



Effectiveness of a Worksite Social & Physical Environmental Health Program

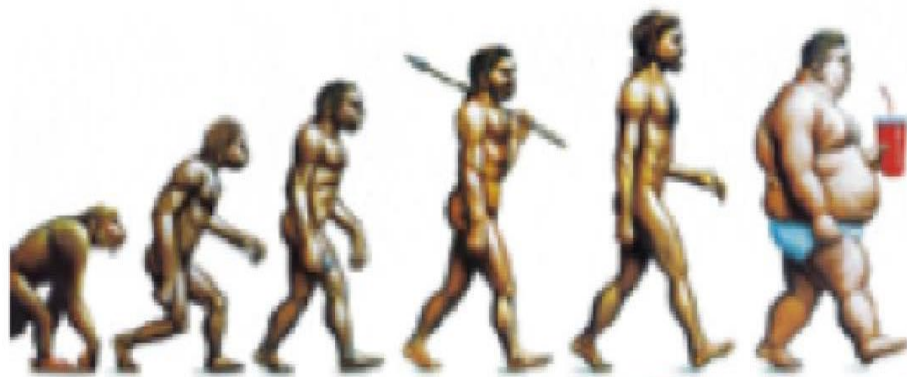
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European initiative for Exercise in Medicine,
3rd congress, Budapest, 15-16 September 2014





The shape of things to come



5-6 Million Years

3-4 Decades

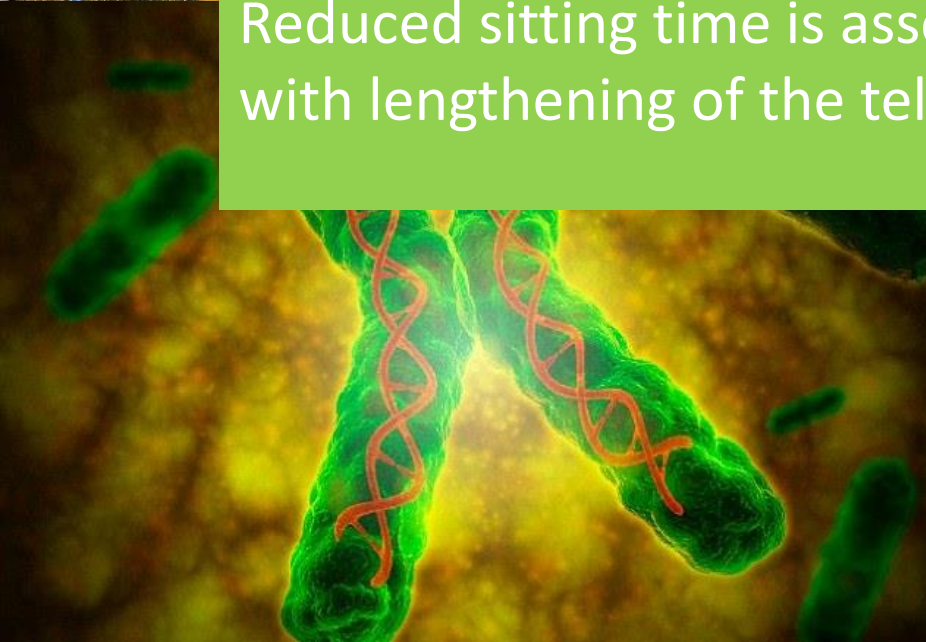




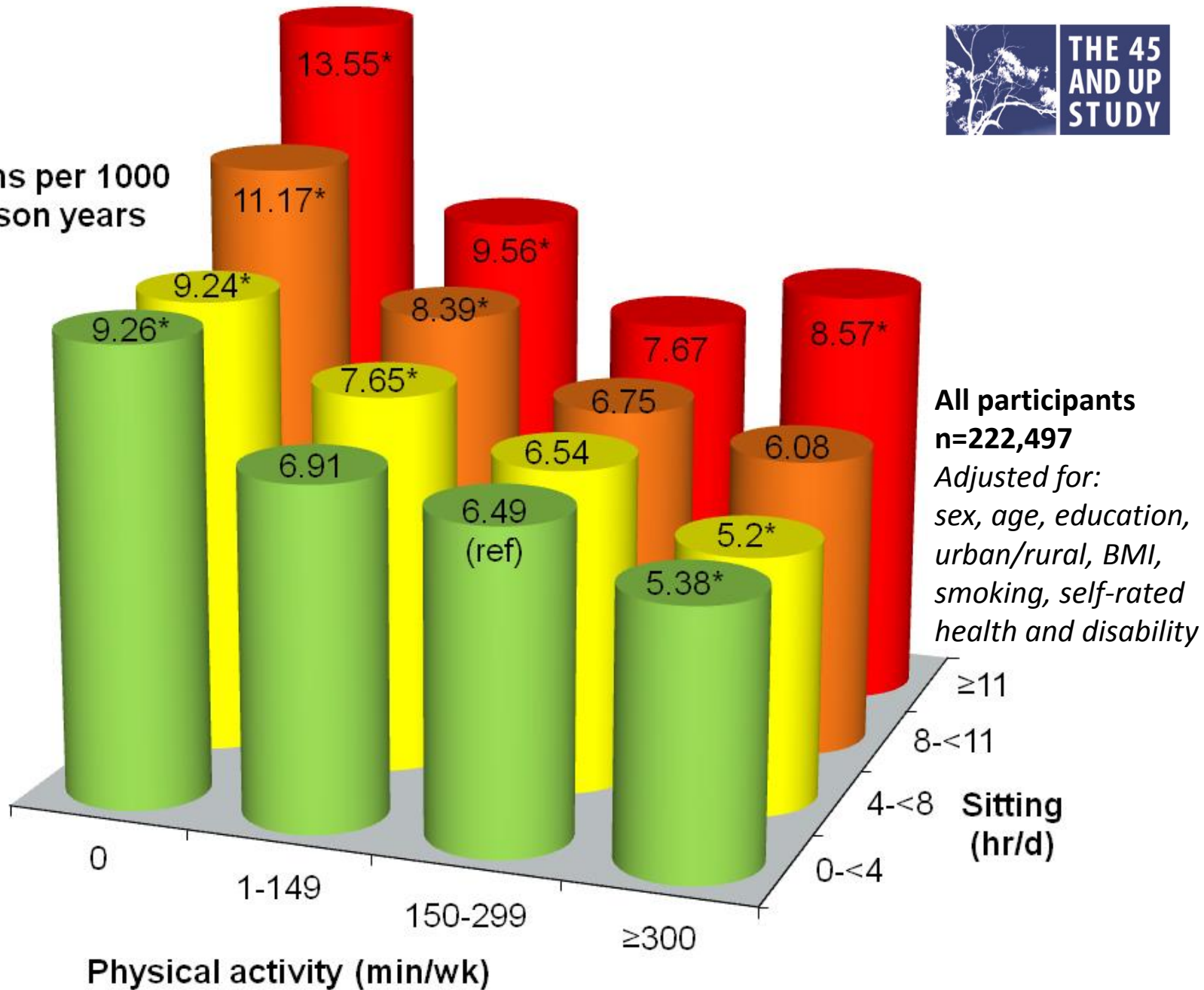
Sedentary Culture

Disease risk now equated with smoking risk

Reduced sitting time is associated with lengthening of the telomeres

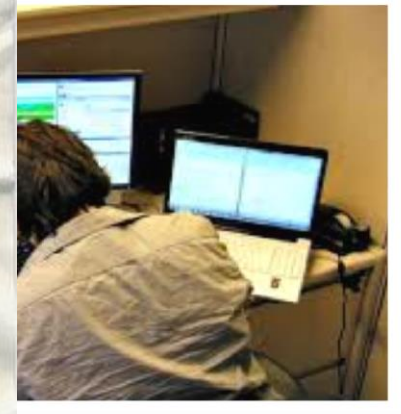


Deaths per 1000 person years



All participants
n=222,497
Adjusted for:
sex, age, education,
urban/rural, BMI,
smoking, self-rated
health and disability

Technology supports this disembodied way of being



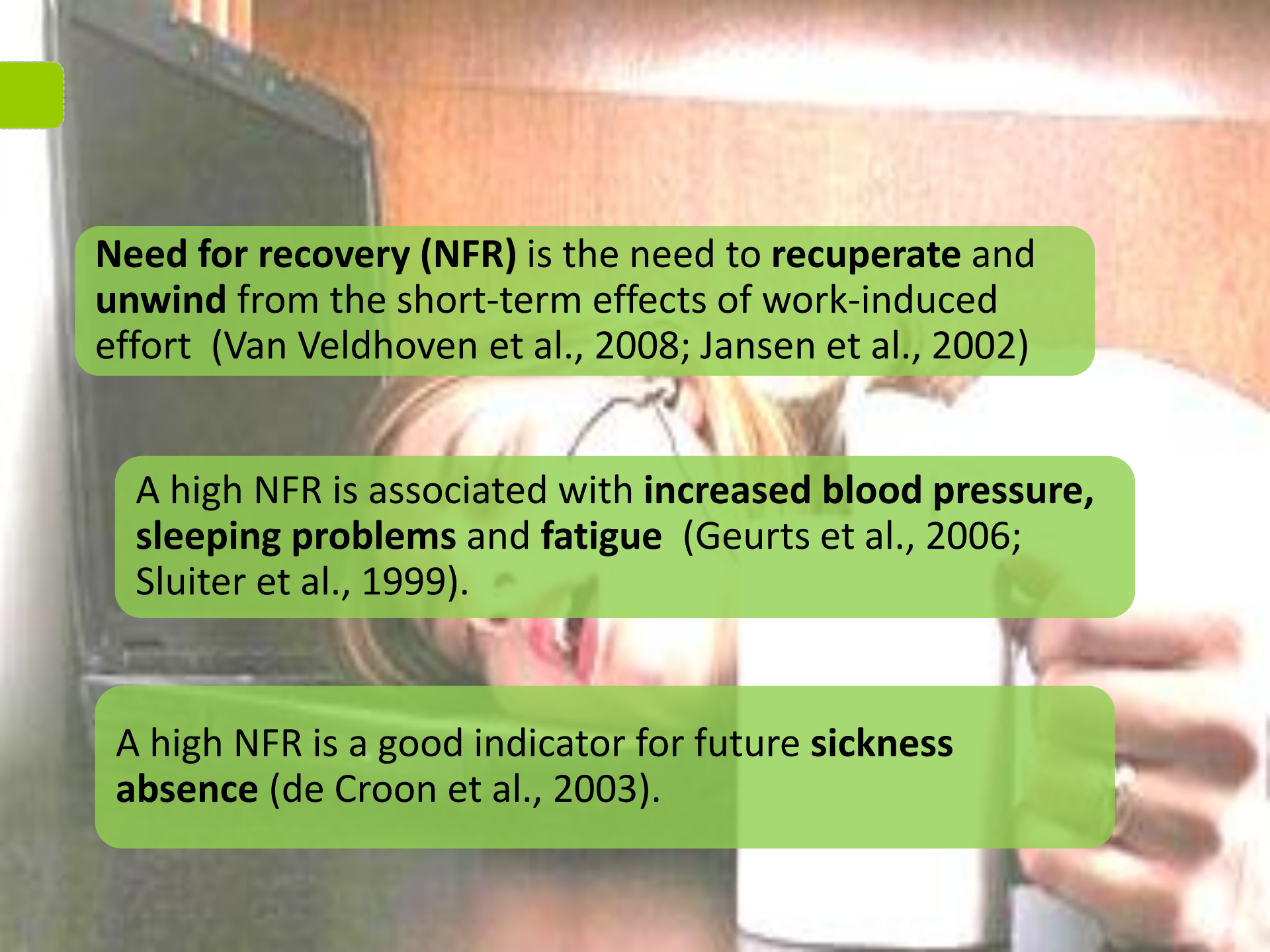
**LIFE WAS
MUCH EASIER
WHEN Apple
AND BLACKBERRY
WERE JUST
FRUITS**



- Of the Dutch workforce (7.4 million people), 1 million have burn-out complaints
- Stress and workload are the main reasons for reported sick leave
- Estimated cost of roughly 900 million euro each year.

(Research TNO; 2013)

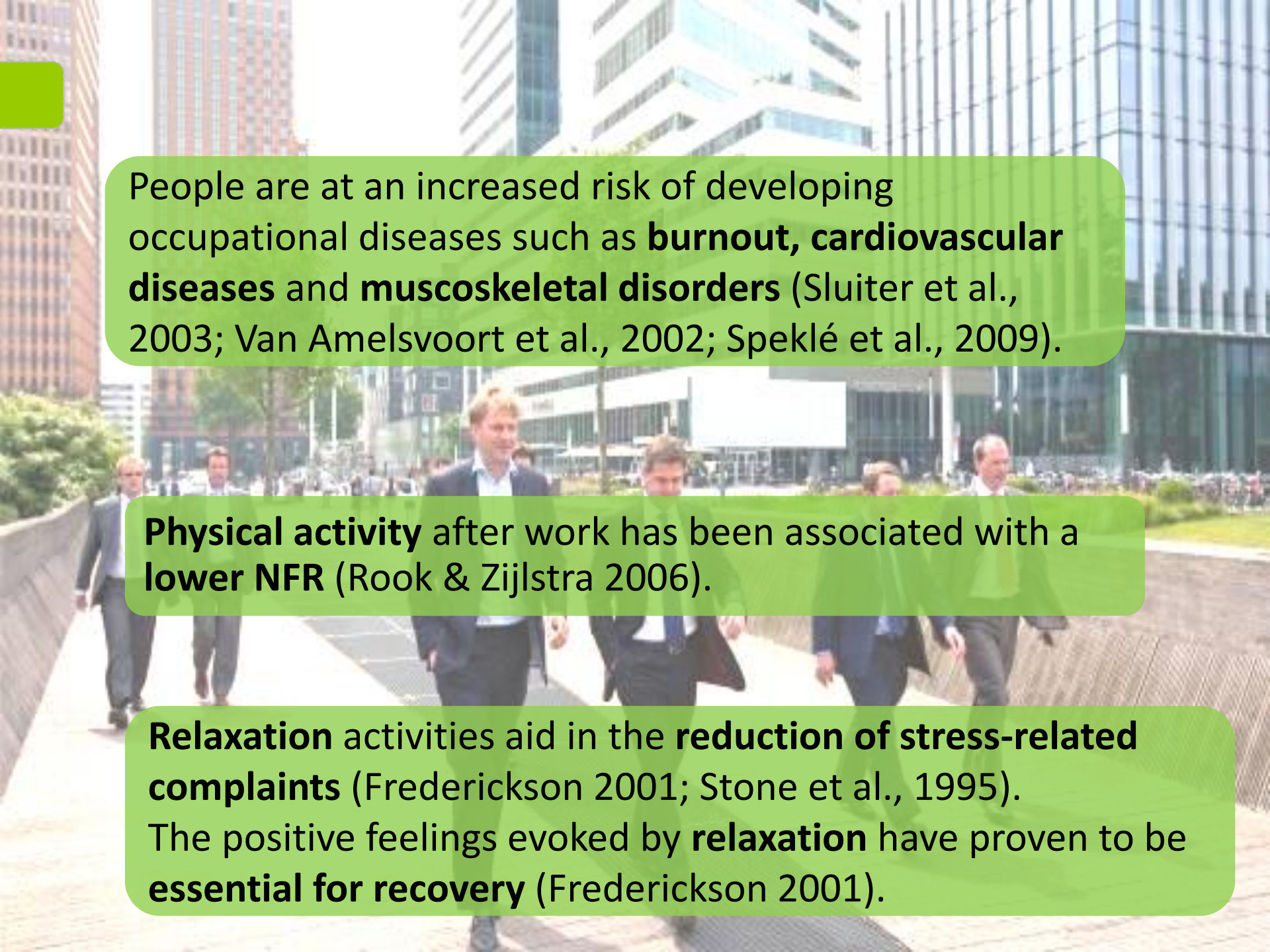


A woman with blonde hair and glasses is looking at a laptop screen. The background is a wooden wall. The text is overlaid on a green rounded rectangle.

Need for recovery (NFR) is the need to **recuperate** and **unwind** from the short-term effects of work-induced effort (Van Veldhoven et al., 2008; Jansen et al., 2002)

A high NFR is associated with **increased blood pressure**, **sleeping problems** and **fatigue** (Geurts et al., 2006; Sluiter et al., 1999).

A high NFR is a good indicator for future **sickness absence** (de Croon et al., 2003).

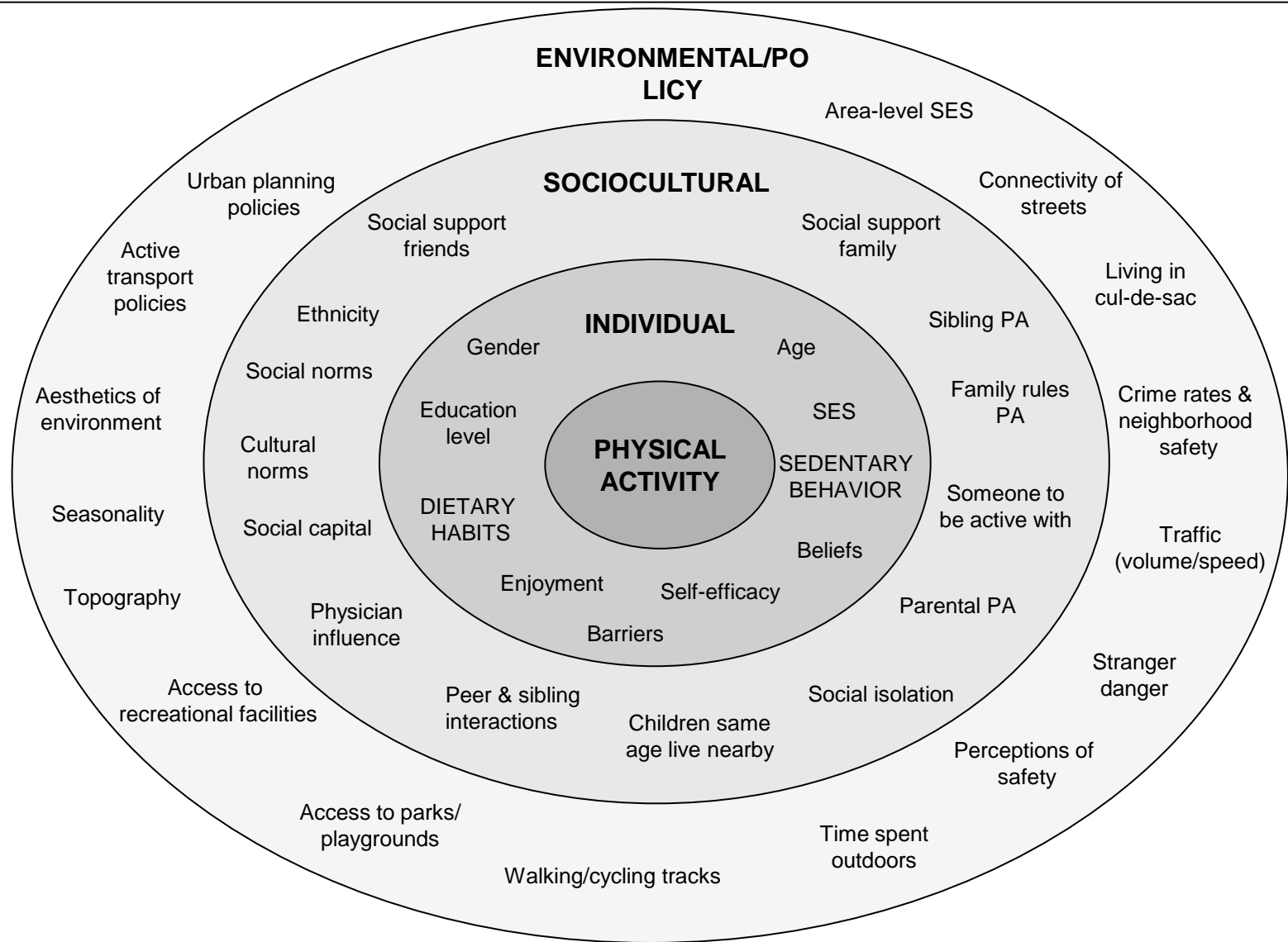
A background image of a busy city street with modern buildings and pedestrians. The scene is bright and clear, showing a mix of architectural styles and people walking. A small green square is visible in the top left corner.

People are at an increased risk of developing occupational diseases such as **burnout**, **cardiovascular diseases** and **musculoskeletal disorders** (Sluiter et al., 2003; Van Amelsvoort et al., 2002; Speklé et al., 2009).

Physical activity after work has been associated with a **lower NFR** (Rook & Zijlstra 2006).

Relaxation activities aid in the **reduction of stress-related complaints** (Frederickson 2001; Stone et al., 1995).
The positive feelings evoked by **relaxation** have proven to be **essential for recovery** (Frederickson 2001).

WORKSITE LIFESTYLE PROGRAMS



(Adapted from Davison & Birch 2001)



A fruitful NUDGE towards a healthy lifestyle

“Nudge is a technique that alters a person’s decision-making context without removing options or changing the incentives in order to promote choice and behavior in accordance to their own preferences” (Thaler & Sunstein 2008)



Nudge

OBJECTIVES STUDY

- To develop and evaluate the effectiveness of a combined social and physical environmental intervention.
- Tailored to the target population.
- Aimed at physical activity and relaxation to improve the need for recovery in office employees.



Coffeng et al., BMC Public Health 2012

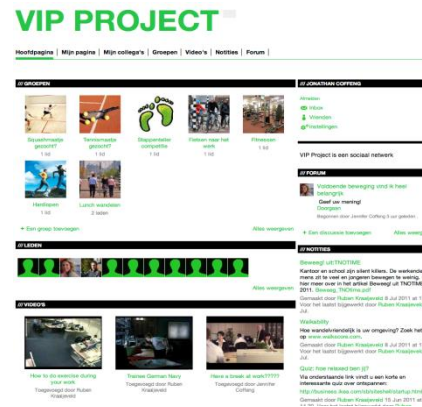
STUDY POPULATION

- Employees of a financial service provider
- 56.4% highly educated
- 40% women
- 41.3 years old
- 22.8% high NFR



INTERVENTIONS

(1) Social environmental intervention



(2) Physical environmental intervention

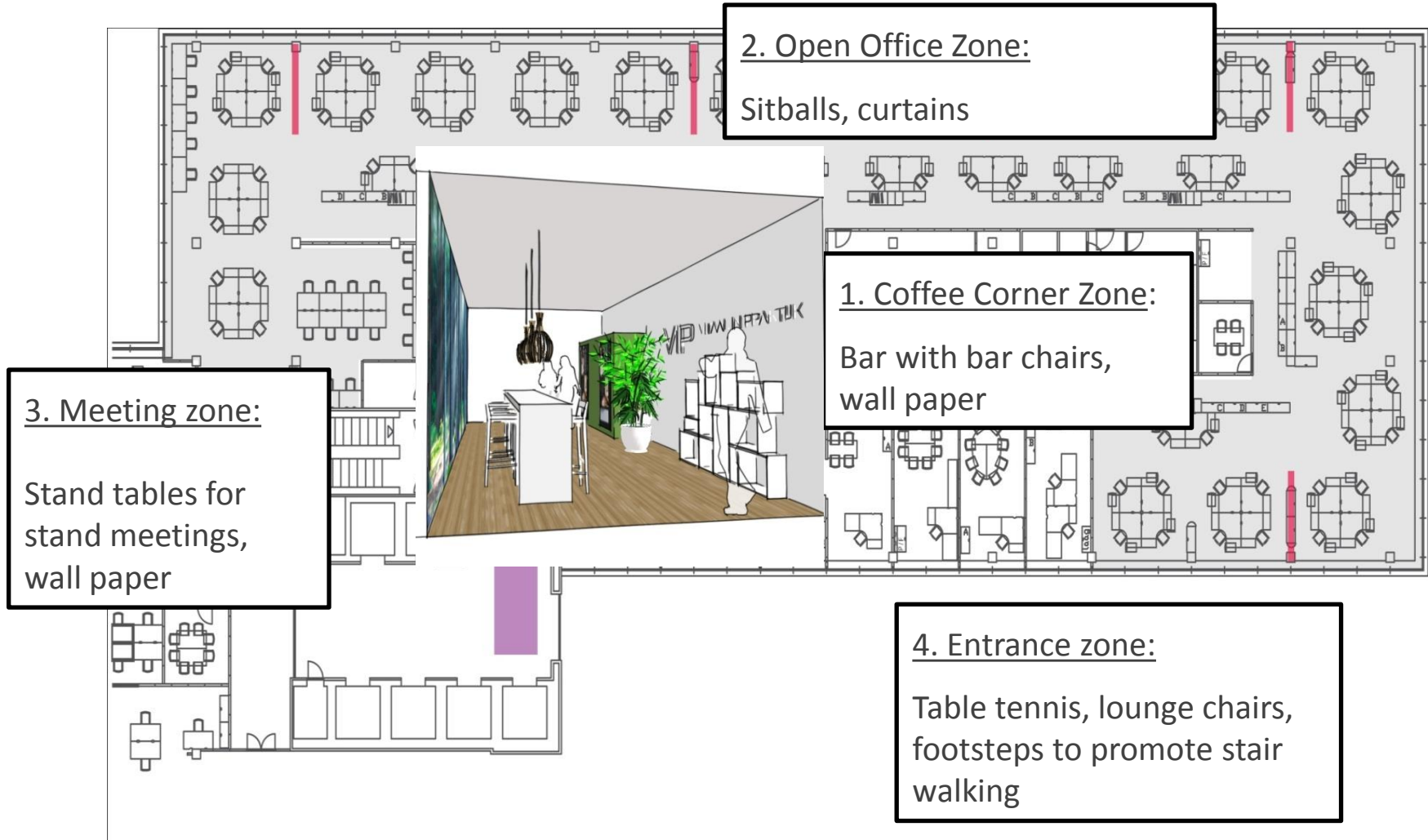


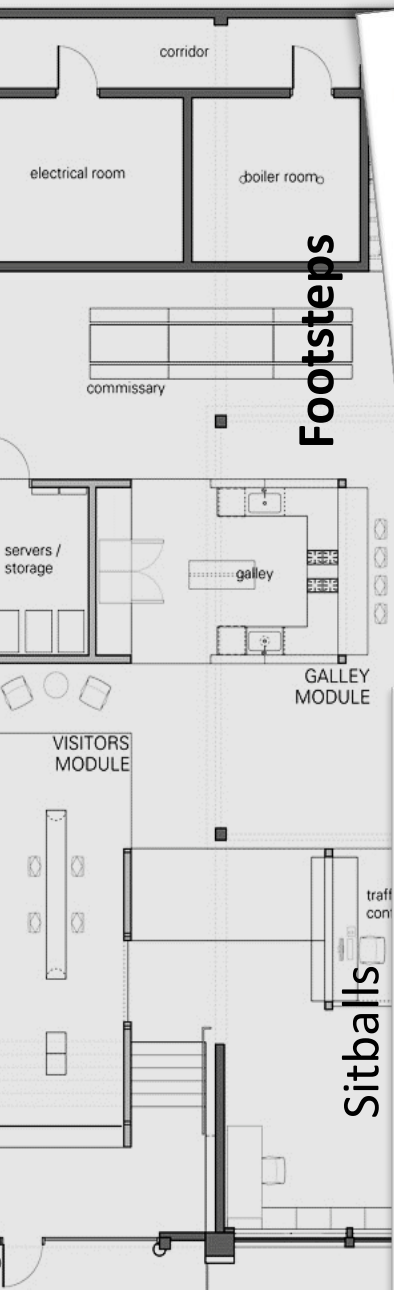
SOCIAL ENVIRONMENTAL INTERVENTION

- Teamleaders followed a 2 day training in GMI
- Teamleaders conducted 4 GMI-sessions with team
- 1,5 hour per team, 1x in 3 weeks
- Booster session after two months
- Supported by a social media platform

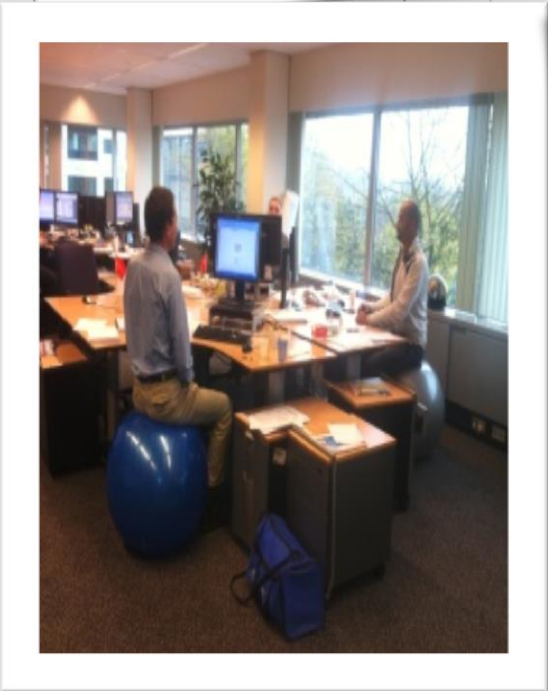


PHYSICAL ENVIRONMENTAL INTERVENTION





Footsteps



Sitballs

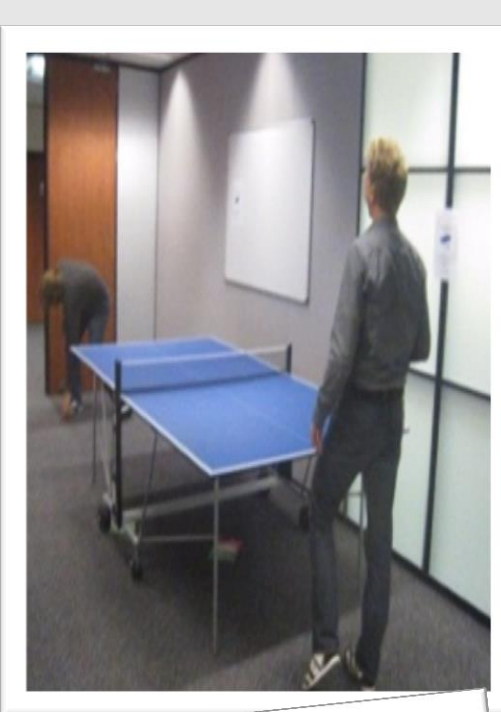
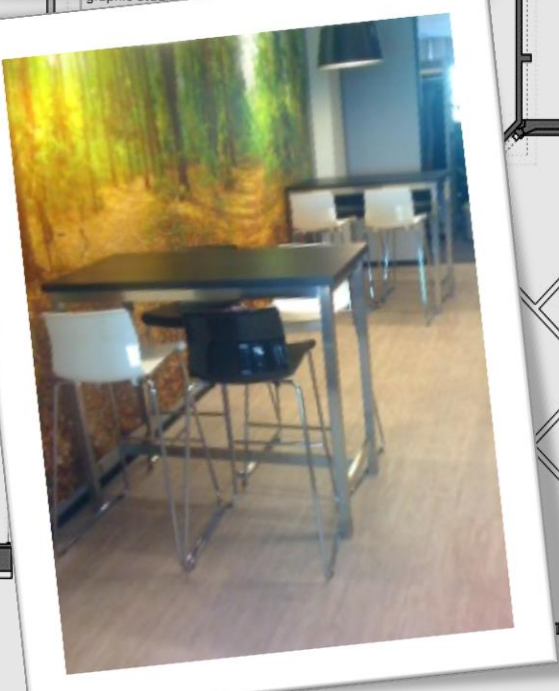
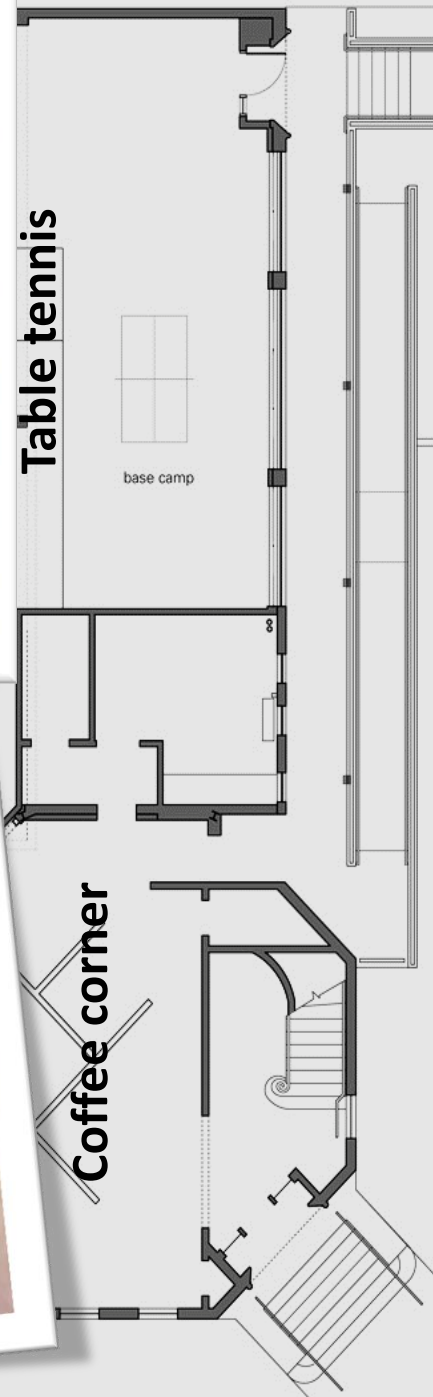


Table tennis



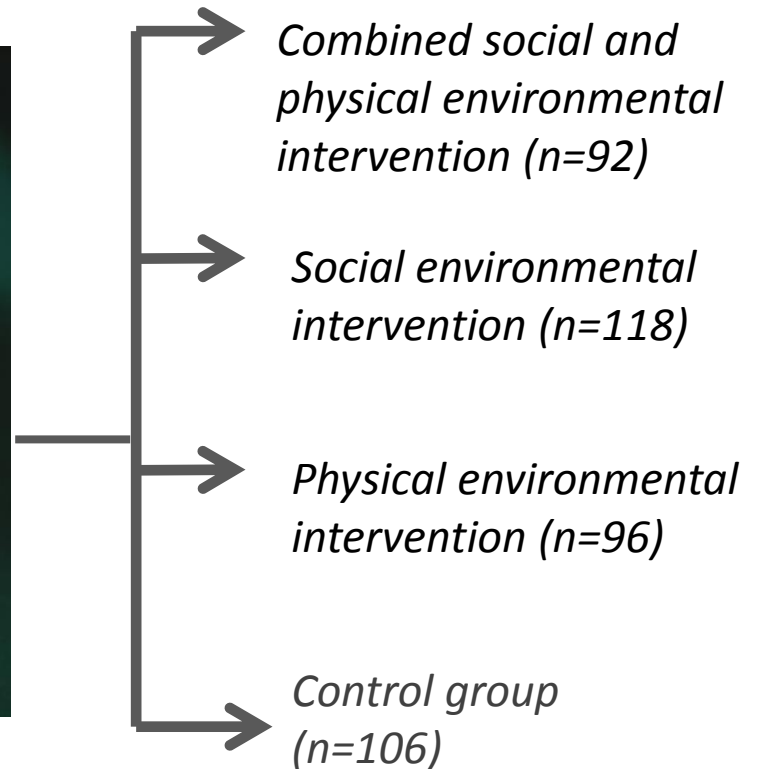
Coffee corner



METHOD

- Design 2 X 2 factorial design
- Multilevel analyses

412 employees



OUTCOME MEASUREMENTS

Primary outcome:

- **Need for recovery** (Van Veldhoven 2003)
“I find it hard to relax at the end of a working day”

Secondary outcomes:

- **Physical activity/ Detachment and relaxation/ Exhaustion/**
- **Small breaks at work/ Stair climbing/**
- **Presenteeism/ Absenteeism/ Work performance/ Work engagement**

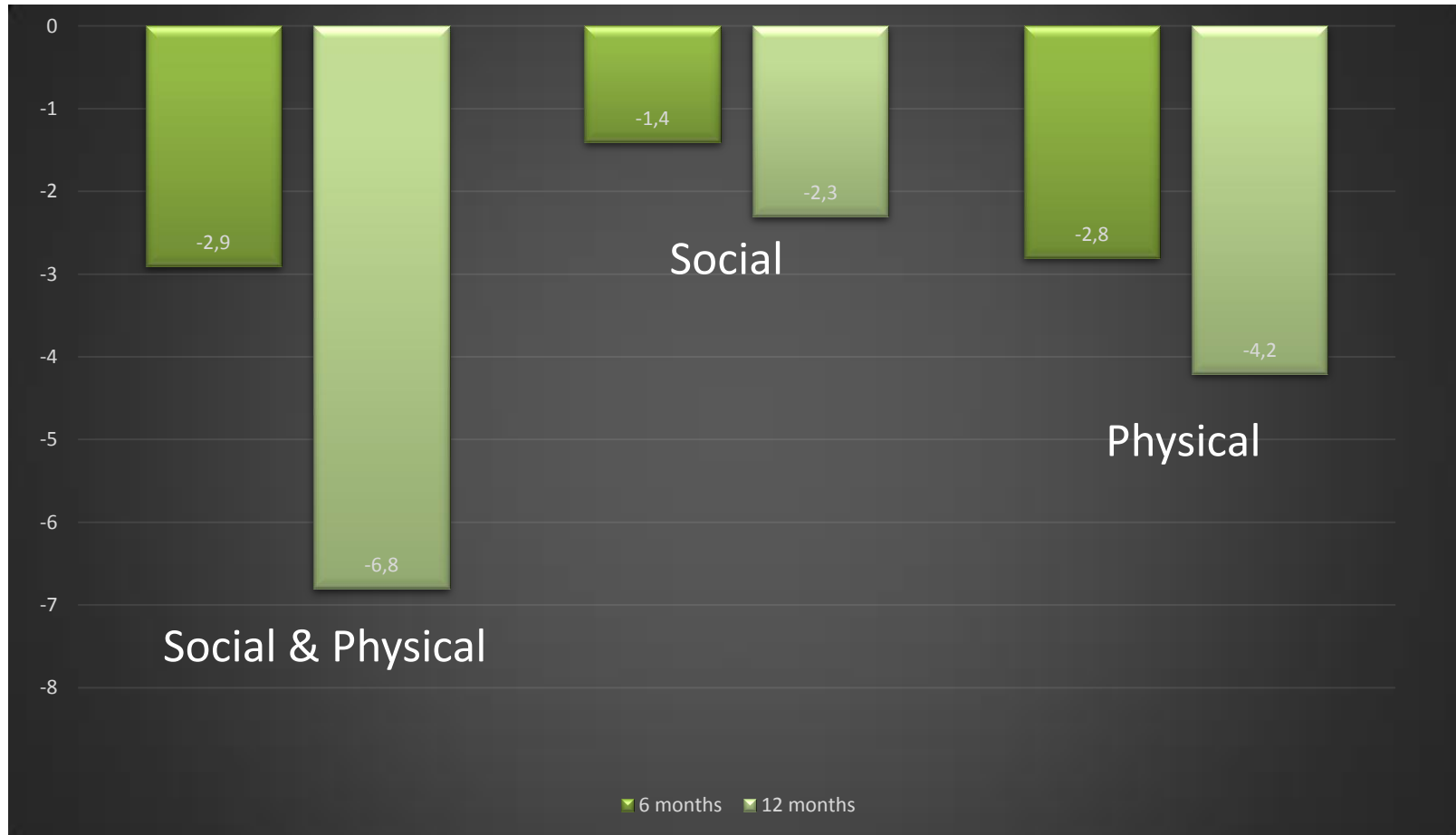
PROCESS EVALUATION

COMBINED INTERVENTION	
GMI TRAINING	8.2
GMI-sessions	7.1
Workbook	6.5
Social media platf	5.0
Coffee corner	7.0
Sit balls	6.9
Stand meeting	6.9
Table tennis	7.9
Lounge chair	7.3

SOCIAL INTERVENTION	
GMI TRAINING	8.0
GMI-sessions	7.0
Workbook	6.9
Social media platf	4.0

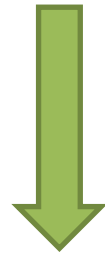
PHYSICAL INTERVENTION	
Coffee corner	6.6
Sit balls	6.2
Stand meeting	6.7
Table tennis	8.0
Lounge chair	7.5

RESULTS: Need for Recovery (Bèta)



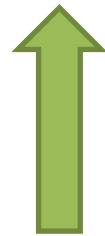
*Adjusted for confounders age, gender, education, marital status, general health, job demands, supervisor support, and corresponding baseline measure of the outcome variable.

RESULTS COMBINED INTERVENTION (Bèta):



Exhaustion

Overall effect (-0.2; 95%CI -0.3 to -0.1)
At 6 months (-0.2; 95%CI -0.0 to -0.03)
At 12 months (-0.2; 95%CI 0.1 to 1.3)

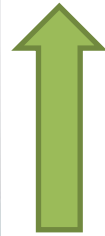


Active Commuting

At 6 months (175.1; 95%CI 4.3 to -346.0)

*Adjusted for confounders age, gender, education, marital status, general health, job demands, supervisor support, and corresponding baseline measure of the outcome variable.

RESULTS COMBINED INTERVENTION (Bèta):



Small breaks

Overall effect (0.8; 95%CI 0.3 to 1.3)

At 6 months (0.8; 95%CI 0.1 to 1.4)

At 12 months (0.8; 95%CI 0.2 to 1.5)



Vigorous Physical activity

At 6 months (-62.6; 95%CI 120.9 to -3.9)

*Adjusted for confounders age, gender, education, marital status, general health, job demands, supervisor support, and corresponding baseline measure of the outcome variable.

RESULTS COMBINED INTERVENTION (Bèta):

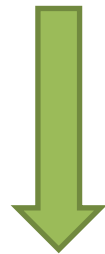


Contextual performance

Overall effect (-0.3; 95%CI -0.4 to -0.1)

At 6 months (-0.3; 95%CI -0.5 to -0.1)

At 12 months (-0.2; 95%CI -0.5 to -0.0)



Dedication

At 6 months (-0.3; 95%CI -0.6 to -0.0)

*Adjusted for confounders age, gender, education, marital status, general health, job demands, supervisor support, and corresponding baseline measure of the outcome variable.

OVERVIEW ALL RESULTS

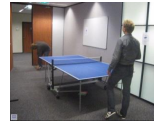
Combined intervention	Social intervention	Physical intervention
<ul style="list-style-type: none">↓ Exhaustion↑ Small breaks↑ Act. Commuting↓ Vigorous PA↓ Context. Perf↓ Dedication work	<ul style="list-style-type: none">↓ Exhaustion↑ Small breaks↓ Sedentary time↑ Leisure activities↑ Task Perf.	<ul style="list-style-type: none">↑ Act. Commuting↓ Sedentary time↑ Walking stairs↑ Absorption work





ECONOMIC EVALUATION

Combined intervention

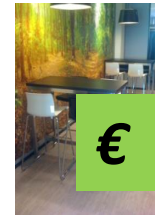


€ 466 per employee

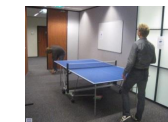
Social intervention



Physical intervention

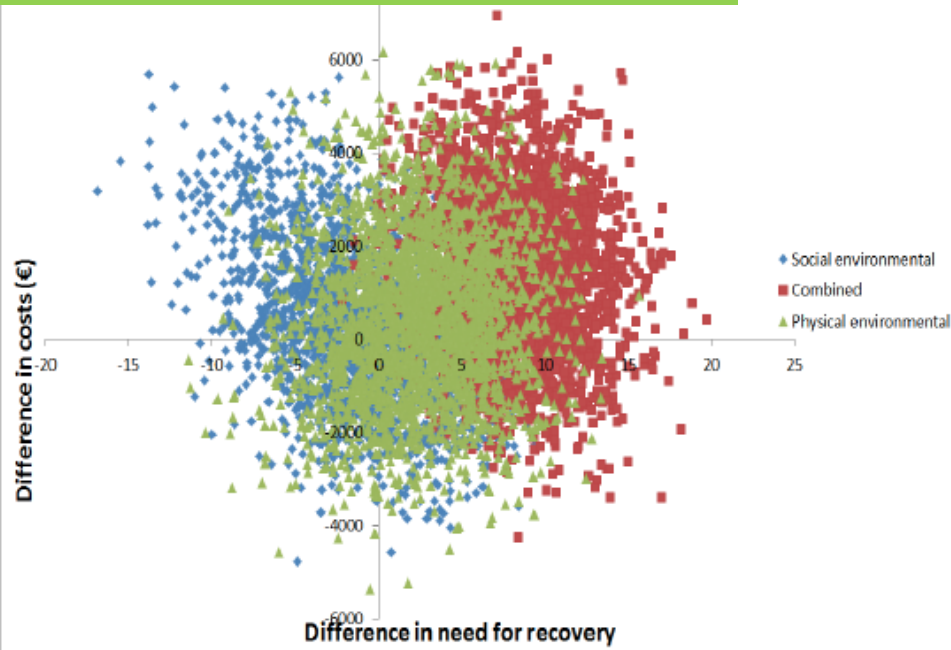


€ 72 per employee

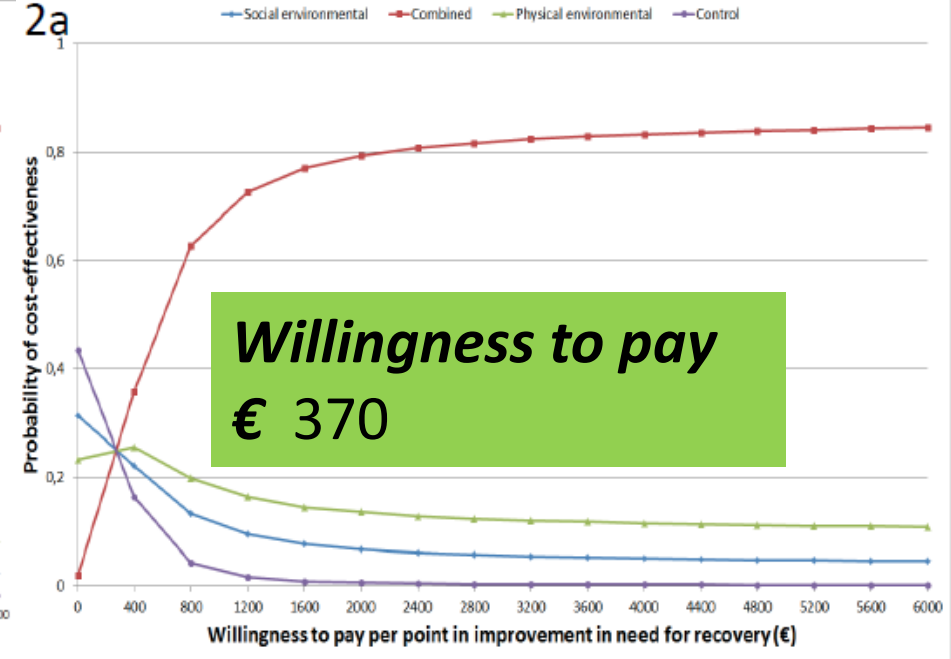
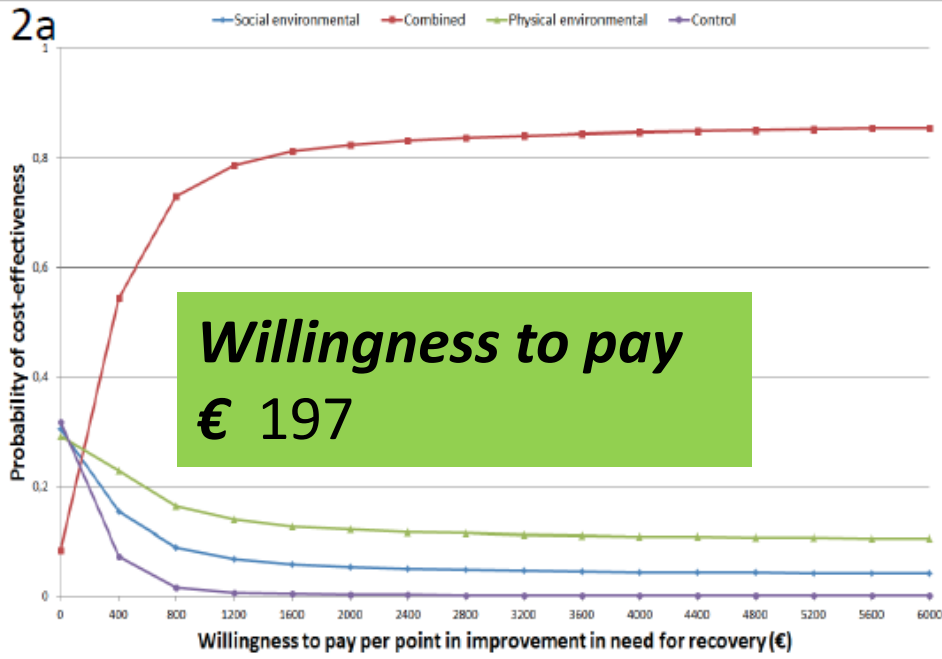


€ 430 per employee

Societal perspective



Employer's perspective



ECONOMIC EVALUATION

- Whether the combined intervention can be regarded as cost-effective in improving NFR from both the societal and employer's perspective depends on the respective *decision-makers' willingness-to-pay* per point improvement
- As well as the probability of cost-effectiveness that they consider acceptable.

DISCUSSION

- The results of the study showed that none of the interventions was effective in improving the need for recovery compared to the control group.
- It was expected that the combined intervention had an advantage over individual interventions.
- Participants had favourable baseline scores on need for recovery ($M=33.2$) compared to average norm scores ($M=38.1$).

DISCUSSION

We still believe that the combined social and physical environmental intervention has the potential to improve the need for recovery.

Recommendations:

- Investigate the effectiveness of the interventions among a population with higher baseline values on need for recovery.
- Higher frequency of GMI-sessions & better integration of social media platform (e.g., Facebook and Twitter).
- More drastic environmental modifications (e.g., restructuring entire department).

CHALLENGES NEAR FUTURE

Grey wave – How to create a labour market for workers during their life course

Need for a tailored approach in our interventions in specific occupations – no one size fits all

The cost-effectiveness of interventions – understand what will work and when (population/context)





EIEIM 2014 Budapest

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OUTCOME MEASUREMENTS

Primary outcome:

- **Need for recovery** (Van Veldhoven 2003)

“I find it hard to relax at the end of a working day”

Secondary outcomes:

- **Physical activity** (SQUASH;Wendel-Vos et al., 2003)

Duration, frequency, intensity of active commuting, physical activity at work, sedentary time at work and after work, leisure time, household and sports.

- **Detachment and relaxation** (Sonnetag et al., 2007)

“I forget about work”, “I kick back and relax”.

- **Exhaustion** (OLBI; Demerouti et al., 2003)

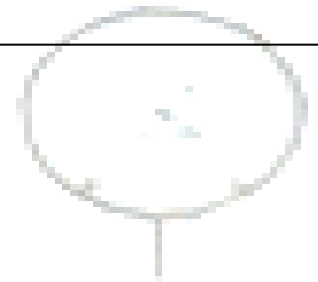
“I can usually handle the amount of work well”

- **Small breaks at work** (newly developed)

“Besides your lunch break, how many small breaks (minimum 5 minutes) do you have during a usual workday?”

- **Stair climbing** (newly developed)

“How often do you take the stairs at work during a usual workday”?



OUTCOME MEASUREMENTS

Secondary outcomes

- **Presenteeism (WHO-HPQ)**

Asking participants to rate:

- their actual performance in relation to possible performance
- their actual performance in relation to the performance of colleagues”

- **Absenteeism** (retrieved from company records)

- **Work performance** (IWPQ; Koopmans et al., 2013)

i.e., task performance, contextual performance and counterproductive work behavior

- **Work engagement** (UWES-17; Schaufeli & Bakker 2003)

i.e., vigour, dedication and absorption