

Well-being through work



**Finnish Institute of
Occupational Health**



Experiences in Physiological Stress Assessment Studies of the Finnish Institute of Occupational Health (FIOH)

Harri Lindholm, MD, PhD, FIOH

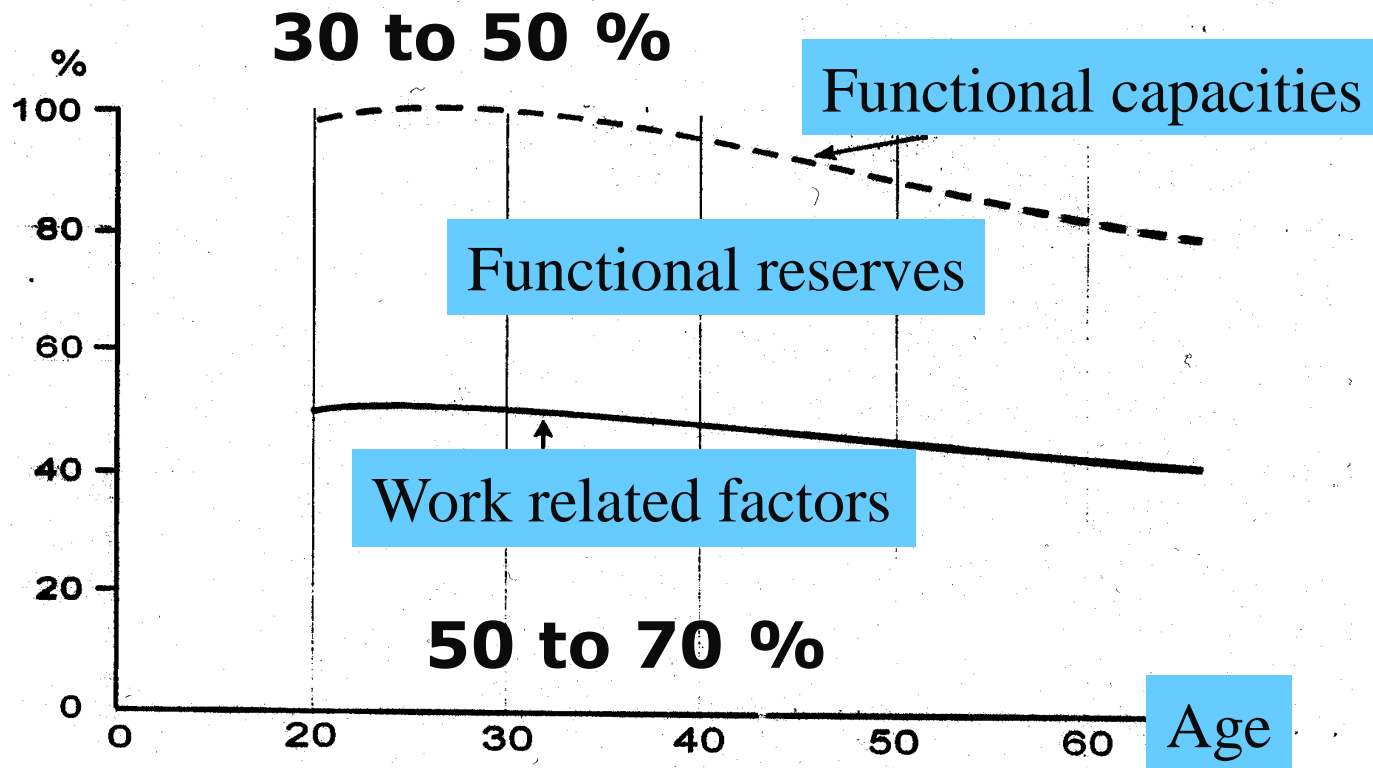


- First measurements in laboratory in the nineteen eighties
- First recordings of physical and mental work strain with Holter devices in the nineteen eighties
- First measurements of physical and mental work strain with pulse recorders in real-life settings in the year 1990
- Co-operation with Firstbeat from the year 2004

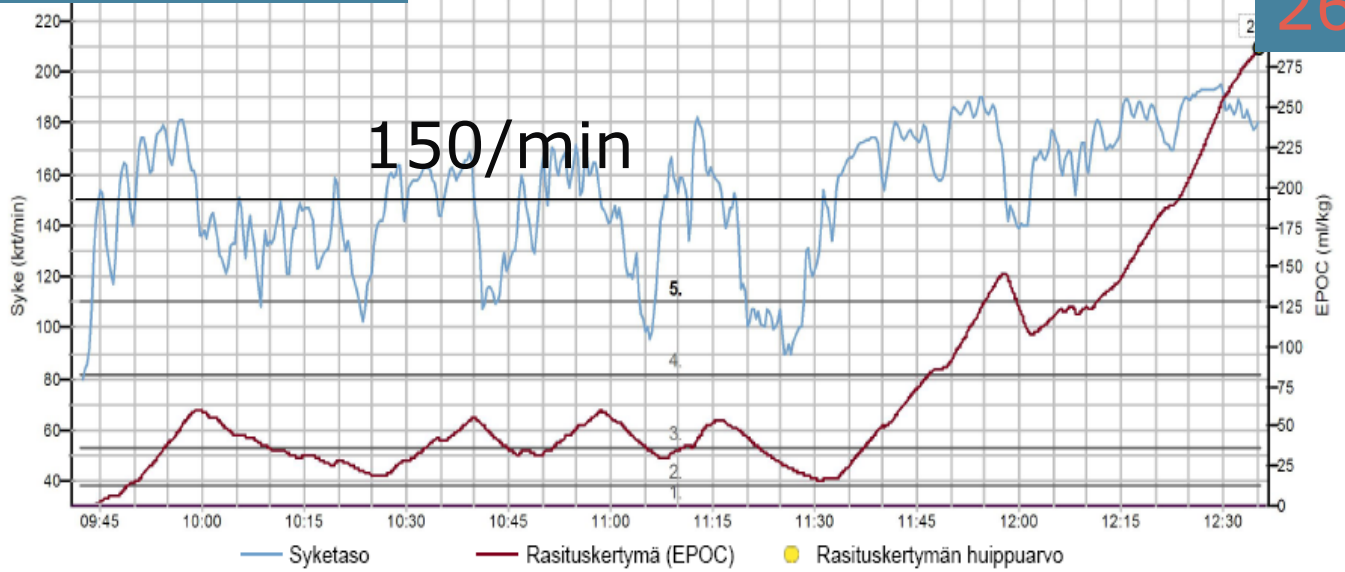
Examples of evaluated occupations

- ICT workers, media workers, civil servants, professional players in electronic sports and games
- Nurses, social workers, physicians
- Pole workers,, workers in traffic (railway, bus, truck drivers, seafarers), forestry workers, cleaning work
- Industrial workers: shipyards, papermills, workers in food production
- Safety workers: firefighters, police officers, soldiers, peacekeepers
- Artists: musicians (from classic to rock), actors, writers
- Top leaders in public and private sector
- Children (school, preschool)

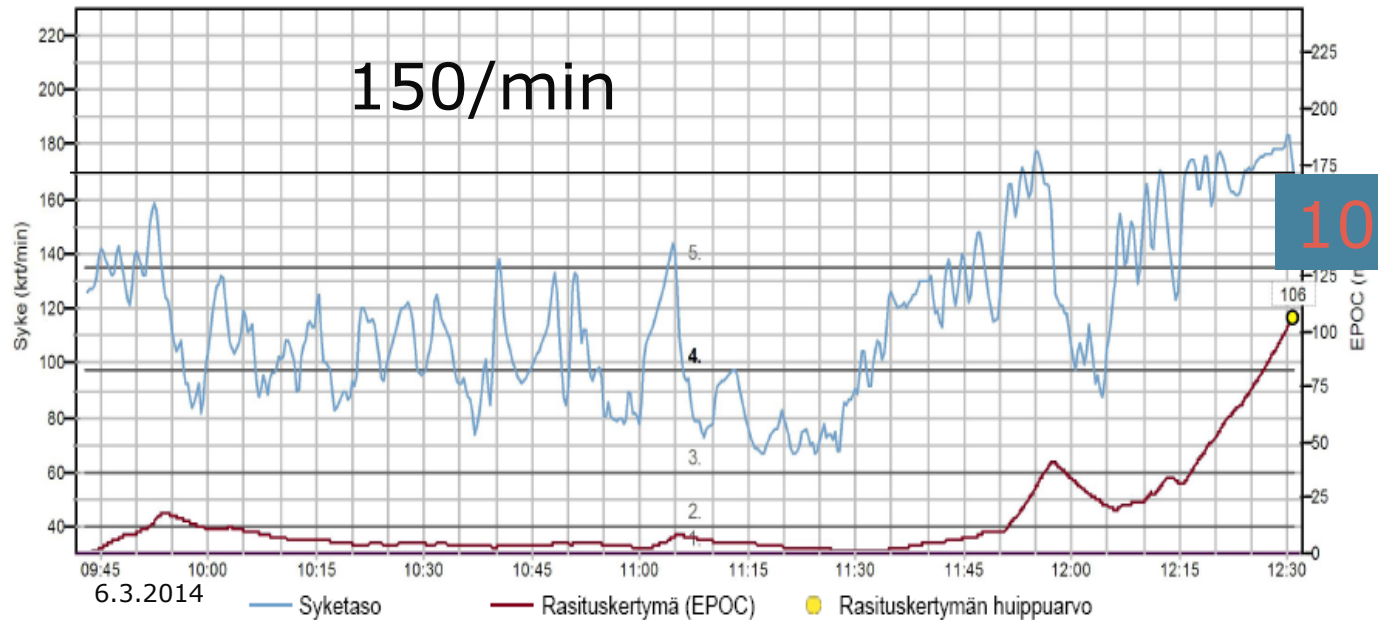
Management of work demands or increase in functional capacity or both?



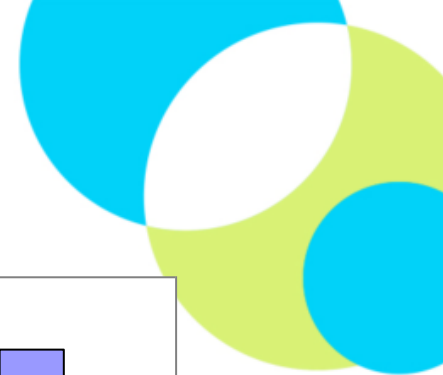
Strain



Strain

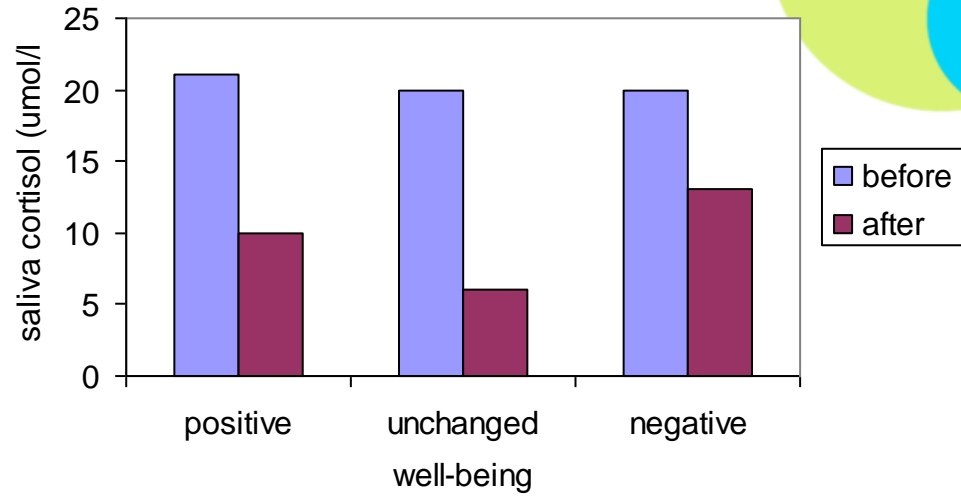


Ilmarinen,
Lindholm, Mäkinen
et al, 2007

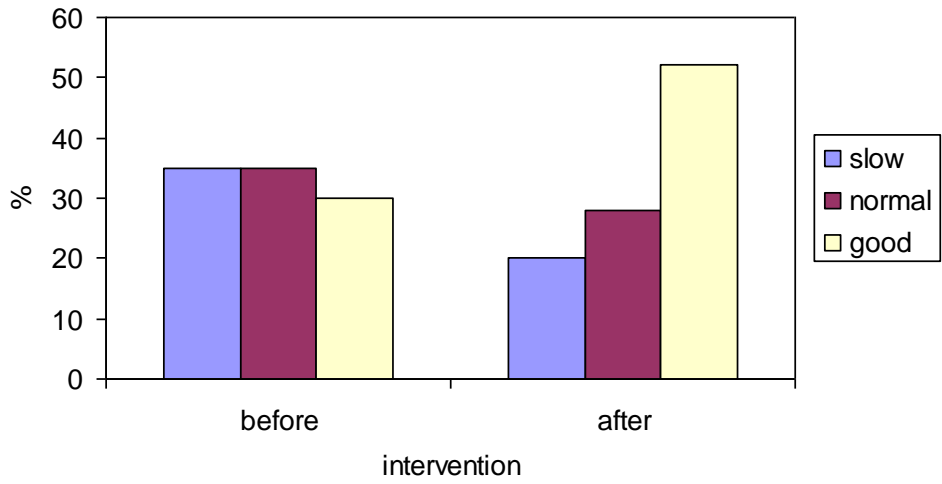


Effect of work shift change among the nurses

Change ($\mu\text{mol/l}$) of saliva cortisol morning response before and after intervention (one year follow-up) in employees experiencing the change in well-being positive, unchanged, or negative.

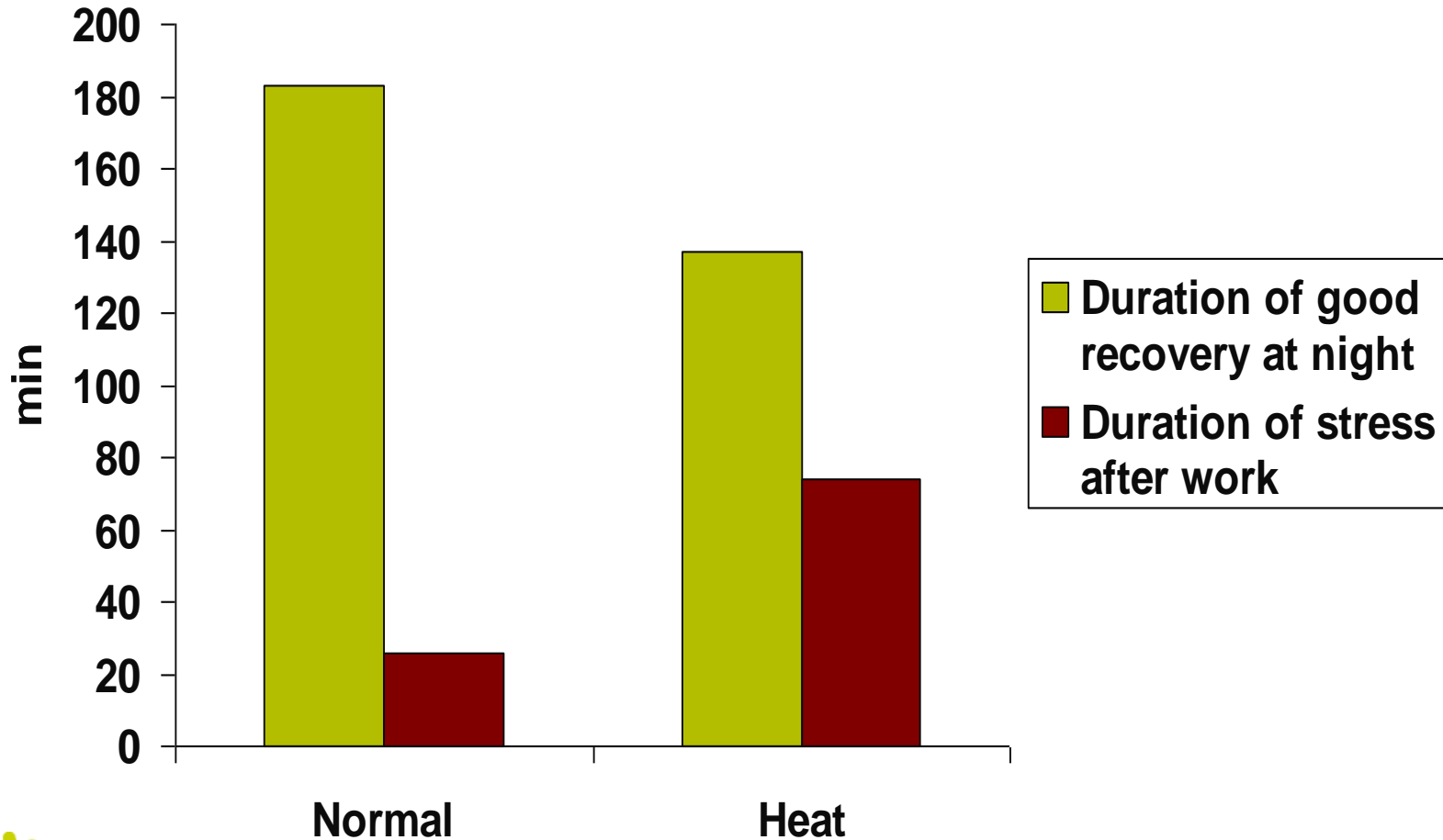


Recovery of the autonomous nervous system after working days both before and after changes to working hours (% of participants).



Lindholm, Hakola, Pohjonen et al 2008

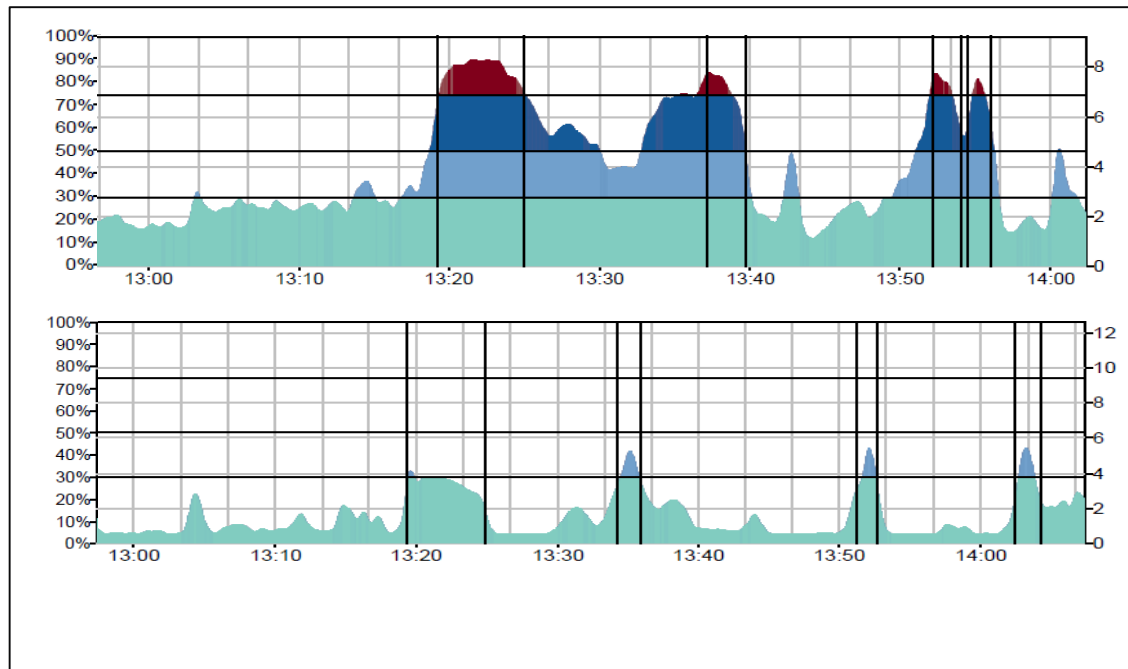
Heat wave and recovery : asphalt and roof workers



Seafarers and emergency situations



%VO₂max

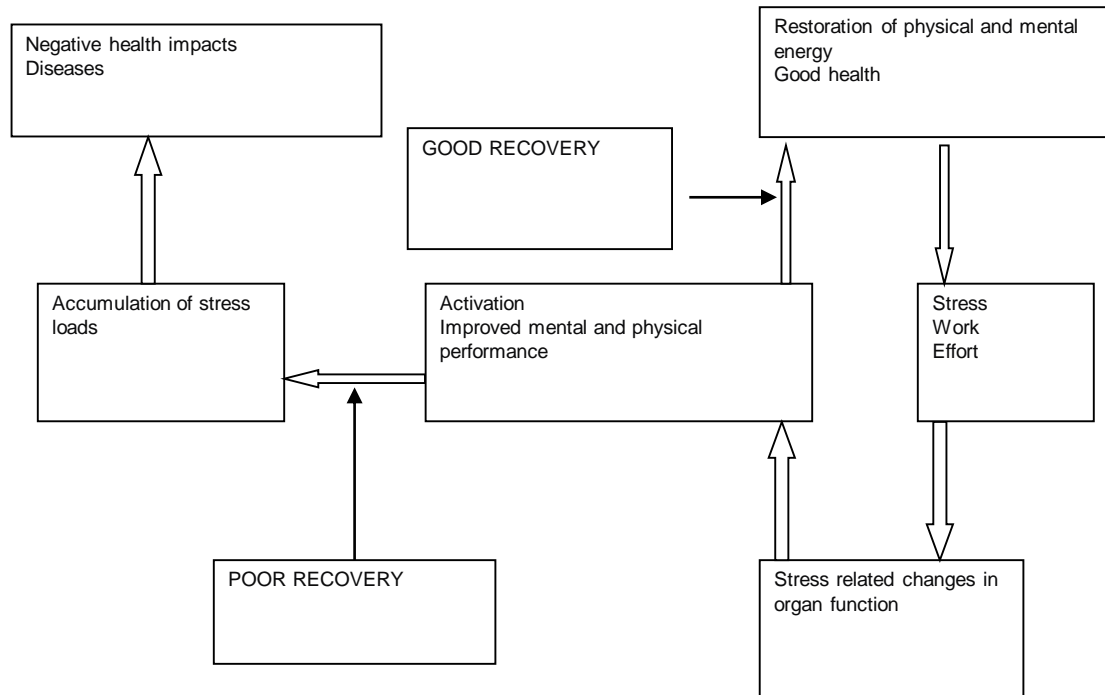


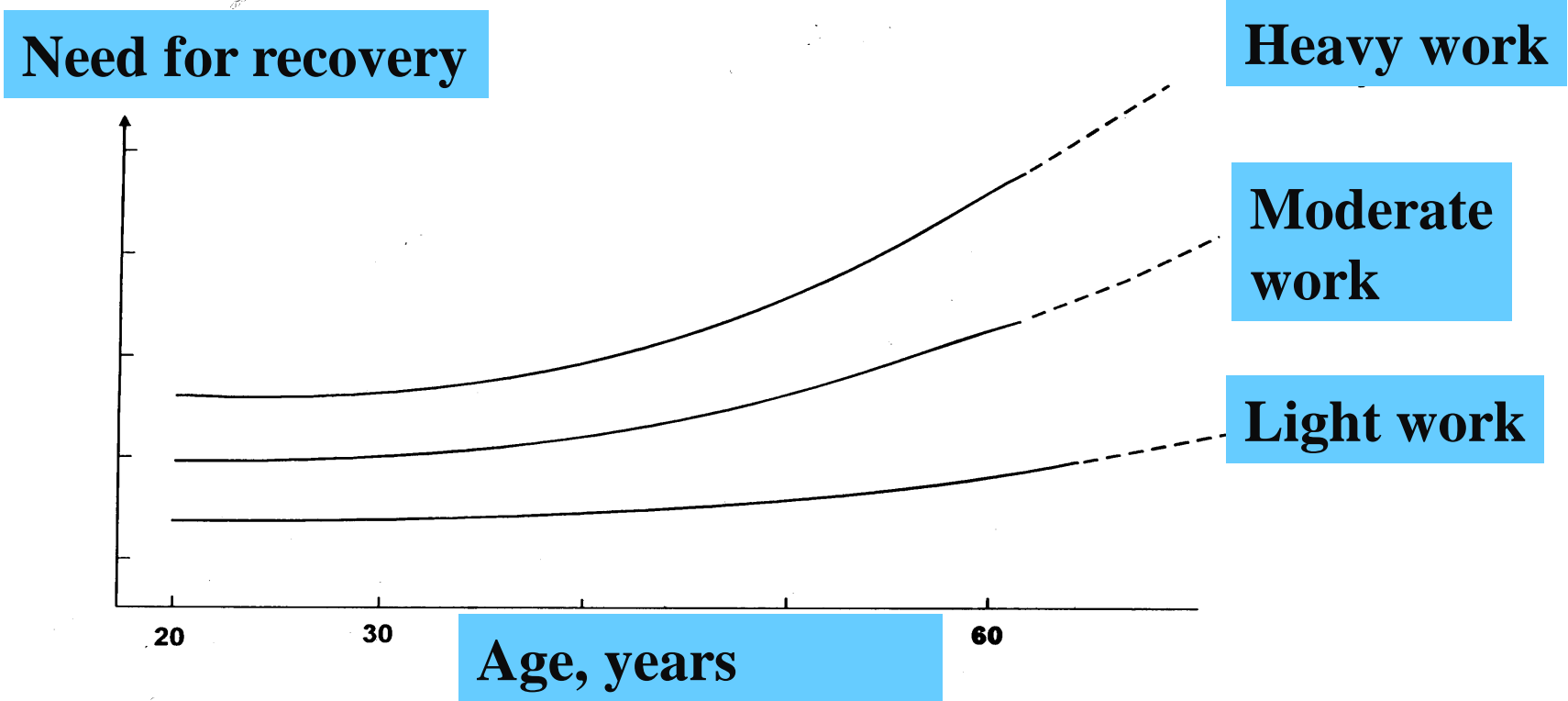
MET

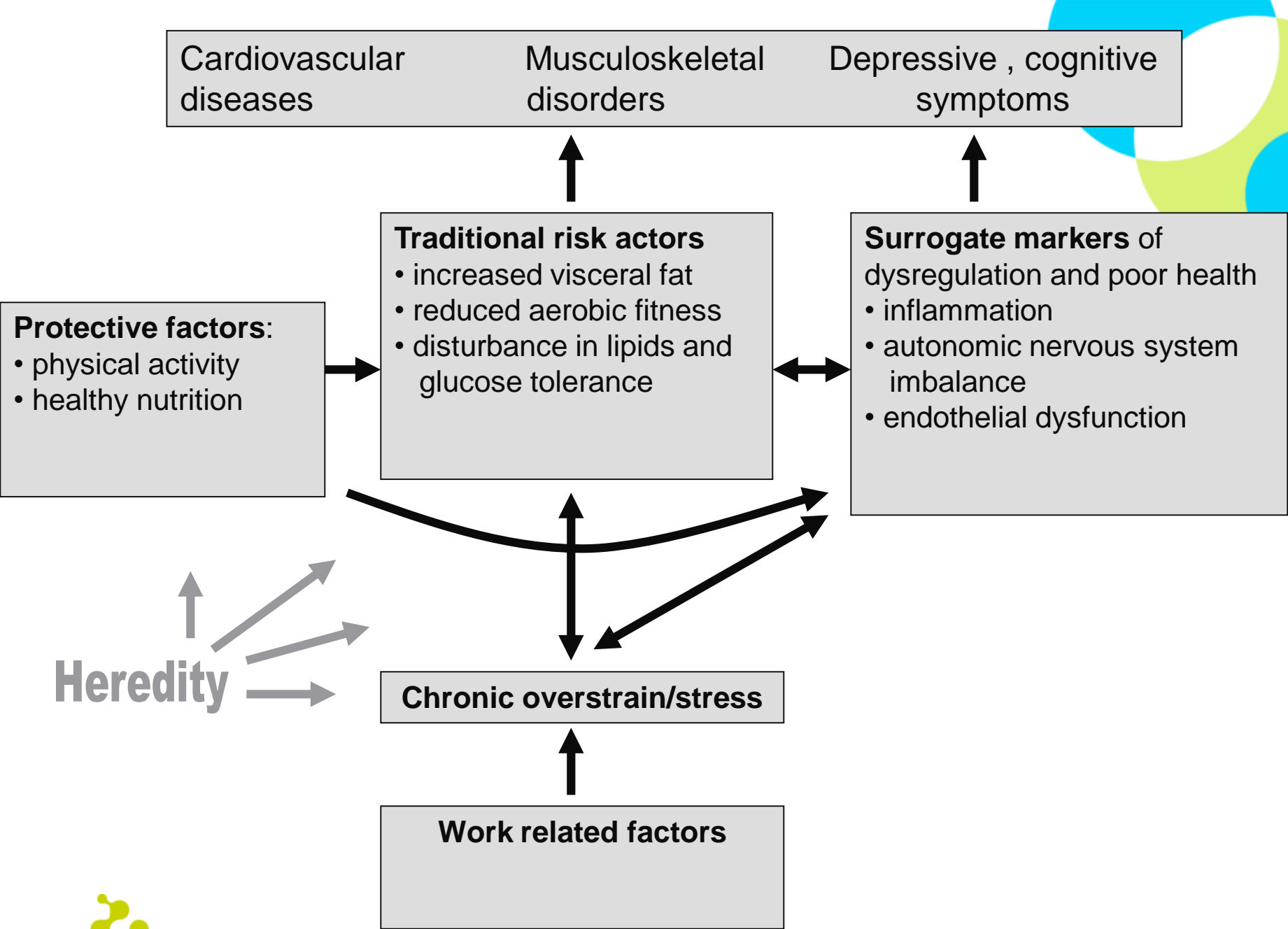
Swimming in rough sea 100 m, climbing to a lif raft from water, turning an upturned life raft, climbing ladders up back to ship

Miilunpalo et al, 2013

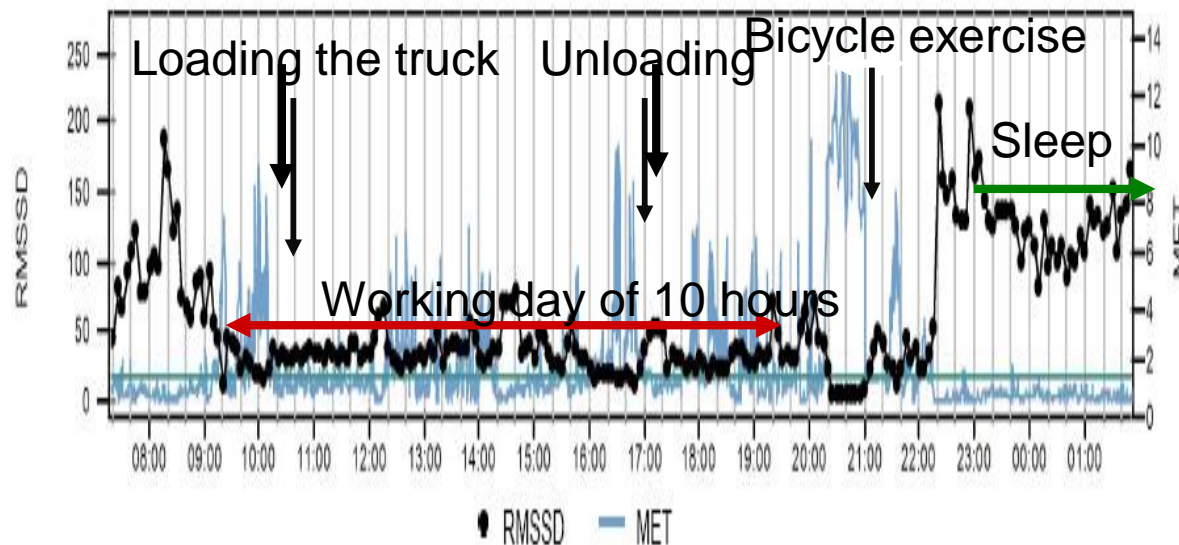
Recovery







Physical exercise improves recovery, 40 years old truck driver



Black line: the vagal activity assessed by heart rate variability, high is good
Blue line: energetic strain in MET's

Forestry workers: recovery, well-being, vascular health

Lindholm et al, 2014

Vascular age based on stiffness measurement

Salivary metabolic and stress hormones (FIOH)

One year



Results: Some changes in lifestyle at individual level. Significantly improved perceived recovery and sleep also at group level, decreased levels of stress hormones, vascular age decreased from 53 years to 48 years

Forestry workers, N= 150

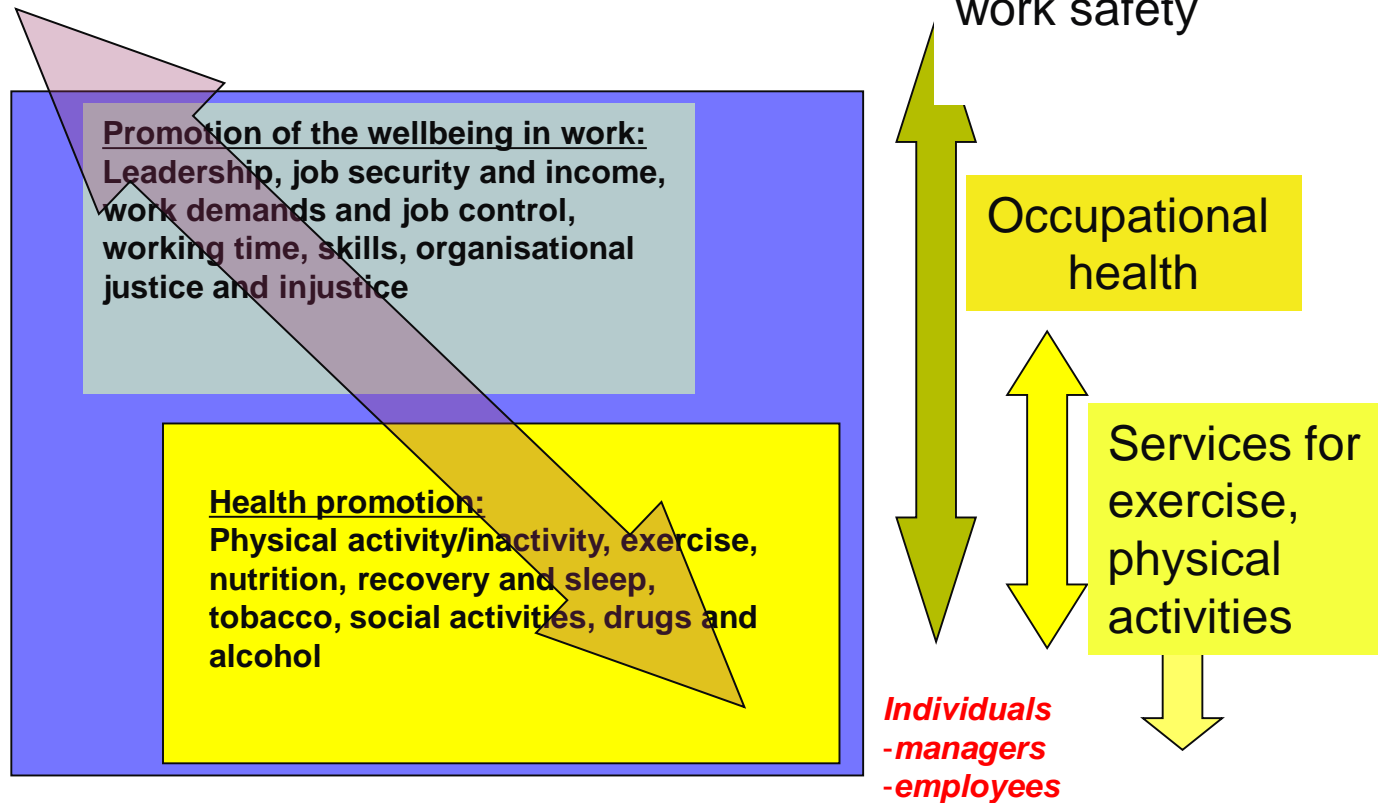
Selection with standardized questionnaire by commercial well being company (CWC) in cooperation with OH of the company, N=40, mean age 53 years

Lifestyle oriented personal training (CWC)

HRV based (Firstbeat) evaluation of work strain and recovery. Good recovery oriented health promotion by OH of the company



Organisation



Health and work stress

