

Effects of flexible and long working hours

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Why do we have to deal with these issues ?

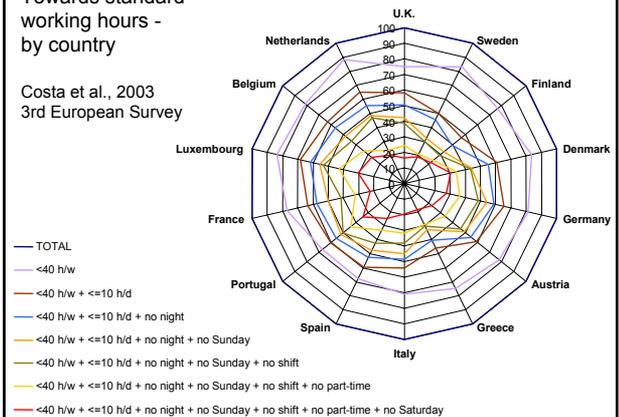
- there is an increasing request from employers (and governments) for longer and (more) flexible working hours, with regard to
 - daily,
 - weekly
 - monthly
 - yearly
 - life time working time
- i.e. a move from standard working hours towards non-standard working hours

Why do we have to deal with these issues ?

- The revision of the European Directive on working time shows an intention to react to these request, by
 - increasing the number of max. working hours per week to 65
 - extending the periods for balancing working times to one year
 - offering the possibility for workers to opt out

Towards standard working hours - by country

Costa et al., 2003
3rd European Survey



Why non-standard working hours ?

- there is a clear trend towards non-standard working hours
- non-standard working hours are already the standard, at least within the EU
- we will face an increasing development towards non-standard working hours
- where shift-work is merely one special case of the problem – although an important one

But what are the effects of non-standard working hours for workers ?

- their safety
- health
- and well-being

How acceptable are such working hours ? - from an ergonomics point of view -

Ergonomics criteria

- task must be executable
- must not lead to damages or disorders to health
- must not lead to impairments
- should support personal development

Indicators

- Accidents
- Health
- Physical and psychosocial impairments

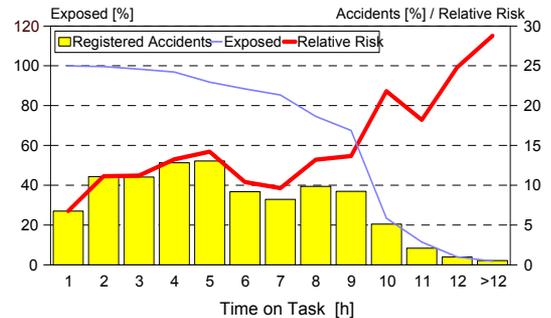
Topics of this presentation

- extended or long working hours
 - (shift work)
 - flexible work hours
 - safety
 - health
 - psychosocial effects
- productivity**

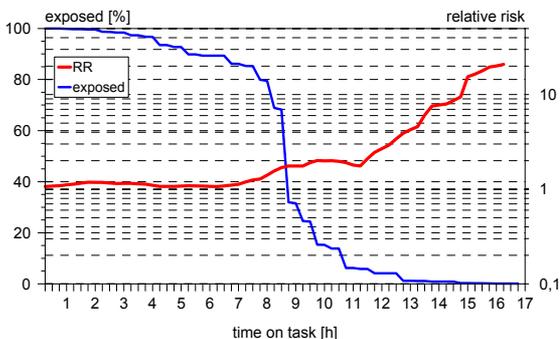
Accidents

Accident Risk by Time on Task

Registered Accidents 1994 - 1997 (FRG, HVBG)

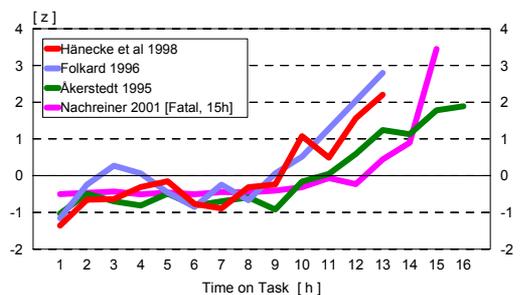


Relative risk of fatal accidents as a function of time on task

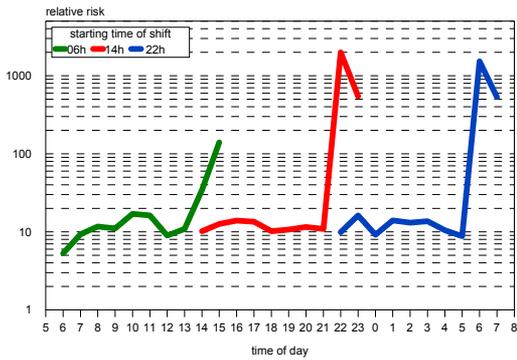


Accident Risk as a Function of time on Task

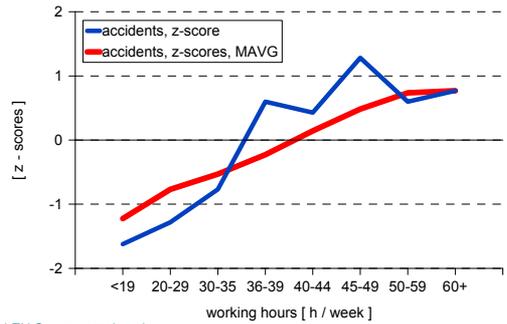
Results from four Studies using Aggregated Data



Accident risk as a function of time on task and time of day



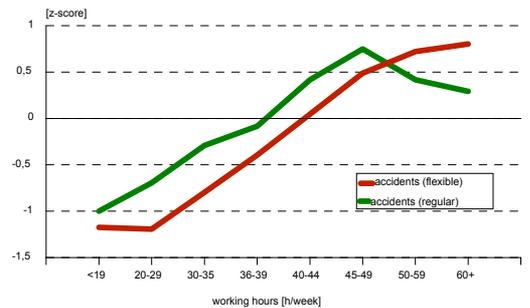
Reported days lost due to accidents



Accidents and flexible working hours

- Not much known !
- Perhaps worth while looking at some of the European data

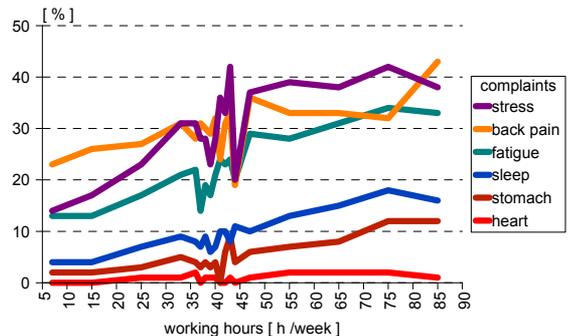
Reported days lost due to work related accidents as a function of the number and flexibility of working hours



Health effects

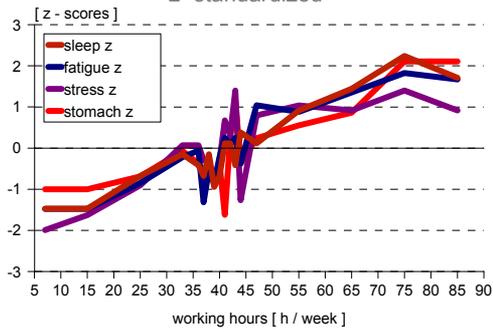
- of extended working hours
- of flexible work hours
- (of shift work)
- and some combinations

Frequencies of health complaints as a function of working hours per week



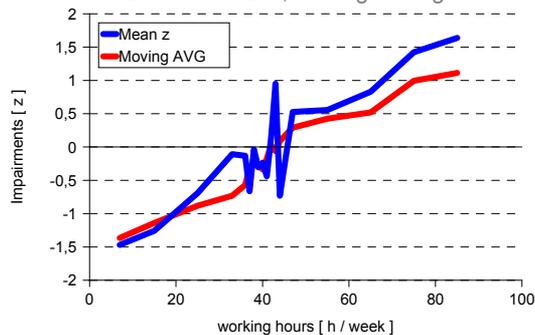
Frequencies of health complaints as a function of working hours per week

z- standardized



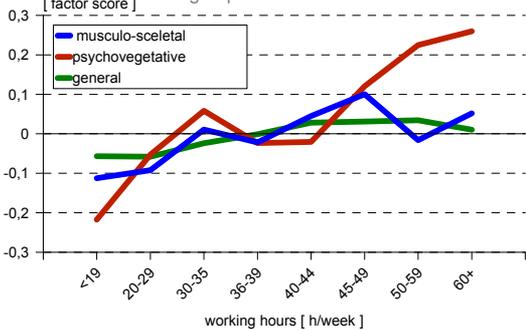
Frequencies of health complaints as a function of working hours per week

z- standardized, moving average



Health complaints as a function of working hours

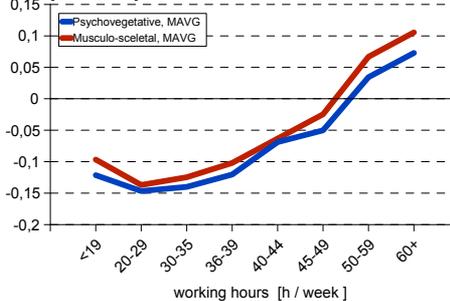
groups of disorders



3rd European Survey, 2000, employed workers

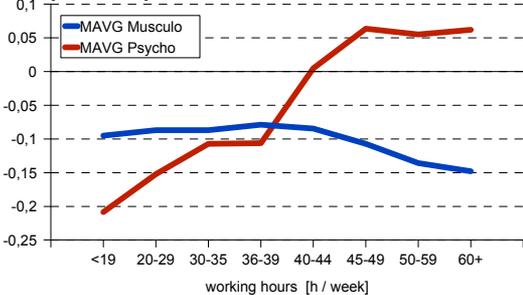
Complaints as a function of working hours - Germany

[factor score]



Complaints as a function of working hours (NL)

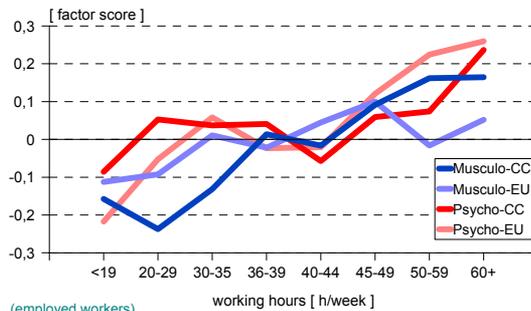
[Factor scores]



employed workers

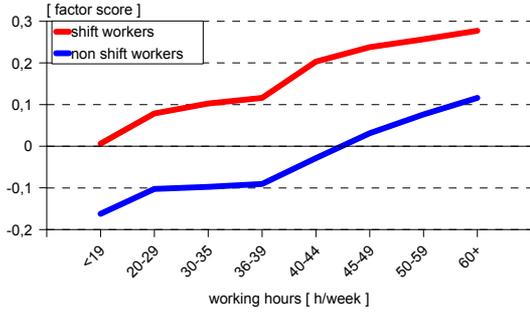
Comparing EU and CC Trends

Musculo-skeletal and psychovegetative disorders



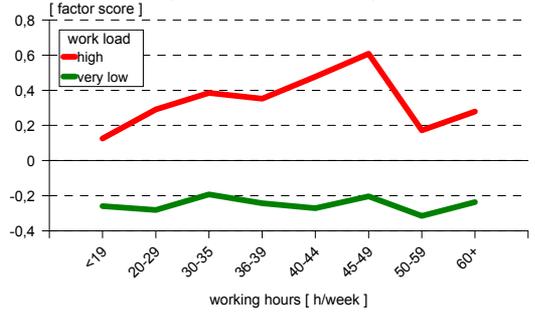
(employed workers)

Psychovegetative complaints as a function of working hours and shift work

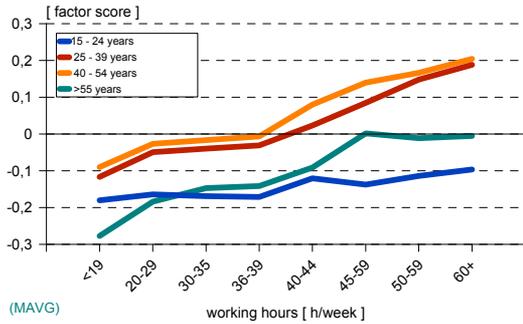


Musculo-skeletal disorders as a function of working hours and environmental work load

(noise, vibrations, etc)

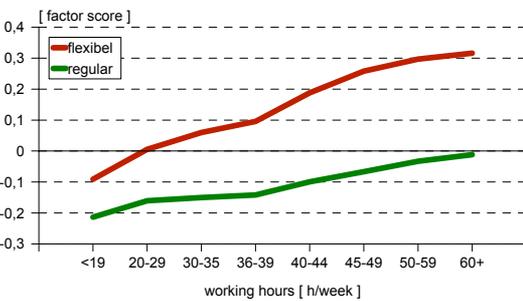


Psychovegetative complaints and working hours by age group

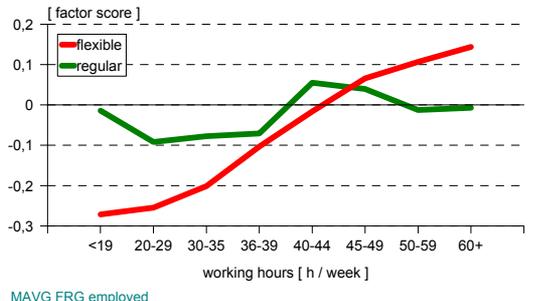


Flexible work hours

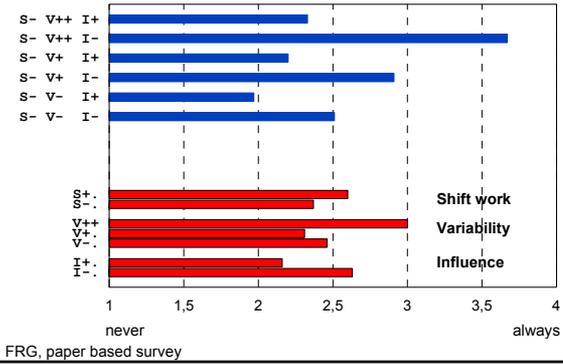
Psychovegetative complaints by number and flexibility of working hours



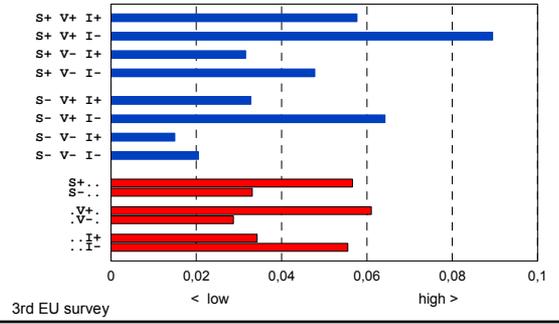
Musculoskeletal disorders by number and flexibility of working hours



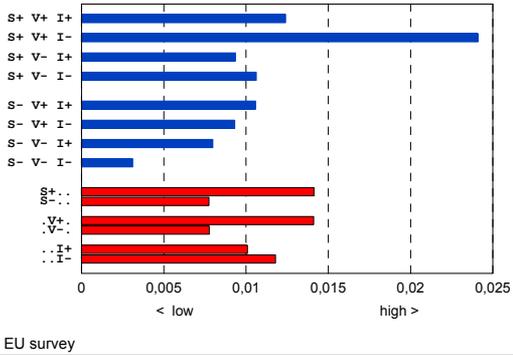
Sleep problems under different kinds of flexible work hours



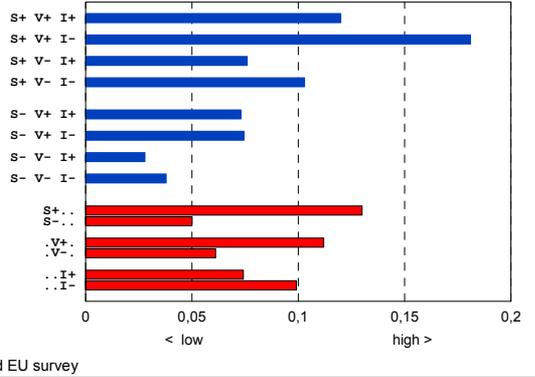
Digestive problems under flexible work hours Stomach



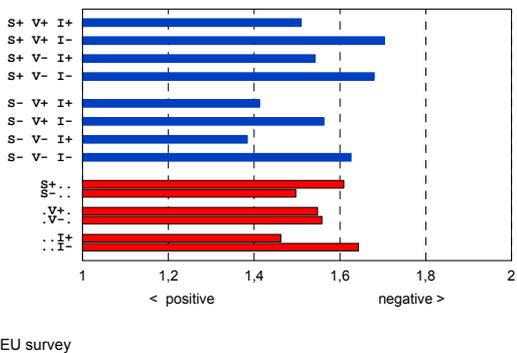
Heart Disease



Sleeping problems

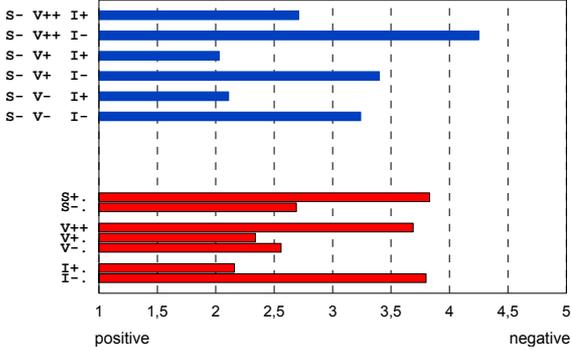


Ability to do the same job at the age of 60



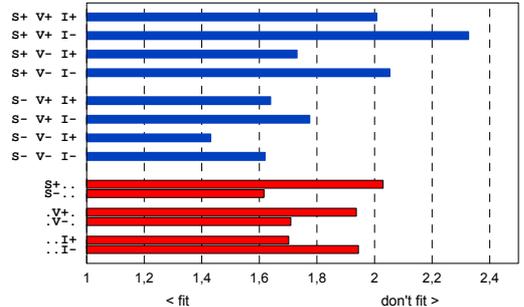
Psychosocial impairments

Effects on leisure activities



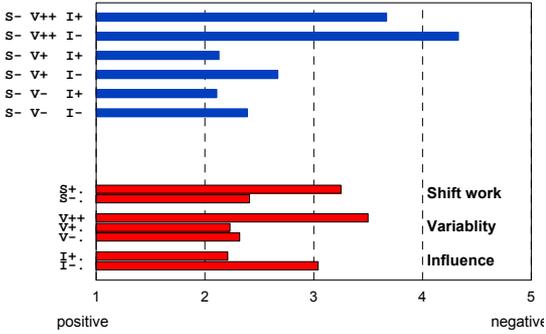
FRG, Internet survey

Hours fit in with family and social life



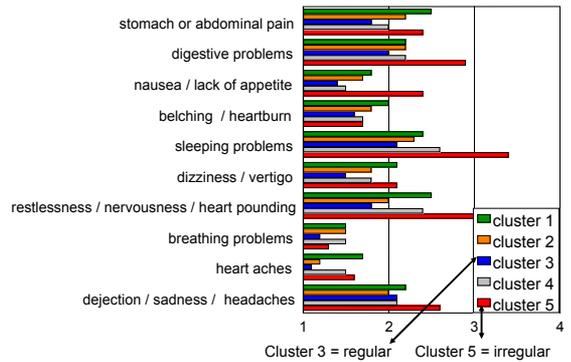
3rd EU survey

Effects of the working time arrangement on leisure time

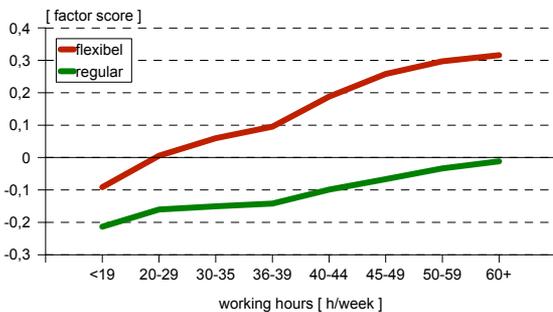


FRG, paper based

Effects of the regularity of flexible work hours

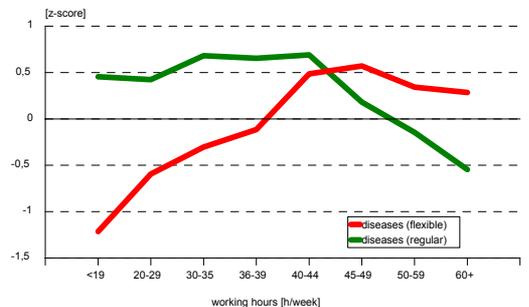


Psychovegetative complaints by number and flexibility of working hours



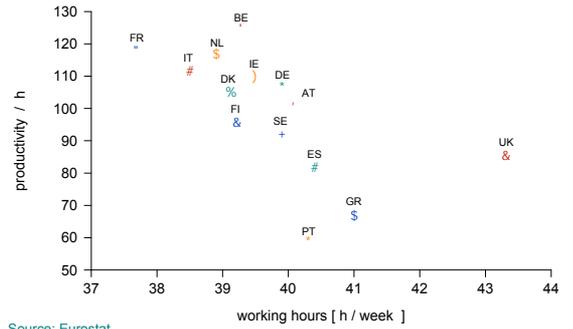
MAVG EU Employed

Reported days lost due to work related diseases as a function of the number and flexibility of working hours



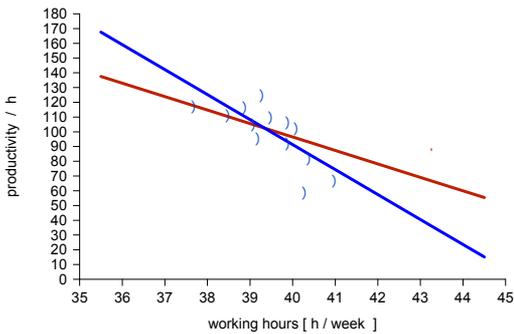
Productivity

Working hours and productivity in the EU



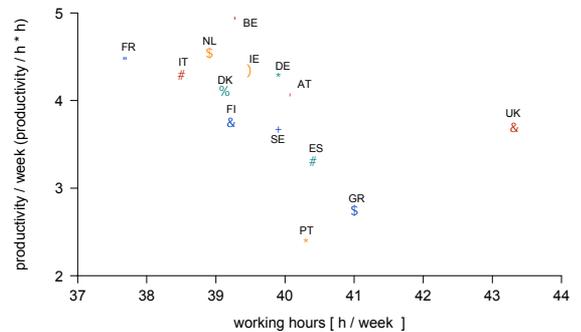
Source: Eurostat

Working hours and productivity in the EU

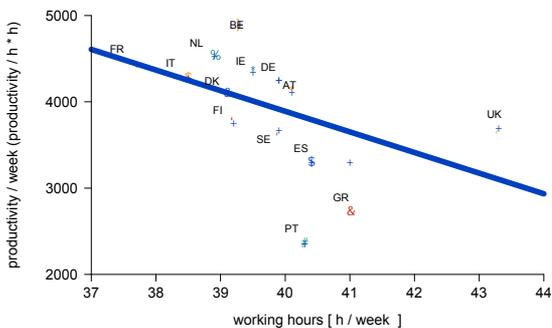


Source: Eurostat

Working hours and productivity in the EU



Working hours and productivity in the EU



Conclusions

- Non-standard working hours are already the standard
- Non-standard working hours increase the risk of safety, health and psychosocial impairments
- Some of the mechanisms for these detrimental effects are well known and / or can be derived from theory,
 - e.g. via biological and social desynchronization

Conclusions (2)

- It is important to transfer the available knowledge into occupational safety & health practice
- It is important to transfer this knowledge to the (social) political parties involved
- It is important to develop political and shop floor strategies to avoid the adverse effects of non-standard working hours

Conclusions (3)

Besides applying the available evidence

- more research is needed on the theoretical background of these impairments
- more research is needed on effective intervention strategies, based on empirical evidence on the mechanisms of the effects of working time
 - its chronometry, chronology, and dynamics – on human well being **and** economic efficiency

***Thank you
for your attention !***

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<http://www.gawo-ev.de>