

Do we need new approaches for workplace health and employability?



Goldilocks Work

Andreas Holtermann

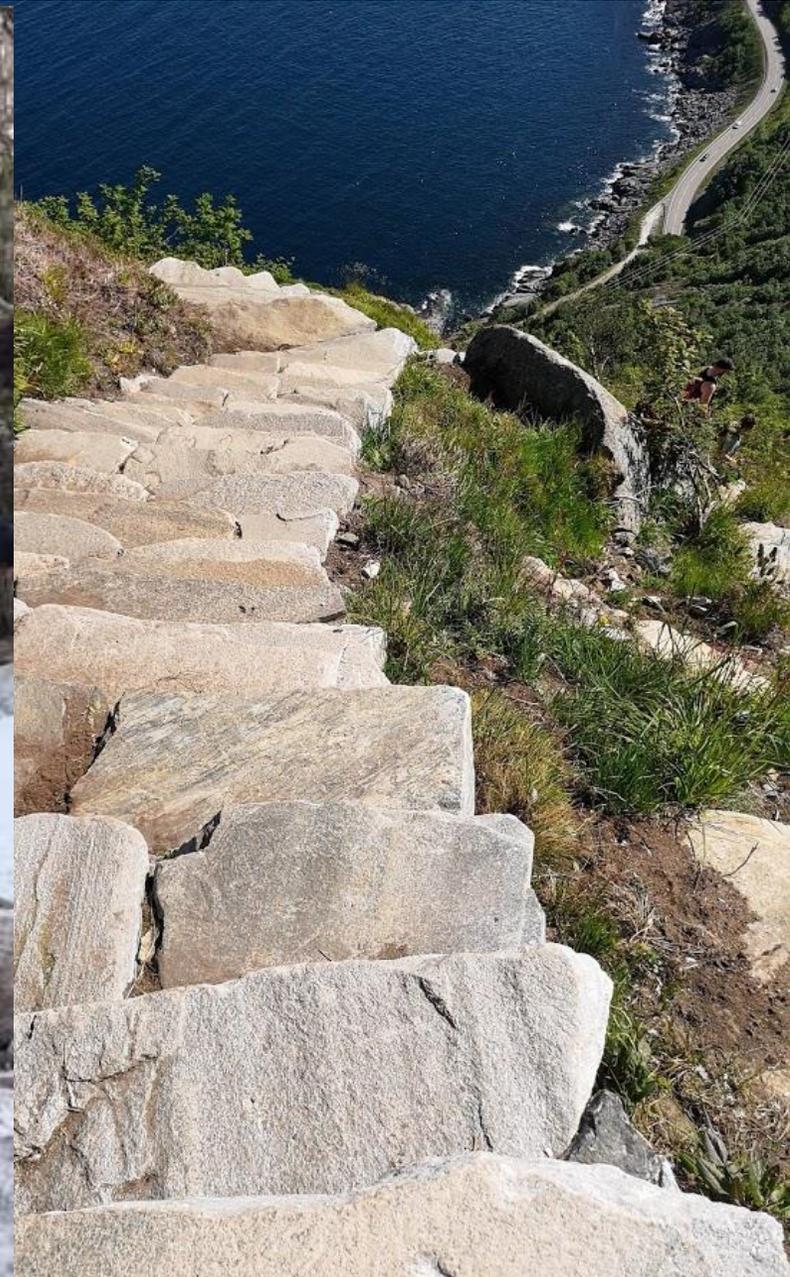
National Research Centre for the Working Environment,
Copenhagen, Denmark

<http://nfa.dk/GoldilocksWork>

 @GoldilocksWork

Lofoten, Norway

Healthy or unhealthy work?



The Danish picture

Massive political, media and societal interest and debate about work, health and sustainable employment!

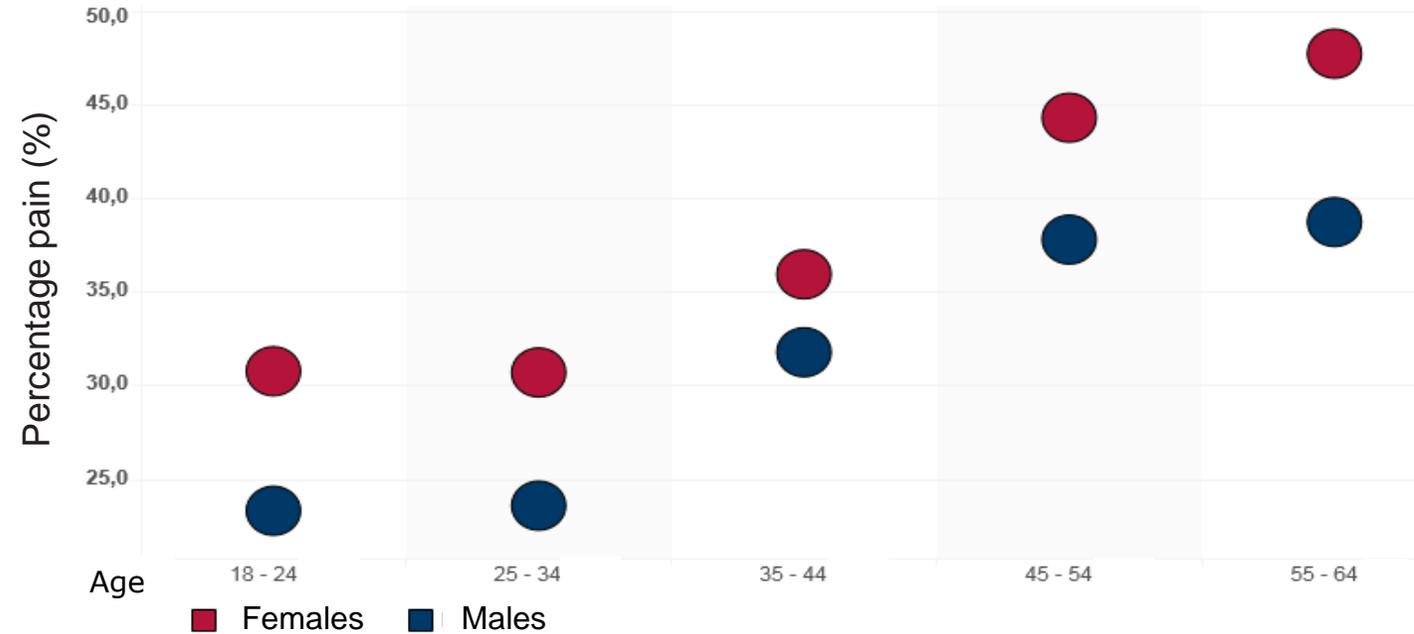
Retirement age

- Currently: **65.5 years**
- In 2030: **68 years**
- In 2040: **70 years**
- In 2050: **72 years (world record?)**



Several large work-related challenges

- Many with musculoskeletal pain
- Prevalent mental health issues
- Obesity epidemic
- Social health inequalities
- Aging population



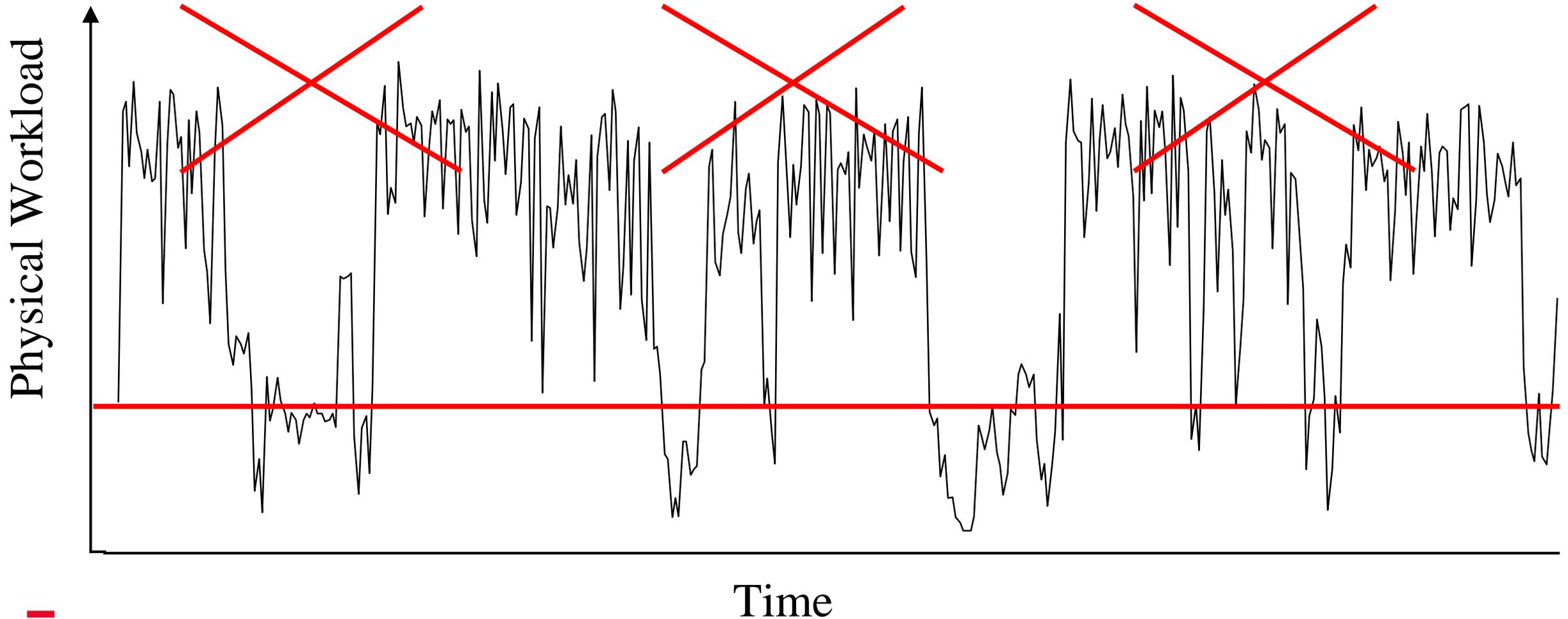
How can Ergonomics promote sustainable healthy employability for all until 70+?

**Is the current dominating
(MSD) ergonomic paradigm
“prevent harm from work”
sufficient for overcoming these main
work-related challenges?**

Need a NEW AMBITIOUS ergonomic approach

What do to “lower risk for harm”?

The “minimization approach”



Is this approach good for healthy sustainable work?

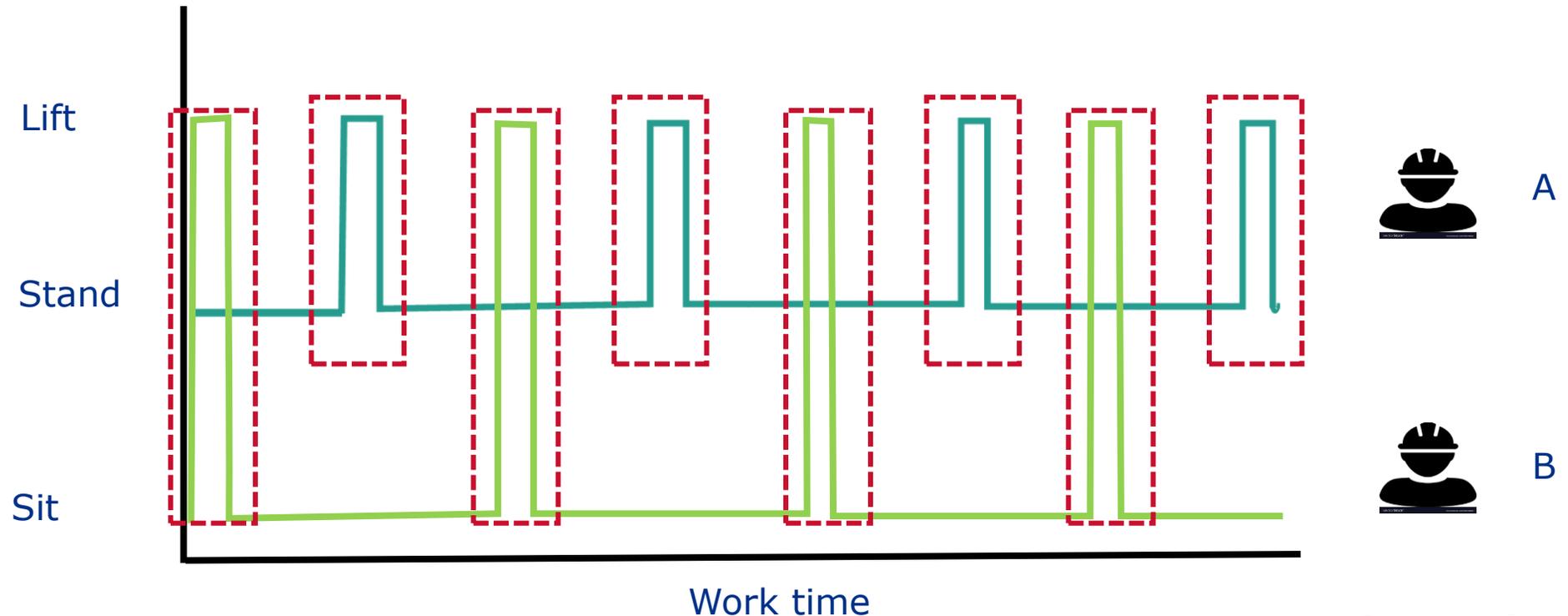
Jigsaw-Ergonomics

A new approach to prevention of ill health at workplaces



Traditional ergonomic (MSD) research approach

Focus on single "high" work demands



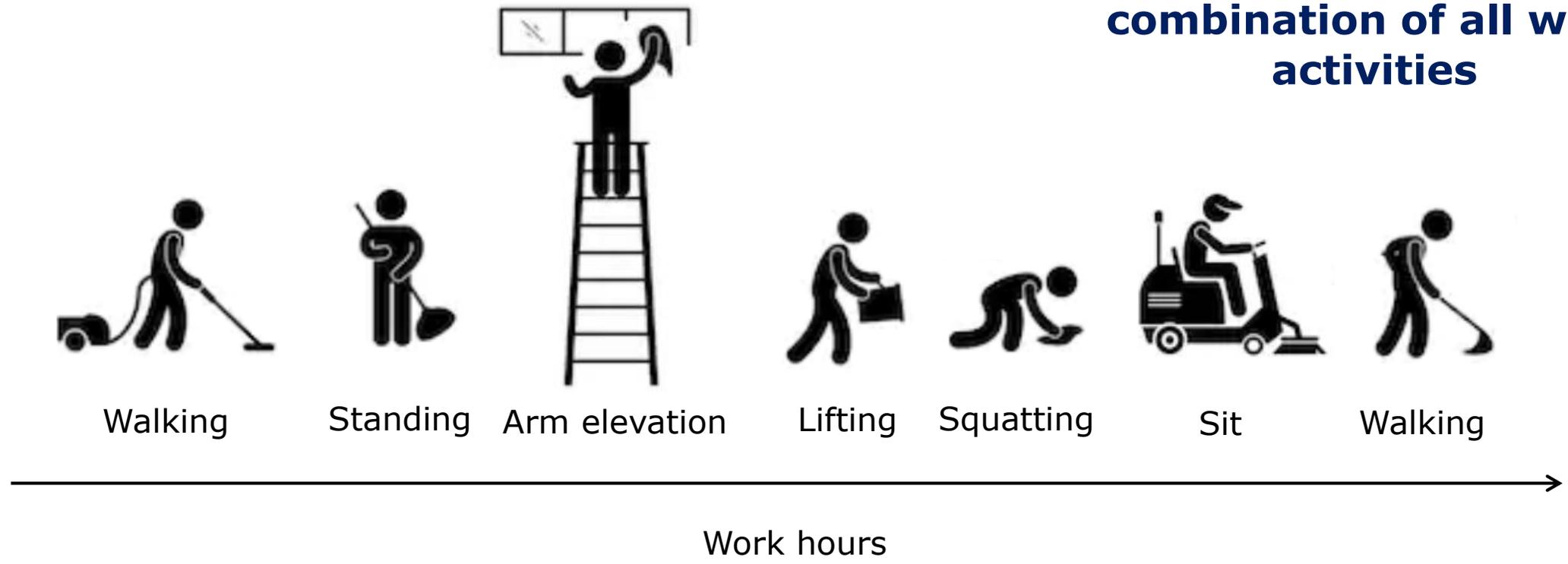
Same health effects?

I) We should not focus on single «high» work demands only

Focus on all work activities

WORKDAY OF A CLEANER

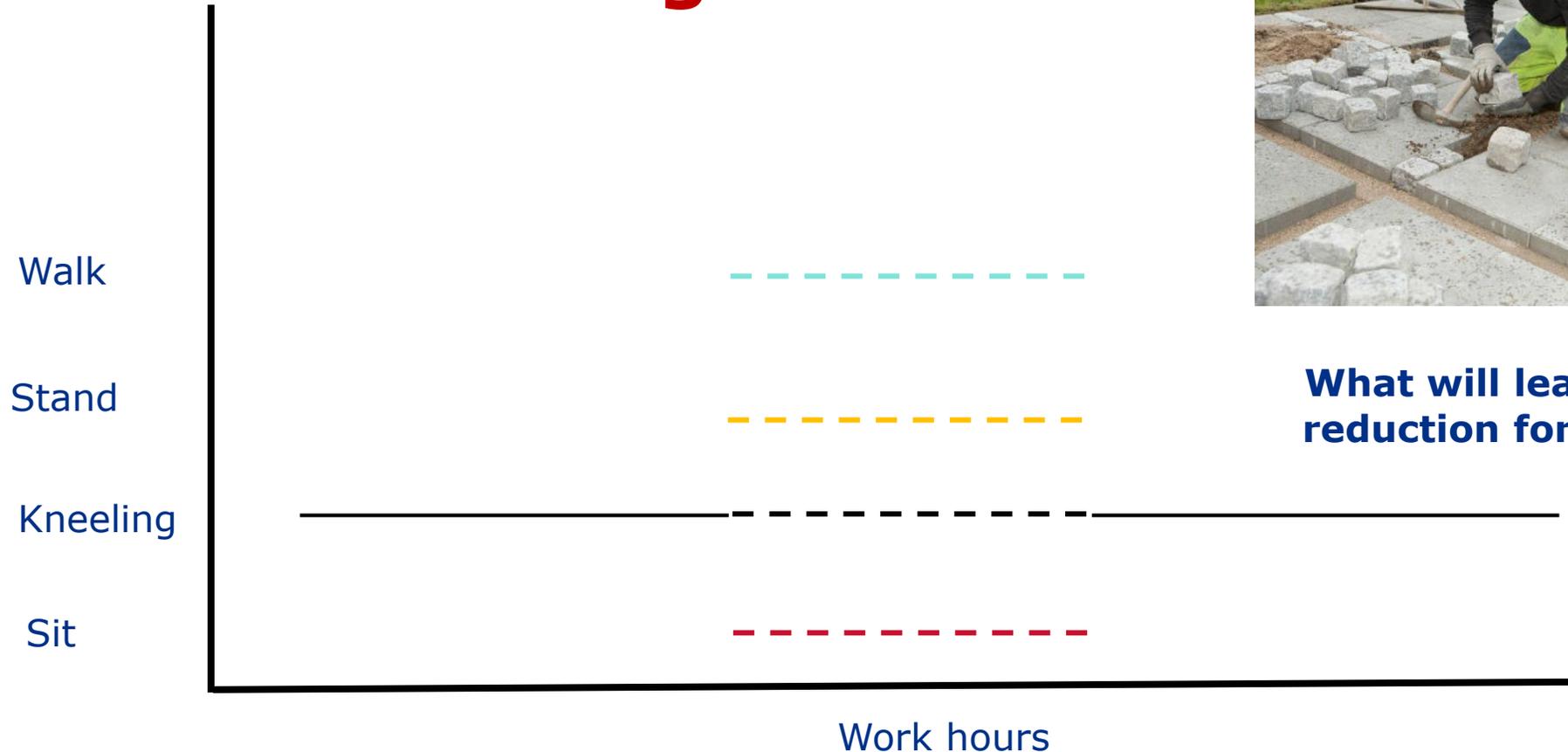
The effect on health determined by the combination of all work activities



II) We need to focus on the composition of all work activities, not only on single high work demands

III) Not only focus on reducing “heavy work demands”, but also what to change it with

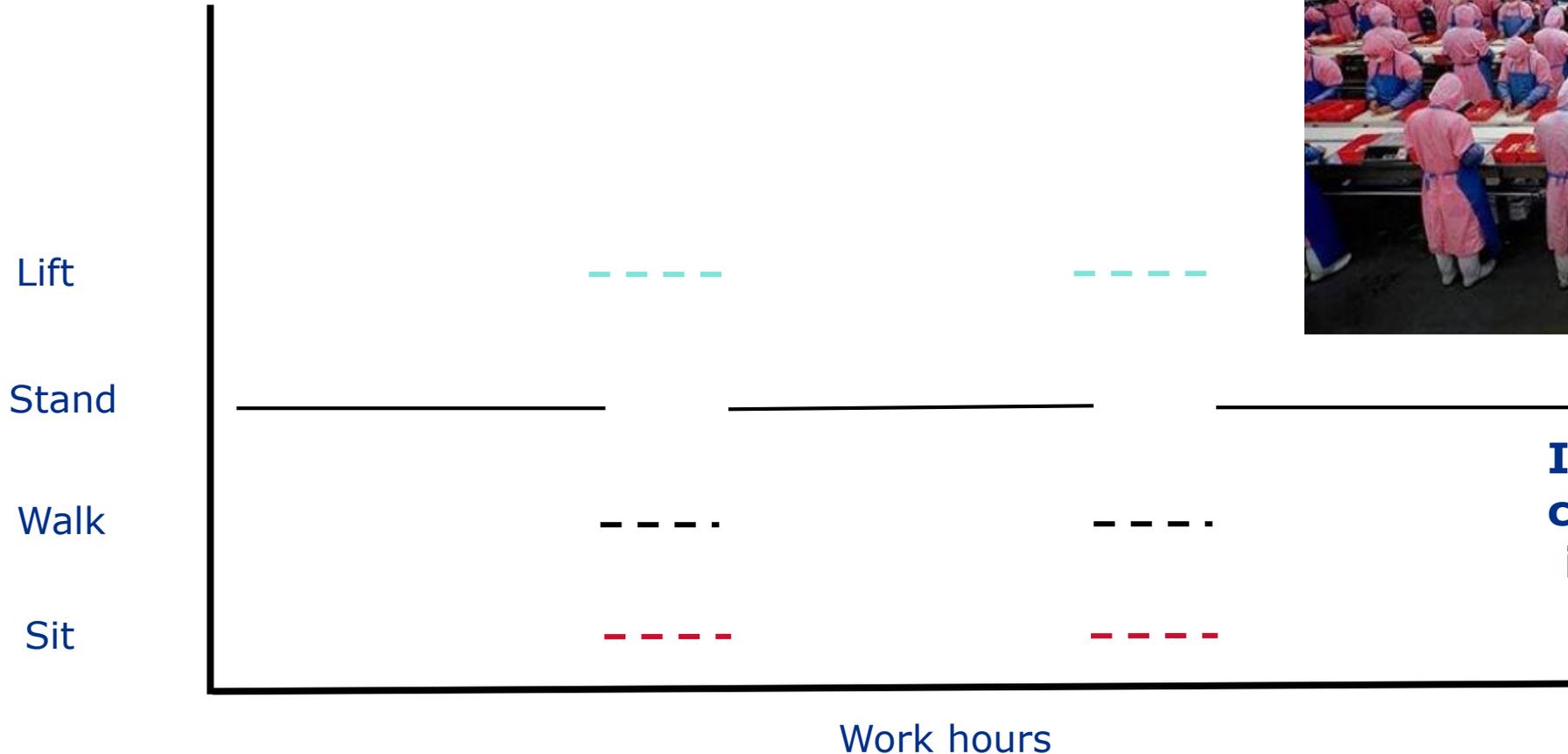
Tiler work



What will lead to highest risk reduction for knee disorders?

III) We need to consider what substitute work demands with to minimize risk for poor health

IV) If not able to change a work demand, how else reduce the risk for poor health?



If standing work cannot be changed, what recommend in «the remaining time»?

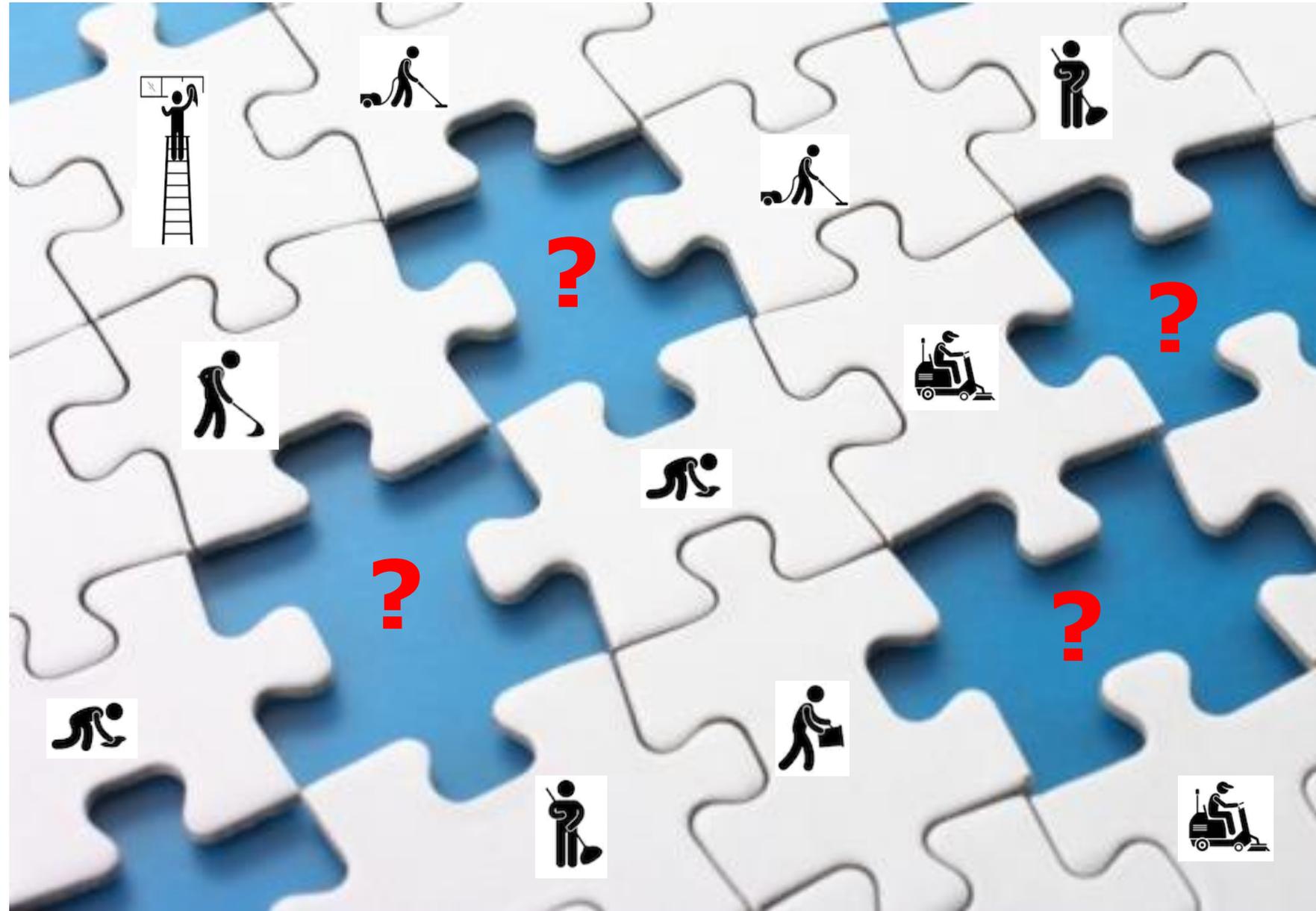
What will lead to highest risk reduction for back pain?

III) If an ergonomic heavy demand cannot be changed, focus on modifying work activities which can be changed

Jigsaw-Ergonomics

The solution lies in the complete picture, not a single piece

Do you see some advantages in this approach for workplace prevention?



To reach the full potential of Ergonomics – shouldn't we go beyond reducing occupational risks for disease?



Do you know any jobs improving fitness and health?

Physical activity and movements are healthy!



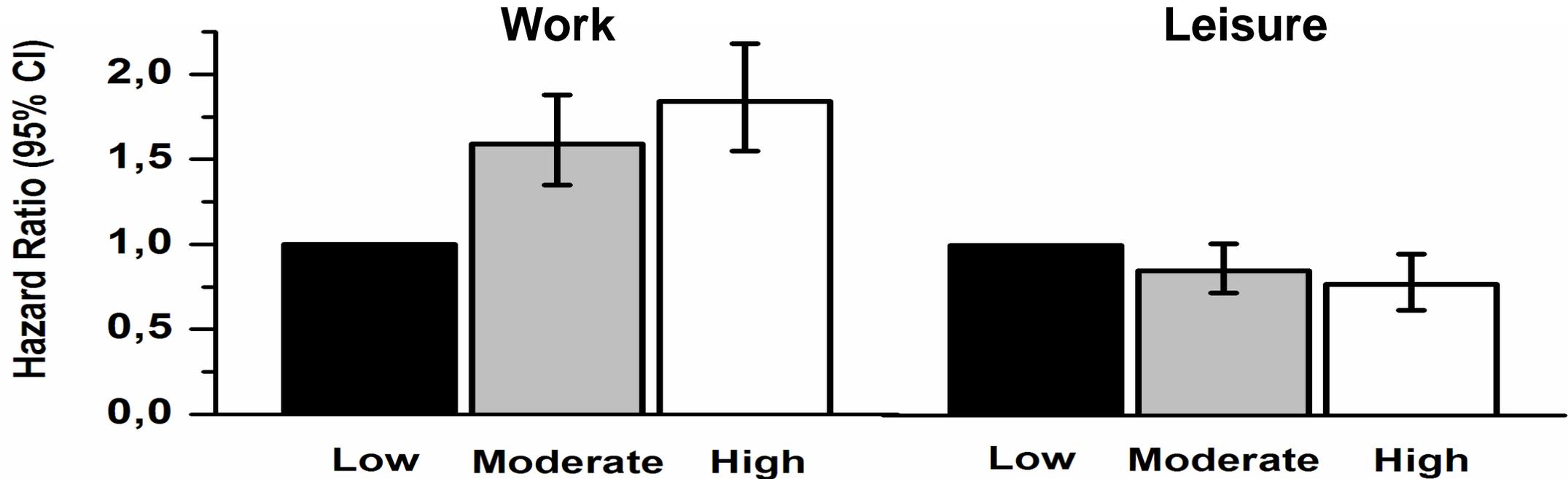
.... if comprise sufficient variation,
breaks and time for recovery

Without sufficient variation, breaks and recovery – can
cause overload and health issues



Physical activity at leisure – the same effect as during work?

Long-term sickness absence



Original article

Adjusted for Age, Gender, Smoking, Alcohol, BMI, Chronic disease, Questionnaire method, Social support, Emotional demands, Social class and leisure/work physical activity

The health paradox of occupational and leisure-time physical activity Holtermann et al, BJSM 2012

The Physical Activity Paradox

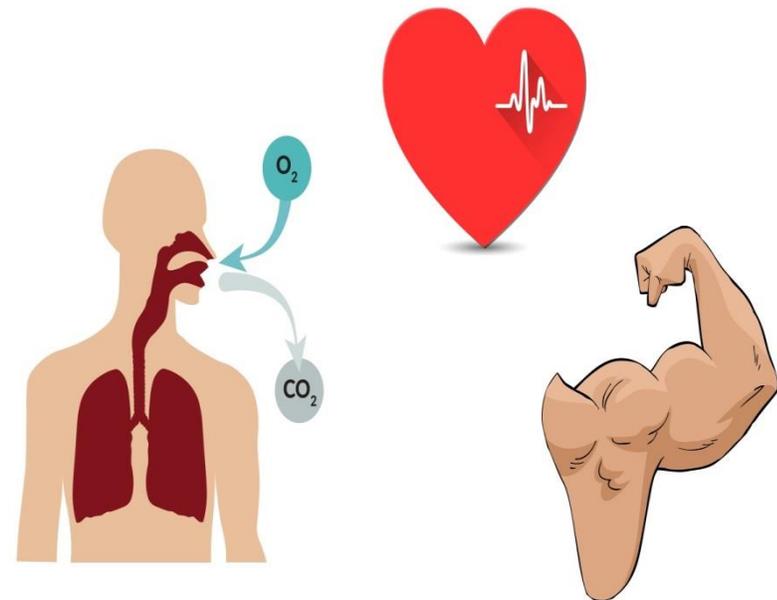
Characteristics of physical activity promoting fitness and health

1. High intensity
2. Breaks and rest when needed
3. Variation



Response

1. Improved fitness
2. Improved physical and mental wellbeing
3. Improved cardiovascular and musculoskeletal health



Physical activity at work – why not promoting health?



Characteristics physical activity at work

- Low/moderate intensity
- Long duration (many hours per day)
- Static, awkward and repetitive movements
- Often insufficient breaks, rest and recovery



Physiological response

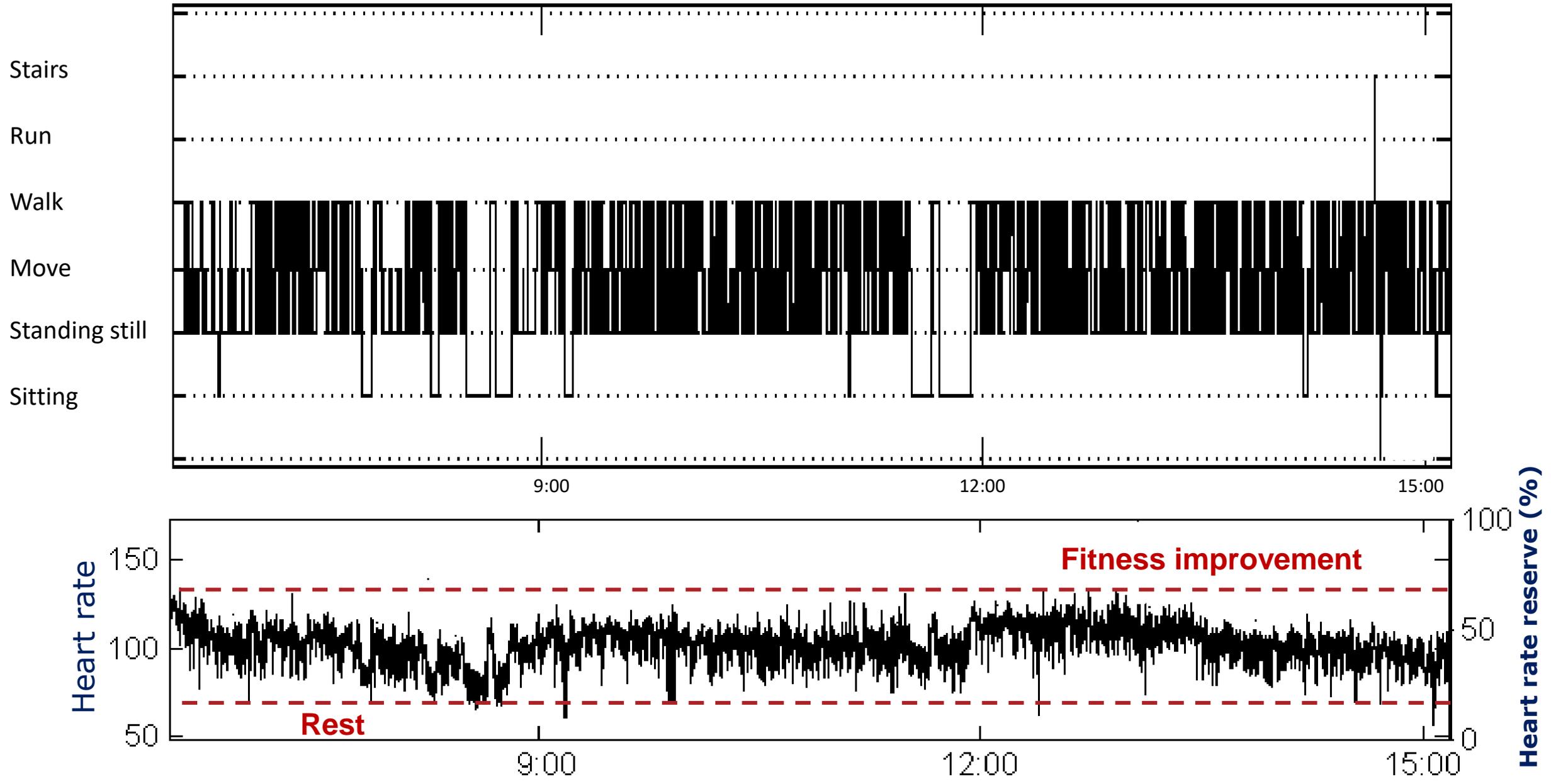
- Unchanged physical fitness
- Increased 24-hours heart rate and blood pressure
- Elevated inflammation
- Pain and reduced functional ability

Editorial

The physical activity paradox: six reasons why occupational physical activity (OPA) does not confer the cardiovascular health benefits that leisure time physical activity does [a](#)

Holtermann et al. Br J Sports Med 2018;52:149-150

So, why does a cleaner not improve fitness and health?



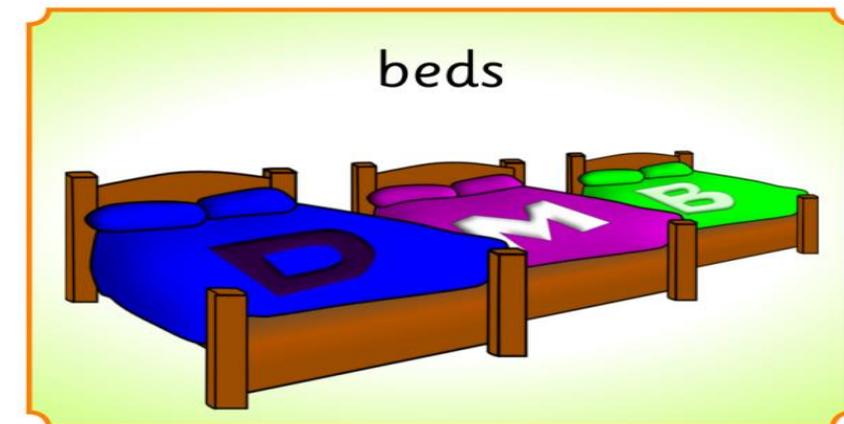
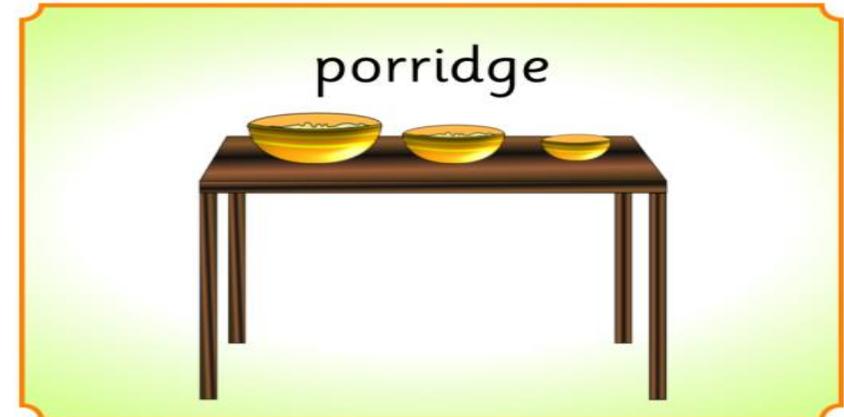
Imagine

**If work was designed,
so includes the beneficial characteristics of
physical activity
directly promoting wellbeing, fitness and
health for all workers**

The Goldilocks Work principle

The physical activity during productive work is often not "just right"

Could it be designed to be "just right" to promote health and fitness?



Vision of the Goldilocks Work Principle

Work should be designed, so directly promotes wellbeing, fitness and health for all



Goldilocks Work



UNIVERSITY
OF GÄVLE



Curtin University



National Research Centre
for the Working Environment

@GoldilocksWork

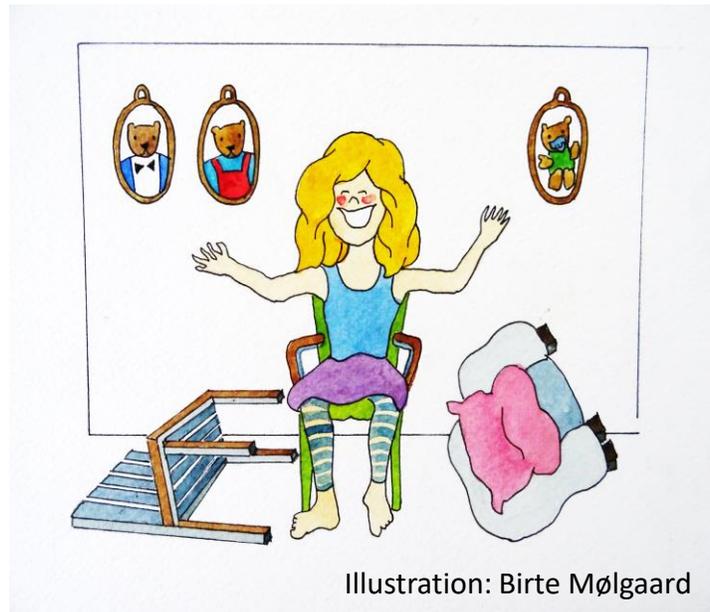


Illustration: Birte Mølgaard



Discussion paper

Scand J Work Environ Health 2019;45(1):90-97

doi:10.5271/sjweh.3754

Promoting health and physical capacity during productive work: the Goldilocks Principle

by Holtermann A, Mathiassen SE, Straker L

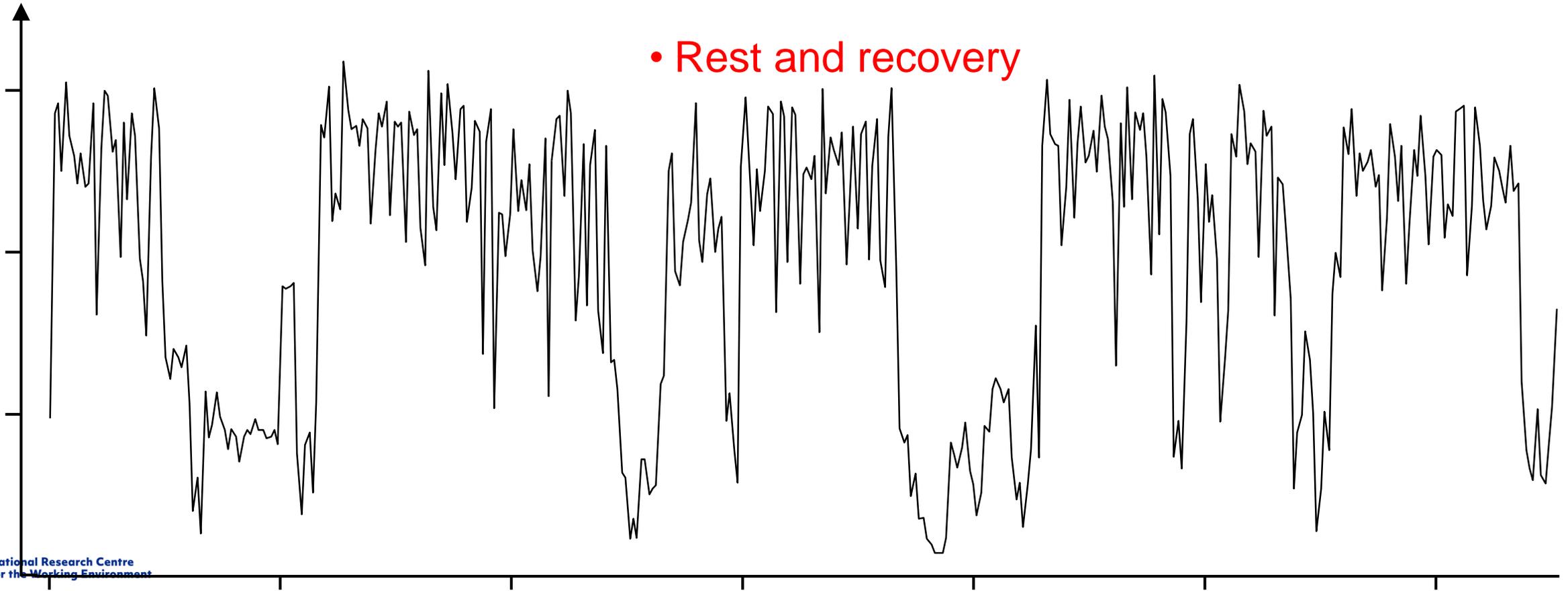
A large potential for improving occupational health remains unexploited by a limited focus on preventing health impairments by reducing physical activity at work. The Goldilocks Principle aims to promote health and physical capacity by designing physical activity during productive work to be "just right". If effective, the Goldilocks Principle has a great potential to contribute in solving major work-related challenges of our time.

Goldilocks Work

Design work to provide healthy balance of:

- Variation
- Stimulation of “heart and muscles”
- Rest and recovery

Workload



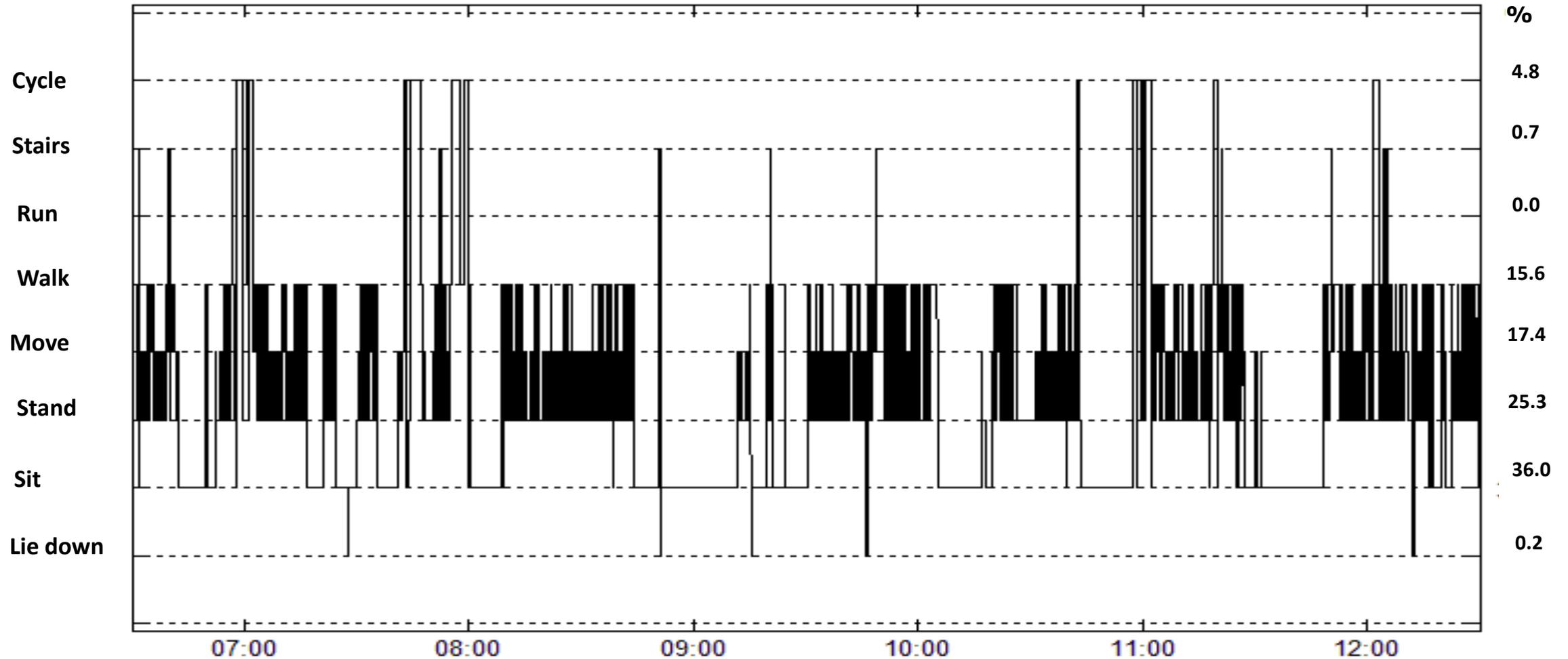
Time

Goldilocks childcare

Design work, making children more physical active, and improving wellbeing, fitness and health for workers



Goldilocks homecare for elderly in Copenhagen



Will it promote fitness and health?

Physical activity profile homecare work

Low intensity



Slow walk: 36 min



Stand: 2,8 timer



Sit: 2,4 timer

Moderate intensity



Fast walk: 13 min
(120 steps per min)



Run: 0 min



Walking stairs: 6 min



Cycle: 20 min

Fitness-improving heart rate (65% HRR):
3 min

How much is necessary to improve fitness and health?

2-4 times per week?



Walking fast, 30 min
(*>120 steps per min*)



Cycle: 20 min



Walking stairs, 10 min

**When having sufficient
variation and time for
recovery!**

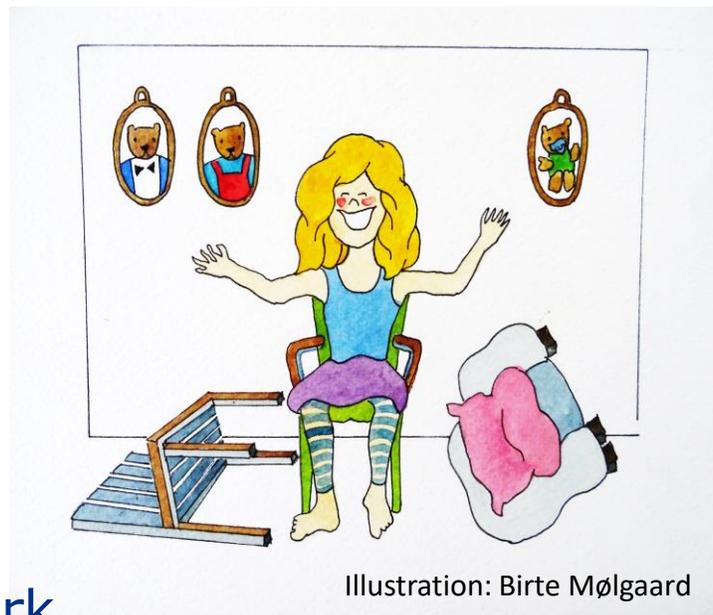
**Feasible to implement in productive work systems
in many occupations?**

Is the vision of the Goldilocks Work feasible?

Productive work should be designed, so directly promotes wellbeing, fitness and health for all



@GoldilocksWork



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Do we really know how Goldilocks work should look like, and if its feasible, for different occupational groups?



Necessary with a strong participatory workplace approach, giving the employees the knowledge and resources needed to design their work so promotes wellbeing, fitness and health

Take home messages

- The solution lies in the entire ergonomic picture, not single pieces
- For solving main work-related challenges of our societies – not sufficient to prevent harm from work
- Need a much more ambitious approach - where productive work directly promotes fitness and health
- Productive work should be designed so contains the “just right” healthy composition of work activities promoting fitness and health
- Help develop, evaluate and finally apply the new Jigsaw Ergonomics and Goldilocks approaches for better prevention at workplaces

Jigsaw Ergonomics

the solution lies in the complete picture, not single pieces

Contact: Nidhi Gupta, ngu@nfa.dk

Goldilocks Work

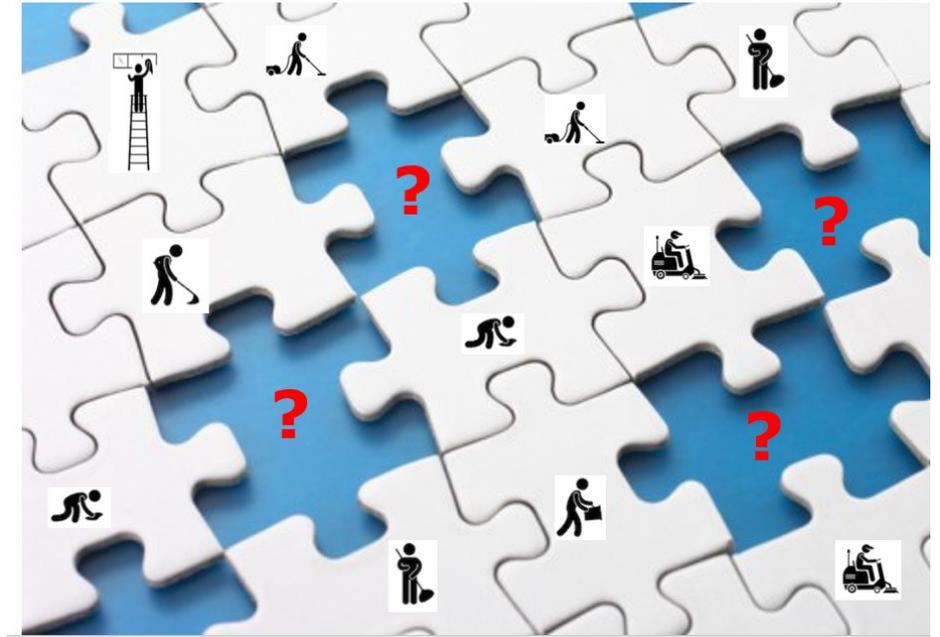
Design productive work, so promotes wellbeing, fitness & health

Goldilocks Work Research & Practice Collaborative

To promote development, collaboration, use and spread of the Goldilocks Work approach

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<http://nfa.dk/GoldilocksWork>



Goldilocks team