



EME

European Month of Ergonomics October, 2016 and 2017

Ergonomics for all ages

What is EME ?

The **European month of ergonomics (EME)** is an annual campaign for the promotion of ergonomics in Europe.

The **EME** is initiated by the Federation of European Ergonomic Societies (**FEES**) and implemented by the national Ergonomics societies.

The **FEES** is an official partner of the European Agency for Safety and Health at Work (**EU-OSHA**).

The **EME 2016 and 2017** support the annual Healthy Workplaces Campaign of the **EU-OSHA**. In 2016 and 2017 the topic of the **EU-OSHA** campaign is:

*Healthy workplaces for all ages
Promoting a sustainable working life*

The corresponding **FEES** campaign **EME 2016 and 2017** focus on the role of ergonomics within this topic, with the title:

Ergonomics for all ages

EME 2016 and 2017

- In **2016**, the campaign can be started, for instance, with an **introduction** to the topic ***Ergonomics for all ages*** together with **discussions**, highlighting the ergonomic aspects.
- In **2017**, the focus can be shifted towards presentation of **practical applications**, research and development projects, case studies, methods, etc.
- The **aim** of the **EME 2016 and 2017** is to **encourage discussion and collaboration** between ergonomics experts, safety experts, occupational health and safety authorities, and managers and employees in enterprises, so that the **knowledge of ergonomics** is properly utilized in developing a sustainable working life.



EU-OSHA campaign 2016-2017

"Healthy workplace for all ages"

- The **EU-OSHA campaign "Healthy workplaces for all ages - Promotion a sustainable working life"** aims at recognizing and managing the challenges of an ageing workforce. The focus is **not only** on aging workforce but on the workers of all ages, highlighting the importance of a life-course approach.
- **Fostering healthy work practices in young workers and developing good working conditions promotes sustainable work throughout their working lives and ensures healthy aging.**
- **Why this topic?**
- The European **workforce is aging**: by 2030 workers aged 55-64 are expected to make up 30% of the total workforce in many countries.
- The official **retirement age is increasing** in many member states of the EU.
- Thus, many workers will face **longer working lives, longer exposure to hazards at work, and, more changes at their work and work environment.**
- To prevent higher incidences of ill health, efforts have to be made to **ensure safe and healthy working conditions throughout the whole working life.**

For more information on the campaign, see www.healthy-workplaces.eu.

The **2016-2017 Healthy Workplaces Campaign** has four key objectives:

1. promoting **sustainable work and healthy ageing** from the start of the working life
2. **preventing health problems** throughout the working life
3. providing ways for employers and workers to **manage occupational safety and health** in the context of an aging workforce, and,
4. encouraging the **exchange of information** and good practice.

For whom?

The campaign is open to individuals as well as organizations of all sizes and sectors. These can be, among others,

- managers, supervisors and workers
- trade unions and safety and health representatives
- OHS and HR professionals
- professional associations
- providers of training and education

The EU-OSHA campaign material include special instructions directed to the key groups

The **2016-2017 Healthy Workplaces Campaign** considers the following:

1. **Prevention throughout the working life.** People's health in later life is affected by, among others, working conditions in earlier life. "The young workers of today are the older workers of tomorrow".
2. **Holistic approach to OHS management.** The workplace has to be looked as a whole, taking account of all factors that could influence workplace safety and health. These include the balance between work and life, training and lifelong learning, career development, motivation and leadership. An example of this approach is the **work ability concept** developed by the Finnish Institute of Occupational Health (FIOH). The aim is to balance work demands and individual resources, taking into account the context outside the workplace, including the family and society.
3. **Good leadership and worker participation.** These are the key to meeting the challenges of an aging workforce. These are also the key elements in e.g. consideration of the diversity of the workers, in balancing work demands and individual resources as well as in adapting the work and workplace to the worker.

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4. **Diversity-sensitive risk assessment.** Risk assessment is the cornerstone of the European approach to prevention of occupational accidents and ill health. Employers have a legal obligation to carry out risk assessment and to adapt work to the individual. **Age-sensitive risk assessment** takes into account potential differences in functional capacity and health, as well as disabilities and gender issues. In younger workers, it takes account of their physical and intellectual development, immaturity and lack of experience.
5. **Adapting the workplace.** The aim is to **adapt work and workplace** to individual abilities, skills and health status, considering gender and age-related changes in functional capacity. The potential measures consist of **ergonomic design** of the work activity, work equipment and work environment (more later).
6. **Disability prevention, rehabilitation and return to work.** Musculoskeletal disorders and mental ill health are the primary causes of disability retirement. Remaining out of work on long-term sick leave can lead to mental health issues, social exclusion and early exit from the labor market. In the context of an ageing workforce, it is more important than ever to help people with health problems to remain in work. **Occupational rehabilitation and policies** facilitating return to work after sick leave are increasingly important.

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7. **Cooperation between human resources (HR) management and OHS management.** HR policies related to **work-life balance, working time, lifelong learning and career development** have an impact on safety and health in particular on the psychological working environment. It is crucial that **HR policies support OHS management** for all age groups, taking into account the characteristics, needs and motivations of each of them.
8. **Workplace health promotion.** It combines efforts of employers, employees and society for improving the **health and well-being at work**. It covers a wide range of areas including diet and nutrition, alcohol consumption, quitting smoking, exercise, recovery time and sleep. The workplace has a significant role to play in promoting **healthy lifestyle** and supporting activities that prevent the decline of functional capacity.
9. **Lifelong learning.** The principle is to enable and encourage workers of all ages to take part in education and training. Updating and developing skills is essential in relation to the **employability** of all workers.

[More information in the 2016-2017 Healthy Workplaces campaign material](#)

EME in relation to OSHA-campaign - support and highlight

The **EU-OSHA campaign** covers the age-related health and safety issues **as a whole**, focusing on the OHS management and on the role and collaboration of different professional groups (e.g. employers, workers, OHS and HR specialists). It can be anticipated, however, that **single topics** like ergonomics considerations, may become inadequately tackled, particularly as they are usually a special local activity, the solutions are not always simple, and special expertise may be needed. However, to achieve sustainable development in working conditions, ergonomics is in key position.

The **EME (European Month of Ergonomics) campaign** supports the EU-OSHA campaign by highlighting the **ergonomics considerations** of the workplace (see earlier: Adapting the workplace). They include, among others, the following topics:

- organisation of the work, including working time and shift work
- design of the jobs and work tasks
- design of the workplace and work equipment
- design of the worker-system interface
- design of the physical work environment.

These are core fields of ergonomics (next slide). **Ergonomists have experience on them and can contribute this knowledge to the EU-OSHA campaign.**

What is ergonomics?

- **Ergonomics provides the knowledge and skills for fitting the environment, equipment and activities to people** (For the IEA¹ definition of ergonomics, see www.ergonomics-fees.eu)
- The dual aims of ergonomics are to improve the **well-being of people** and to enhance **productivity of work systems**
- For the practical application of ergonomics, the following subfields are identified:
 - **physical ergonomics** – e.g. postures and movements, physical workload, manual material handling, workplace design
 - **cognitive ergonomics** – e.g. information processing, mental workload, human-computer interface, applications for transmitting information
 - **organisational ergonomics** – e.g. coordination of work processes, such as assembly lines, combinations of work activities, work-rest schedules, collaborative development of work activity
- **Ergonomics is a scientific discipline and development tool to create healthy and effective work places**

1 IEA – International Ergonomics Association, www.iea.cc

What is true ergonomics like?

For many reasons, application of ergonomics is often limited to **physical ergonomics** or even only to workplace arrangements. However, to achieve sound results, a more **holistic concept** of ergonomics is required. This means that, e.g.¹:

- **systems approach** is used, e.g. taking all interactions between the worker and the elements of the work system into account, and, applying all relevant knowledge and experience
- application of ergonomics is **design driven**, taking place in design activity, and in all stages of the design process, e.g. in concept design, in the design of the premises, in the design of the work system, in implementation, in evaluation, in redesign, or, in the continuous improvement of the system
- the aims include both **well-being of the people** and **performance of the system**, thus providing all achievable benefits as well as acceptance and support of all groups concerned in the enterprise.

¹ A strategy for human factors/ergonomics: developing the discipline and profession (IEA 2012)

Why ergonomics is important to achieve sustainable development?

- **The basic reason for work-related health problems lies in poor working conditions.** Poor working conditions can most often be attributed to poor ergonomic design.
- By good ergonomic design the **long-term preconditions** for safe and healthy work can be created.
- **If ergonomics is forgotten** in the design of the workplace, it may be difficult, costly or even impossible to achieve good working conditions later by corrective measures. In poor working conditions it is difficult for OHS personnel to maintain healthy and safe work.
- When ergonomics is planned in the design stage, the **solutions are profound**: the designers are free to choose best solutions at each stage and all possible effects can be anticipated and taken into account.
- For instance, by choosing advanced technology (e.g. lifting aids, higher level of mechanization) **heavy work phases** or **repetitive work** can be avoided.
- Application of ergonomics in the design process requires **proper collaboration** of all groups concerned, e.g. management, designers, supervisors, workers and OHS personnel. Such a collaboration brings **all requirements** (both well-being-related and performance-related) **together, ensuring sustainable solutions**.

Ergonomics: not only health and safety

- By its definition, **ergonomics is not limited to the health and safety aspects of work** (the dual aims of ergonomics are well-being and efficiency).
- By the comprehensive development of the work activity **human resources of the workers of all ages** can be appropriately utilized, and the total output of the work-system optimized.
- As they take the effectiveness of the systems into account, **ergonomics applications should be attractive for managers**, who make the decisions on the workplace investments.
- **Well-functioning and productive work-systems are important to the well-being of all workers**. They support the stable development of enterprises and their workplaces, and consequently personal development of workers, their feelings of success and progression and ultimately the welfare of their families.
- **The development of the work system as a whole** is so being essential for the sustainable development of the working life.

What are the age-related impairments in the human performance?

- **reduction in aerobic power** reducing time to maintain heavy physical activity
- **reduction in muscle strength and endurance**, increasing strain and incidence of musculoskeletal disorders
- **reduced mobility and stiffer joints** reducing performance in work requiring mobility, and indirectly increasing strain in such a work
- **changes in balance**, increasing the risk of falling, slipping and tripping
- **skin becomes thinner**, increasing the risk of skin injuries in certain tasks
- **decreased tolerance to extreme heat and cold**, and difficulties to adapt to temperature differences
- **changes in memory and information processing**, reducing the speed and flexibility of performance (however much compensated by cumulative experience)
- **changes in vision**, decreasing the ability to accommodate the lens to near objects and, the ability to see in low lighting
- **changes in hearing**, may have impact on communication and awareness of hazards, especially in noisy environments
- **changes in sleep patterns**, implications in night work or shift work requiring intensive concentration for long periods of time

Some psychological capabilities are increased during working life, e.g.:

- **strategic thinking**, e.g. ability to choose correct, easy and safe ways to operate, or, ability to avoid risks
- **wisdom**, e.g. cumulation of professional knowledge
- **work experience**, cumulation of the skills on work practices
- **ability to think over and motivate**, e.g. to improve one's own activity
- **motivation to learn**, increasing the ability to adapt to the changes in working life
- **increased loyalty**, resulting less absenteeism

Many of the impairments in performance (previous slide) **can be compensated by these capabilities**, and the overall performance is not directly related to ageing. These capabilities are also relevant for **longer working careers**.

Variation in changes between individuals grows with age, and the change can be greatly influenced by physical activity (exercise) or mental activity (hobbies, learning).

However, the increase of these positive capabilities is not always valued, and age discrimination often exists in the employment.

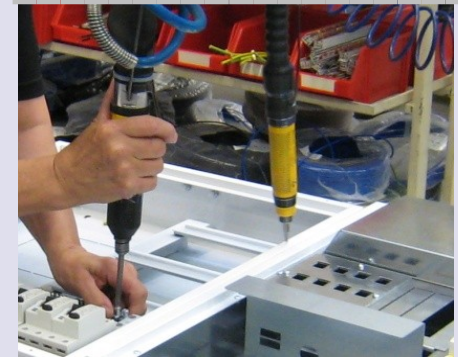
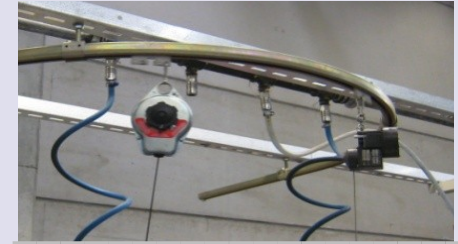
1. Reduce heavy work load and risk of injuries

- **reduce lifting and carrying**, use mechanical aids: hoists, lifting tables, trolleys, etc.
- **follow the restrictions on maximum allowable loads**, taking account of e.g. geometry of the lifting situation (distances, heights), time factors (duration, repetitiveness), postural aspects (bending, twisting), gender, and age
- **share the load within the workers**: use two or more persons to perform heavy phases, apply **job rotation**
- **allow additional breaks**



2. Reduce the work load on hand movements

- **choose ergonomic working tools**, e.g. lightweight tools, with good grips, the output in proportion to the requirements of the task (force, speed and accuracy)
- **use them correctly**, in a good position, directing forces correctly, supporting the arm and tool when needed, and, taking all aspects of safety into account
- **avoid repetitiveness of the work**: combine subtasks to build a "whole" task (**job enlargement** and **job enrichment**), having varying movements to avoid one-sided load
- **follow the restrictions on maximum allowable forces**, taking account of e.g. direction of the movement, time factors, gender, and age



3. Reduce postural load

- **avoid poor postures**, e.g. bending or twisting of the back, reaching or kneeling: adjust the dimensions of the workplace to fit the worker when adopted a good position.
- **avoid static postures**, avoid e.g. prolonged sitting or standing in one and only position, combine these modes appropriately
- **locate the objects of hand movements and viewing objects to allow natural and free postures**, consider especially the **aging users** using multifocal spectacles



4. Consider the changes in balance

- **avoid working in high places**, e.g. on roofs or high platforms
- **use safe mobile man lift devices** (boom lift, basket crane, lifting platform, stock picker etc., see illustration)
- **avoid carrying materials in stairways**
- **avoid using ladders** - many of the workers cannot use them safely
- **plan safe walkways** (platforms, scaffolds, stairways) by following the safety standards: no obstacles on the way, no slippery (e.g. icy!) surfaces, safe and proper railings and handrails, correct dimensions of the stairs, proper indication of the steps, etc.



5. Reduce thermal load

- **avoid heavy work in hot, humid and cold environments**, allow self-pacing of work in extreme temperatures
- **ensure that suitable clothing and appropriate personal protective equipment are used**
- **ensure access to cooler/warmer areas** when work is performed in hot/cold environments



6. Support easy perceiving, decision making and learning

- **make important information explicit and clearly visible or audible**
- **use large characters** (height at least 3 mm with good contrast at normal viewing distance) for easy reading and to avoid awkward postures
- **avoid the need to remember detailed information**, e.g. numbers, use grouping to ease remembering (see illustration)
- **design the user interface to support decision making**, e.g. so that it shows the logics of the system and offers right operations at each stage
- **design the updates of information systems (e.g. in the offices!) to ease learning of the use** - make the use intuitive as far as possible, to avoid the need of training

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7. Improve lighting

- **ensure that lighting levels are suitable for the purpose**, follow the standards on lighting
- **improve contrast by increasing lighting levels**, install local lighting when needed
- **reduce glare** by using shades, diffuse light sources, adjustable or indirect lighting
- **reduce** the need for workers to **move between bright and dark environments**

8. Reduce noise

- **minimize background noises**
- **use sound-absorbing construction material**
- **avoid creating workplaces that have echoes**
- **ensure that emergency signals and auditory communication can be understood by everyone in the workplace**



The nature of basic ergonomics guidelines: purposed for all ages?

- As can be seen in the previous examples of basic ergonomic guidelines, they are purposed to **a wide range of users**, to almost everyone in the healthy working population. Exceptions can be the handicapped workers using aids e.g. wheelchairs, or workers having particular injuries.
- There are also **abilities, like physical strength, which vary** among humans so much that it is not reasonable to adjust a general limit to adapt to everyone. In certain cases, tailoring the worktask to the individuals or, selection of workers to the task is needed.
- However, concerning the machines, an idea in the background of the Machine Directive of the EU is that the **properties of machines cannot be a reason for discrimination between men and women**. Thus, in the explanatory standards, the level of maximum strength required in the use of machines is adjusted fairly low, to include a clear majority of women in the intended user population.
- To summarize, planning the work activity, work equipment and working environment **by following ergonomic guidelines in most cases means planning for all ages**. This does not obviously exclude the need to consider the abilities and skills of each individual worker in each worktask.

A summary: Ergonomics is beneficial to the workers of all ages

- **Ergonomics as a discipline**, by definition, aims at fitting the jobs, work tasks and workplaces to the abilities and skills of the workers, and so being to the workers of all ages.
- **Ergonomics guidelines and standards** aim at fitting them to the wide range of users (to almost all, as far as reasonable), and so being to the workers of all ages.
- A particular **methodology of ergonomics, participatory ergonomics**, aims at listening to the workers at the workplace, and taking their needs and wishes delicately into account as far as possible. So being, when done in the correct way, it has a potential to tackle even the most sensitive issues of aging workers.
- As a general notion, however, **application of ergonomics in the enterprises is still far from fulfillment** of this optimistic view. Therefore, it is now more important than ever to **develop the ergonomic quality of the workplaces** for the workers of all ages, and ultimately, to ensure healthy aging.

And not to forget the overall benefits for the work organization...

By application of ergonomics in workplace design, the healthy working conditions as well as the performance of the entire work organization can be ensured.

To summarise, the following outcomes can be achieved:

- Lower rate of **accidents** and fewer **sickness absences**
- Lower **staff turnover**, longer **working careers**
- Better **motivation and commitment** of the workers, higher use of their **skills**
- Less **disturbances and losses** in production due to human error
- More **fluent operation** and better **quality** of production, better **productivity**
- Higher **competitiveness** of the organization on the **market**

Ergonomics in workplace design: good for health and good for business!

Experiences of the EME 2016-2017

- Following the **EME 2016-2017**, please gather information on the actions related to the EME (events, articles, initiatives, etc.) that took place in your country
- This information will be used to develop future EME campaigns and, to share your experiences amongst the national societies of the FEES
- **PLEASE REPORT** this information to the Communication and Promotion Committee of the FEES, via
Martti Launis, e-mail: martti.launis@gmail.com

This presentation has been prepared as **supportive material** for use in lectures, training events, seminars or written articles for dissemination of the message of the **EME** by the national member societies of the **FEES**. It is recommended that this presentation is translated into the local language and, if needed, modified to local circumstances, e.g. enlarged or shortened, added by own examples and illustrations, etc.

Thank you

Let us work together for creating workplaces for all ages – ergonomists together with other OHS specialists and with the people at work!

Let us show the role and potential of ERGONOMICS in such development!

Thank you for your interest!

The FEES-campaign European Month of Ergonomics to promote ergonomics in Europe

FEES – Federation of European Ergonomics Societies
www.ergonomics-fees.eu