

## Effects of flexible and long working hours

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## Why do we have to deal with these issues ?

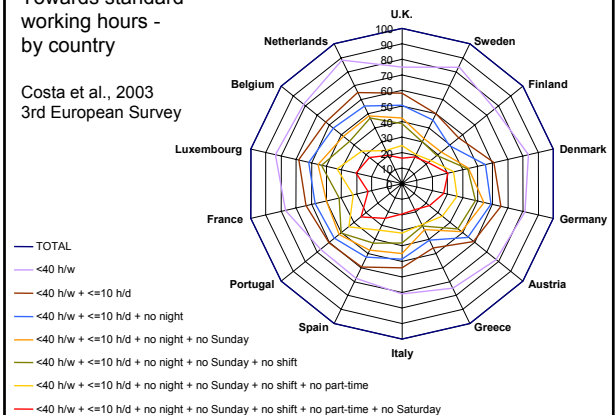
- there is an increasing request from employers (and governments) for longer and (more) flexible working hours, with regard to
  - daily,
  - weekly
  - monthly
  - yearly
  - life time working time
- i.e. a move from standard working hours towards non-standard working hours

## 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

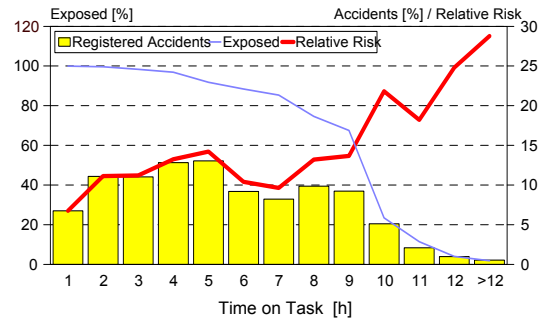
## Topics of this presentation

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

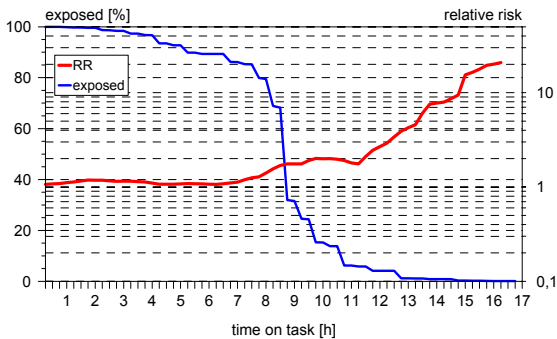
## Accidents

### Accident Risk by Time on Task

Registered Accidents 1994 - 1997 (FRG, HVBG)

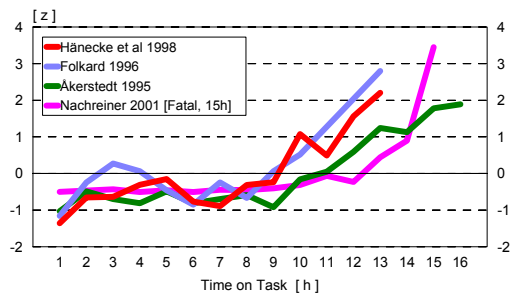


### Relative risk of fatal accidents as a function of time on task

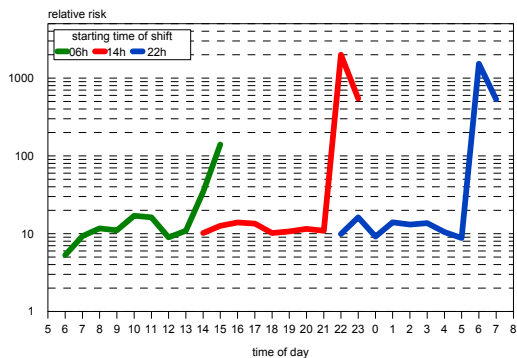


### Accident Risk as a Function of time on Task

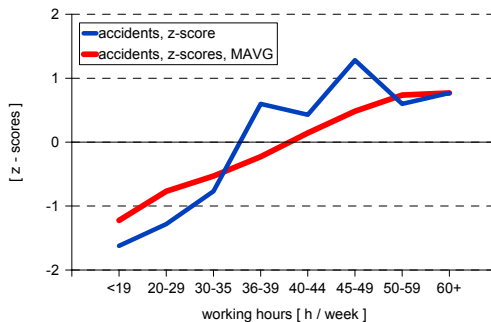
Results from four Studies using Aggregated Data



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



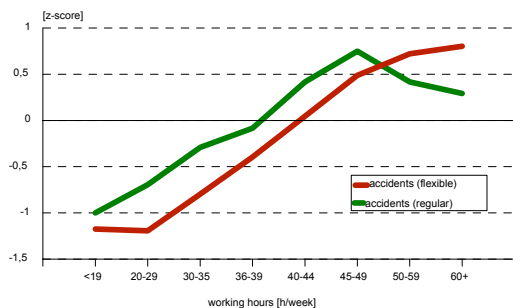
### Reported days lost due to accidents



### Accidents and flexible working hours

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

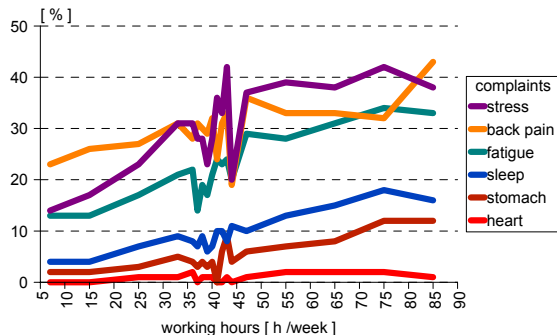
### Reported days lost due to work related accidents as a function of the number and flexibility of working hours



### Health effects

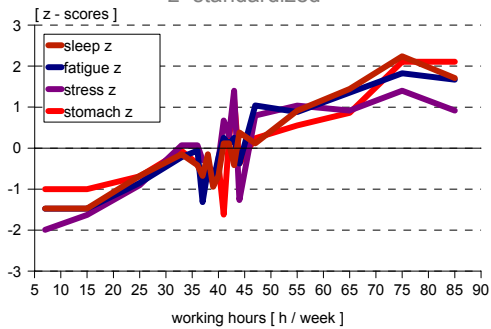
- of extended working hours
- of flexible work hours
- ( of shift work )
- and some combinations

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



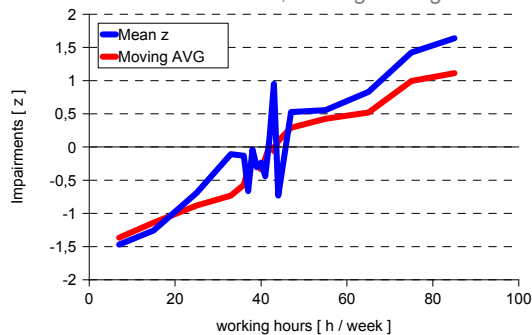
### Frequencies of health complaints as a function of working hours per week

z- standardized



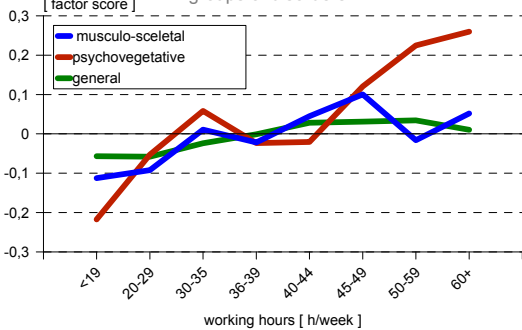
### Frequencies of health complaints as a function of working hours per week

z- standardized, moving average



### Health complaints as a function of working hours

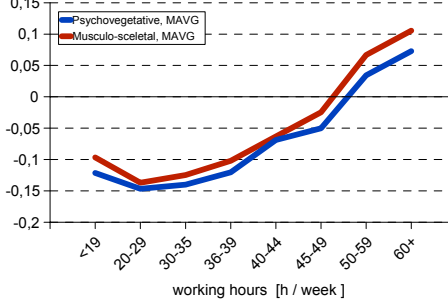
groups of disorders



3rd European Survey, 2000, employed workers

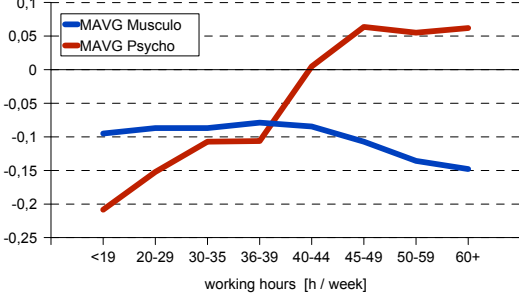
### Complaints as a function of working hours - Germany

[factor score]



### Complaints as a function of working hours (NL)

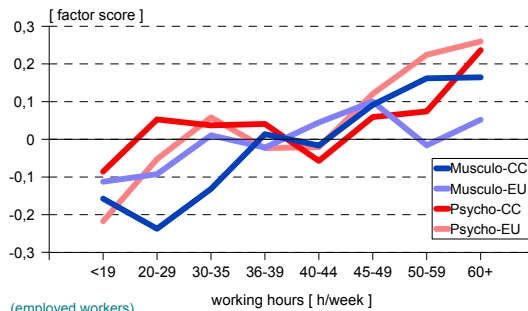
[Factor scores]



employed workers

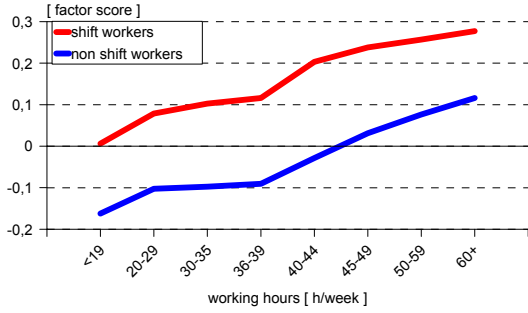
### Comparing EU und CC Trends

Musculo-skeletal and psychovegetative disorders



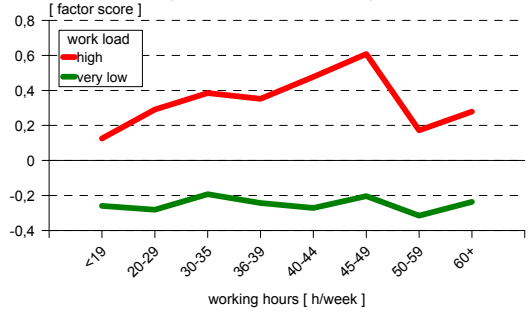
(employed workers)

### Psychovegetative complaints as a function of working hours and shift work

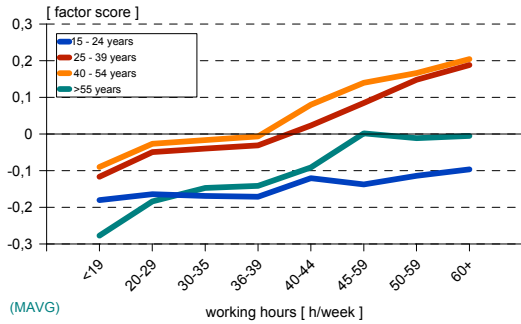


### Musculo-skeletal disorders as a function of working hours and environmental work load

(noise, vibrations, etc)

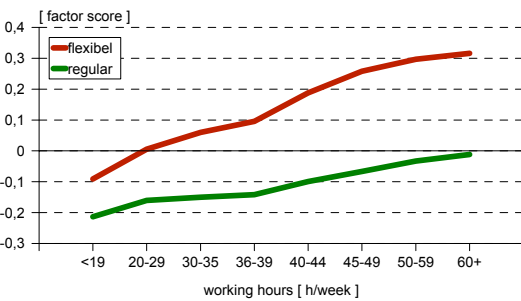


### Psychovegetative complaints and working hours by age group

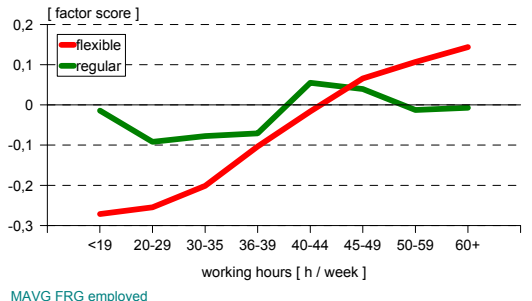


## Flexible work hours

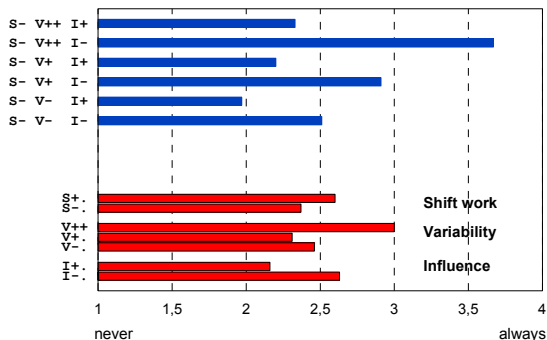
### Psychovegetative complaints by number and flexibility of working hours



### Musculoskeletal disorders by number and flexibility of working hours



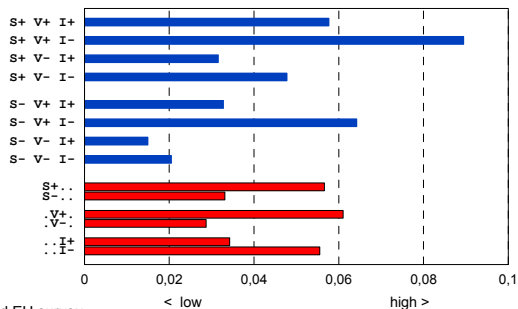
### Sleep problems under different kinds of flexible work hours



FRG, paper based survey

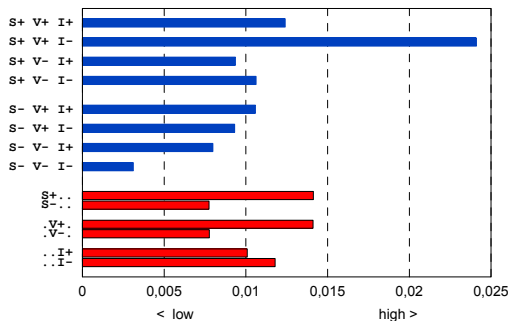
### Digestive problems under flexible work hours

#### Stomach



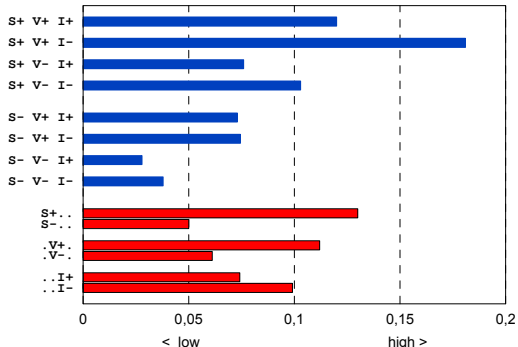
3rd EU survey

### Heart Disease



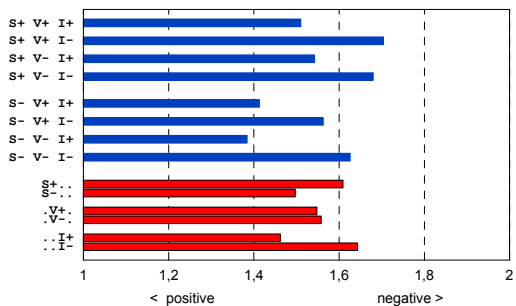
3rd EU survey

### Sleeping problems



3rd EU survey

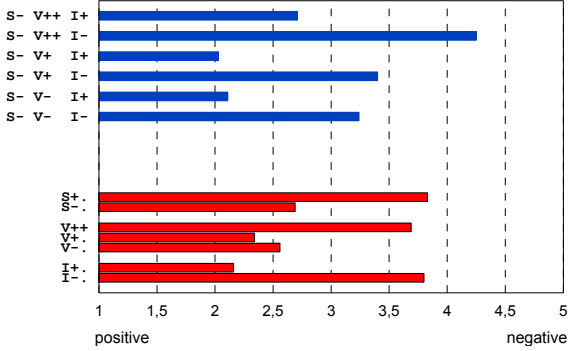
### Ability to do the same job at the age of 60



3rd EU survey

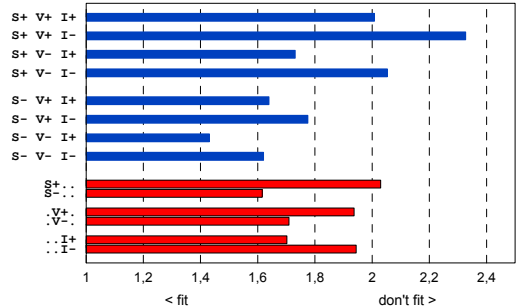
### Psychosocial impairments

### Effects on leisure activities



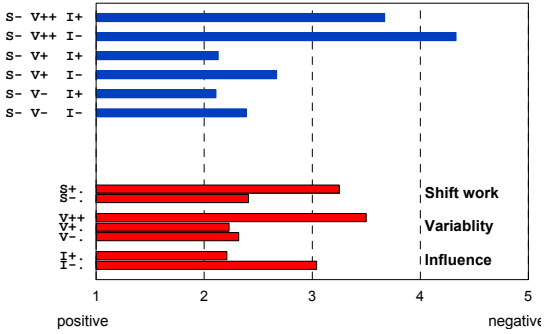
FRG, Internet survey

### Hours fit in with family and social life



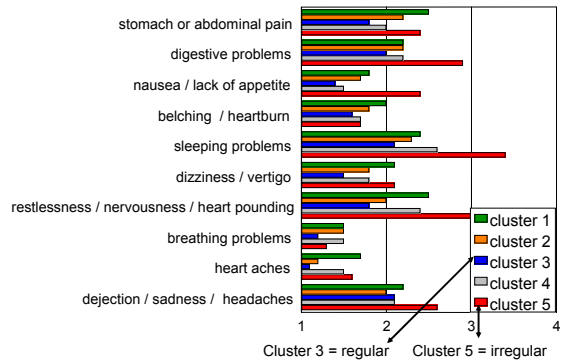
3rd EU survey

### Effects of the working time arrangement on leisure time

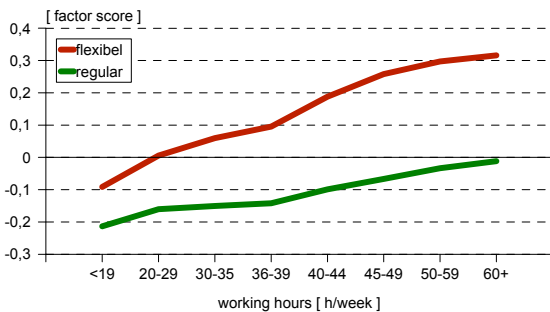


FRG, paper based

### Effects of the regularity of flexible work hours

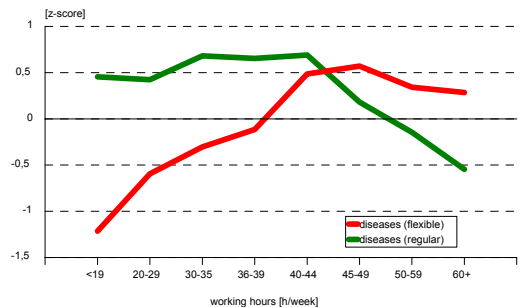


### Psychovegetative complaints by number and flexibility of working hours



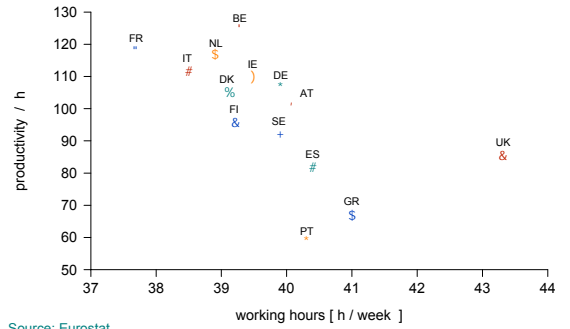
MAVG EU Employed

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

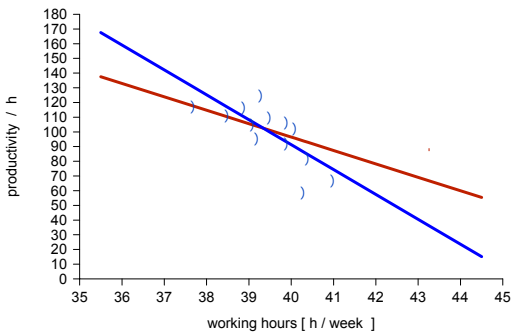


# Productivity

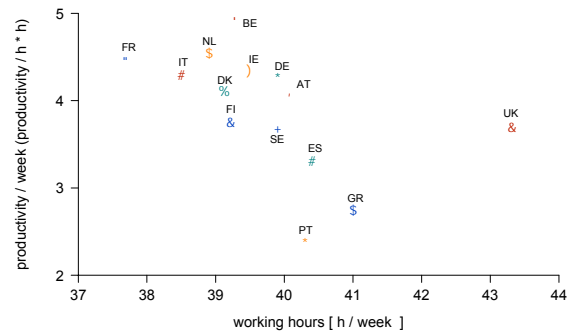
## Working hours and productivity in the EU



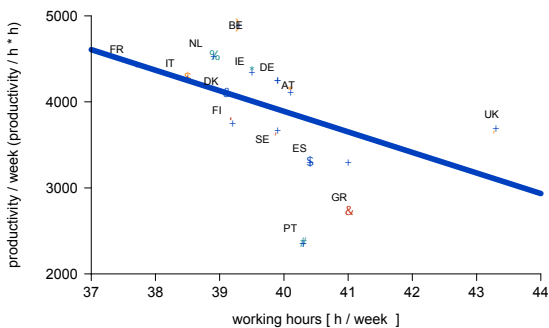
## Working hours and productivity in the EU



## 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 !***

for more information contact

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