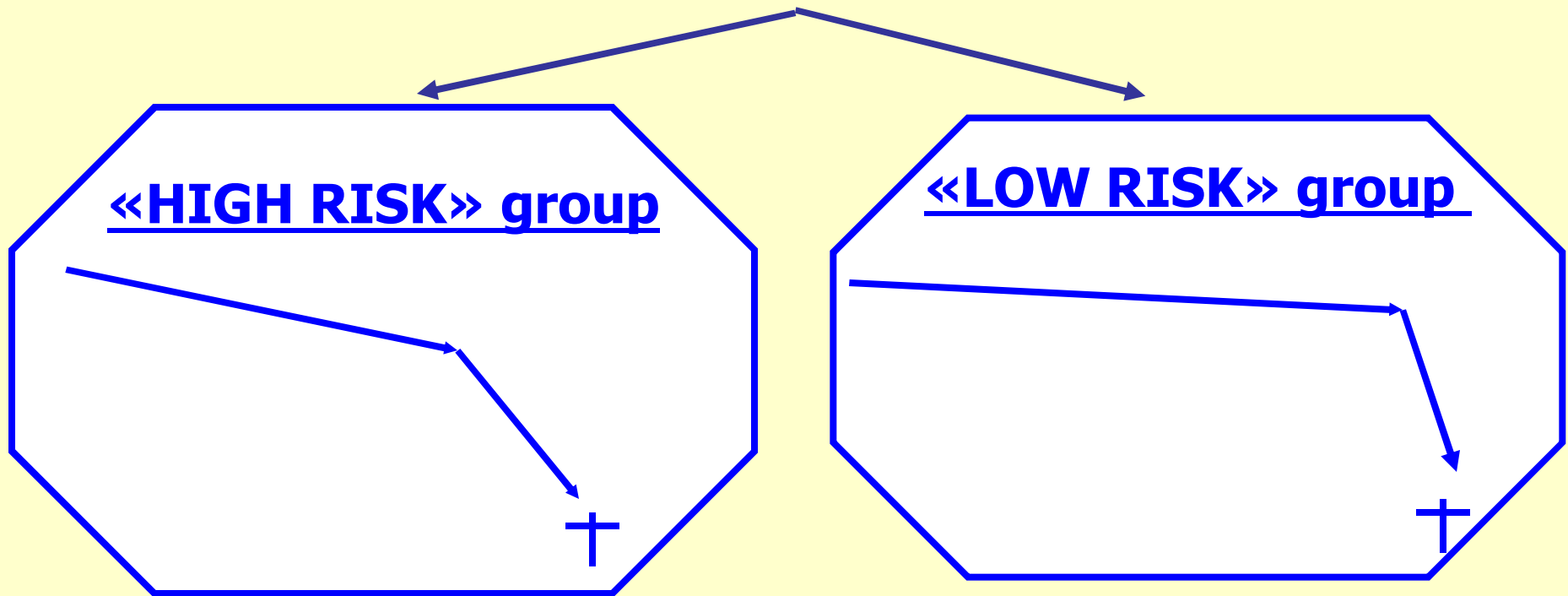
ADL were analyzed considering 3 « modifiable » risk factors:  
**physical exercises, weight and smoking habit**



# LIFE STYLES and ADL functioning

*12 year-longitudinal study of a 65+ community dwelling population → 418 death registered between 1986 and 1998*

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**physical exercises, weight and smoking habit**



# CAUSES of DISABILITY ?

Which  
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the Activities of Daily Living (ADL)

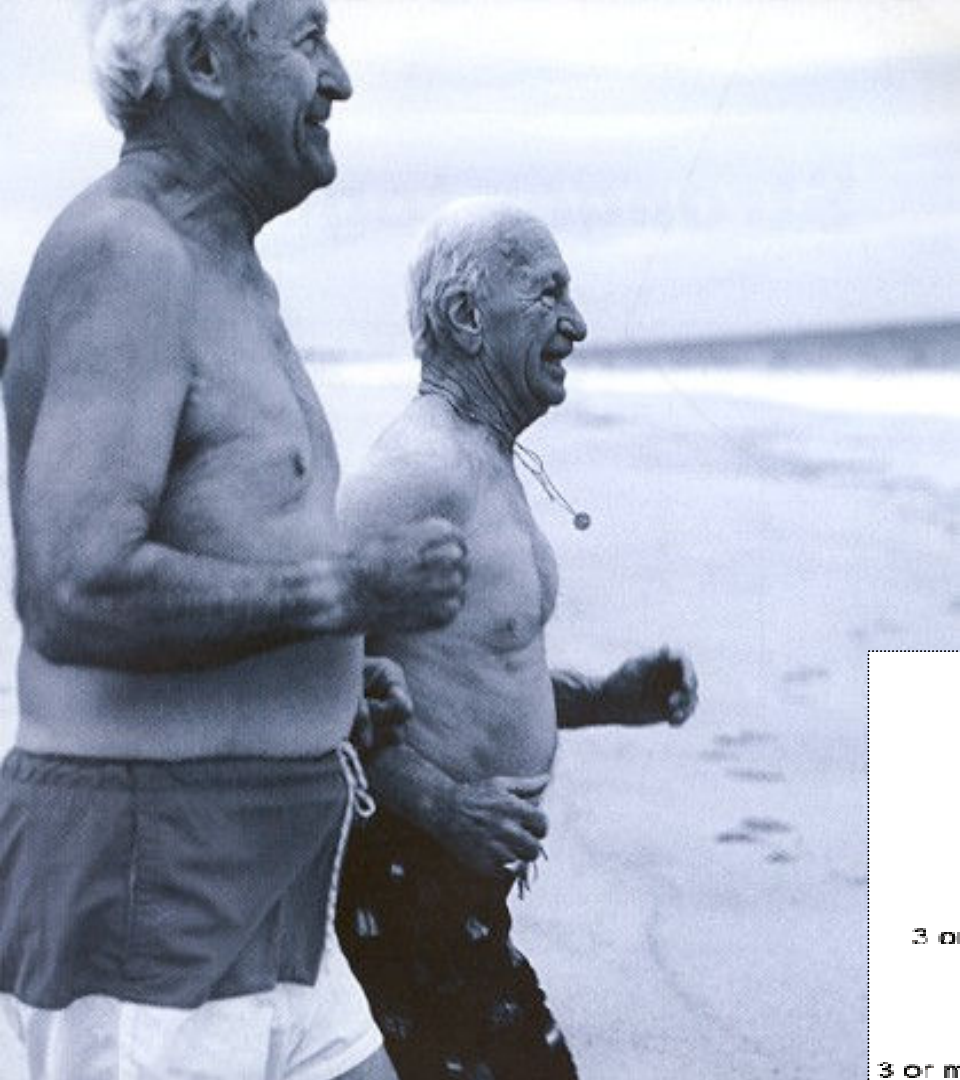
Life styles ?

**YES**

Age by itself ?

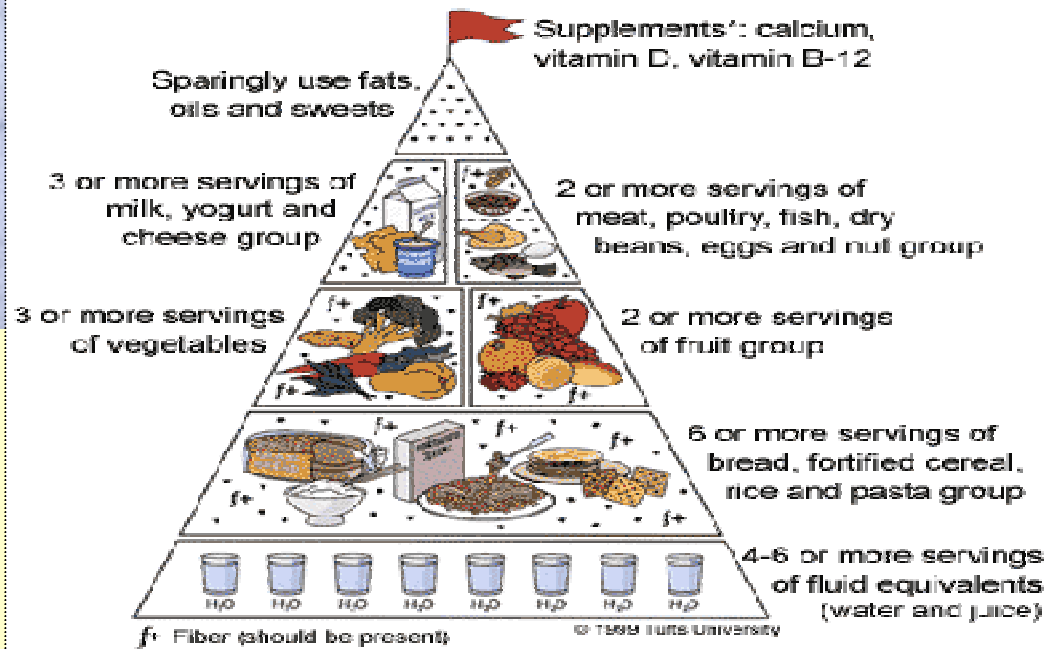
Diseases ?





# BALANCED DIET

## Modified Food Pyramid for Seniors Daily Suggestions

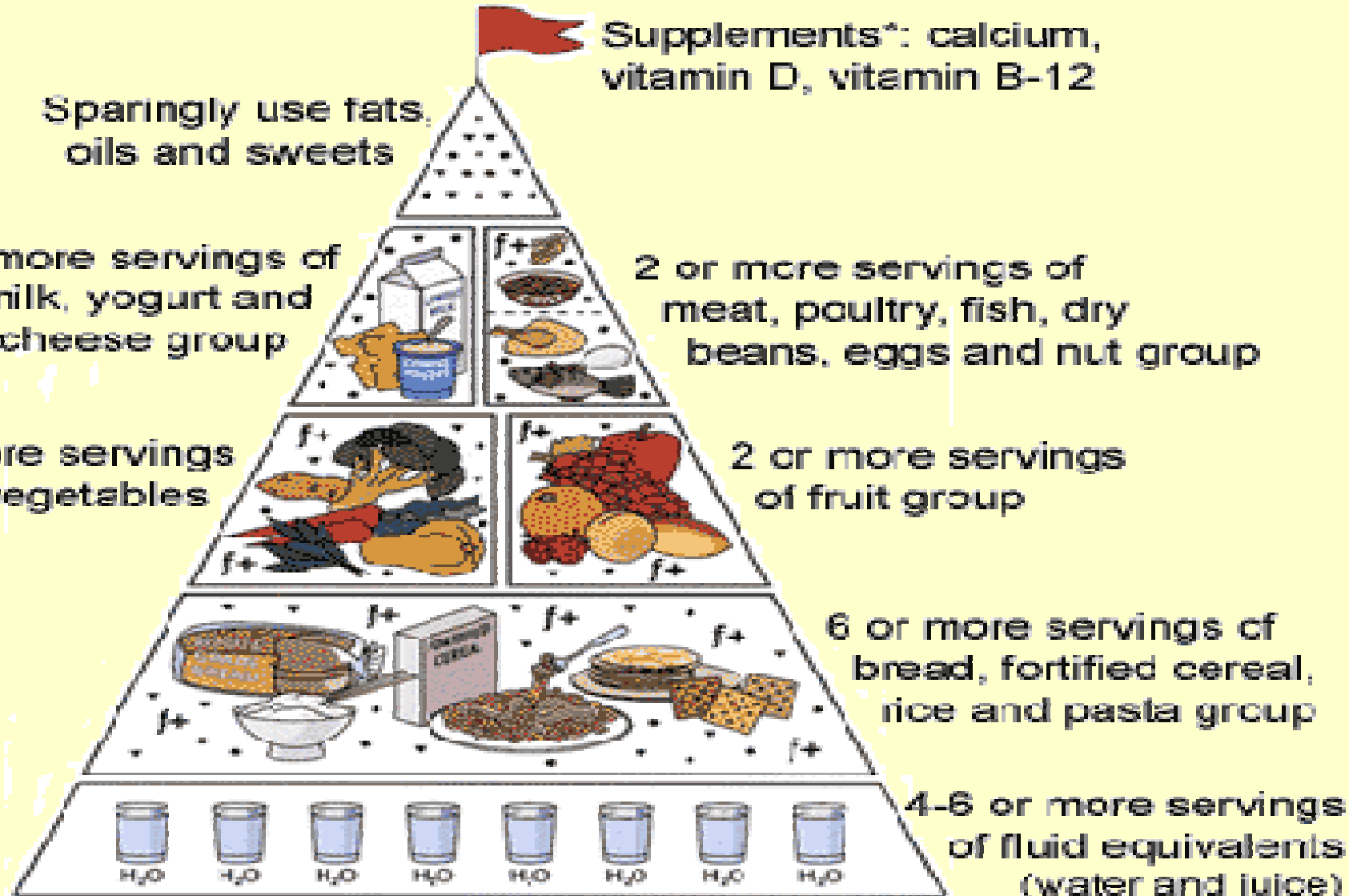


# PHYSICAL EXERCISES

\*Not all individuals need supplements; consult your physician

# Modified Food Pyramid for Seniors

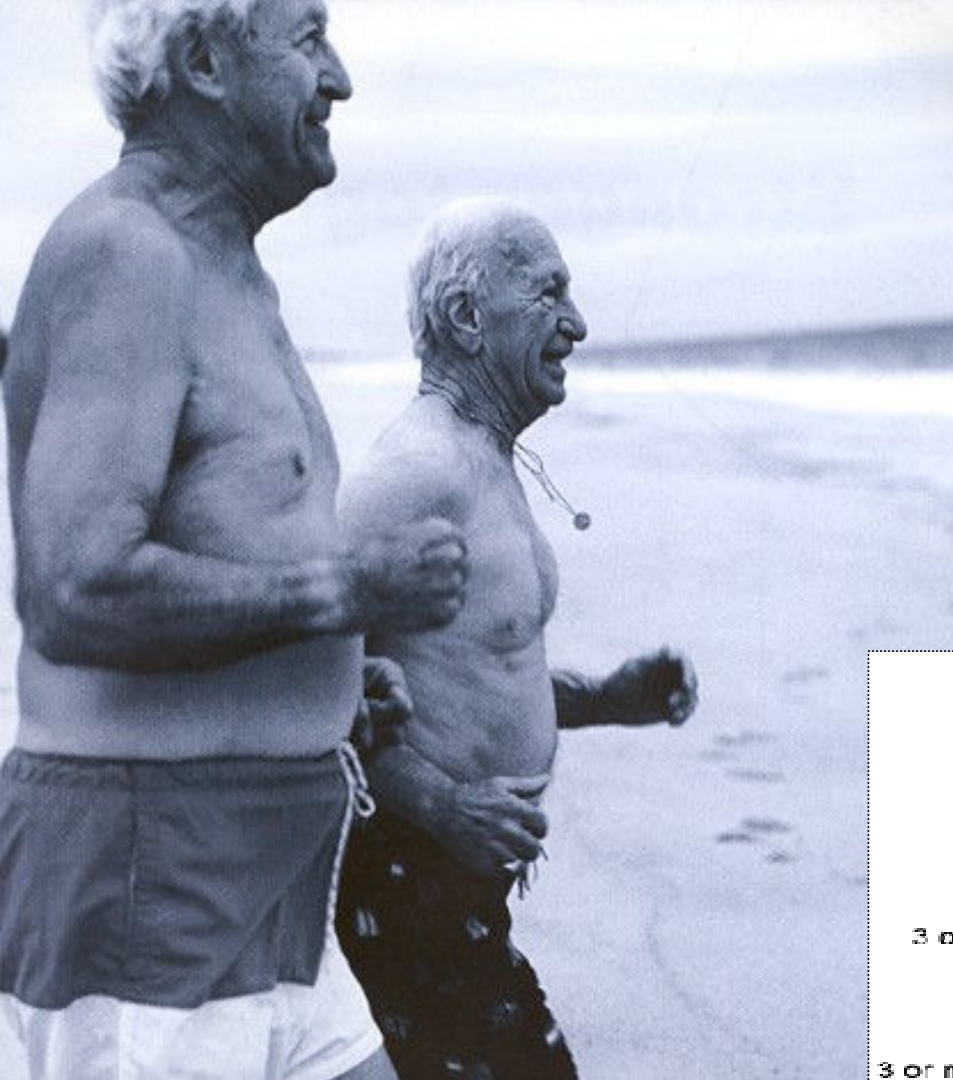
## Daily Suggestions



f+ Fiber (should be present)

© 1995 Tufts University

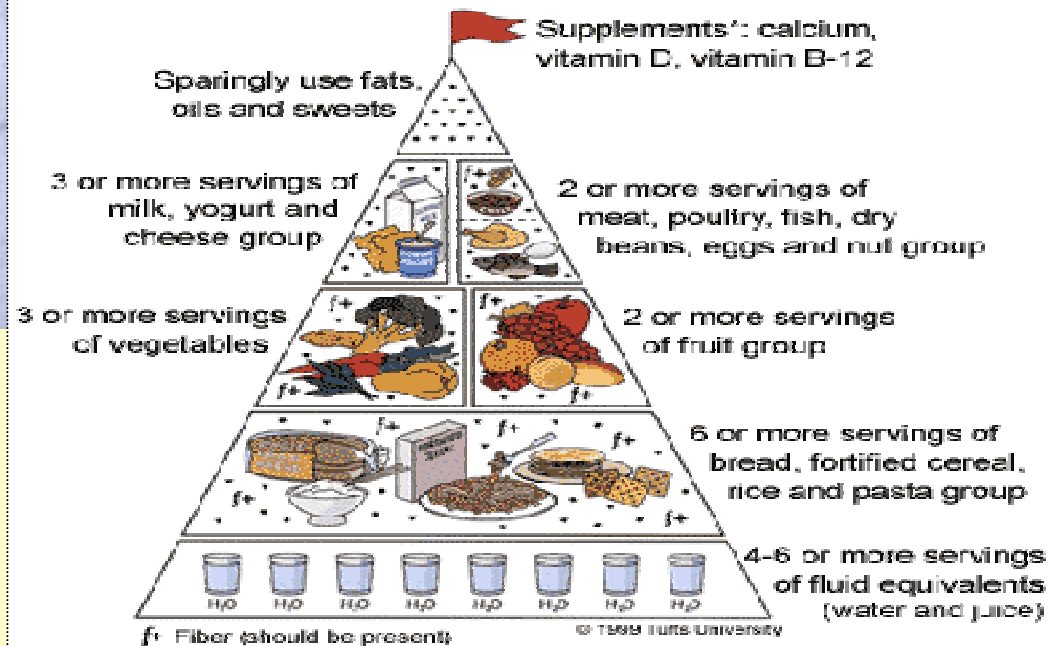
\*Not all individuals need supplements; consult your physician



Preventable  
infectious diseases  
vaccines

## BALANCED DIET

### Modified Food Pyramid for Seniors Daily Suggestions



\*Not all individuals need supplements; consult your physician

## PHYSICAL EXERCISES

Optimizing your  
brain reserve

# Major causes of DISABILITY

2 x functional disabilities in 85+ than in the youngest

**Significant explanatory variables  
for functional disabilities**

In the 65-84 y.o.

**FRAILTY**

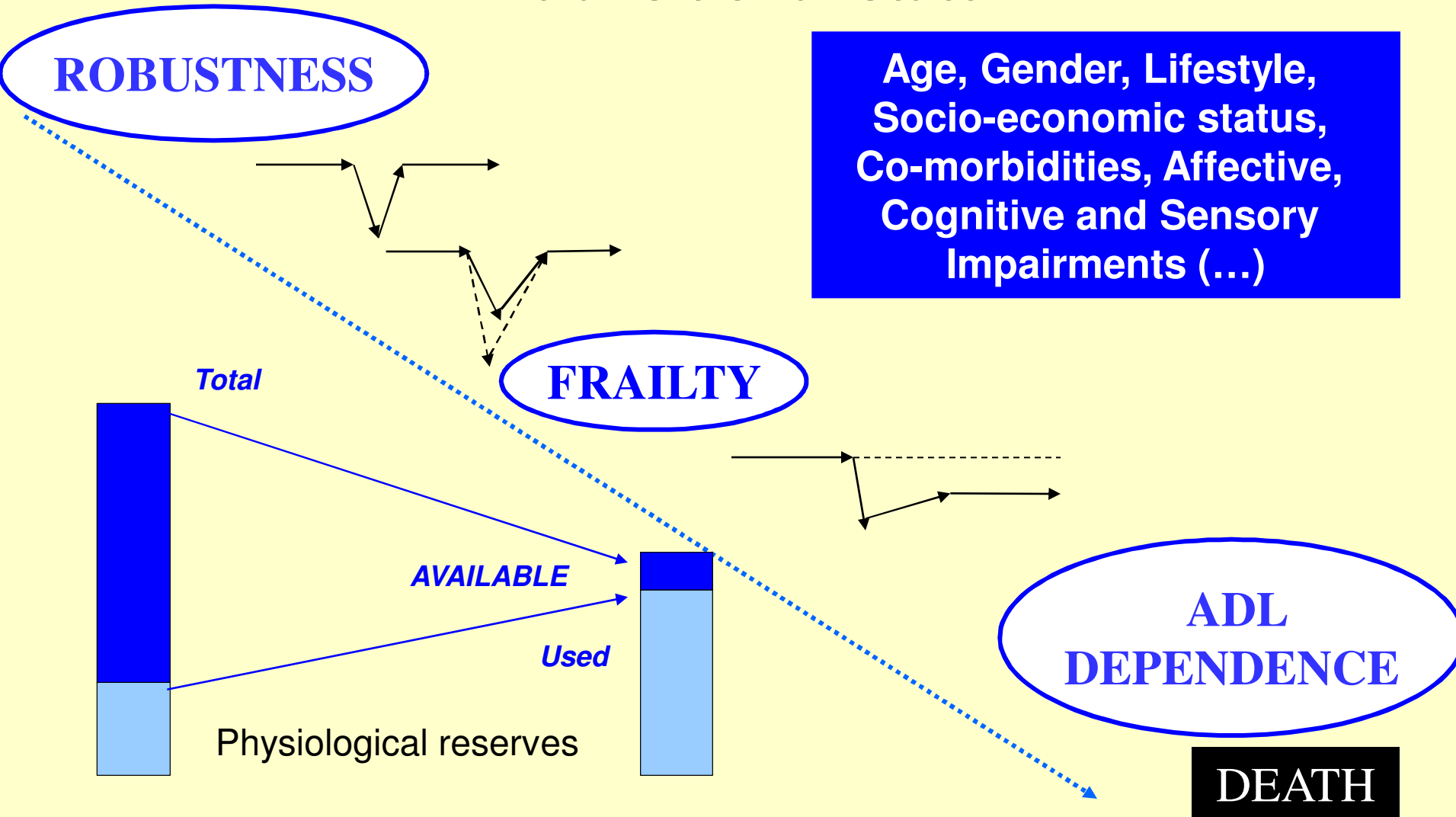
In the 85+

**INCREASING AGE**  
*(dysfunctions in  
activities of daily living)*

# FRAILITY ⇐ life long process

time →

« A transitional state »



# « **FRAILTY** »

A stage of age-related

**PHYSIOLOGIC VULNERABILITY**

**resulting from**

**IMPAIRED HOMEOSTATIC RESERVE**

**and**

**REDUCED CAPACITY of the ORGANISM**

**TO WITHSTAND ANY STRESS**

# FRAILITY ← life long process



**ROBUSTNESS**

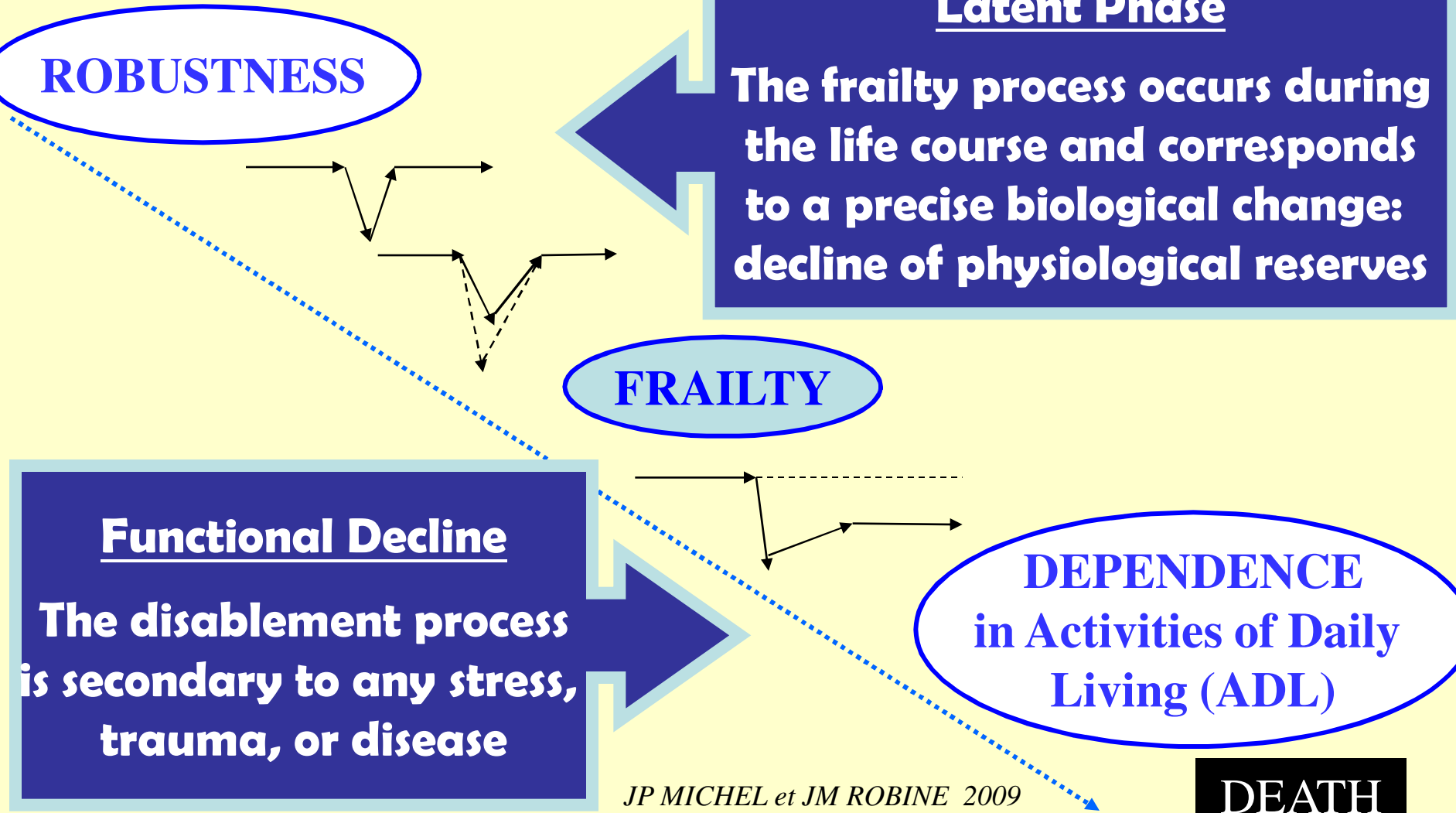
Latent Phase  
The frailty process occurs during the life course and corresponds to a precise biological change: decline of physiological reserves

**FRAILTY**

Functional Decline  
The disablement process is secondary to any stress, trauma, or disease

**DEPENDENCE**  
in Activities of Daily Living (ADL)

**DEATH**



# Consequences of «FRAILTY»

Repeated falls

Multiple and various trauma

Functional decline

Disability

Hospitalisations

Nosocomial inf.

Dependence

Institution

Death

*Personal  
suffering*

*Caregiver  
burden*



# Major causes of DISABILITY

2 x functional disabilities in 85+ than in the youngest

**Significant explanatory variables  
for functional disabilities**

In the 65-84 y.o.

In the 85+

**FRAILTY**

**INCREASING AGE**

*(dysfunctions in  
activities of daily living)*

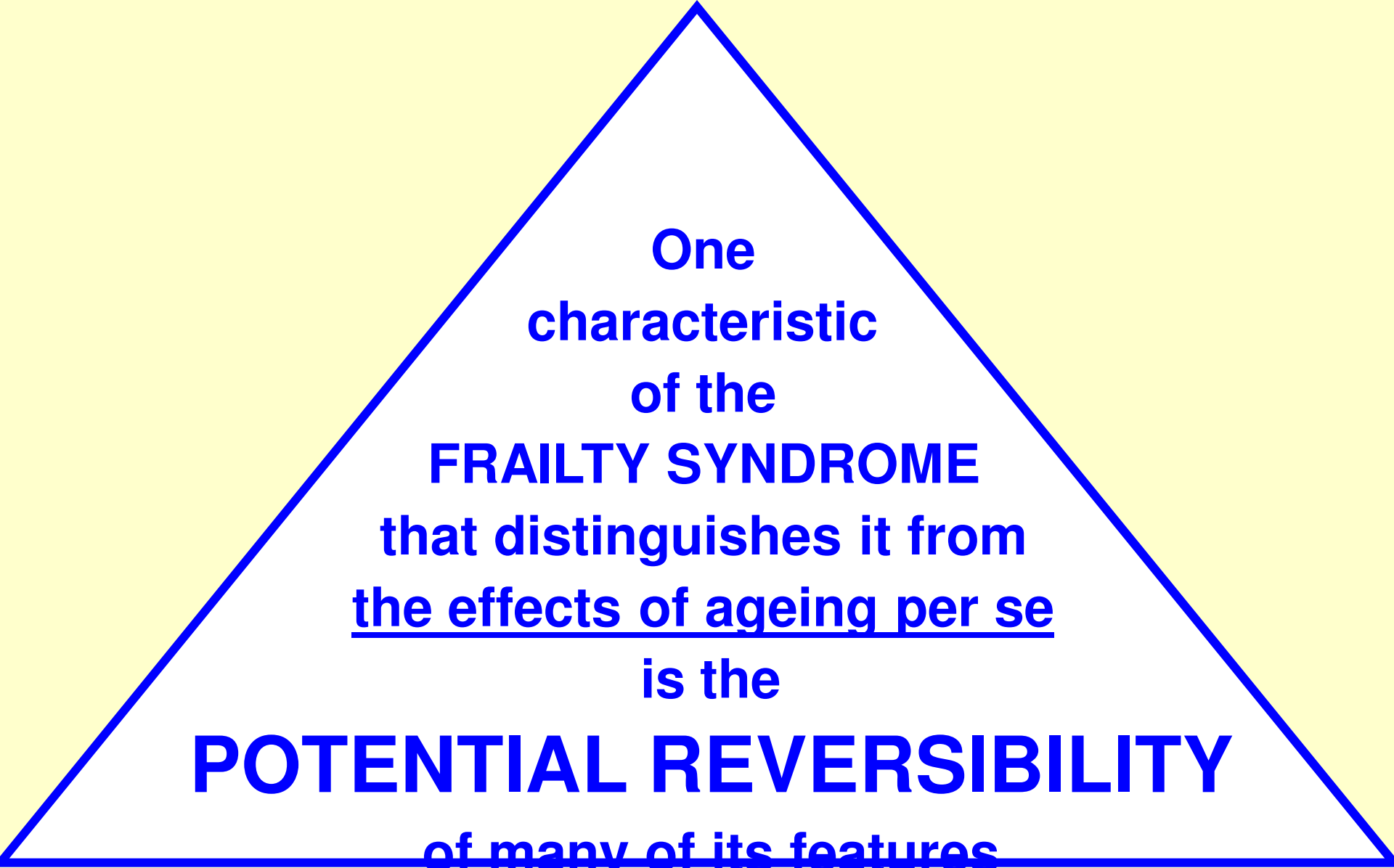
Modifiable risk factors:

**Malnutrition, low exercise level, slow gait and depression !**

*SARKISIAN CA et al J Am Geriatr Soc 2000; 48: 170-8*

*HOGAN DB et al J Gerontol A Biol Sci Med Sci 1999; 54: M77-82*

# **AGEING and/or FRAILTY ?**



**One  
characteristic  
of the  
FRAILTY SYNDROME  
that distinguishes it from  
the effects of ageing per se  
is the  
**POTENTIAL REVERSIBILITY**  
of many of its features**

# CAUSES of DISABILITY ?

Which  
are the main causes  
of  
the inability of accomplishing alone  
the Activities of Daily Living (ADL)

Life styles ?

**YES**

Age by itself ?

**YES**

Diseases ?

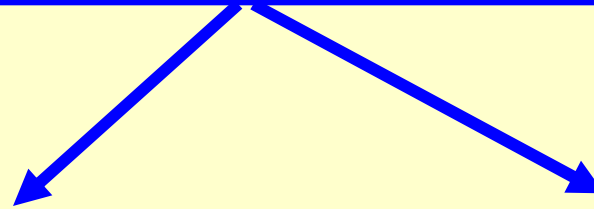
# Major causes of DISABILITY

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**Significant explanatory variables  
for functional disabilities**

In the 65-84 y.o.

**DISEASES**



**FRAILTY**

In the 85+

**INCREASING AGE**

*(dysfunctions in  
activities of daily living)*

Modifiable risk factors:

**Malnutrition, low exercise level, slow gait and depression !**

*SARKISIAN CA et al J Am Geriatr Soc 2000; 48: 170-8*





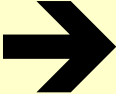

*HOGAN DB et al J Gerontol A Biol Sci Med Sci 1999; 54: M77-82*

**ICD 10**

**ICF**

**ICF = INTERNATIONAL CLASSIFICATION OF FUNCTIONS**

# DISEASES and DISABILITIES

MORTALITY	DISABILITY	DISEASES
		
		
		

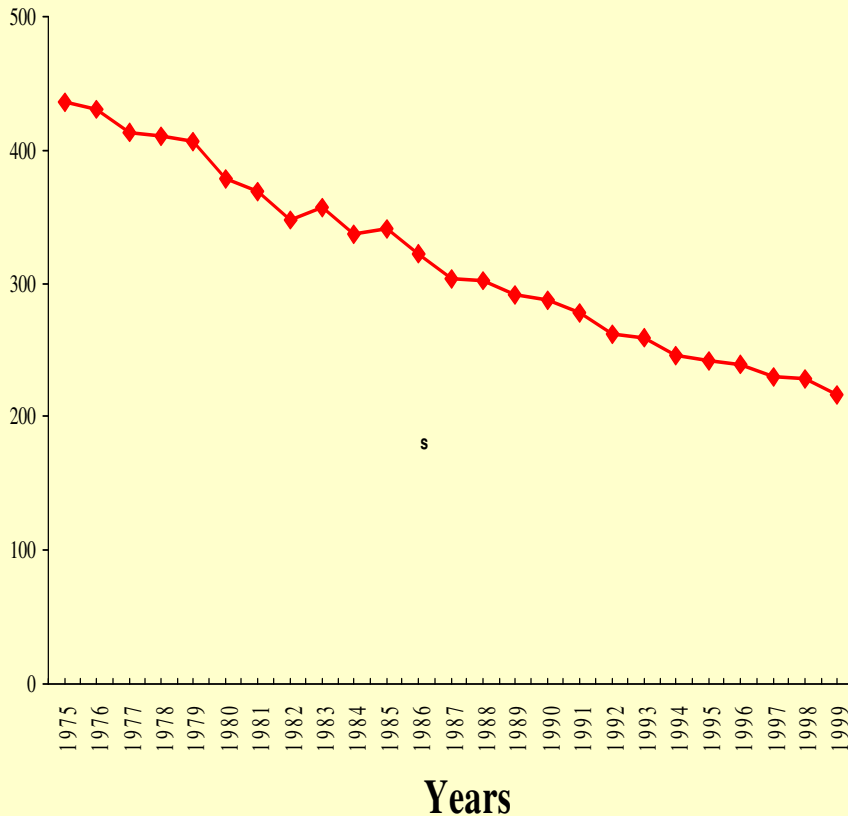
# **ADULT DISEASES**

↑ Mortality  
or ↑ Disability

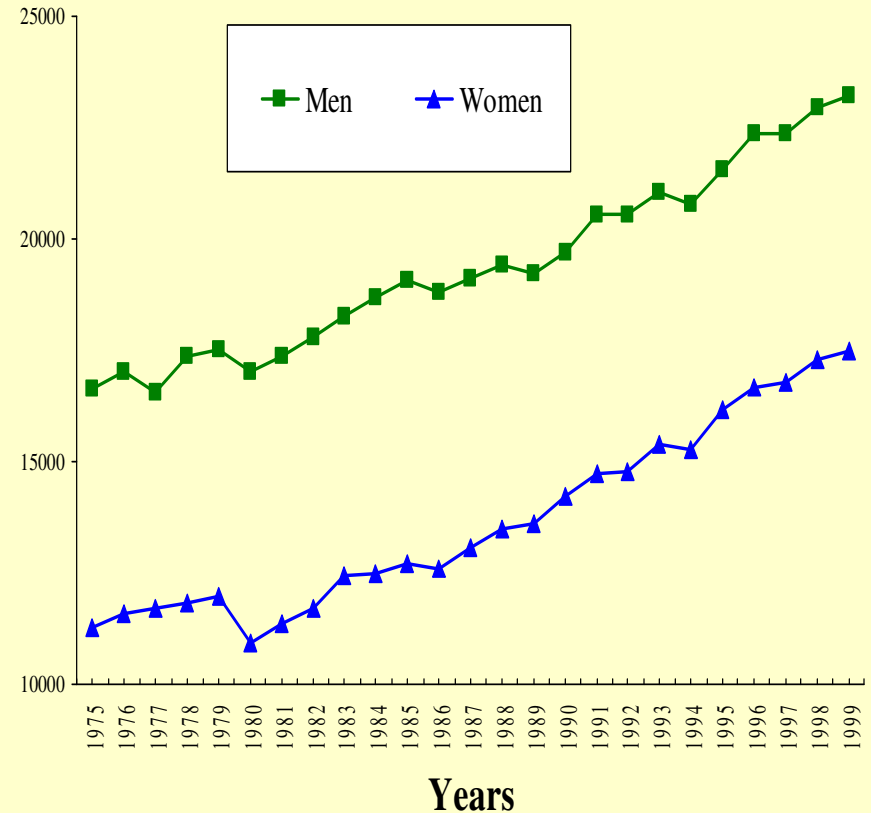
- **Diabetes**
- **Stroke**
- **Cardio-Vx disease**
- **Respiratory diseases**
- **(...)**

# MEDICAL PROGRESS: The “paradox” of Cardio Vascular Diseases (CVD)

↘ CVD mortality rates



↗ Disability linked to CVD





# ADULT DISEASES

↑ Mortality  
or ↑ Disability

- Diabetes
- Stroke
- Cardio-Vx disease
- Respiratory diseases
- (...)

# GERIATRIC DISEASES

↔ Mortality  
↑ Disability

- Sensory impairments
- Locomotor disorders
- Dementias

# **Dementia** and **Physical dependence**

**Dementia  
increases by 14  
inabilities in activities of daily living**

**Dementia  
is a  
strong predictor of disability !**

# CAUSES of DISABILITY ?

Which  
are the main causes  
of  
the inability of accomplishing alone  
the Activities of Daily Living (ADL)

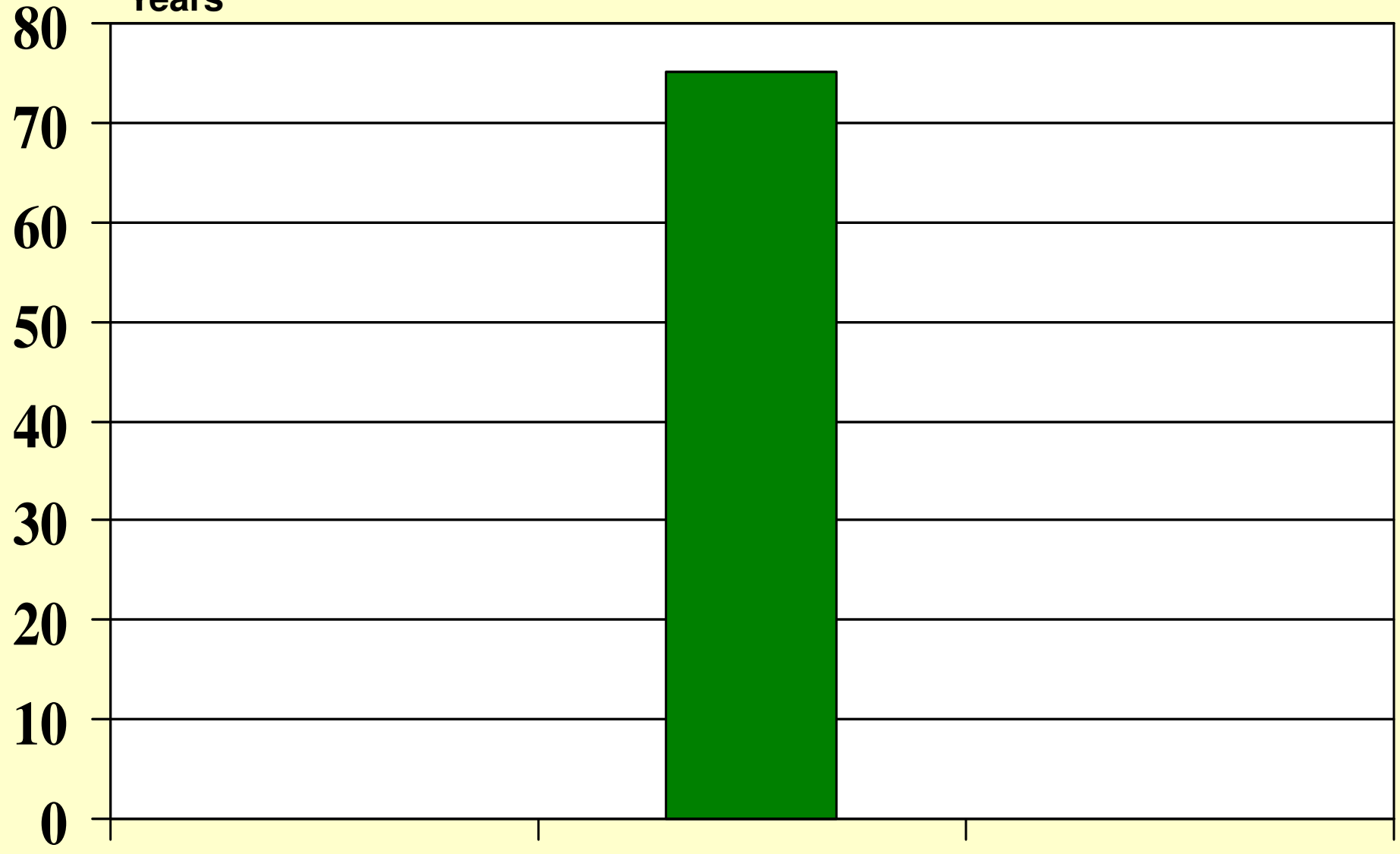
Life styles ? **YES**

Age by itself ? **YES**

Diseases ? **YES**

**Life Expectancy**

Years



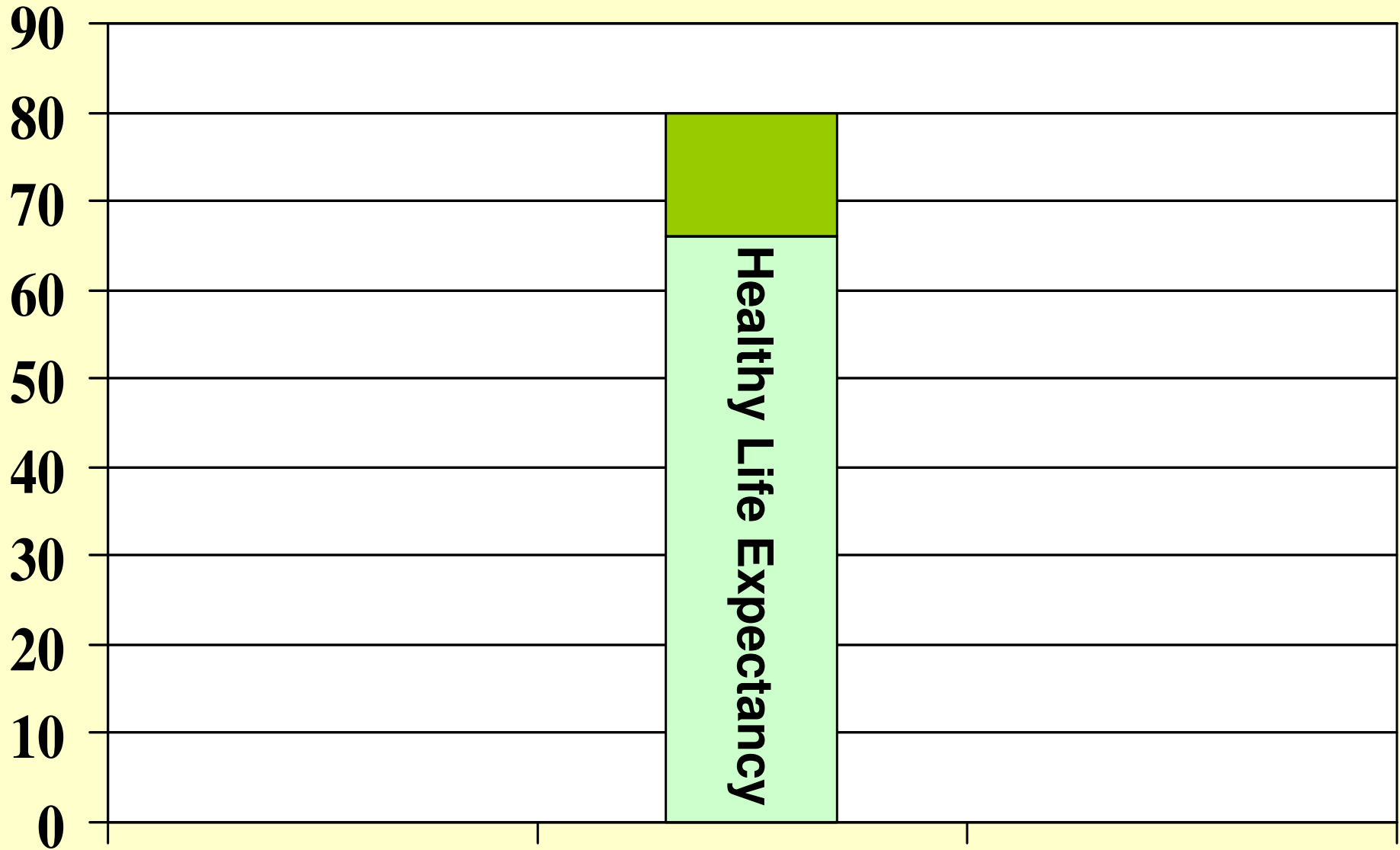
# Healthy Ageing ?



**OBVIOUS  
QUESTION ?**

*Courtesy from H BERGMAN*

Healthy Life Expectancy Life WITH Disability



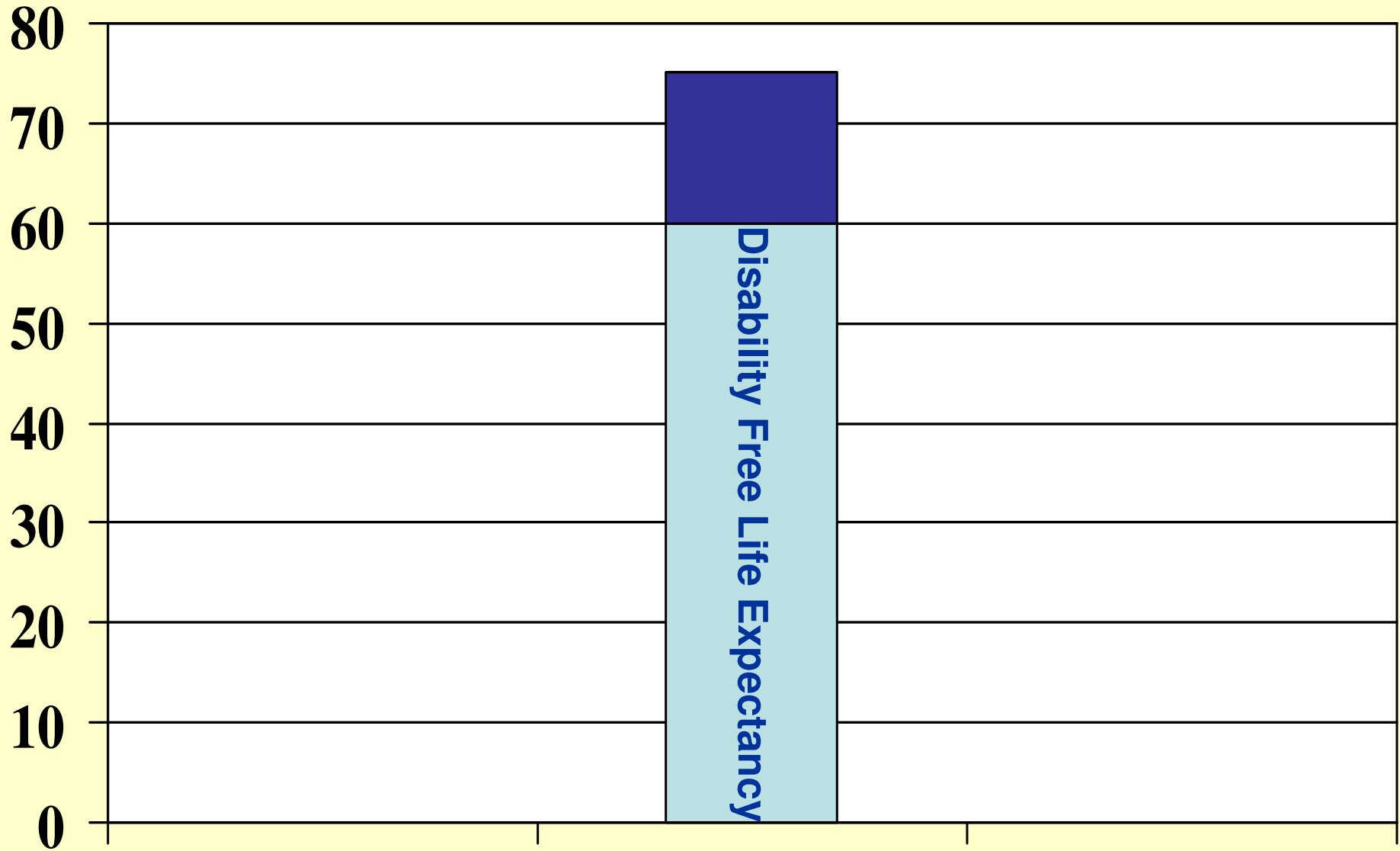
# Ageing without Disability?



**OBVIOUS  
QUESTION ?**

*Courtesy from H BERGMAN*

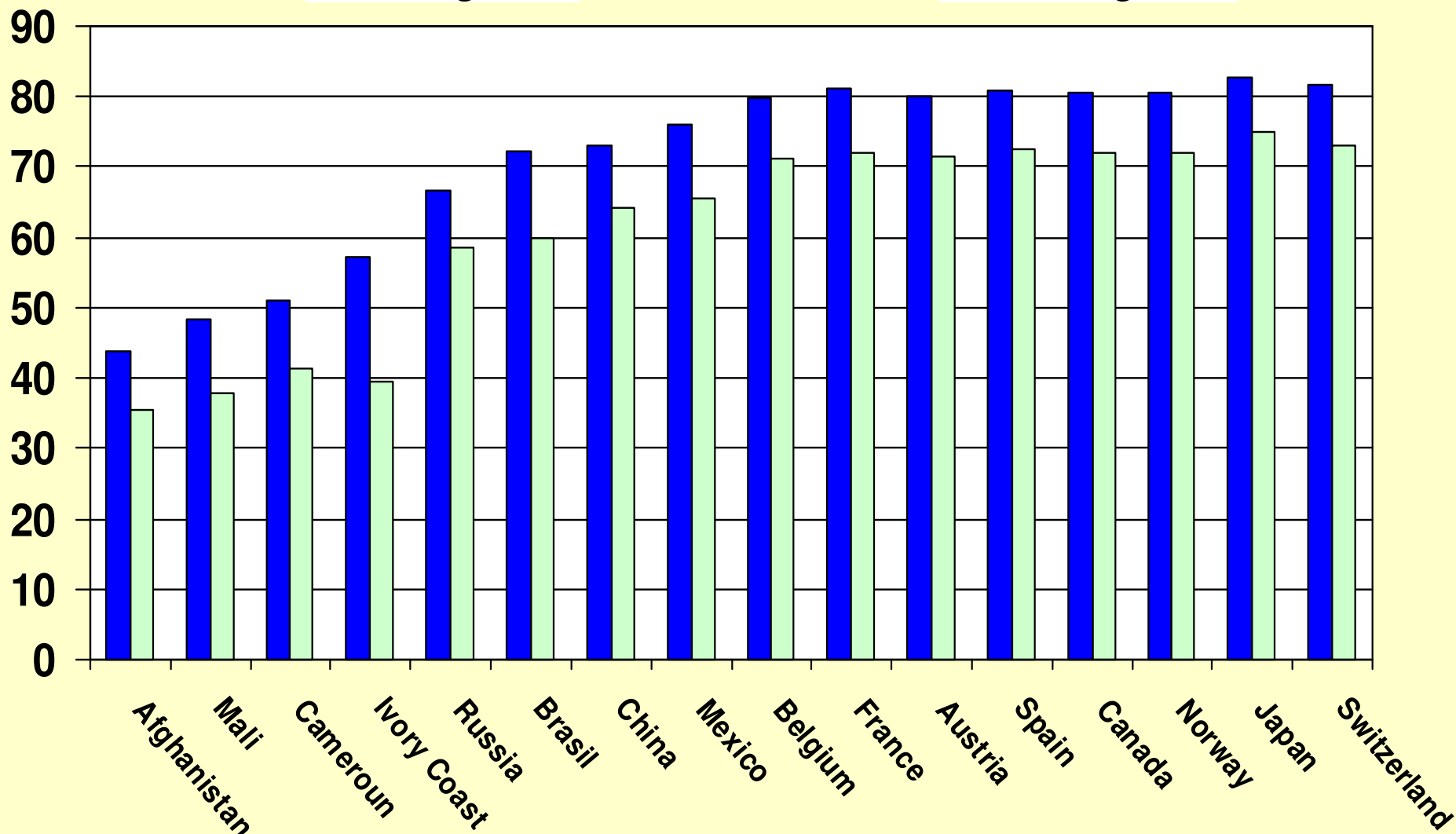
Disability Free Life Expectancy Life WITH Disability





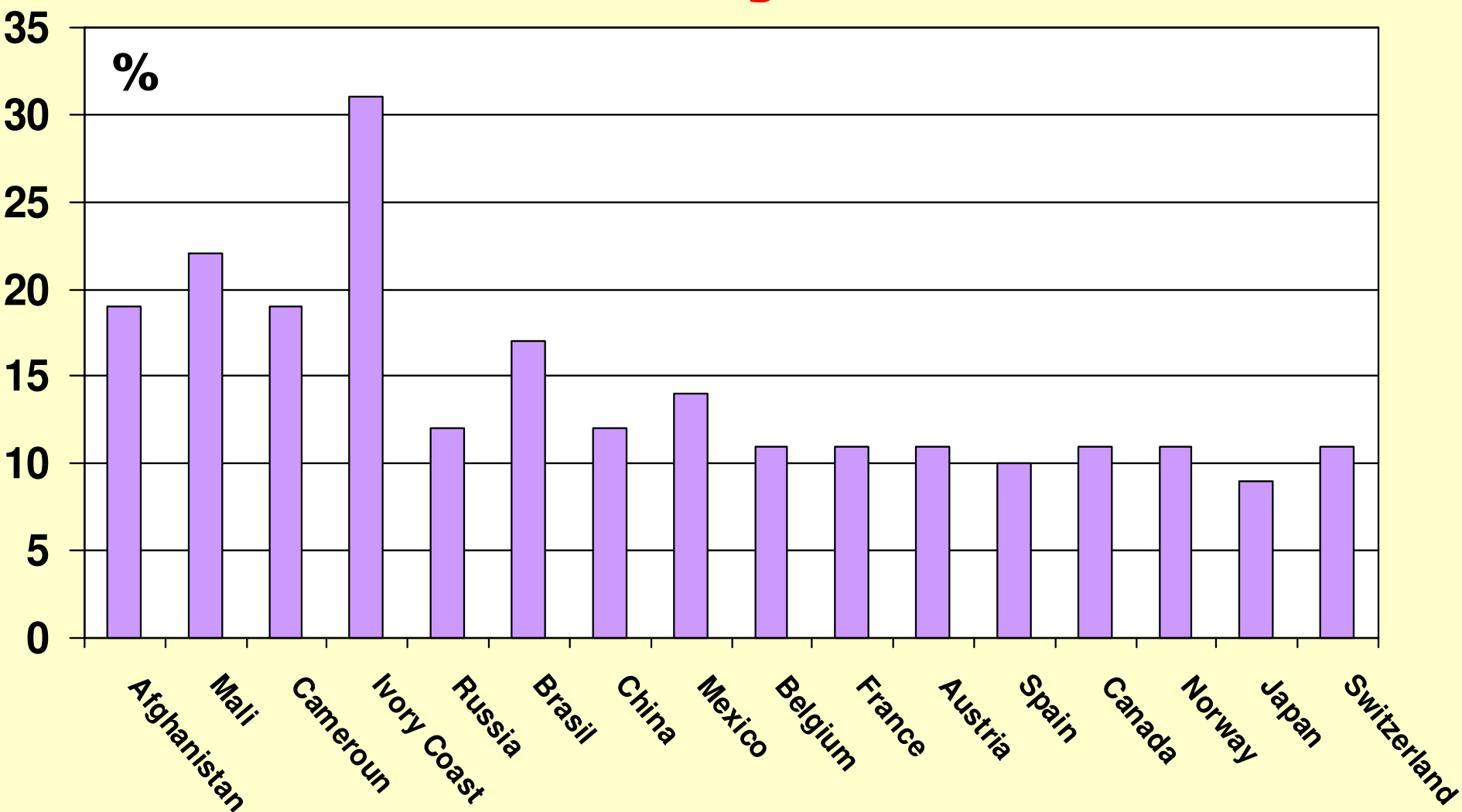
# LE and HLE at birth

■ LE both gender    **2005**    ■ HLE both gender

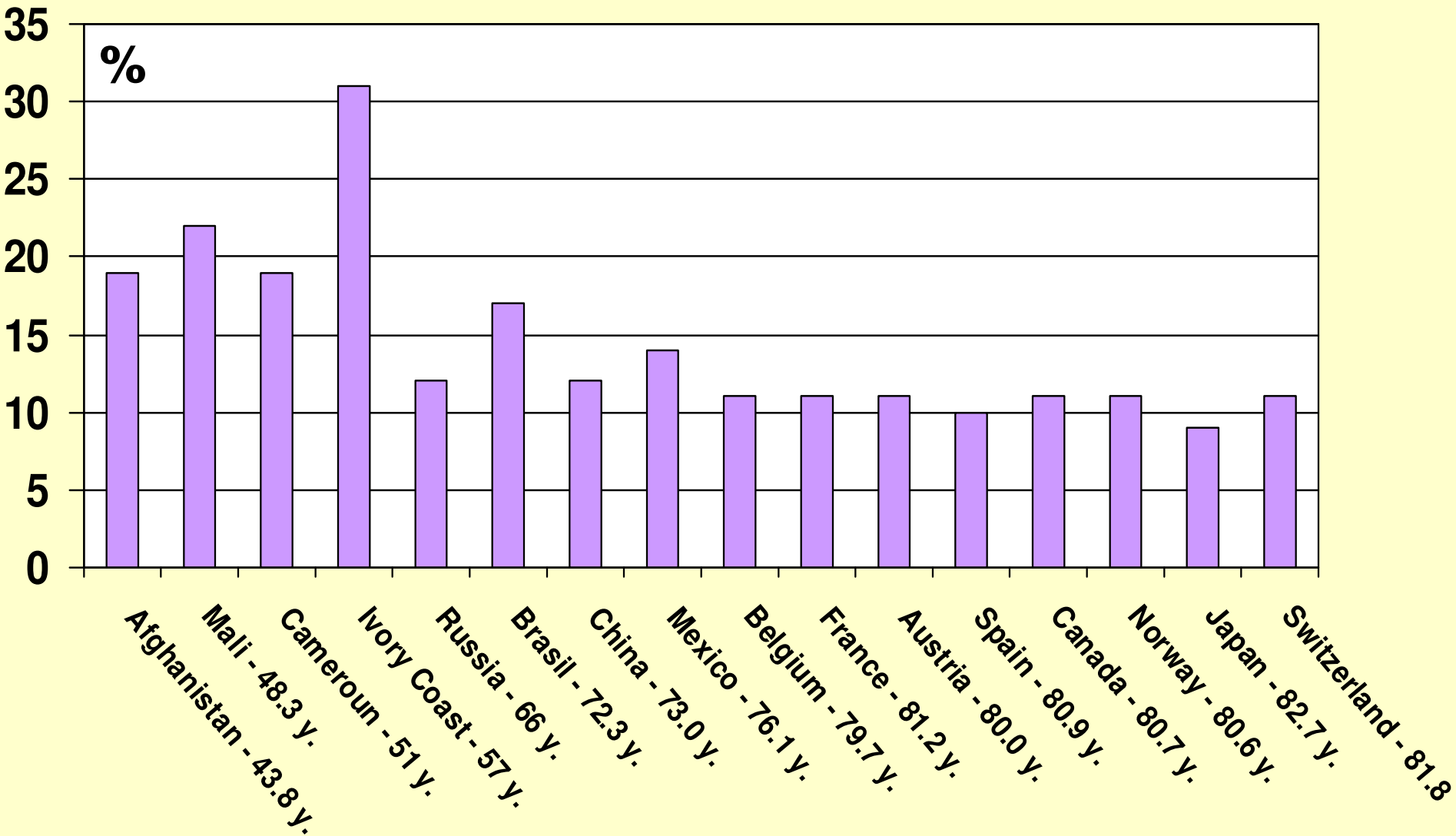


*An Ageing World 2008, International population Reports,  
US department of Health and Human Services, June 2009*

# Percentage of life time spent in disability - 2005



# Percentage of life time spent in disability - 2005



# HEALTHY INFANCY ?

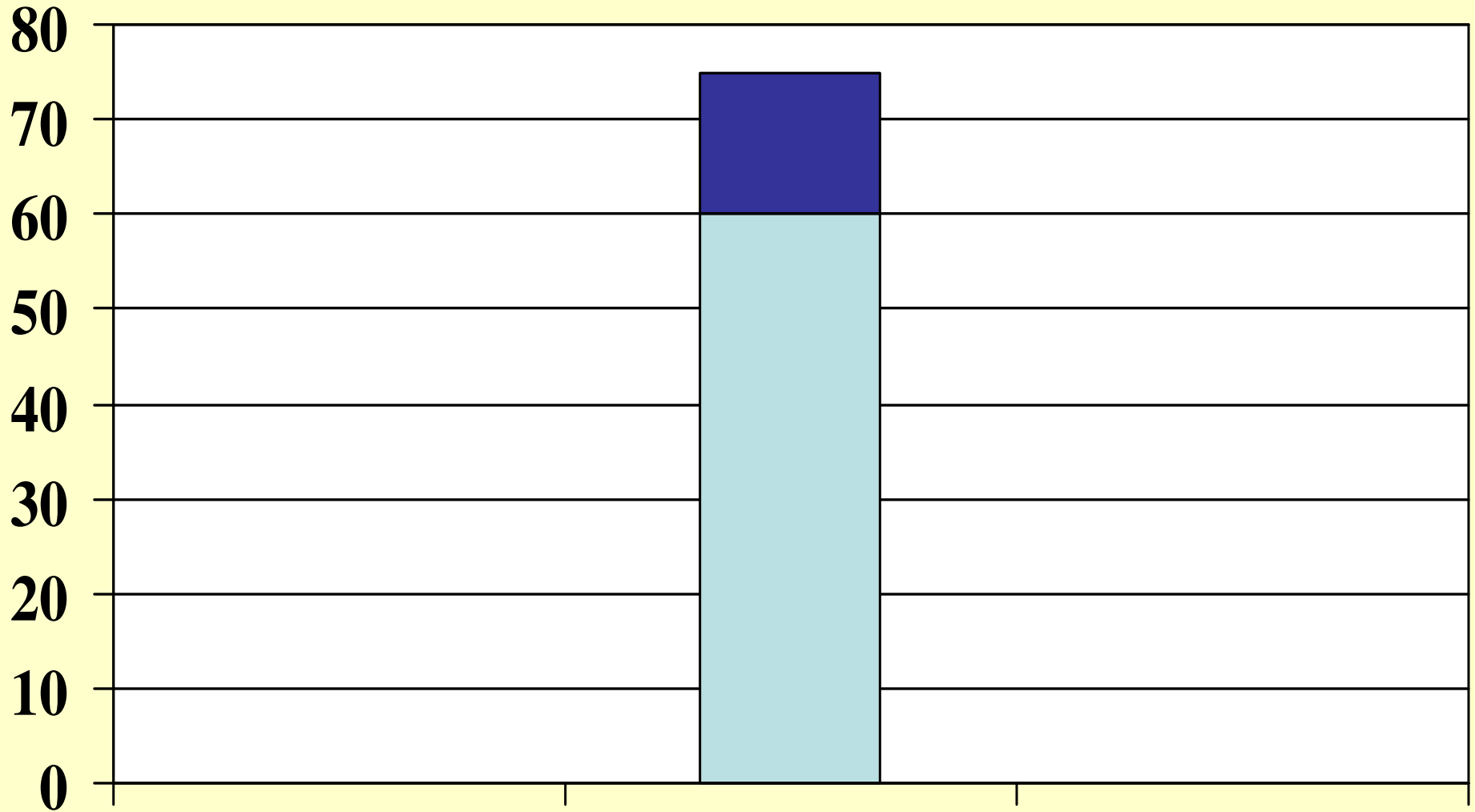


# HEALTHY ADOLESCENCE ?



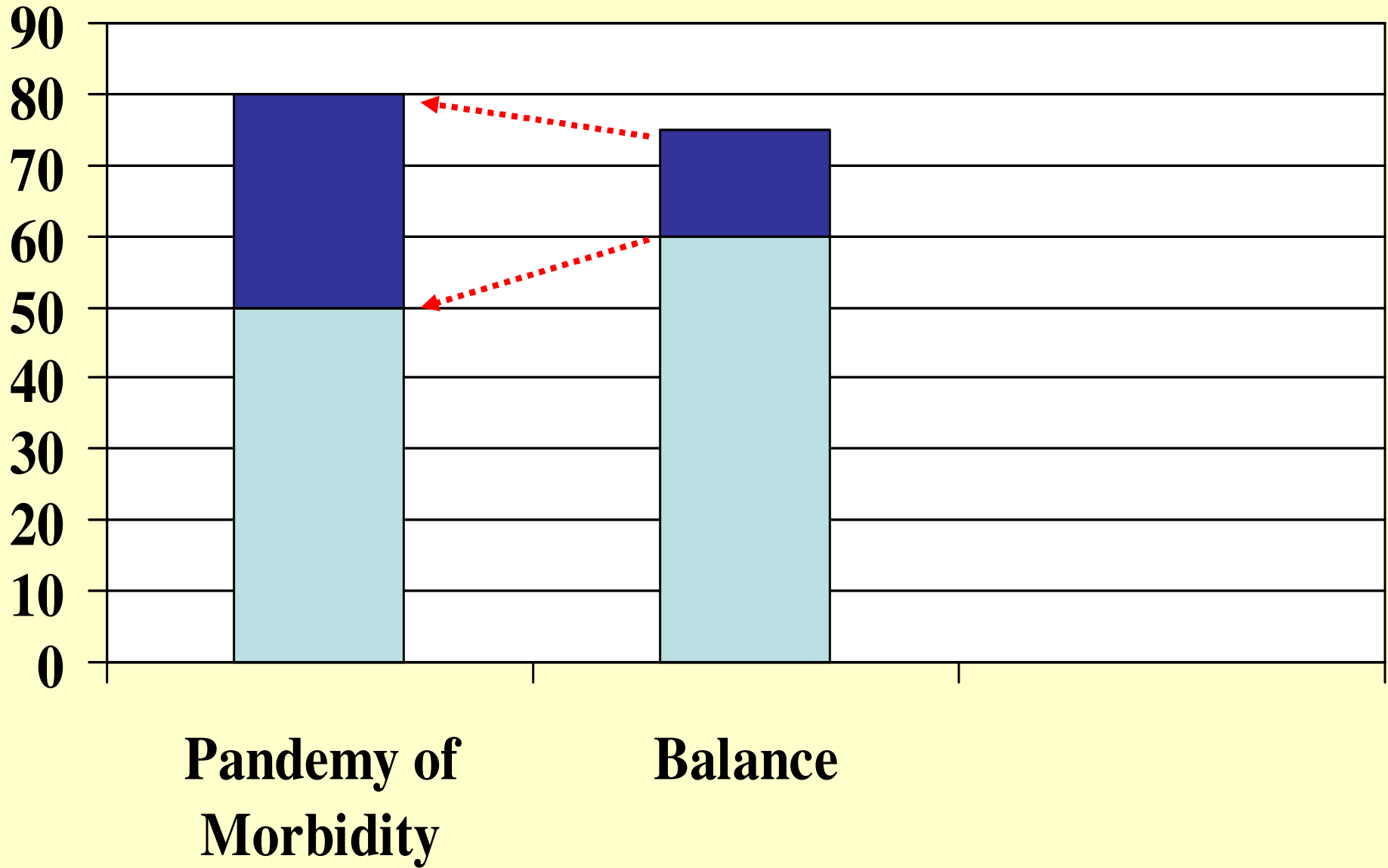
# HEALTHY AGEING ?

■ Disability Free Life Expectancy ■ Life WITH Disability

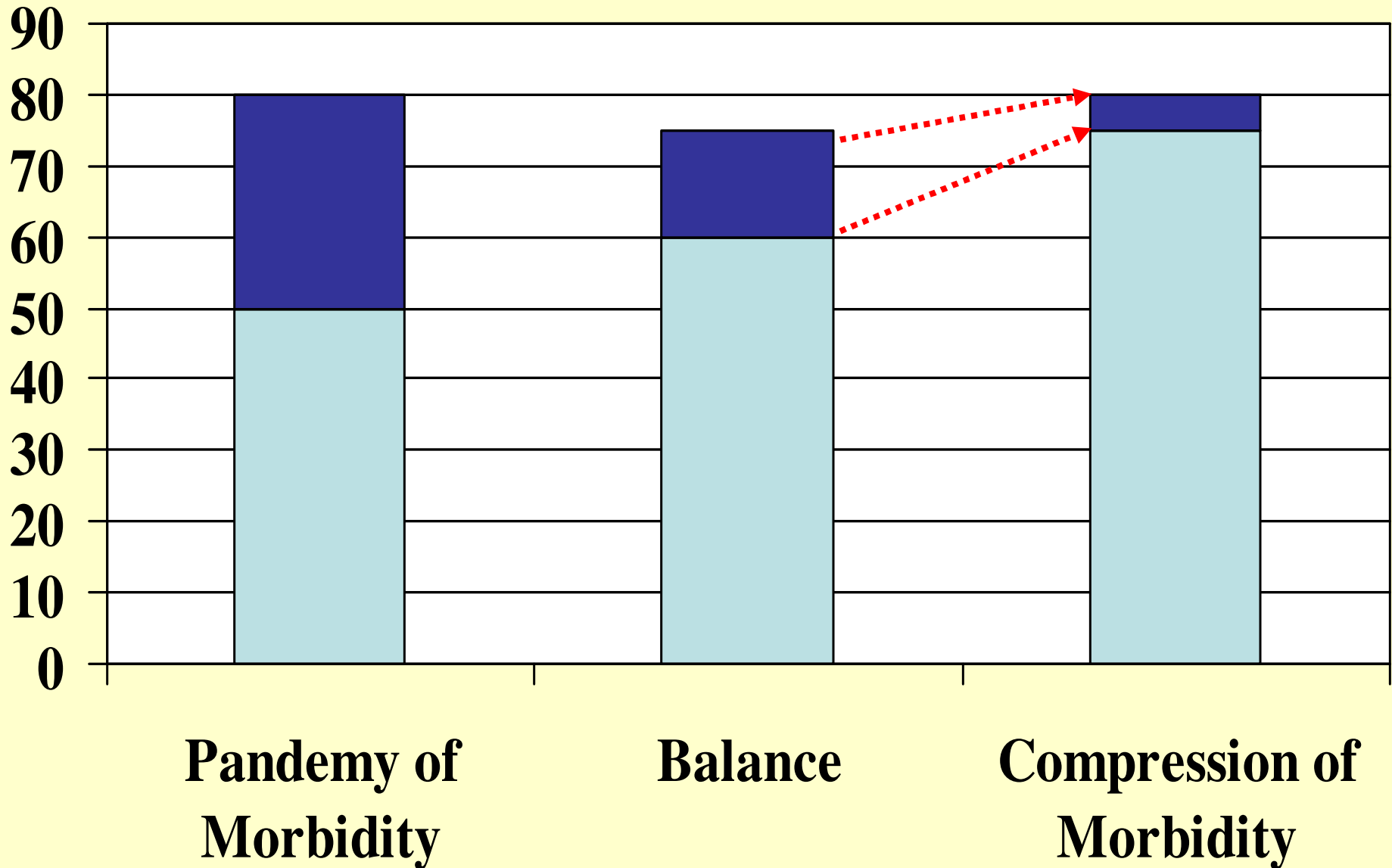


**Balance**

■ Disability Free Life Expectancy ■ Life WITH Disability



Disability Free Life Expectancy Life WITH Disability





# **The VALUE of HEALTHY AGEING**



# Recent repeated cross sectional surveys of LE, HLE & DFLE

<b>Austria</b>	<i>1978-1998</i>	<b>Netherlands</b>	<i>1989-2000</i>
<b>Belgium</b>	<i>1997-2004</i>	<b>New Zealand</b>	<i>1981-1991</i>
<b>Canada</b>	<i>1986-2003</i>	<b>Quebec</b>	<i>1985-1995</i>
<b>China</b>	<i>1987-2007</i>	<b>Spain</b>	<i>1986-2003</i>
<b>Denmark</b>	<i>1987-2005</i>	<b>Switzerland</b>	<i>1992-2002</i>
<b>France</b>	<i>1980-2000</i>	<b>Sweden</b>	<i>1980-2005</i>
<b>Germany</b>	<i>1984-2004</i>	<b>Thailand</b>	<i>1986-1995</i>
<b>Japan</b>	<i>1992-1998</i>	<b>UK</b>	<i>1980-2004</i>
<b>Lithuania</b>	<i>1997-2001</i>	<b>USA</b>	<i>1982-2004</i>

# Recent repeated cross sectional surveys of LE, HLE & DFLE





<b>Austria</b>	<i>1978-1998</i>	<b>Netherlands</b>	<i>1989-2000</i>
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<b>China</b>	<i>1987-2007</i>	<b>Spain</b>	<i>1986-2003</i>
<b>Denmark</b>	<i>1987-2005</i>	<b>Switzerland</b>	<i>1992-2002</i>
<b>France</b>	<i>1980-2000</i>	<b>Sweden</b>	<i>1980-2005</i>
<b>Germany</b>	<i>1984-2004</i>	<b>Thailand</b>	<i>1986-1995</i>
<b>Japan</b>	<i>1992-1998</i>	<b>UK</b>	<i>1980-2004</i>
<b>Lithuania</b>	<i>1997-2001</i>	<b>USA</b>	<i>1982-2004</i>

**Compression**
 **Balance**
 **Pandemic**
 **Changes of trends**

# General theory of ageing

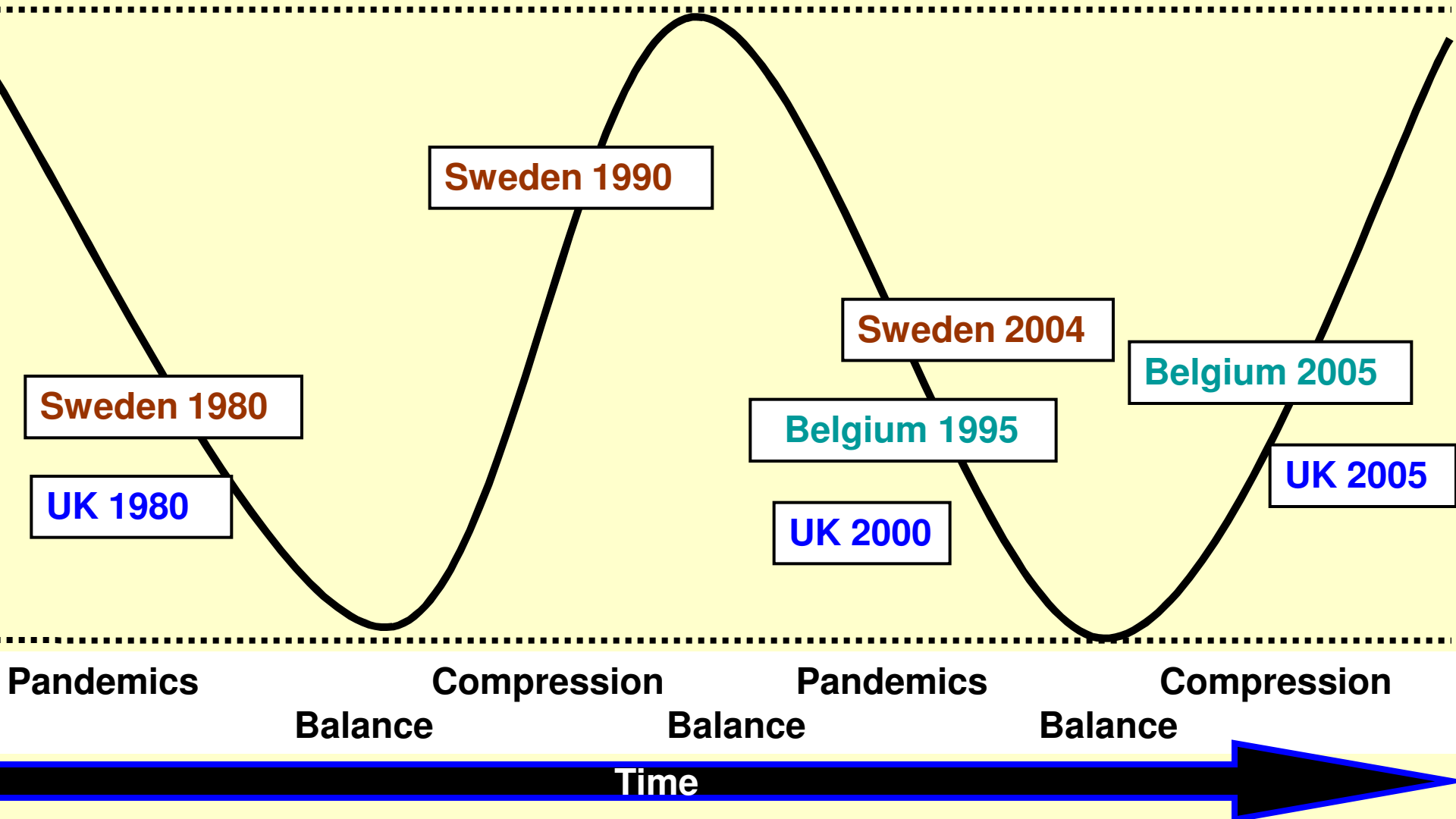
## Ratio DFLE /LE

80s	90s	00s	2005
-	Belgium	-	Belgium
Sweden	Sweden	Sweden	Sweden
UK	UK	UK	UK

 Compression  Balance  Pandemic  Changes of trends

# General theory of ageing

Ratio DFLE / LE



# General theory of ageing

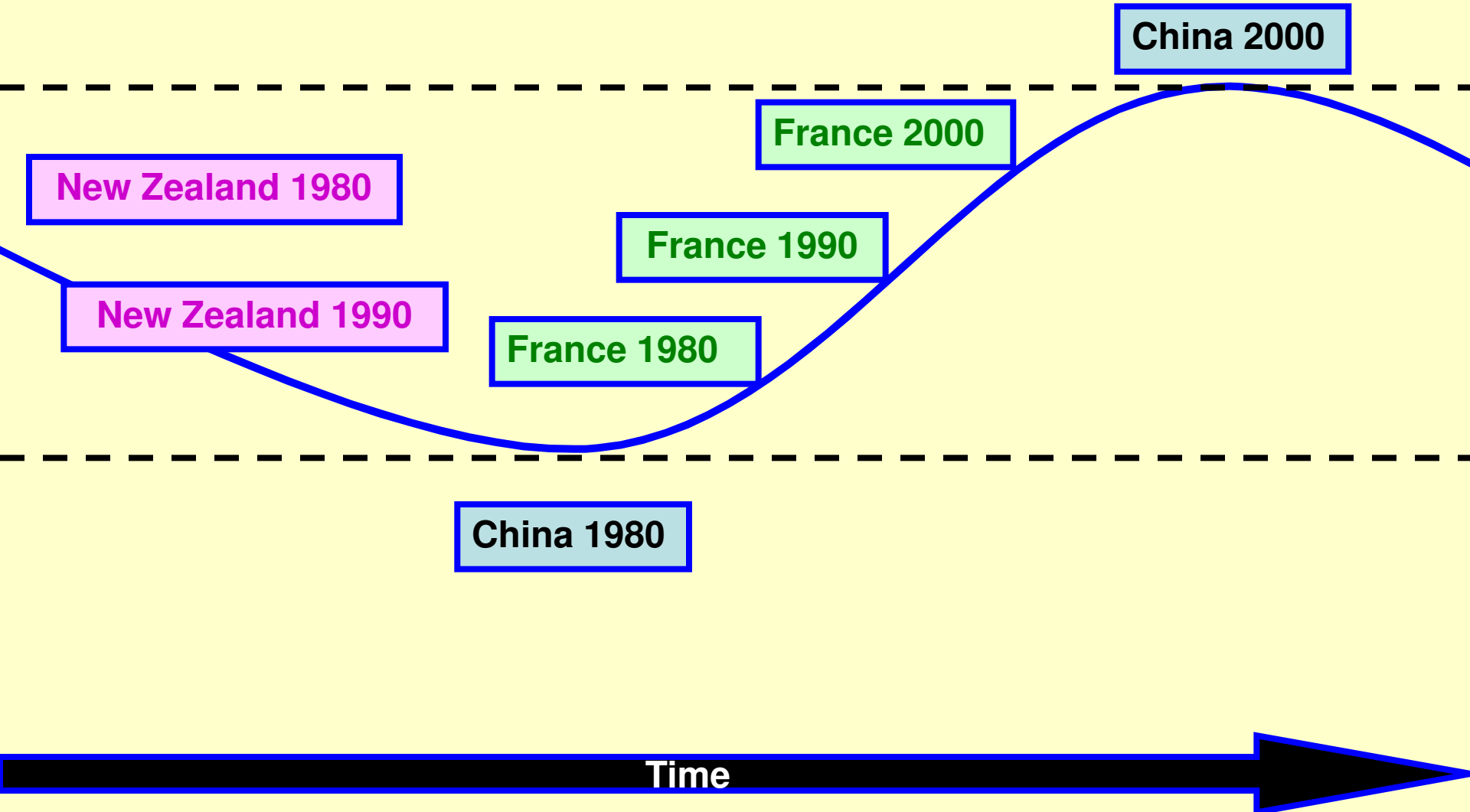
## Ratio DFLE / LE

Pandemics

Balance

Compression

Balance



# General theory of ageing

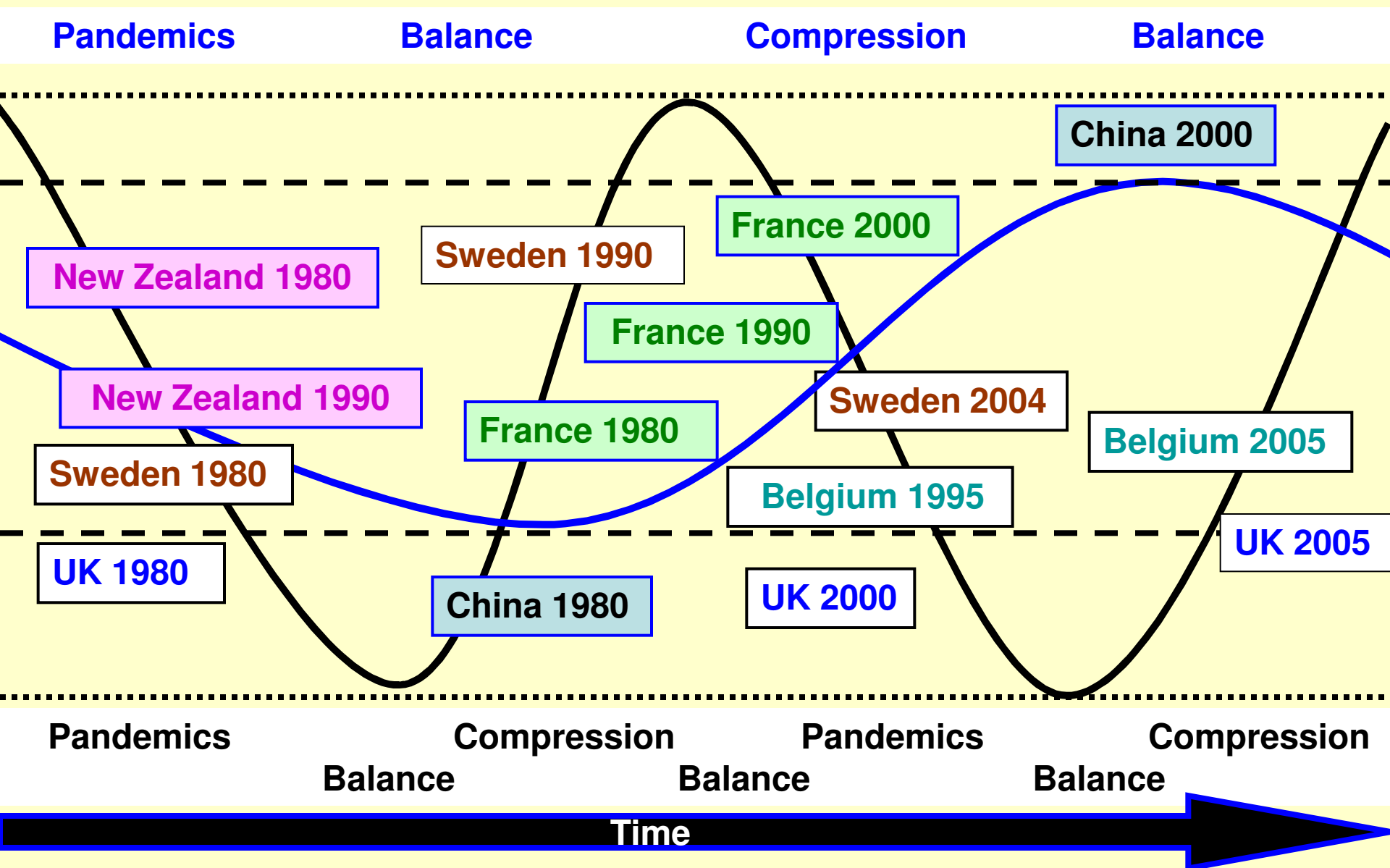
## Ratio DFLE /LE

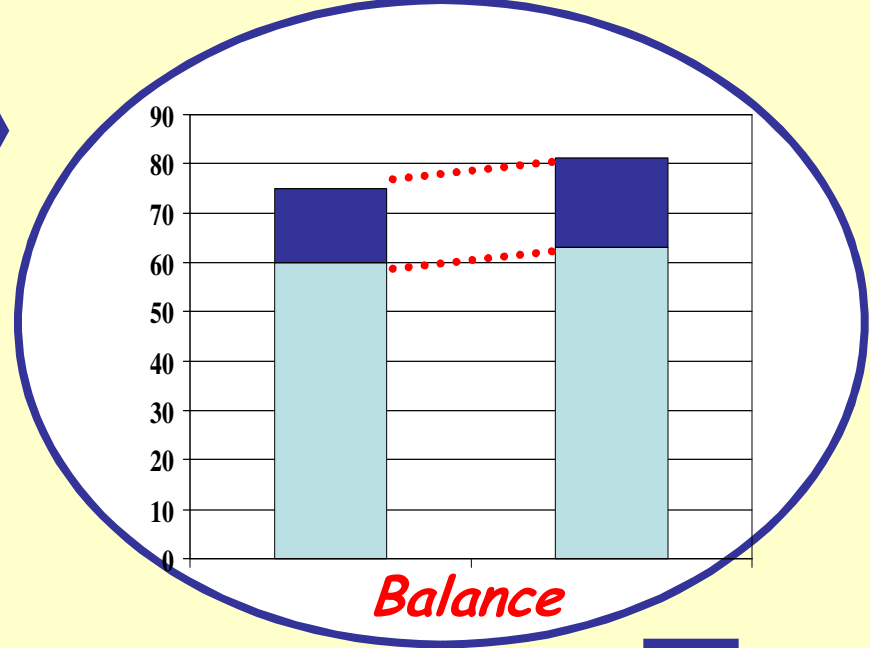
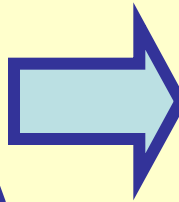
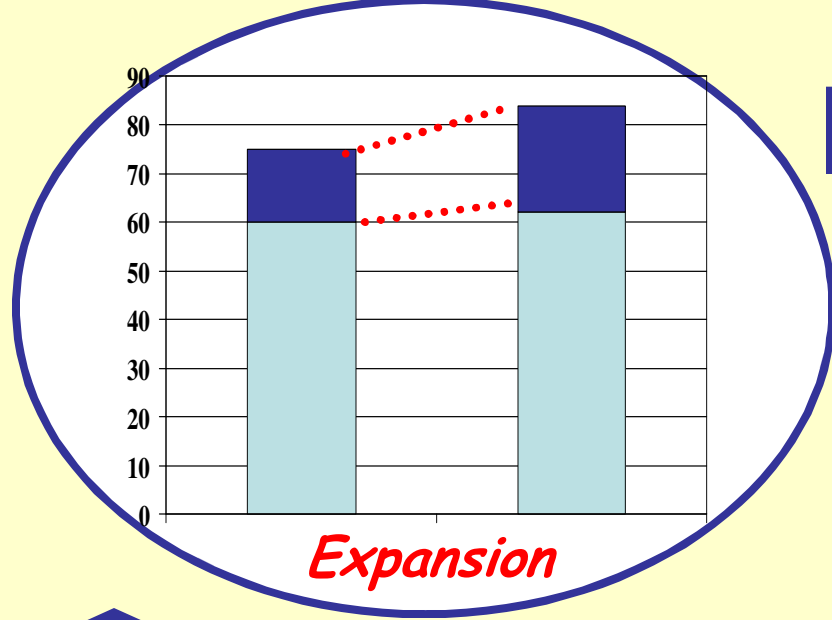
80s	90s	00s	2005
-	<u>Belgium</u>	-	<u>Belgium</u>
China	-	China	?
France	France	France	?
New Zealand	New Zealand	-	?
<u>Sweden</u>	<u>Sweden</u>	<u>Sweden</u>	<u>Sweden</u>
<u>UK</u>	<u>UK</u>	<u>UK</u>	<u>UK</u>

Compression
  Balance
  Pandemic
  Changes of trends

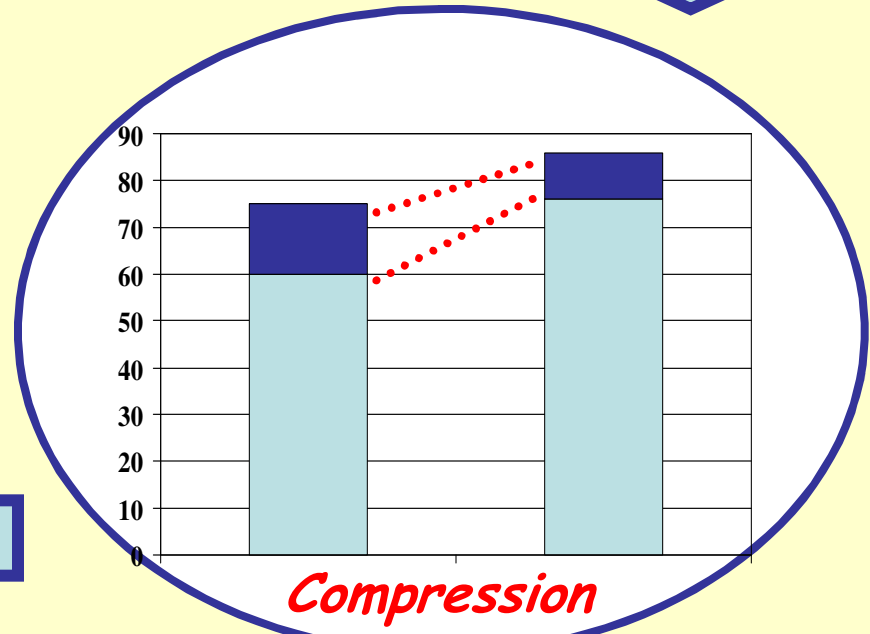
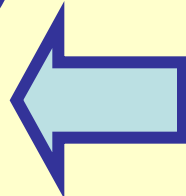
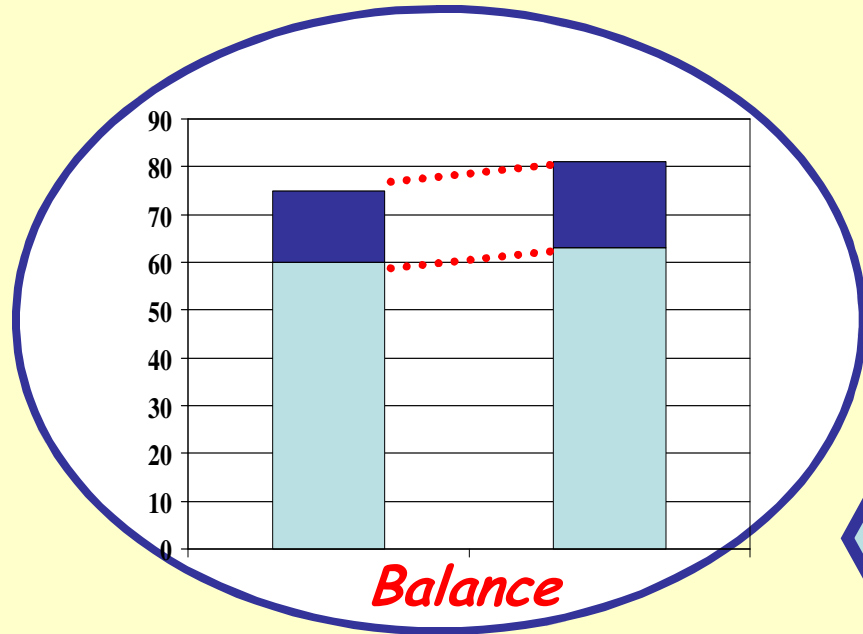
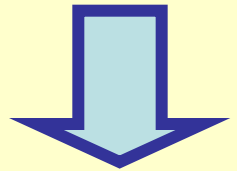
# General theory of ageing

Ratio DFLE / LE

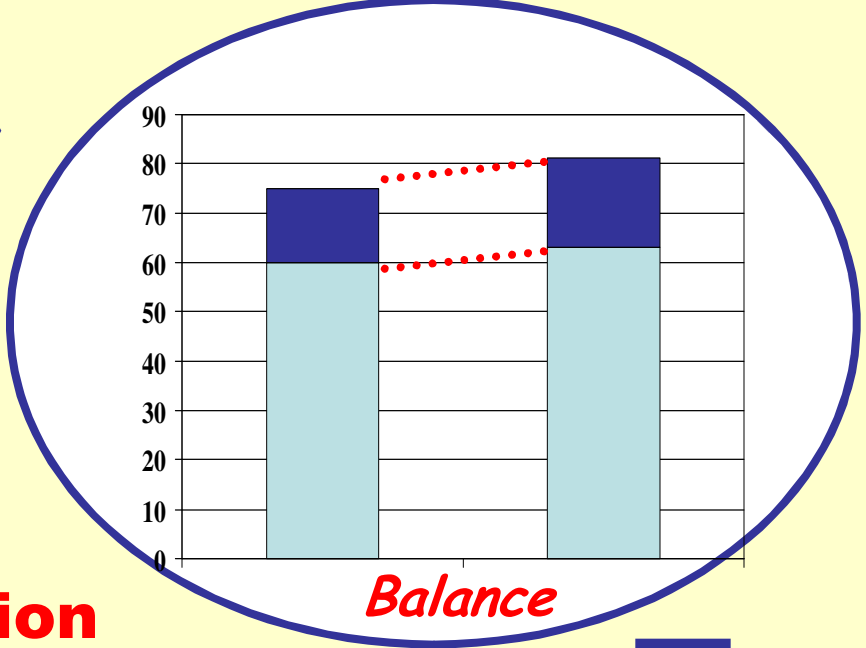
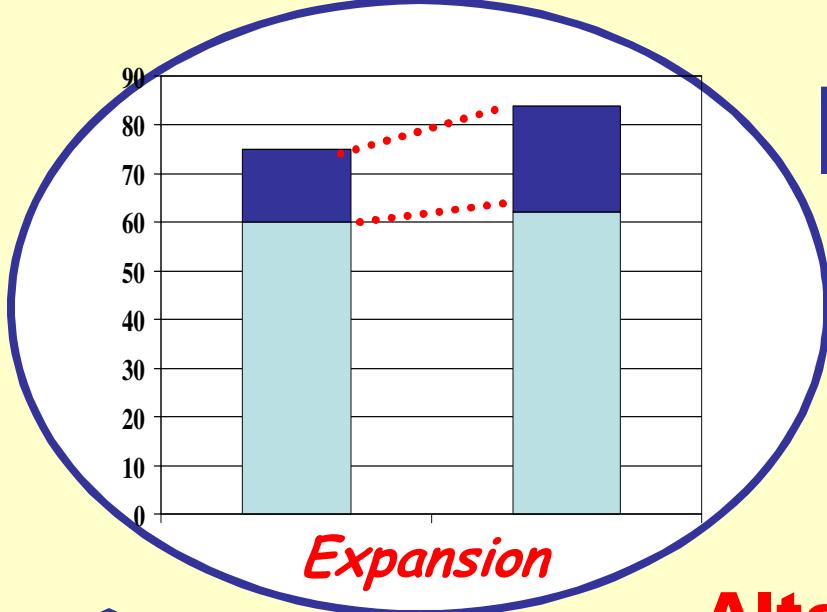




**GENERAL THEORY of AGEING**

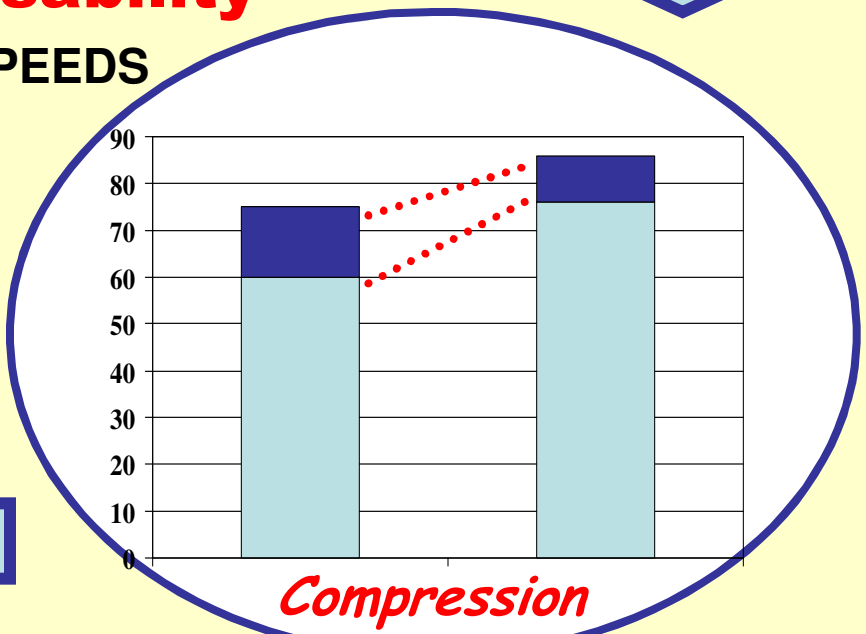
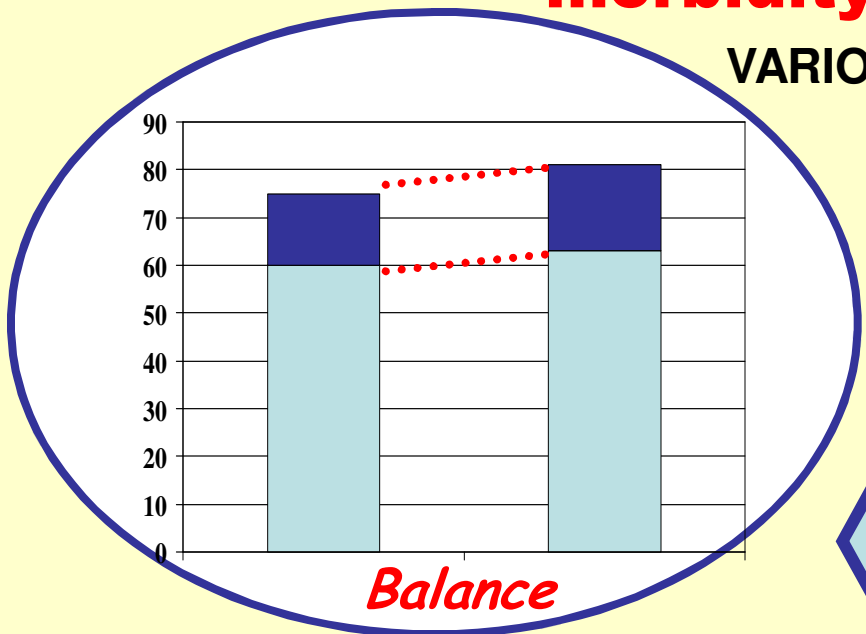


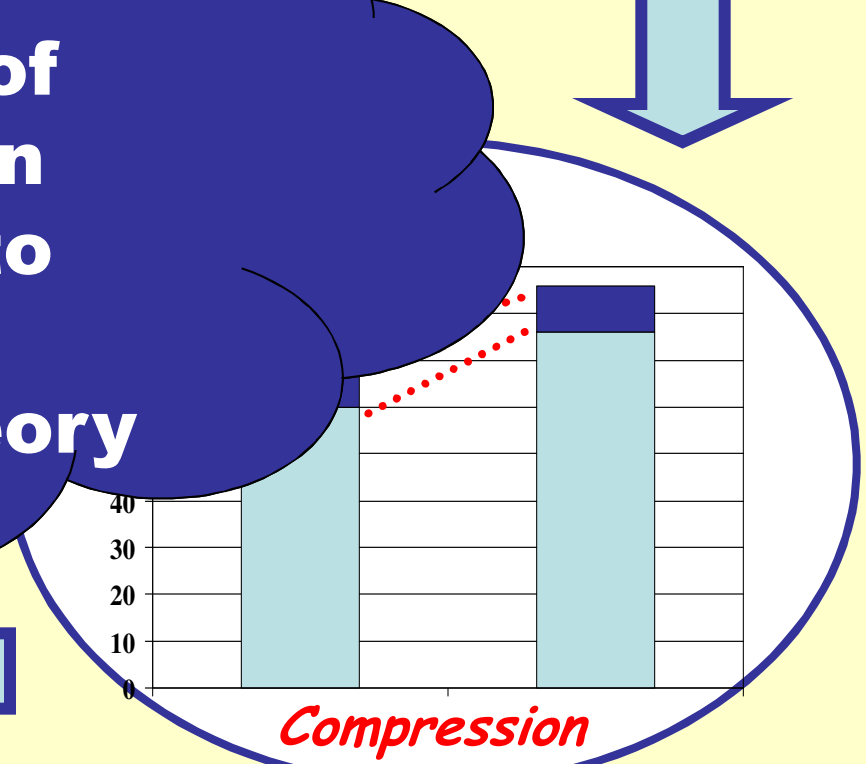
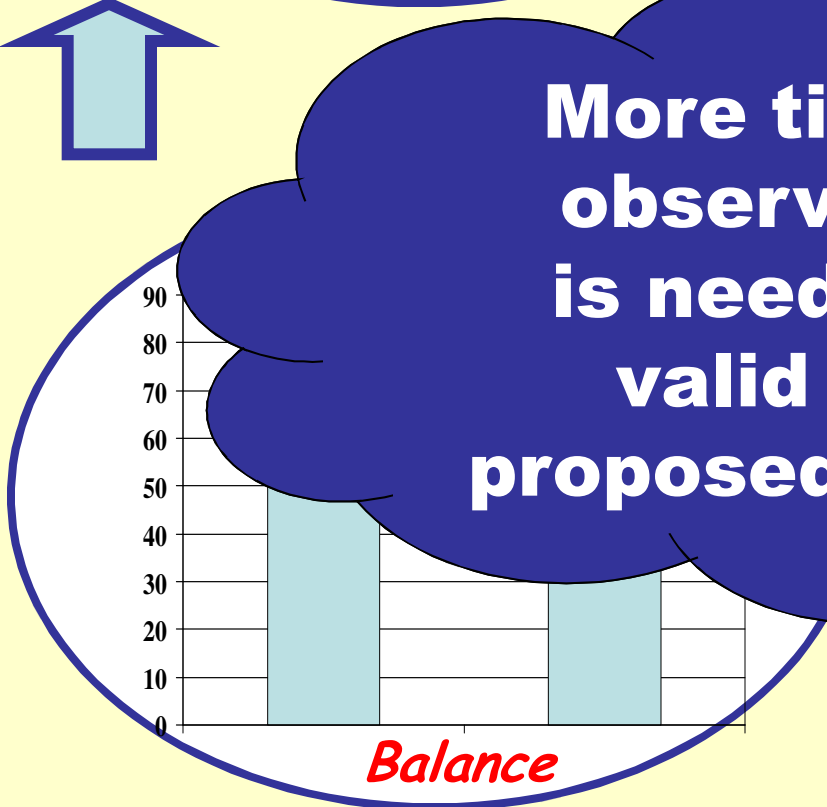
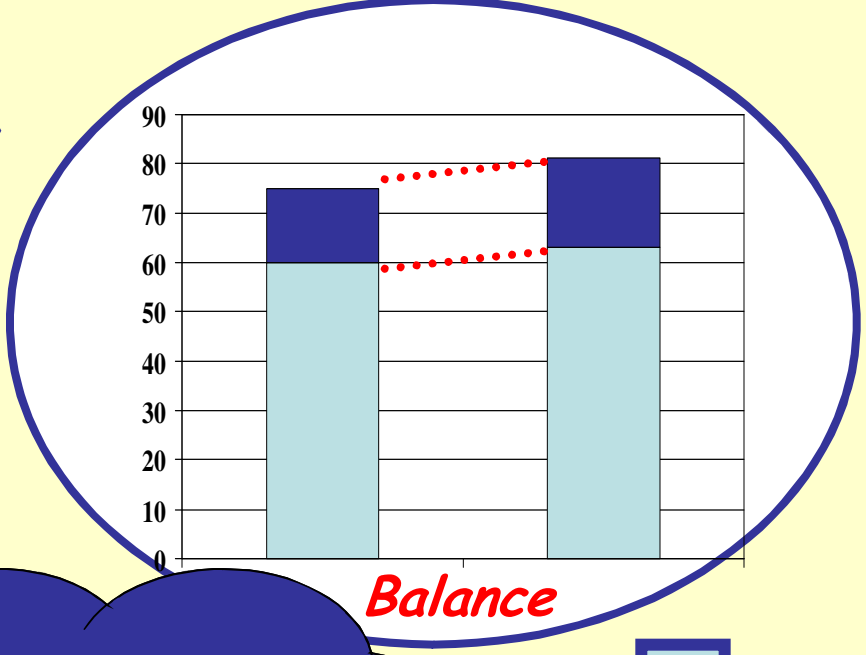
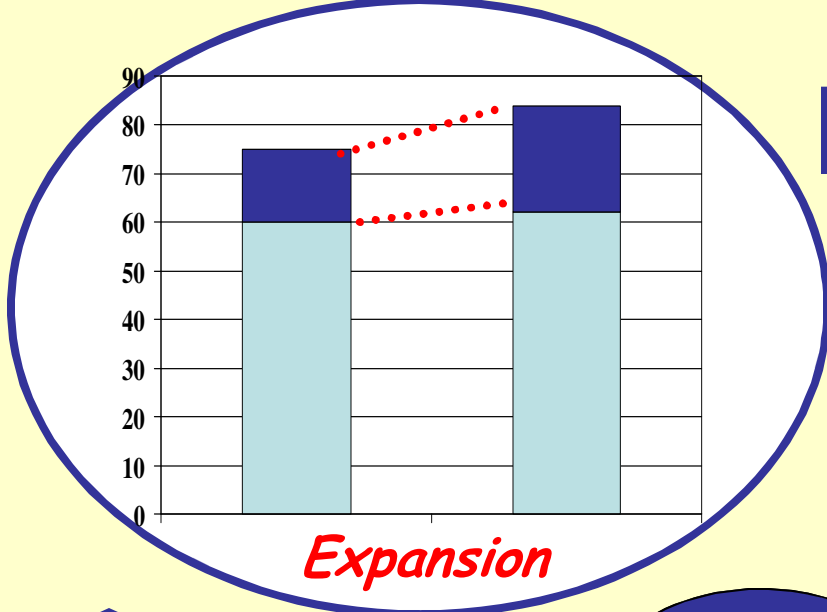




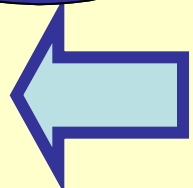
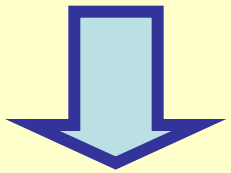
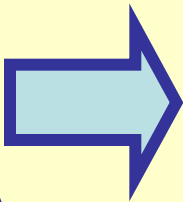
**Alternation  
of expansion and compression of  
morbidity / disability**

**VARIOUS SPEEDS**





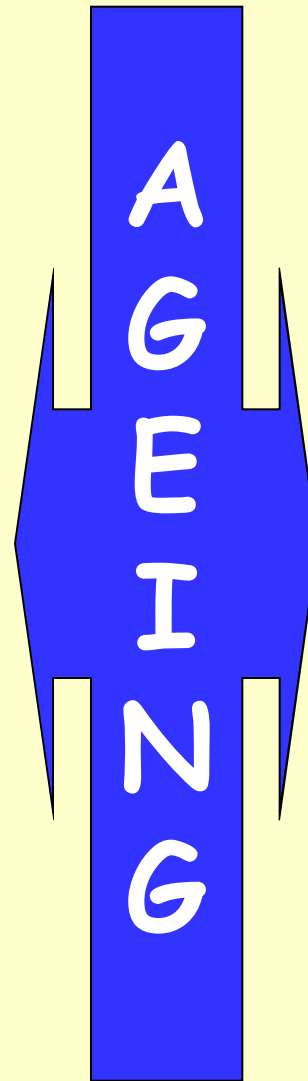
**More time of observation is needed to valid this proposed theory**



# HEALTHY AGEING ?



# LIFE COURSE perspectives



**Ageing WITHOUT**

- Genes damage
- Cells and tissues faults

*KIRKWOOD 2003*

**Ageing WITHOUT**

- Biological life events

*JOLLES 1995*

**Ageing WITHOUT**

- Disease

**Ageing WITHOUT**

- Disability

*ROBINE 1997*

**Ageing WITHOUT**

- Bad perceived health

# HEALTHY AGEING

# AGEING SUCCESSFULLY ?



# LIFE COURSE perspectives

## Ageing WITH

- a high degree of physical, mental and social functioning

*ROWE & KHANE 1997*

## Ageing WITH

- the constant ability to adapt to changes

*BALTES 1990*

## Ageing WITH

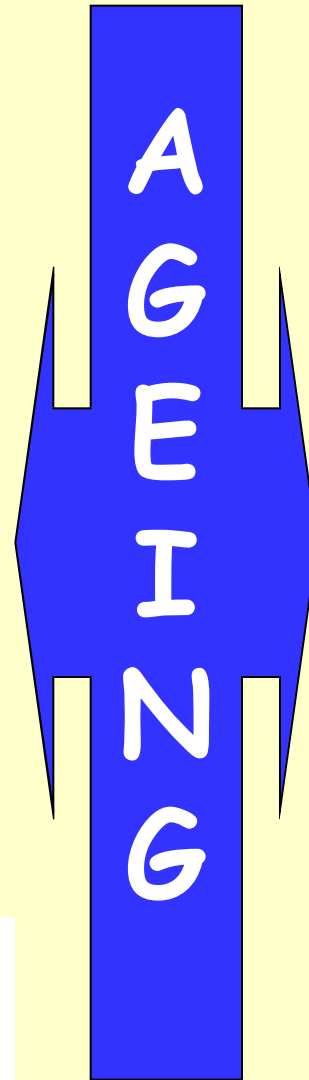
- an active engagement in life

*ROWE & KHANE 1997*

## Ageing WHILE

- doing something meaningful

*BRYANT 2001*



## Ageing WITHOUT

- Genes damage  
- Cells and tissues faults

*KIRKWOOD 2003*

## Ageing WITHOUT

- Biological life events

*JOLLES 1995*

## Ageing WITHOUT

- Disease

## Ageing WITHOUT

- Disability

*ROBINE 1997*

## Ageing WITHOUT

- Bad perceived health

# AGEING SUCCESSFULLY



**NUMBER of YEARS of LIFE**

**NUMBER of YEARS of LIFE  
without disability**

**QUALITY of LIFE**

# **QUALITY of LIFE**

- 1. Own concept of living**
- 2. Affection of family's members and friends**
- 3. Social integration**





# **PROJET** **de** **VIE**

**PROJECT**  
for the  
**LAST PERIOD of LIFE**



**LIFE CYCLE**

# LIFE CHOICE ?





# **SPIRITUALITY**



**Participation in a community of thinking**




# HEALTH PRESERVATION

<http://www.yannlayma.com>

# CHOICE of PLACE of LIVING



Localisation ?  
Accessibility ?  
Comfort ?  
Communication ?  
Security ?

A nighttime photograph of the Shanghai skyline, featuring the Oriental Pearl Tower on the left, the Shanghai Tower in the center, and the Jin Mao Tower on the right. The buildings are illuminated with various colors, and the sky is dark blue.

# **TRADITIONAL LIFE vs. HIGH TECH LIFE**



# QUALITY of LIFE

1. Own concept of living

**NEEDED ANTICIPATION**

2. Love of your family's members  
and friends

3. Social integration

# SINGLE or COUPLE ?



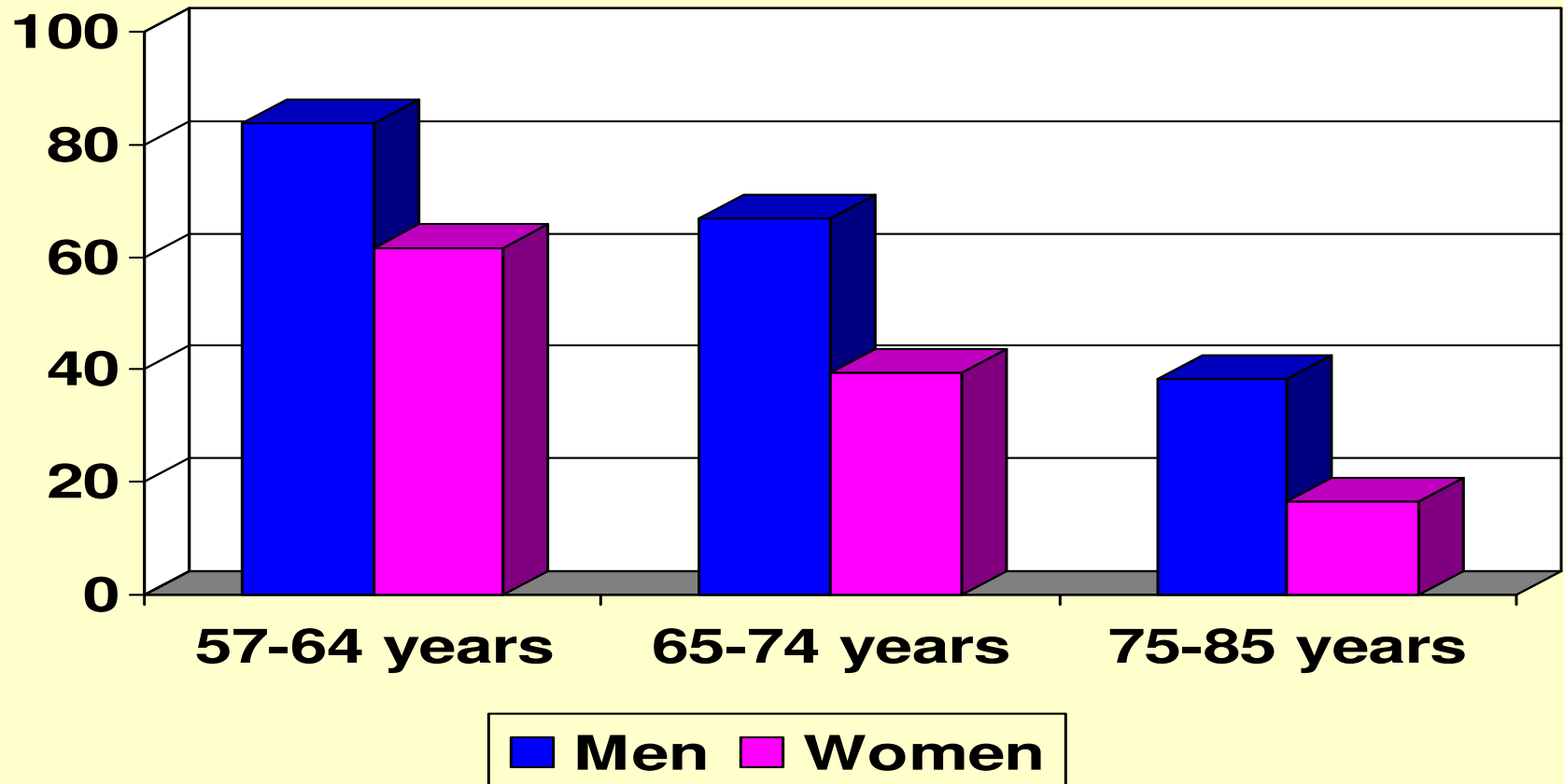


**SEXUALITY in AGEING/AGED ADULTS**

# Sexuality and ageing adults

3005 US adults (1'550 Women and 1'455 Men)  
aged from 57 to 85 years

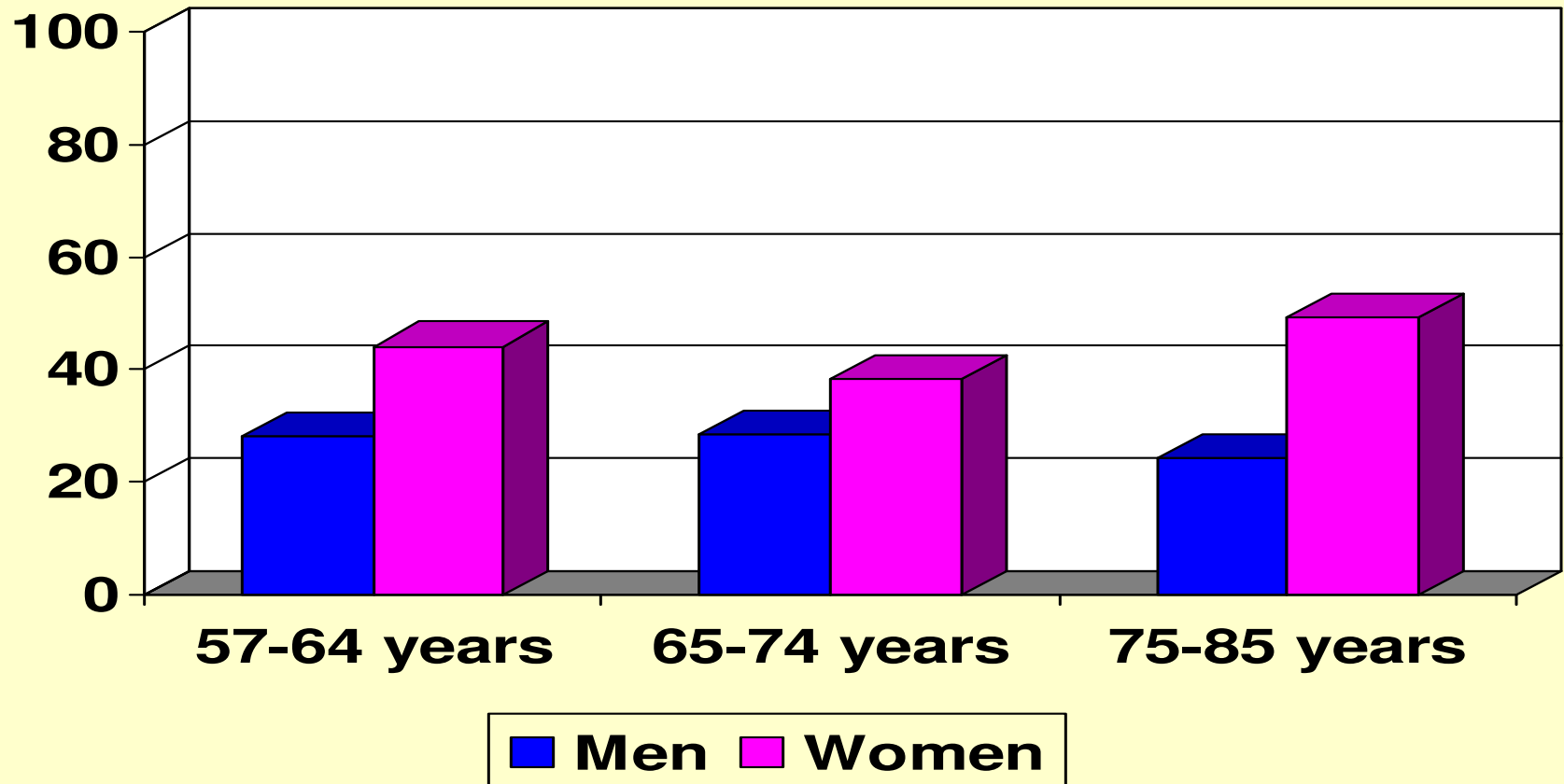
## Sexual activity with a partner



# Sexuality and ageing adults

3005 US adults (1'550 Women and 1'455 Men)  
aged from 57 to 85 years

Lack of interest !





**SEXUALITY in AGEING/AGED ADULTS**

# Different phases of the man sexual act:

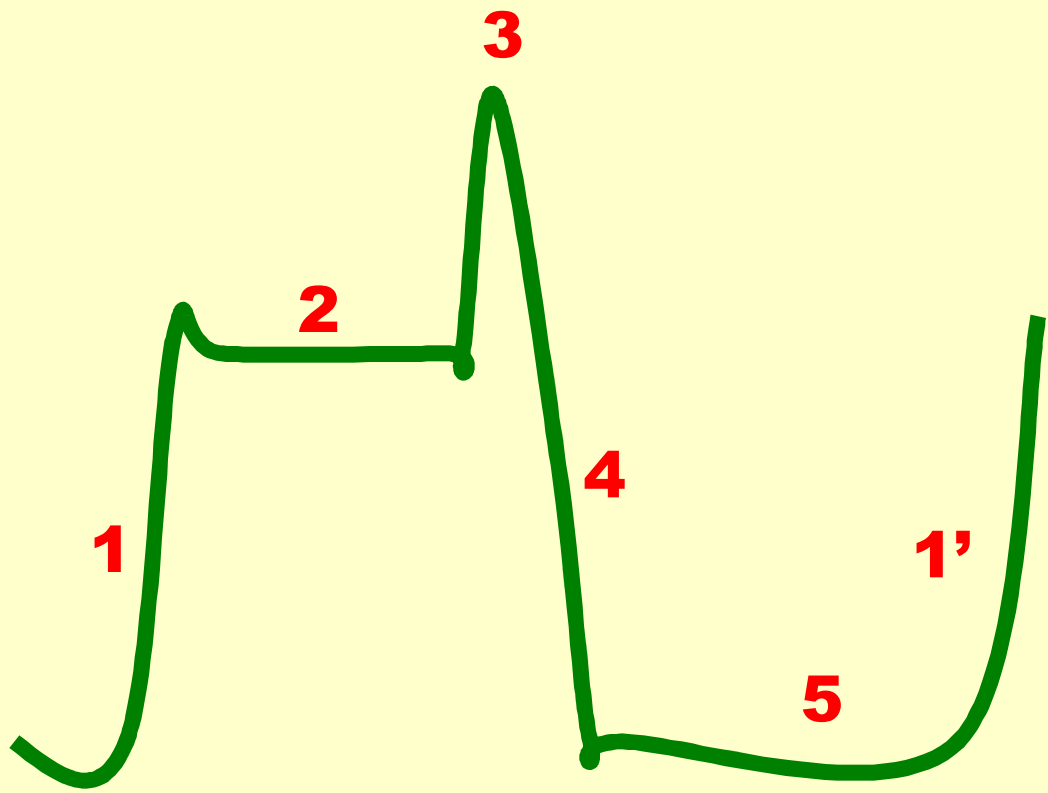
**1. Excitation**

**2. Plateau**

**3. Ejaculation**

**4. Detumescence**

**5. Refractory**



Different phases of the man sexual act:

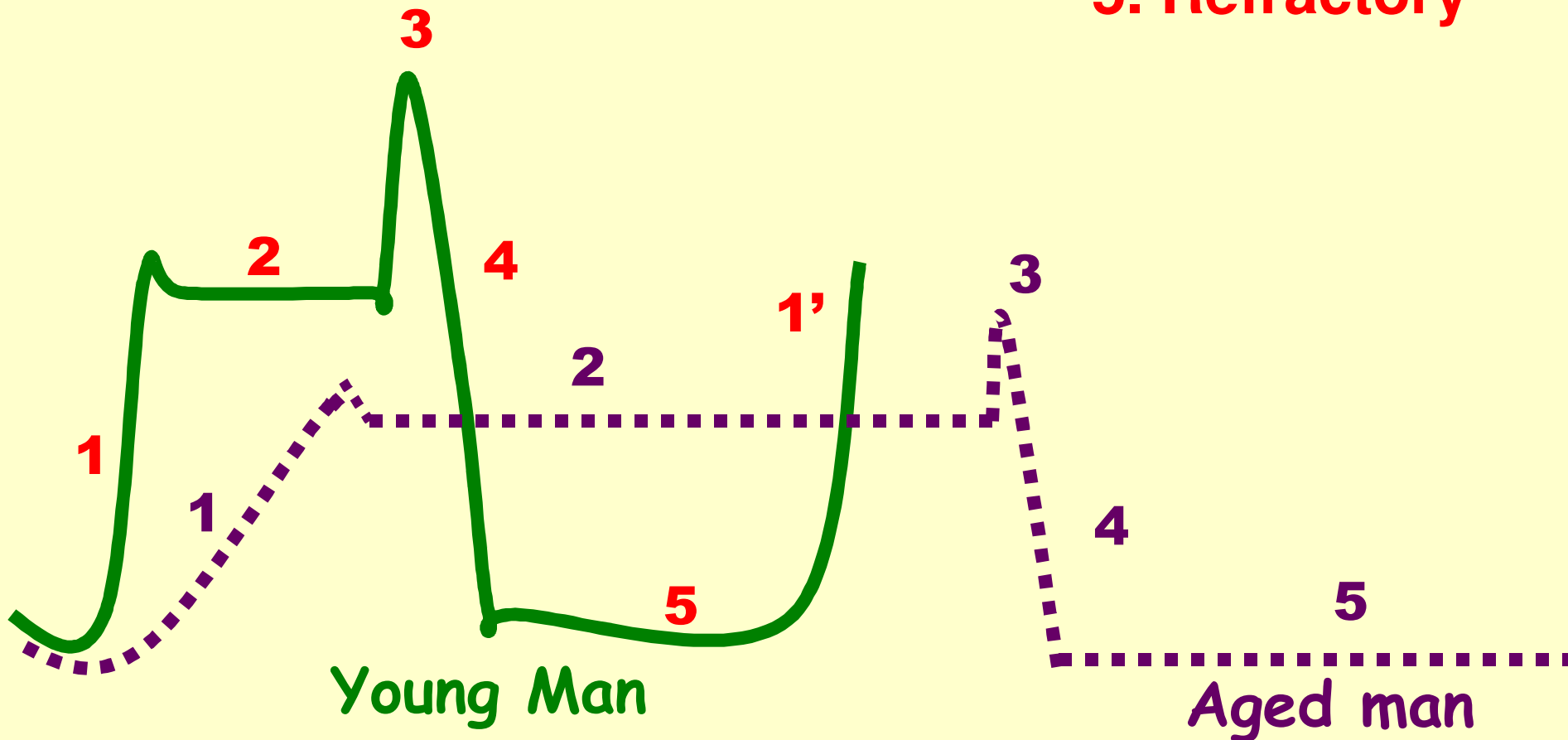
1. Excitation

2. Plateau

3. Ejaculation

4. Detumescence

5. Refractory





# Family life



# **QUALITY of LIFE**

**1. Own concept of living**

**NEEDED ANTICIPATION**

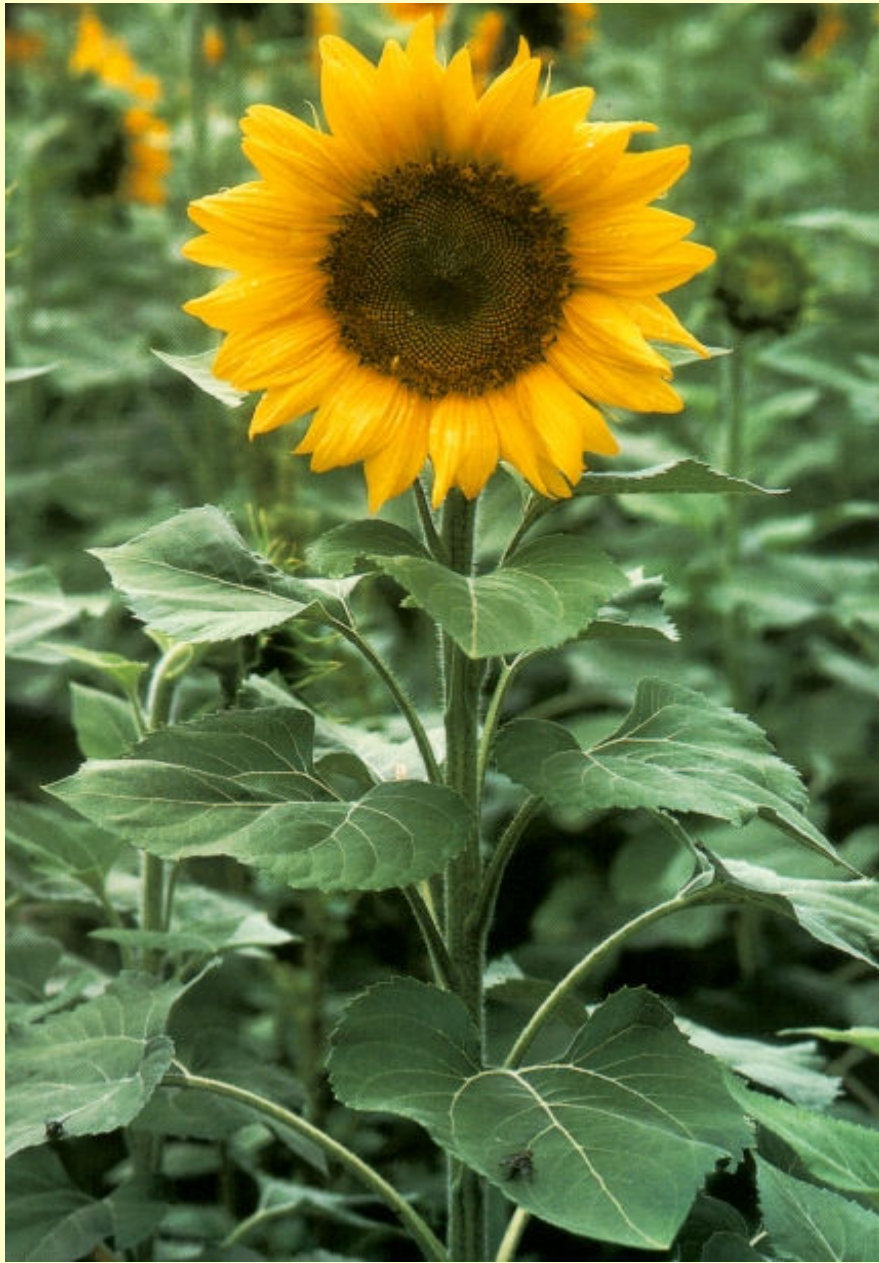
**2. Love of your family's members  
and friends**

**PRESERVATION OF YOUR AFFECTIVE LIFE**

**3. Social integration**

# **QUALITY of LIFE**

- 1. Own concept of living**
- 2. Love of your family's members and friends**
- 3. Social integration**

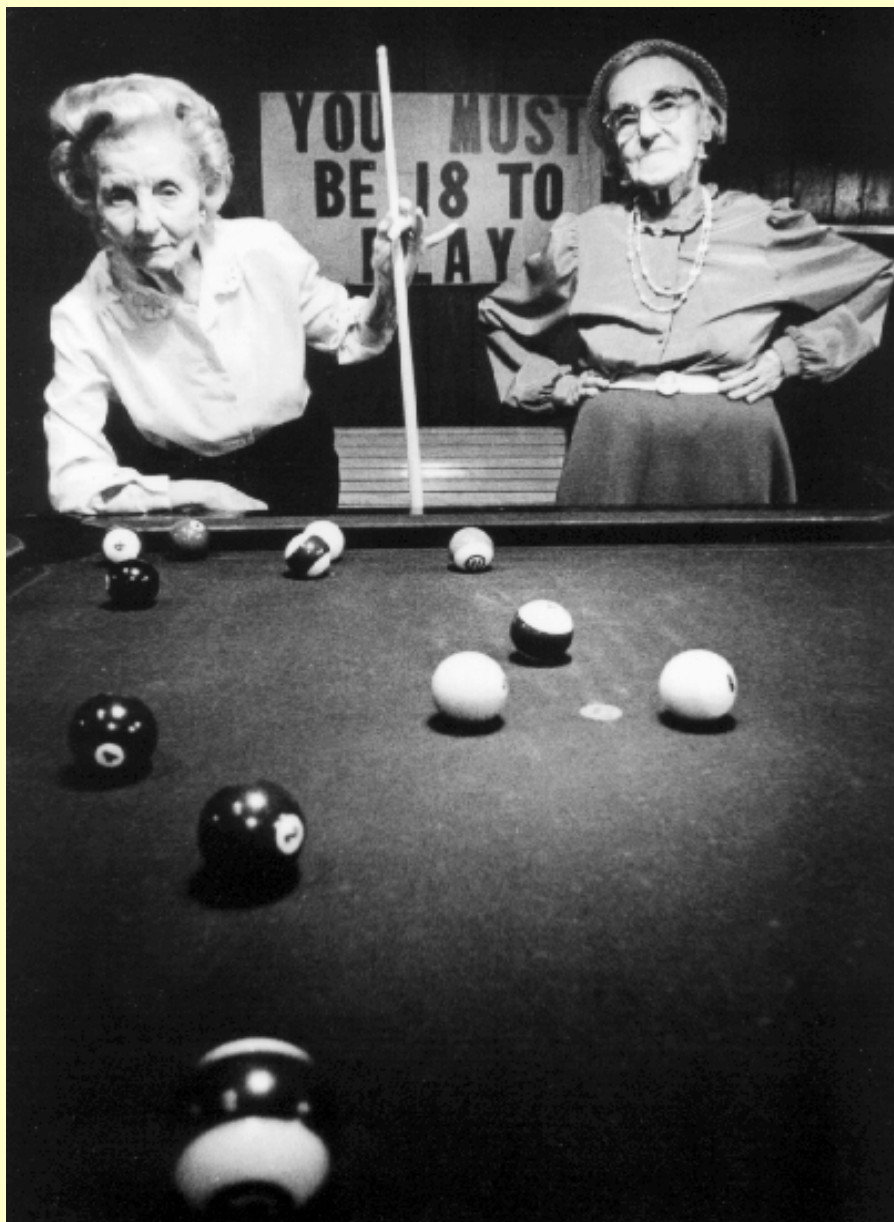


# COMMUNITY LIFE ?

## Leisures



# LEISURES with FRIENDS



# **QUALITY of LIFE**

**1. Own concept of living**

**NEEDED ANTICIPATION**

**2. Love of your family's members  
and friends**

**PRESERVATION OF YOUR AFFECTIVE LIFE**

**3. Social integration**

**COMMUNITY LIFE INVOLVEMENT**

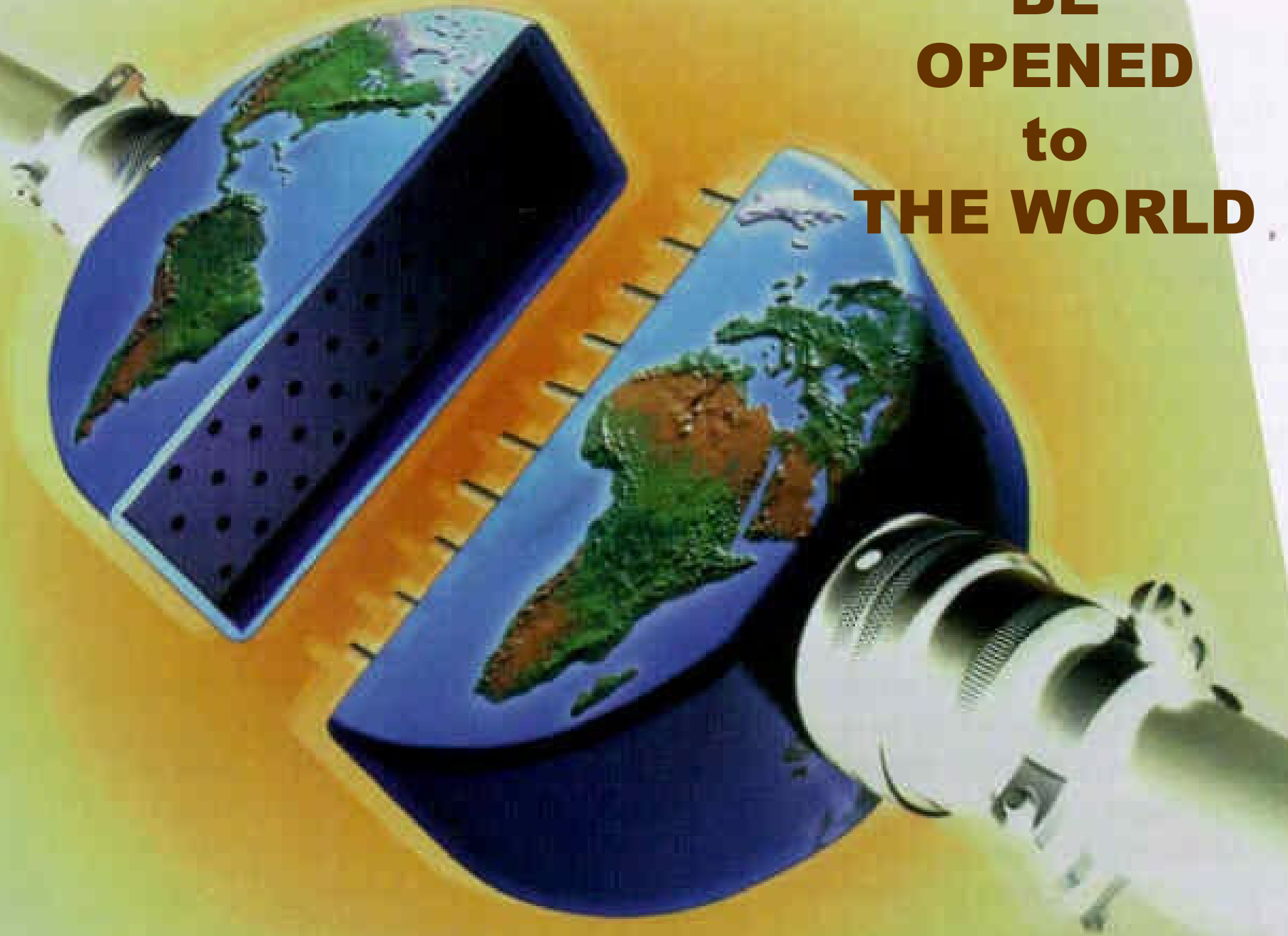
# COMMUNITY LIFE ?

## COMMUNITY INVOLVEMENT





**BE  
OPENED  
to  
THE WORLD**





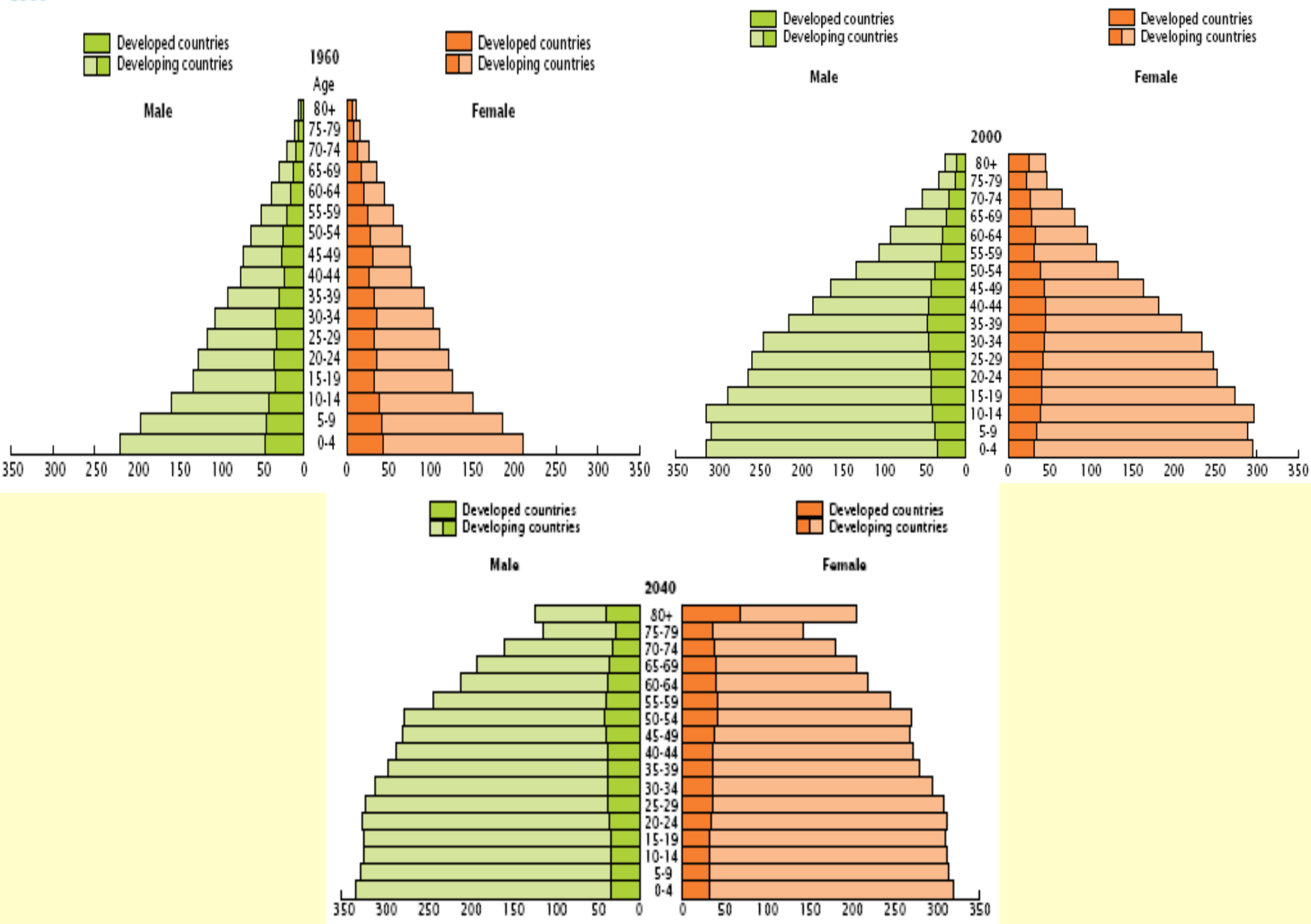
**Your appreciation of  
VALUES  
modifies  
your appreciation of  
AGEING**

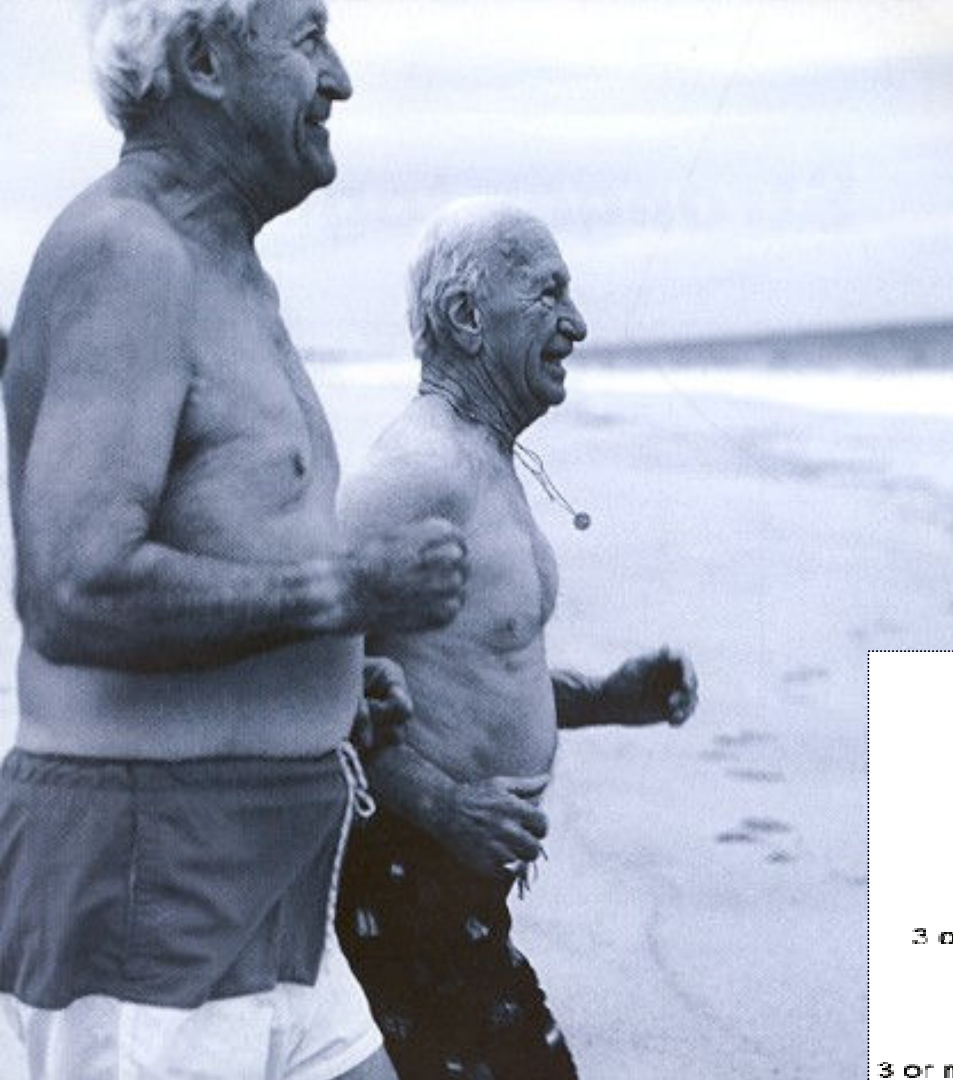


**CONCLUSION**

A large, dense crowd of people, primarily young women, are shown from the chest up. They are all smiling and many have their mouths open as if cheering or shouting. The image is in black and white. A red rectangular border is superimposed over the top portion of the image, containing the text 'NUMBER of YEARS of LIFE' in a bold, black, sans-serif font.

# **NUMBER of YEARS of LIFE**

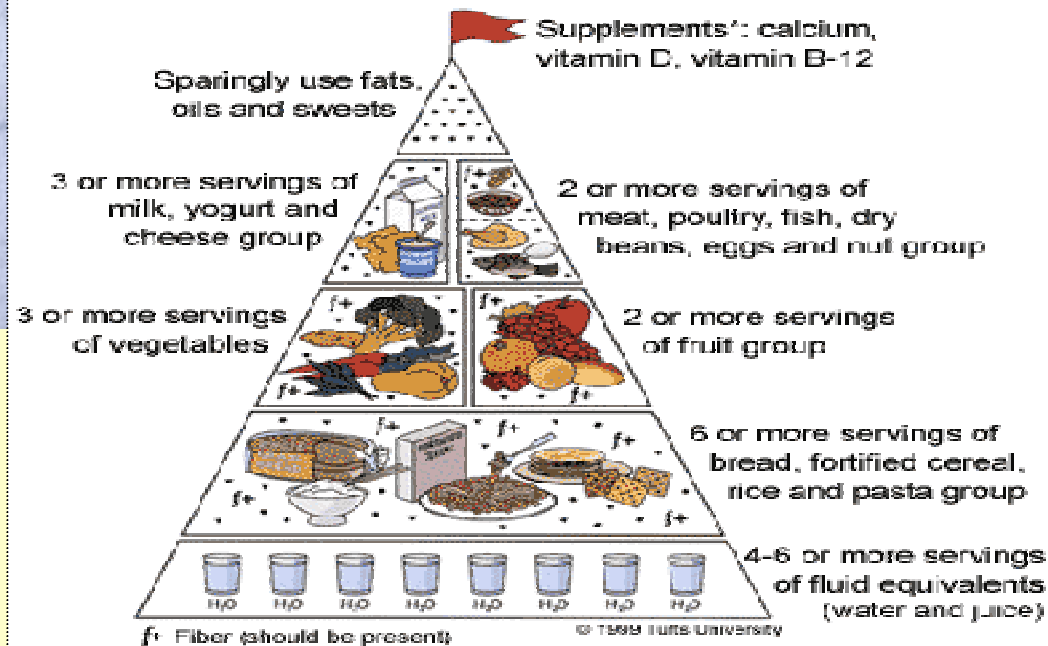




Preventable  
infectious diseases  
vaccines

## BALANCED DIET

### Modified Food Pyramid for Seniors Daily Suggestions



\*Not all individuals need supplements; consult your physician

## PHYSICAL EXERCISES

Optimizing your  
brain reserve



**NUMBER of YEARS of LIFE**

**NUMBER of YEARS of LIFE  
without disability**

**For a great part,  
each of us is responsible of  
the quality of our ageing process**







**NUMBER of YEARS of LIFE**

**NUMBER of YEARS of LIFE  
without disability**

**QUALITY of LIFE**

# **QUALITY of LIFE**

**1. Own concept of living**

**NEEDED ANTICIPATION**

**2. Love of your family's members  
and friends**

**PRESERVATION OF YOUR AFFECTIVE LIFE**

**3. Social integration**

**COMMUNITY LIFE INVOLVEMENT**

**The tomorrow old are already born**



**We are preparing our  
own future old age**

**Your appreciation of  
VALUES  
modifies  
your appreciation of  
AGEING**

*G MAC GILL, St Louis University, 1998*

*Is the "John GLENN Syndrome" a pure myth ?*



*Born in 1921  
1<sup>st</sup> to orbit the earth in 1962  
2<sup>nd</sup> space flight in 1998 (77 y.o.)*

**I do thank you for your attention**