

Ergonomic risks in the case of ageing workforce

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Ageing society

Population pyramid



Joint duty and challenge in the EU

- Stable value of Pensions
- Maintaining the quality of healthcare
- Sustainability of the social care system
- Organising long-term care



EU Politics for the ageing workforce

There are several documents, I would like to highlight the following:

- In the framework International Year of the Older Persons of United Nations the document *Towards a Europe for All Ages* appeared in 1999
- It has formulated development indicators in four areas, let us mention two of them:
 - Aimed at keeping workers' ability for work
 - Promoting lifelong learning and flexible working conditions

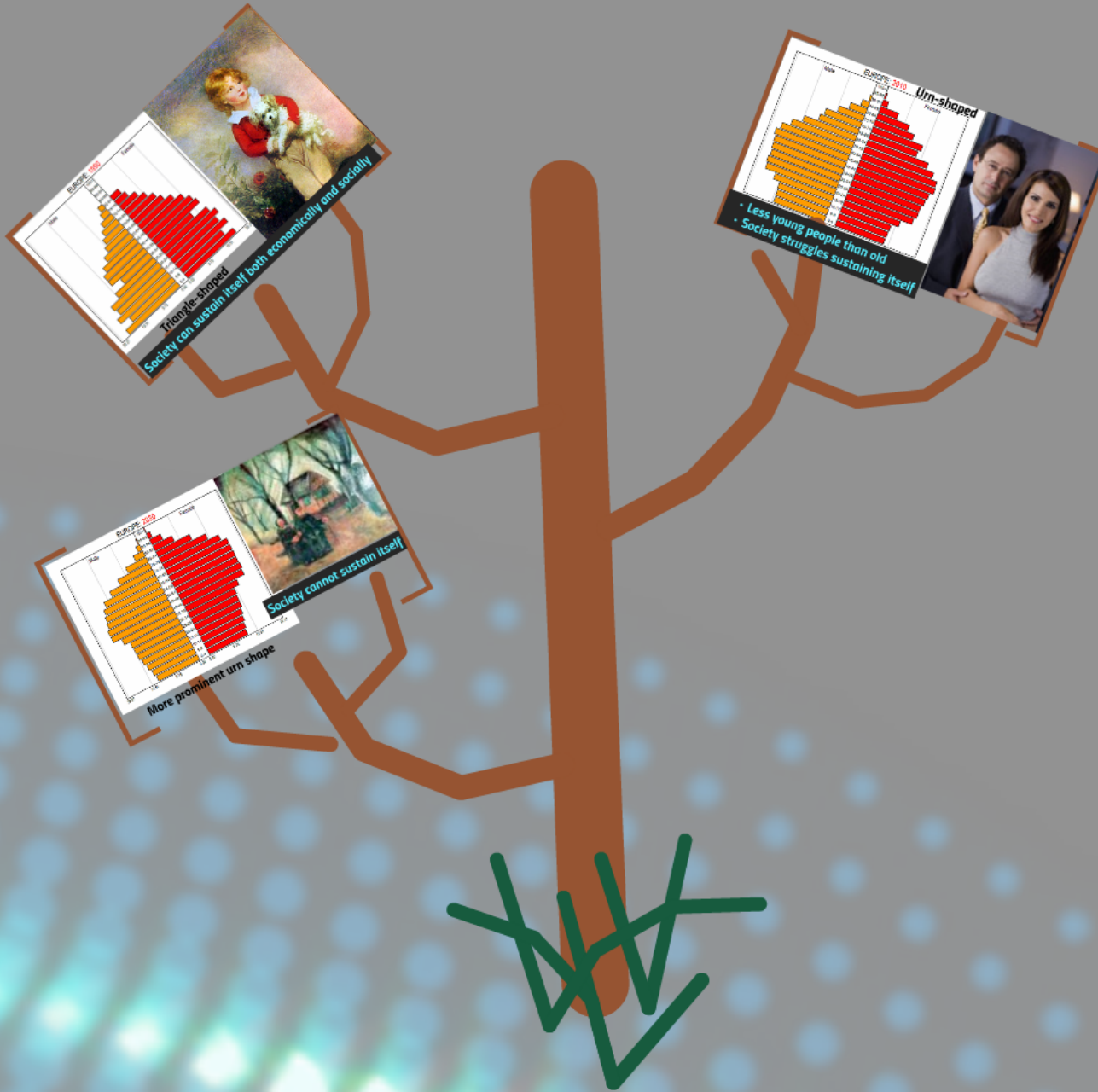


Introducing flexible working conditions

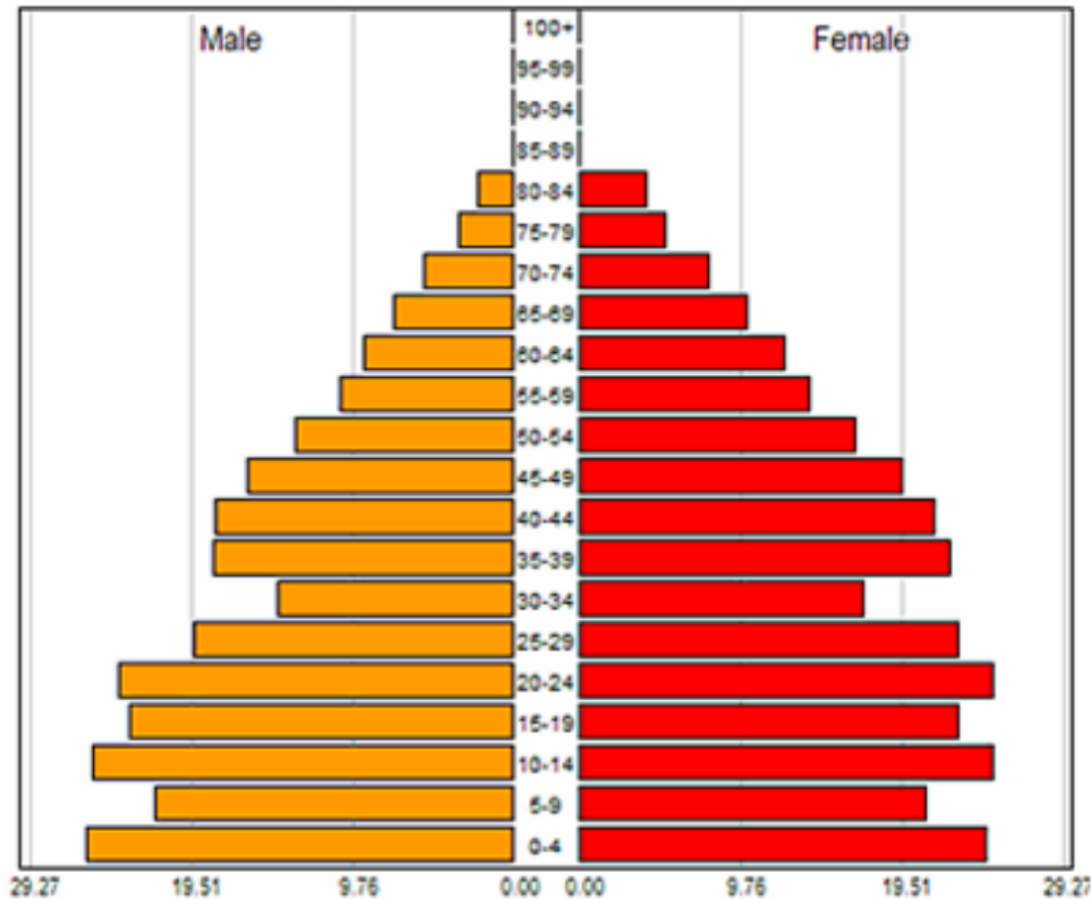
- Consideration should be given to the characteristics of the ageing worker
 - Increasing and decreasing abilities related to age
- | | | |
|---|--|--|
| <p>INCREASING</p> <ul style="list-style-type: none"> • experience • independent work • judgement • endurance • consistency • sense of responsibility | | <p>DECREASING</p> <ul style="list-style-type: none"> • muscular force • vision, hearing, touch • short-term memory • speed of perception • accommodation |
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Population pyramid



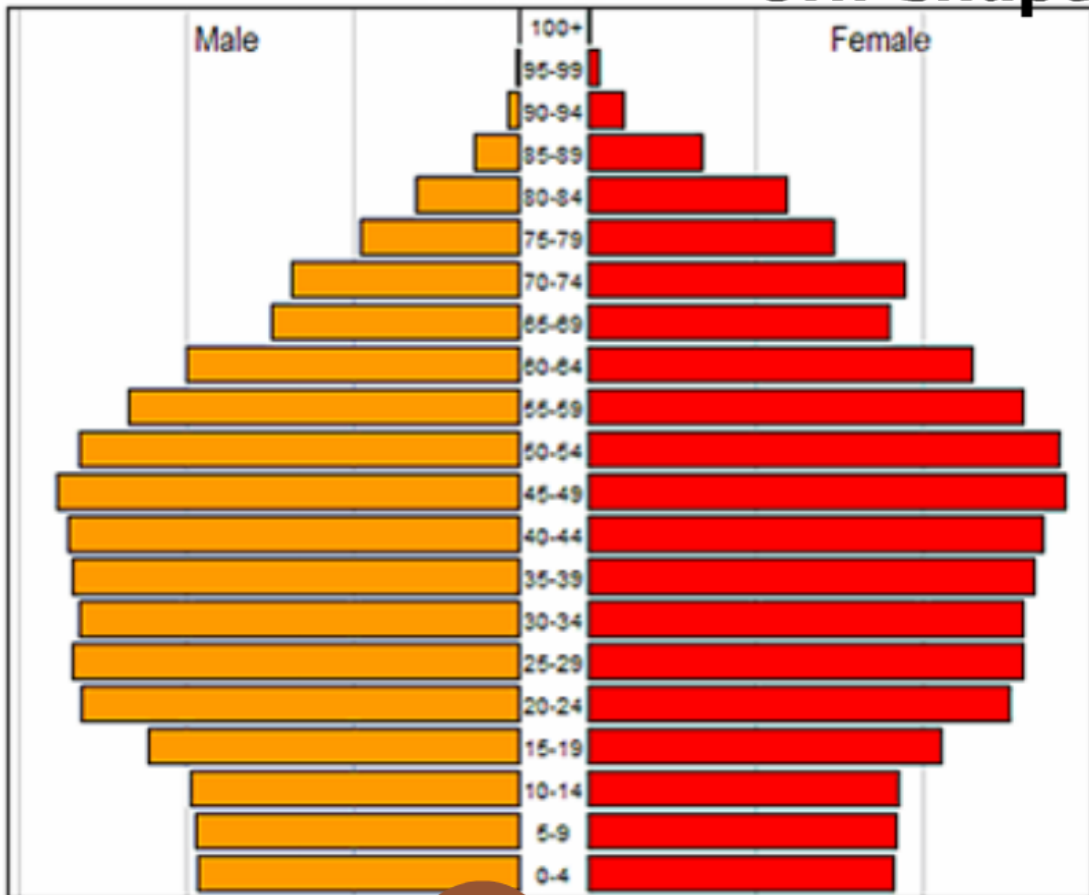
EUROPE: 1950



Triangle-shaped

Society can sustain itself both economically and socially

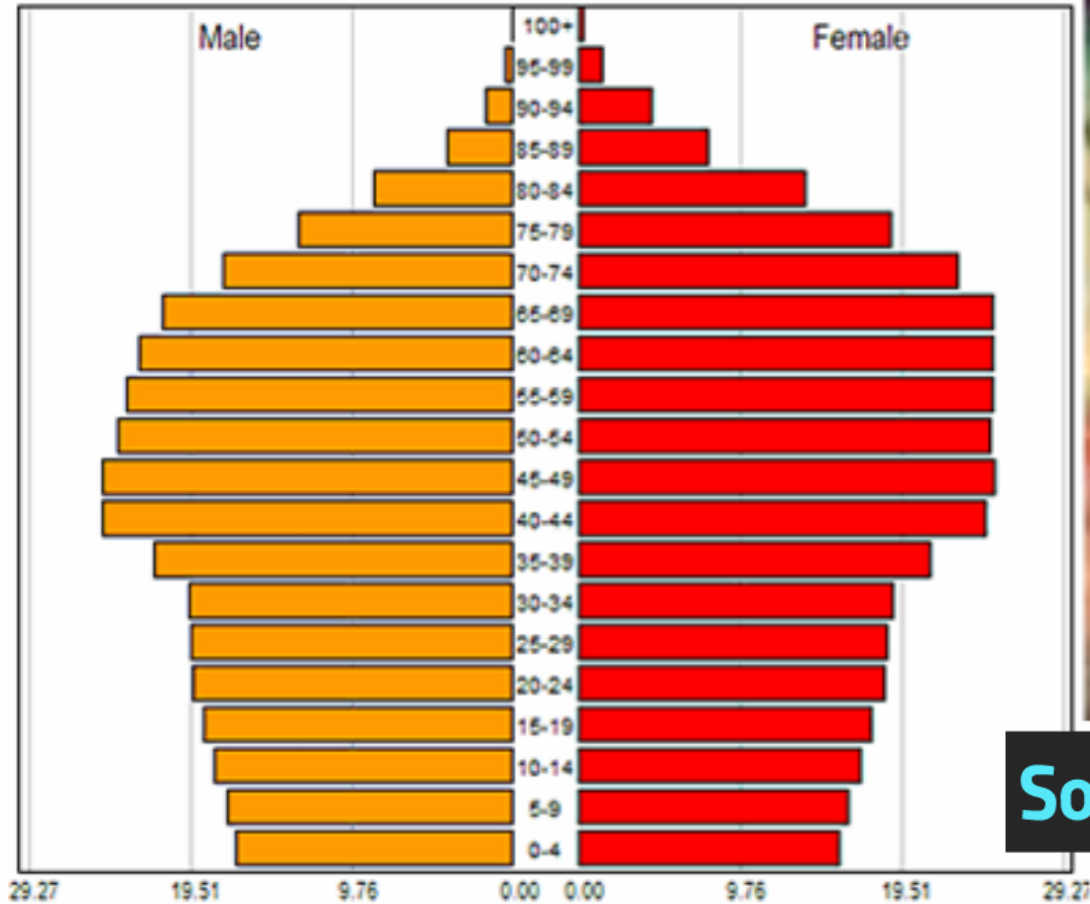
EUROPE: 2010 **Urn-shaped**



- Less young people than old
- Society struggles sustaining itself



EUROPE: 2030



Society cannot sustain itself

More prominent urn shape

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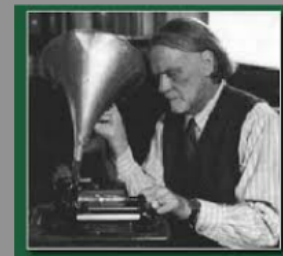


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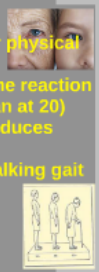
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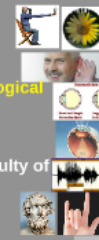
Physical and moving abilities

- The body is restructured
- At age 65 workers lose about half of their physical strength
- Psycho-motor performance decreases (the reaction time is 20-25% higher at the age of 60 than at 20)
- Degeneration in cartilage and muscles reduces mobility and increases vulnerability
- The nature of the movement changes (walking gait changes)
 - standing/walking on a broad basis
 - heel down first when walking



Vision, Hearing

- Age-dependent physiological changes
 - Presbyopathy
 - Blur clouds
 - Hearing in the high frequency range
- Consequences of age-dependent physiological changes
 - Accomodation
 - light sensitivity
 - In case of background noise, the difficulty of word understanding
- Age independent, disease-related lesions
 - Blindness, Deafness



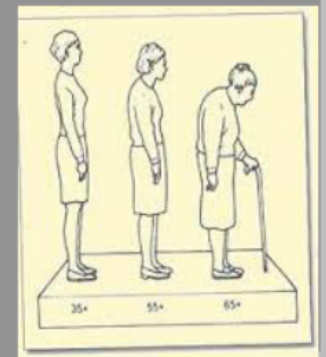
Concequence

- Stairs: max. 15 cm is what you can do
- When it comes to rising - if there is no armrests, the seat is small - it is difficult
- All the sharp edges should be rounded
- For simple activities, for washing, using thicker handle tools



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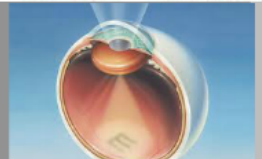
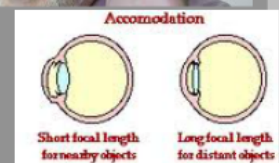
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Intellectual ability

- Up to 70 years of age, the deterioration of cognitive abilities is not significant
- After that, cognitive performance deteriorates
 - Especially thinking abilities
 - Memory capacities
 - Short-term memory is more damaging,
 - Long memory, accurately telling events
- Older people compensate for other disabilities by relying on more experience and better judgement to (Slower performance <-> better solution strategy)



Laboratory studies confirm that mental capacity changes

- Thinking speed changes
- Information retrieval is slower unless the topic is familiar
- Learning and recall are slower, but equally successful in the end
- Higher learning performance and a greater chance of finishing a completely new study than younger workers



Changes in work habits and attitudes as a function of age

- In elder age, people are trying to reduce complexity
- They concentrate only on one thing at a time
- In elder age the activity under time pressure presents more stress
- Older people are much more attached to the usual environment.
- Older people's need for and awareness of product safety is greater.



Principle of assessment of work ability

- Professionally correct decision is only possible with the knowledge of the risks to workers, which should involve
 - risk factors due to the work environment
 - resulting from the workload itself and from the work itself
 - individual (physique, age, morbidity, etc.)



Risk analysis

- Individuals become more and more different with age, so we should avoid talking about the stereotype of ageing
- An individualized risk analysis is needed, we must pay attention to
 - the abilities
 - the opportunities/possibilities and
 - limits



Instead of "chronological age", taking into account the "functional age" is important!

Verdi composed Othello at the age of 74, the Falstaff at the age of 80



The Piano Concerto offered by A. Rubinstein at the age of 91 in Carnegie Hall is the most outstanding artwork of music literature even today

Organization of work and ergonomics

- Attention must be paid to the ergonomic risks that may cause:

a. Ophthalmologic diseases



b. Psychological consequences



c. Deterioration of physical condition



Environmental factors

- Space requirements
- Illumination Refraction and Reflection
- Noise
 - Vegetative reaction may appear over 65 dB
- Vibration
- Climate
 - Heat load (cold, warm, humidity)
- Emissions/Radiations



Overloading resulting from the workload itself and from the work itself

- Excessive physical burden
 - hard physical work
 - men's load reduces to 70%
 - oxygen absorption (that) decreases to 70% at 65 years of age
 - women - forbidden
- work under excessive atmospheric pressure
 - Men-women -Forbidden



Overloading resulting from the workload itself and from the work itself

- Increased psychological burden
 - Activity under time pressure
 - Case-by-case individual decision is possible
 - Activity with increased psychological inflexibility or requiring special attention
 - If it exceeds 50% of the legal working time
 - Individual decision must be taken based on skills
 - Shift work
 - Carcinogenic workplace



Accident hazardous workplaces

- individual decision



The work-ability assessment and the ergonomic inspection of the workplace, taking into account the stress load

→ Adapt the workplace

Taylor the workplace for the individual!

Work ability examinations

- Decreasing physiological reserves will make the elderly more vulnerable to anything further
 - environmental morbidity or
 - pharmacological burden



- In addition to taking this into consideration the following is also important when deciding

- Human ageing is mostly characterized by a continuous narrowing of the homeostatic reserve of organ systems.
- This decline begins in the third decade and continues gradually and linearly, but continues individually
- However, a rapid degradation of a body system or function is always a disease, not a "normal ageing"

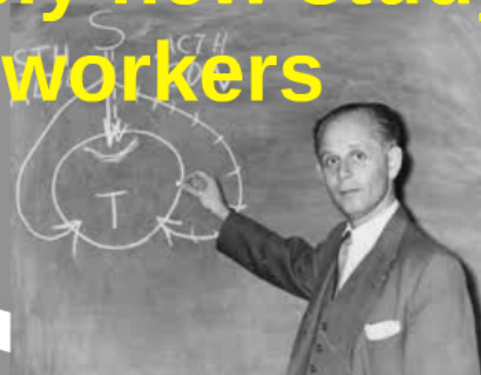


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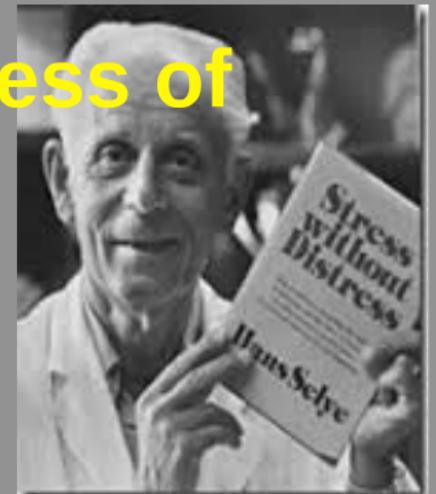
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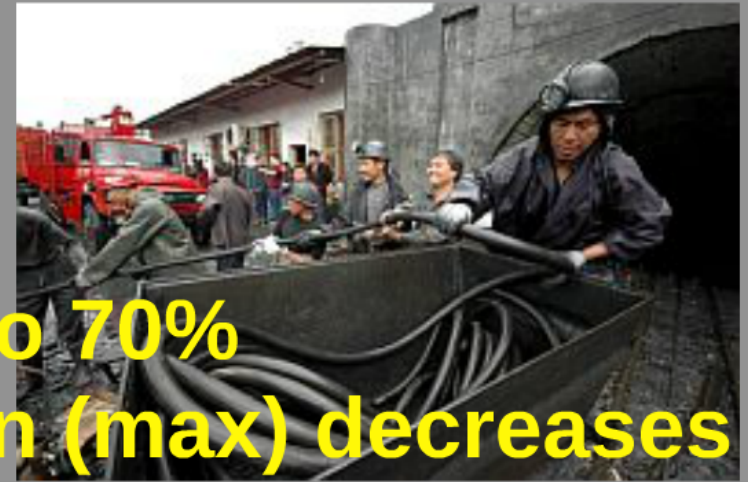
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Work ability



Workplace Health Promotion

- Is of key importance in preserving the working ability of ageing workers
- Can be realized in the knowledge of the individual's morbidity indicators, taking into account age characteristics and risk factors
 - Reducing / Removing Risk Factors
 - Stop smoking program,
 - Stop alcohol abuse program
 - Stress-handling training or
 - physical training
- The benefits of giving up abusive habits is also significant over the age of 65 years.



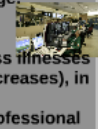
With regard to employment characteristics

- **Sectors**
 - Agriculture, public administration, education and health and social work,
 - In absolute figures: manufacturing industry, construction
- **Self-employed**
 - Older workers are more frequently self-employed than younger people, over 65 are 50%
- **Part-time employees**
 - A quarter of people over 50 (26%)
 - In the full working-age population (19%)



The employer's responsibility and duty

- The employer's responsibility and duty to create the working conditions under which the ageing worker is the least burdened, the so called "old-time jobs", which have a great advantage:
 - Short time is needed for integration
 - Productivity is growing,
 - The reduced burden will result in less illnesses (the number of days lost in work decreases), in addition
 - It also provides opportunities for professional development, thus providing the employee with extra motivation.



This is not a charitable activity by the employer, it is a good return on investment!

- Older people are able to handle complex organizational models and have broad knowledge
- They have greater autonomy in decision-making, so they achieve their goals with less effort
- Their value judgements, their perception is well-developed,
- Generally have a greater sense of responsibility and a sense of duty
- Their own abilities and limits are better judged
- Their sense of truth is more realistic
- Their social experience is a high-level, effectively solving advisory tasks



Research and employer case studies show that most older workers are

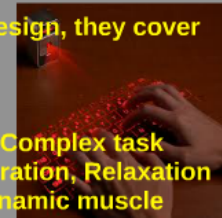
- as effective as their younger colleagues (at least to 70 years old);
- have the same success in training;
- suffer from less short-term illnesses; and
- they balance slower work by making decisions based on multi-year experience



Ergonomic measures such as the

In assignment design, they cover

- Posture
- Forces
- Repetitions
- Boredom vs. Complex task
- Schedule, Duration, Relaxation
- Static and dynamic muscle work problems



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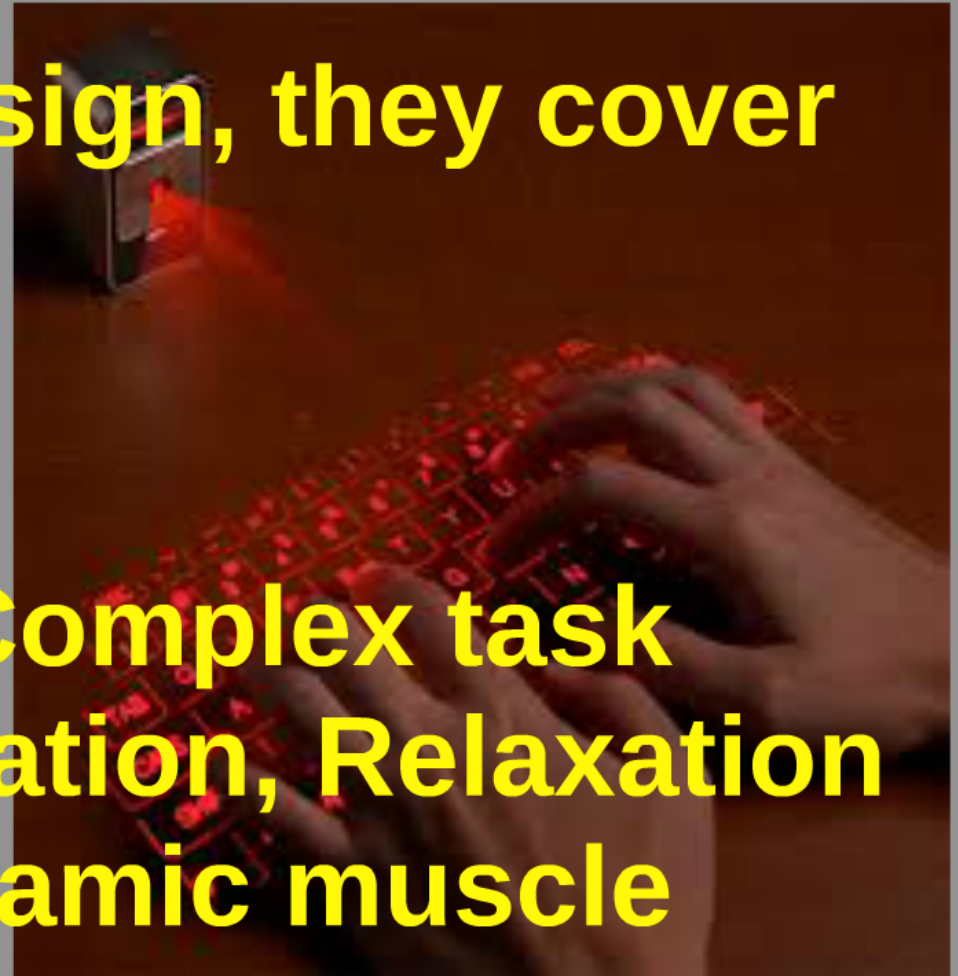
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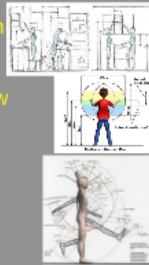


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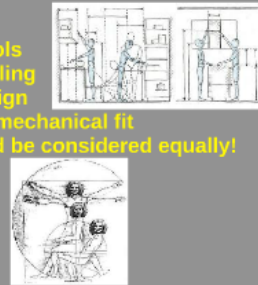
Workplace design

- Sitting/standing position
- Working height
- Access zones
- Workspace, field of view
- Seats
- Sharp surfaces
- Footrest
- Carpets / lures



In addition

- Environment
- Design of tools
- Manual handling
- Machine design
 - E.g.: Bio-mechanical fit
 - Should be considered equally!



The flexibility of the work-environment includes the

Workplace flexibility

- Telework
- Working from home
- Work in more than one place



Work time flexibility

- Part-time employment
- Seasonal positions
- Job sharing



Flexibility of workload

- Flexible workflow (flexible breaks, core clock, daily flex)
- Compressed week (3-4 days work week)
- Split shift
- Online self-service scheduling
- Reduced working time (35 hours or less)



Career flexibility

- On / Off ramps
- Reduced liability
- Job change
- Cafeteria plans
- Career coaching
- Retraining

- ### Flexibility benefits
- Gradual retirement

Flexibility of employment

- Project work
- Consultations
- Independent contracts

Do ageing workers need special things?

- A well-designed job is good for everyone
- Workplaces and job assignments should be adapted to the capabilities of each employee
- Exclude any contradiction between ergonomic principles and reasonable design



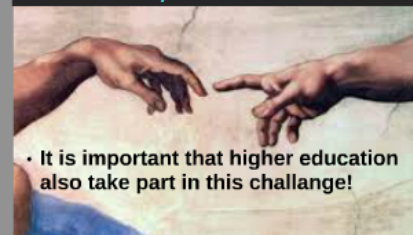
Very important:

- There is no consistent relationship between ageing and work performance!



"The society whose religious and cultural believes can turn old age into creativity will be the most successful."

(Frank Schürmöcher)

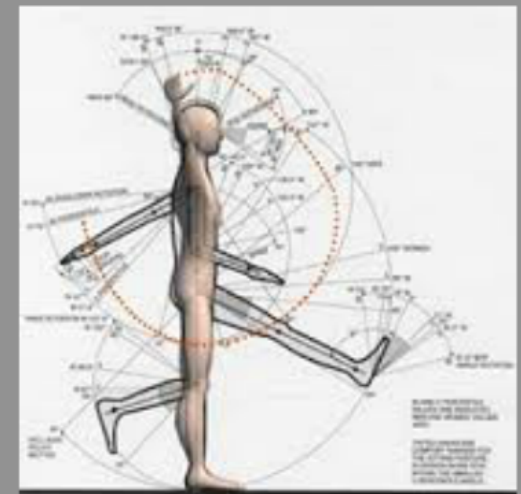
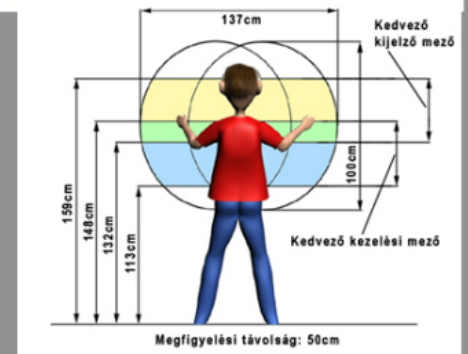
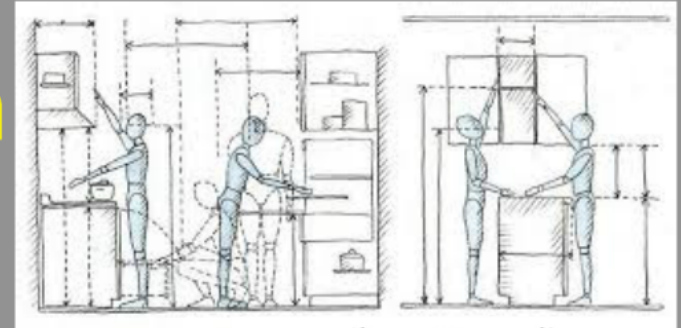


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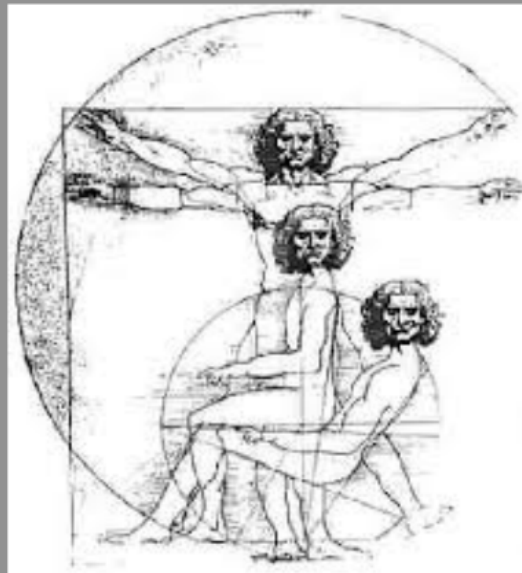
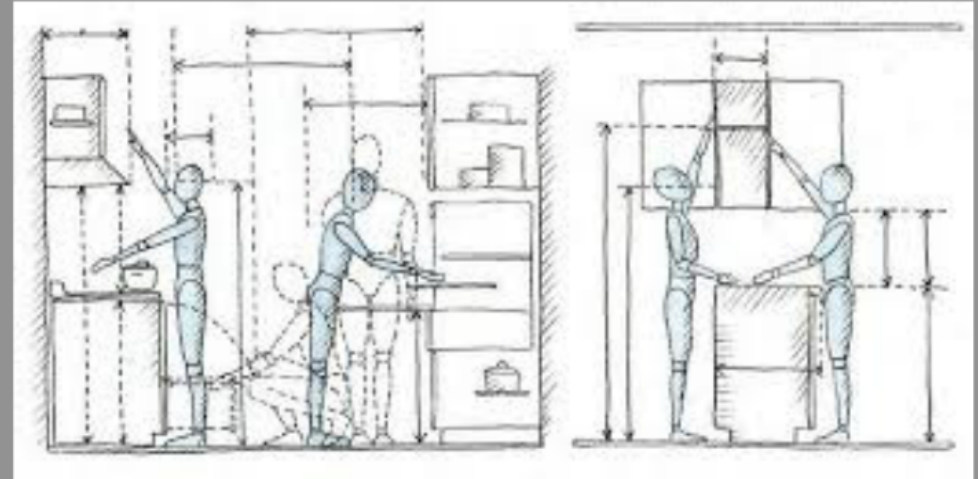
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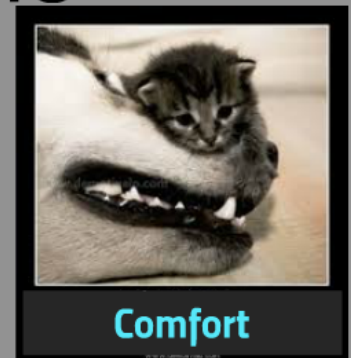
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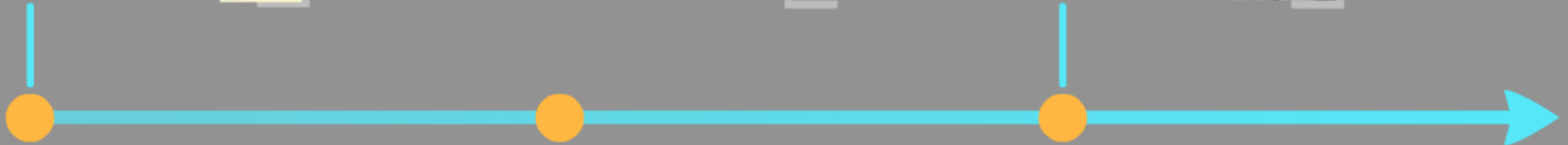
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