Ageing and Wellbeing

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• People live longer than ever before – why? How?
• What is wellbeing?
• Which factors have effect on wellbeing?
  – Gender, education
  – Exercise
  – Blood pressure, cholesterol
  – Nutrition, vitamins
  – Social activity, attitudes
  – Cognitive training
• Conclusions
Life expectancy is increasing
LIFE EXPECTANCY OF NEWBORNS IN 1941 TO 2008

Males

Females

Lähde: Tilastokeskus (Suomen tilastollinen vuosikirja; Kuolleisuus ja eloonnäämistaulut).
Longer life span...

• Life expectancy increases about 2-3 months/year, more people will live to high age
• Half of babygirls born this year will reach 100 years during their life
• Number of 100-year-old people is increasing in the world
  – USA >100 000
  – Japan >40 000
  – Australia 4500
  – Finland 800 (v. 1980: 56)
Why life expectancy is increasing?

Better hygiene, antibiotics, less epidemics 1900→

Safer environment 1950→

Higher education and socioeconomic status 1950→

Knowledge of healthy lifestyle increasing: Cardiovascular risk factors have significantly decreased 1970→

Development of medicine 1980→

Technical devices 1990→
Japanese centennarians

- *Regular exercise*
- *Protein intake*↑
- No falls
- No alcohol
- Good eyesight
- Adequate mastification
- Regular sleep
- Male
How are the extra years?
Older people’s self-rated health is improving
How do people age – are they healthier?

• Current cohorts of older people:
  – Spend about 20-25 years with chronic diseases in old age
  – Males: 1.5 y with disability / females 3 y with disability

• Alternatives in the future when people live even longer:
  – More years with chronic diseases + disability
  – Diseases and disability are postponed towards higher age
  – "Compression of morbidity" = less years with diseases and disability
Most retired older people live active life = ”third age”

- During the last 30 years physical functioning of older people has improved
  - ”50-year-olds in 1970s are 70-year-olds in 2000”

• Increasing life span has shortened the time of disability

• Signs of reversed development in cohort studies of 2000-10
  – Obesity epidemics?
  – Increasing diabetes?
  – Increasing number of cars and sedentary life style?
What is wellbeing / quality of life?
What builds up wellbeing?

Health and functioning

Cognitive and psychological wellbeing

Social capital, Active participation, Meaningful roles

Material wellbeing, safety, Environment
How can we influence wellbeing?
Successful ageing is affected by:

- Autonomy
- Significant roles
- Life satisfaction
- Close relationships
- Few diseases
- Good functioning
- Good cognition

Factors:

- Age, gender
- Education, profession
- Socioeconomic status
- Life style
- Diseases
- Social network
- Social capital
- Life experiences, Developmental tasks
- Environment
- Societal expectations, attitudes
- Attitudes towards life
- Genes
- "Destiny"
HOW TO ENHANCE WELLBEING?

OLD AGE SYNDROMES
- Dementia
- Cardiovascular diseases
- Mobility problems
- Falls, fractures
- Confusion
- Loneliness
- Depression

Disabilities
- Nursing home
- Quality of life
- Death

Cholesterol ↑
- Blood pressure
- Obesity, diabetes
- Stress, low mood
- Exercise
- Diet
- Education
- Social activity

↓
- Death
Gender, education, Socioeconomic status
Women are at higher risk for disabilities...

- Women have 30% less muscle mass than men
- Females lose muscles faster than men

Higher socioeconomic status and education improve health

- Higher socioeconomic class men live up to 80 years whereas lower socioeconomic class men only 74 years

Higher education protects against dementia

S. Koskinen, KTTL
Exercise
Strong evidence for exercise!

- Good quality studies show that exercise
  - Improves physical functioning
  - Decreases disability
  - Prevents many diseases
  - Alleviates symptoms in many diseases
- Regular exercising may also improve mood and alleviate anxiety and stress
Take care of your legs!

• 1122 (>70y) 4y follow-up
• Poor muscle strength in legs increases risk of disability x 4-5

Exercise and cognition

- **Aerobic exercise** improves cognition: executive function, speed of processing, attention
- Exercise postpones cognitive decline in mild cognitive impairment (Lautenschlager et al. 2008)
- Aerobic exercise increases the size of hippocampus

Erickson et al. PNAS 2011
Cardiovascular risk factors
Treatment of blood pressure and cholesterol is beneficial until very high age

- Treatment of blood pressure among >80-year-olds prevents cardiovascular morbidity and mortality 25%

- Treatment of blood pressure prevents dementia by 13%

- Statins decrease mortality 15% among 60-83-year-olds

Smoking is risk for health, shortens life span 10 years and impairs quality of life

Paradoxes in old age – how to deal with risk factors?
Risk markers may turn upside down among >80y olds: chol, BP, obesity…

Risk of death ↑

Background variable, e.g. cancer, dementia, frailty

Cholesterol ↓
BP ↓
Weight loss
RISK & PROTECTIVE factors/markers change during life span …

Birth
- Low birth weight

Middle age
- Smoking - - -
- Chol↑- -
- BP↑ - -
- Obesity - -
- Diabetes - -
- Exercise +++
- Education+++  
- High social class +++
- Social activity +++
- Female gender+++

Old age
- Smoking - - -
- Chol↑- -
- BP↑ - -
- Malnutrition - - -
- Obesity - -
- Diabetes - -
- Exercise +++
- Cognitive training++
- Social activity +++
- Optimism +++
- Genes +++
- Overweight++

Terminal stage
- Smoking - - -
- Chol↑- -
- BP↑ - -
- Malnutrition - - -
- Obesity - -
- Diabetes - -
- Chol↓- - -
- BP↓ - - -
- Terminal decline
- Sarkopenia - - -
- Loneliness - - -
Nutrition
Obesity paradox in old age...

- >70 year-olds malnutrition is higher risk than obesity
- Strong evidence for health
  - Protein & energy supplements (Milne et al. Cochrane 2009)
  - Vit D (20-25 yg/d) decreases falls and fractures 20%
- No evidence for any other vitamins. Vit A and E may increase mortality and cancer risk
Social activity, attitude towards life
Loneliness increases risk of death, dementia and disability…

- **Participants**: lonely older people (RCT; N=235, mean age 80)
- **Intervention**: psychosocial group intervention → empowers, strengthens self-management skills and supports mastery of life. Takes advantage of group dynamics and peer support.
  - 8/group . 1 day/wk, 3 months
  - Sisällöt: art, exercise, therapeutic writing

**Findings**:
- Social activation, QOL improved
- Cognition improved

- Use of health care services decreased 34% (p=0.020)

Risk of death decreased by 60% in 3y

Mortality HR 0.39 (95% CI 0.15 to 0.98)
P=0.044
Social capital

• Social activity (hobbies, social interaction), confidence and reciprocity
  - Extends life
  - Improves health and wellbeing
• One can learn social interaction, mastery of life even in very old age and improve health and wellbeing

Positive attitude protects from diseases!

- Optimists live longer
- Life satisfaction, zest for life, active agency in own life, feeling needed, lack of feelings of depression and loneliness provide more life in years and more life years
Challenge your brain!
Cognitive functioning

40% remain intact

30% has benign memory problems

30% cognition declines significantly = dementia
What is happening to cognition at population level?

- Cognition is improving in later born cohorts
- Educational and socioeconomic status have improved over decades
- Among those with higher education cognitive reserves protect against cognitive decline and dementia is postponed
Education, cognitive training and cognition

• ACTIVE study in USA (Ball et al. 2002, Willis 2006): N=2832, 74y
  – 10 training sessions
  – 1. speed of processing 2. memory 3. reasoning 4. control
  – 5 year follow up

* Ball et al. JAMA 2002, Willis et al. JAMA 2006
ACTIVE: effects...

- In all intervention groups the skill trained was sustained 5 years
- In reasoning and speed of processing groups there were less car accidents during 6 year follow up (Ball et al. JAGS 2010)

Willis et al. JAMA 2006
How has wellbeing developed among older cohorts?
Wellbeing …

- Older men have better psychological wellbeing than older women
- Later born cohorts suffer less from depression and loneliness than those born earlier
Many factors affect wellbeing…

- Men are catching women in life expectancy → a larger proportion of couples can live together until very old age
- The early life experiences have impact how people experience old age and what they expect
  - E.g. II WW, babyboomers
 Ability to cope improves as a person ages

Understanding and wisdom improve: satisfaction with life emerges from the long life perspective and endorsement with one’s own past

”Satisfaction paradox” = better balance between one’s expectations and what has been accomplished

Although diseases → subjective health ”good – very good”

”You have to live to this age to understand”, women 91 years
Conclusions
How to accomplish good healthy ageing? How to achieve wellbeing?

- Exercise 2-3 hours/week
- Eat healthy foods, enough protein, vitamin D, do not lose weight unintentionally
- Take care of your blood pressure and cholesterol
- Do not smoke!
- Give challenges for your brain: study new things, read etc.
- Take care of your friends, be active, have hobbies
- Let the good around, feel your self needed, think positively!
Conclusions

• Successful ageing and wellbeing is built up from health and functioning, but – even more importantly – from one’s own and society’s attitudes, which enable one’s social participation and meaningful roles.