

**Hungarian Ergonomic Society  
Ergonomics Sub-committee of the  
Hungarian Academy of Sciences  
European Conference on  
Applied Ergonomics**



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# Ergonomics Development in Latvia

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Latvian Ergonomics Society

# History of Ergonomics in Latvia

- Ergonomics in Latvia is relatively new field for practical work and science investigations.
- Words “*ergonomics*” and “*human factors*” in Latvia become more recognized after the collapse of the Soviet Union from 1991 and after joining the European Union in 2004.

- Formerly in Latvia practical work and researches related to human factors took place in the field of *occupational hygien*, *work physiology and psychophysiology*.
- Labour protection specialists, medical doctors in occupational health at the enterprises promote supervision in industrial hygiene.

# Ergonomics - study subject (1)

- Ergonomics as separate study subject has been lectured in Latvia University of Agriculture since early 1990<sup>ties</sup> in the full-time and part-time study programs of woodworking and forest exploitation.
- Basics of Ergonomics are lectured for medicine students in Riga Stradins University from 1996.
- At the *University of Latvia* ergonomics as study subject exist since 2004 and at the *Riga Technical University* – from 2006 in master degree professional educational programmes “Work Environment Protection and Expertise”.

## Ergonomics - study subject (2)

- Investigations in school ergonomics are carried out in *Riga Teacher Training and Educational Management Academy*
- In 2007 Ergonomics Research Center has been established at the University of Latvia (*leader prof. Valdis Kalkis*).

# Ergonomics training areas and content (1)

## I. Modules for key areas (University of Latvia)

**Professional studies course in the ergonomics direction includes various modules for key areas (readings):**

- Ergonomics – science on relationships between a human and his/her work.
- Importance of work physiology for ergonomics.
- Importance of anthropometry and biomechanics for ergonomics.
- Physical ergonomics. Cognitive ergonomics. Organization ergonomics. Computer ergonomics. Participatory ergonomics.
- Work strain. Violence at work. Mobbing and bossing.
- Preventive measures to eliminate ergonomics risks.

# Ergonomics training areas and content (2)

## II. Ergonomics risk assessment (methods and tools)

Different ergonomic risk assessment methods in lectures were discussed and used as training tools in seminars:

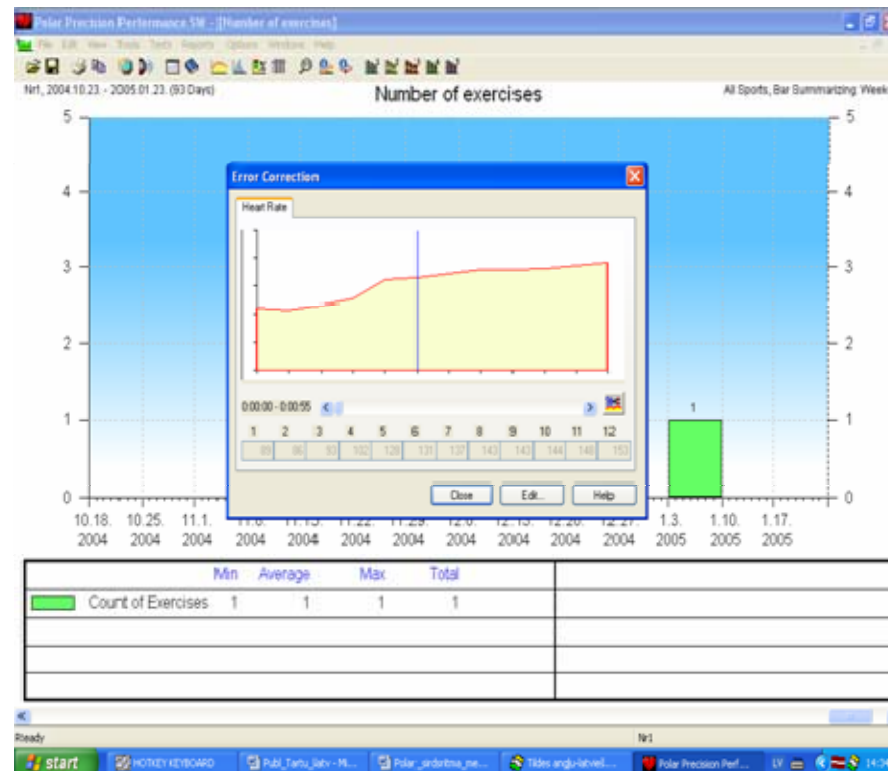
- **Key Item Method** (Germany) – risk assessment on the screening level in case of manual handling of loads: lifting, holding, carrying, and pulling, pushing;
- **Manual Handling Assessment Charts** (United Kingdom);
- **Ergonomic Workplace Analysis** (Finland);
- **Quick Exposure Check** (USA) – this tool is used to assess exposure to ergonomic hazards.
- **Ovako Working Posture Analysis System** – OWAS (Finland);
- **Rapid Upper Limb Assessment** – RULA (United Kingdom);
- **Rapid Entire Body Assessment** – REBA (United Kingdom);
- **The Revised NIOSH Lifting Equation** (USA);
- **NASA-TLX (Task Load Index)**(USA) – method for assessment of interaction of physical and mental workload;
- **Software:** WinOwas, ErgoEaser, Ergo-Intelligence (includes RULA, REBA, Strain Index, HumanCad, ErgoImager, ErgoMaster), HSE Fatigue Index, WorkPace Persona;
- Other methods



# Ergonomics training areas and content (3)

## III. Experimental/clinical evaluation methods

- Heart rate monitoring and measuring of metabolic energy (kcal/min) to determine the work ability and degree of work hardness



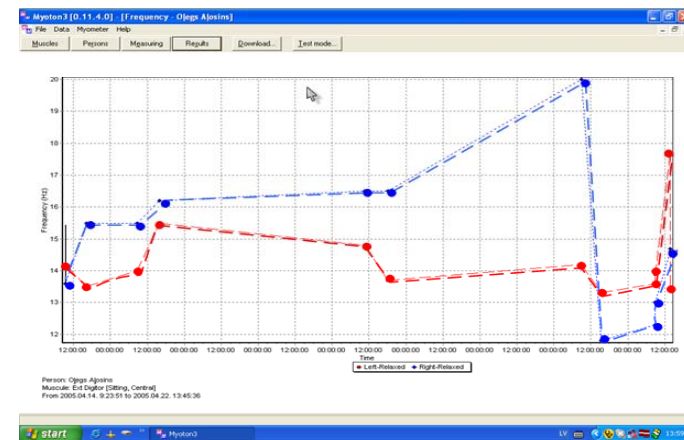


# Ergonomics training areas and content (4)

## III. Experimental/clinical evaluation methods

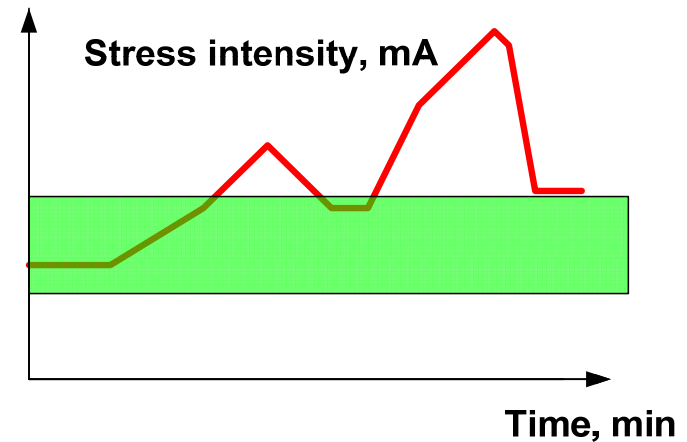
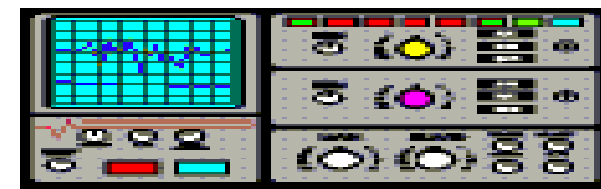
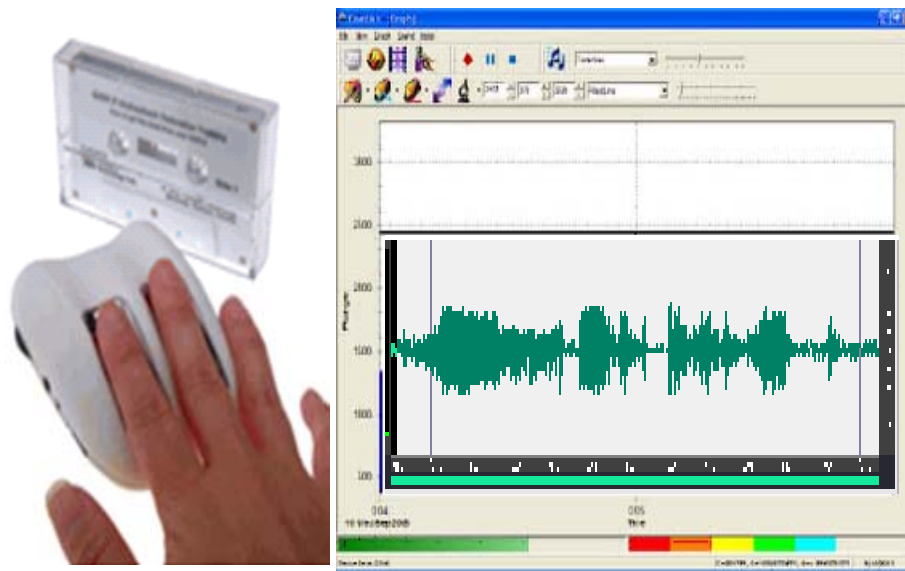
### Myotonometry (MYO)

- Assessment of the functional state of skeletal muscles and muscle fatigue using myotonometric measurements with the MYOTON-3 device - *determination of the muscles stiffness [N/m] and contraction frequency [Hz].*



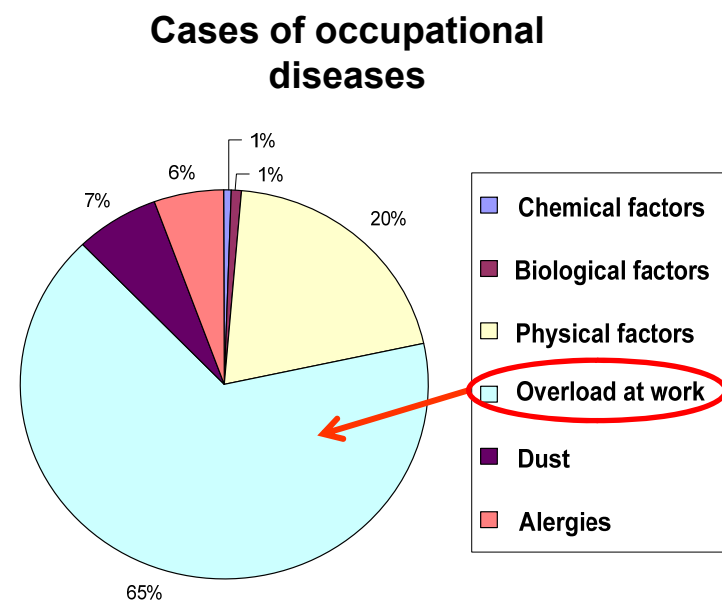
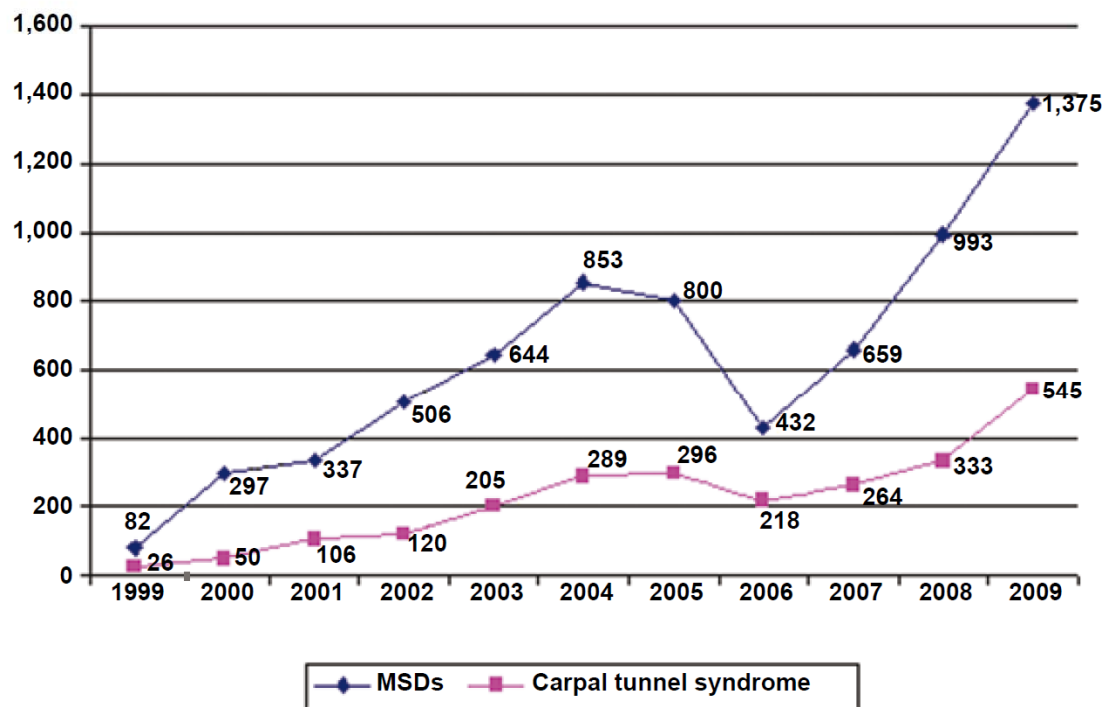
# Ergonomics training areas and content (5)

Stress and workload intensity monitoring using *Calmlink Biofeedback GSR2* device



# Ergonomics problems

Research topics mainly are connected with physical load ergonomics because, in recent years in Latvia rapidly increases occupational diseases connected with WRMSD



- It can be explained with work processes containing hard manual handling, compulsory work postures, inappropriate workplaces, frequently workers agree to work without contracts a.o.
- At the same time regardless of scientific ergonomics initiatives Latvian employers and employees lack information about the influence and the consequences of ergonomics risks on health, and the interaction with whole organizational productivity and wellbeing.

# WHY WE DECIDED TO ESTABLISH

## Latvian Ergonomics Society

- In order to promote education of employers and employees in ergonomic and taking into account the scientific research results and other countries experience a small scientists group from University of Latvia and Riga Teacher Training and Educational Management Academy and some Labour Protection Specialists decided to gather confederates to establish Latvian Ergonomics Society.



# **LATVIAN ERGONOMICS SOCIETY (LES)**

- **LATVIAN ERGONOMICS SOCIETY** promotes ergonomics in Latvia.
- Society founded on 29th of August 2006 and for the moment we have 60 sustainable members, incl. 7 organisations.



# LATVIAN ERGONOMICS SOCIETY (LES)

## **SOCIETY members are:**

- occupational health and safety experts,
- enterprise managers,
- occupational health medical doctors,
- scientists in different sciences,
- University`s academic personnel and students
- Designers, architects and others.

LES unifies specialists from many branches.

**MISSION:** LES promotes ergonomics scientific and practical development in Latvia to improve work and life quality.



# LATVIAN ERGONOMICS SOCIETY BOARD

LES President: **Zenija Roja**, MD, PhD, as.professor.

Board members:

- **Henrijs Kalkis**, PhD in manag.sc., lecturer ([public relations](#))
- **Valdis Kalkis**, PhD., Dr.habil.chem., professor ([science, research, investigations](#))
- **Jolanta Gedusa**, MSc. ([relations with government institutions](#))
- **Ričards Balnass**, Mg.labour protection ([public relations](#))
- **Aiga Cedere**, Dipl. Spec. Work Environment Protection and Expertise ([public relations](#))
- **Nelliņa Dziedatāja**, Architect, Mg.labour protection ([relations with organisations](#))



# LATVIAN ERGONOMICS SOCIETY collaboration partners in Latvia:

- UNIVERSITY OF LATVIA
- RIGA TECHNICAL UNIVERSITY
- RIGA STRADINS UNIVERSITY
- Latvian occupational health physician society
- Occupational safety specialists society
- Latvian Design society



# LATVIAN ERGONOMICS SOCIETY collaboration partners:

- Nordic Ergonomics Society (NES),
- International Ergonomics Association (IEA),
- Federation of European Ergonomics Societies (FEES),
- Tartu University,
- Pennsylvania State University,
- A-MED BHT Occupational Health Service (Oslo)





# Main achievements (1)

- Many of our members are participating in ergonomics conferences and congresses (*Maastricht 2006, Poland 2007, Las Vegas 2008, Beijing 2009, Denmark 2009, Miami 2010, Norway 2010, San Francisco 2012, a.o.*).
- Participated in international exhibition “*Safe Work 2007*”, “*Safe work 2008*”
- We have published:
  - ❑ **booklets, information leaflets** (distributed in international exhibitions, seminars, conferences):
    - *Participatory ergonomics (2012)*
    - *Occupational Ergonomics - Human and Work (2010)*
    - *Back pain? Ergonomics will help you. (2007)*
    - *VDT ergonomics (2007)*
    - *Stress and violence at work (2006)*
  - ❑ **books:**
    - Roja Z. *Glimpse in Ergonomics (2008)*, 190 p.
    - Kalkis V. *Methods of Risk Assessment in Work Environment (2008)*, 245 p.
  - ❑ **guidelines published in website** [www.ergonomika.lv](http://www.ergonomika.lv)
- LES members are working in science research (local and international publications, conferences, congresses)



## Main achievements (2)

- **2011 the first International Conference on “*Contemporary Ergonomics and Business 2011*” in Riga, October**
- seminars and lectures at the Universities, enterprises and for our members.
- LES has legal status of Scientific institution since 2008.
- LES in 2011 obtained the non-governmental organisation status in such disciplines:
  - society development
  - promotion of education
  - science promotion
- LES - member of IEA in 2008
- LES - member of FEES in 2010



# Conclusions

- In Latvia there is no such profession “*ergonomist*”
- In Latvia Ergonomics as scientific discipline is on development study
- During risk assessment at the workplaces there is not enough attention paid to assess ergonomics risks
- There is no training provided at the workplaces in ergonomics, like proper work methods, work-postures, workplace ergonomics design a.o.
- Not sufficient collaboration between governmental and non-governmental institutions
- The lack of training in health promotion at the workplaces (physical activities, activities promoting faster back to work after occupational diseases or accidents, for workers suffering from chronic and subchronic pain, after violence at the workplace)



# Conclusions

## **The challenge for ergonomics development in Latvia is:**

- to continue education about the significance of ergonomics and promote understanding about benefits of ergonomics coherence with productivity and wellbeing among Latvian society, including employers and employees.
- Additional attention is required to intensify the involvement of governmental institutions supporting ergonomics evolution.

THANK YOU  
FOR  
ATTENTION!

More information about  
Latvian ergonomics Society  
can be found on website:

[www.ergonomika.lv](http://www.ergonomika.lv)