



ประสิทธิผลของการเพิ่มกิจกรรมทางกายในที่ทำงานต่อการลดระยะเวลาของพฤติกรรม  
เนือยนิ่งในประชากรวัยทำงาน: การวิจัยเชิงทดลองแบบสุ่มชนิดมีกลุ่ม



Efficacy of “Physical Activity at Work (PAW)” program in reducing sedentary lifestyle: a clustered randomized control trial in Thailand



สำนักงานกองทุนสนับสนุน  
การสร้างเสริมสุขภาพ



## Backgrounds



**Sedentary behaviour**  
(lack of physical activity)



Cardiovascular disease



Cardiovascular mortality



All-cause mortality



Diabetes

The estimated total healthcare costs from physical inactivity in Thailand = \$190 million

## Intervention

### Social-Ecological Model

| Individual-level | Environmental level | Societal level | Organisational level |
|------------------|---------------------|----------------|----------------------|
|------------------|---------------------|----------------|----------------------|



Fitbit



Lottery



Posters



Team movement breaks



Team-based incentives



Leadership support

## Backgrounds

## Method

PILOT ✓



Cluster - RCT \*

On-going



CEA!

Control cluster

Intervention cluster

## Outcome

**Primary: sedentary time**

**Secondary:**

- time spent on PA
- cardiometabolic outcomes
- work productivity
- musculoskeletal pain
- quality of life

\* Sample: DMS office workers



# Big Team



Data collection  
Field work



Data analysis



Randomization  
Reviews of Reviews (Umbrella Review)

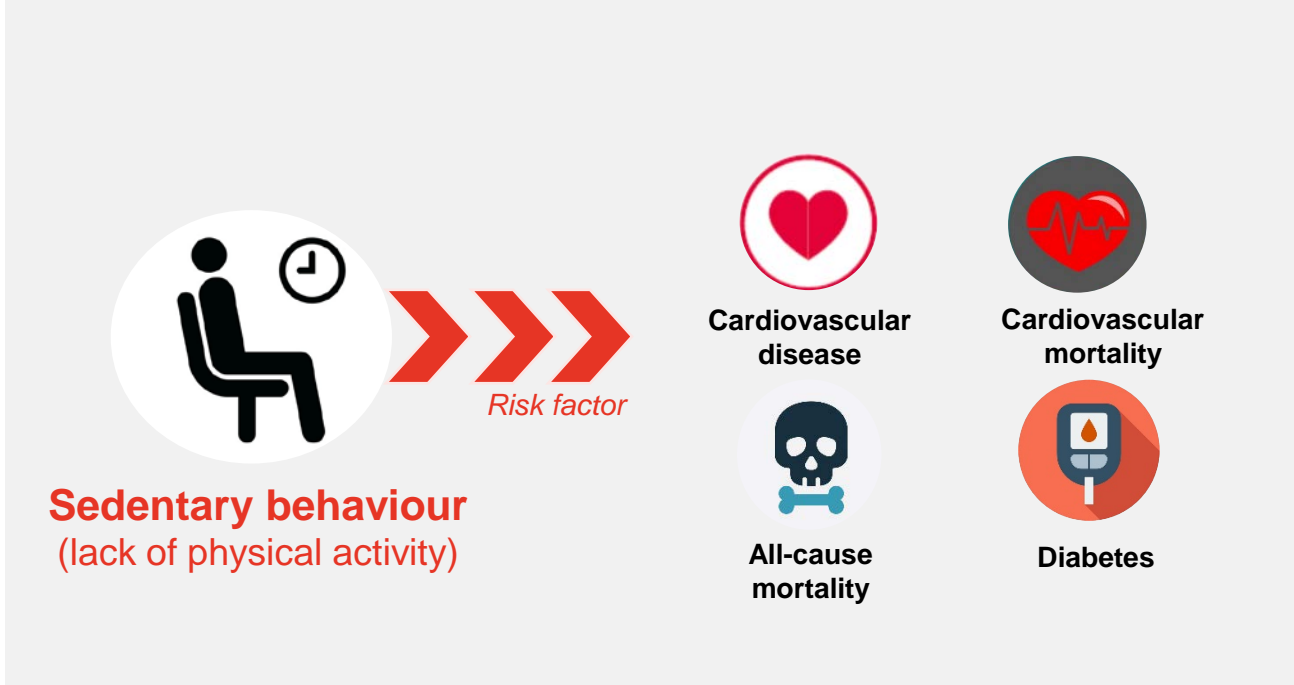
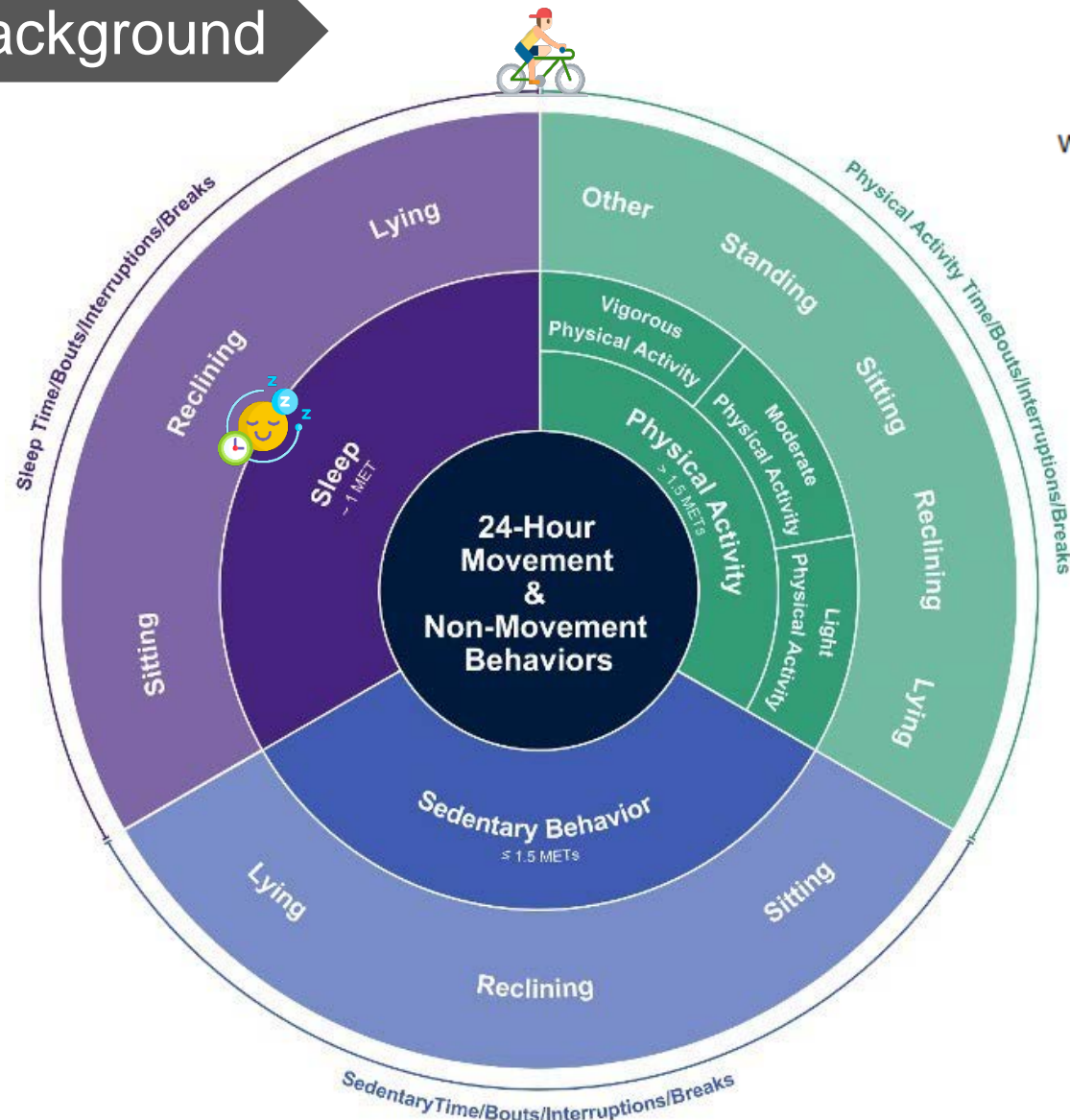


# Background

$$1 \text{ MET} = 1 \frac{\text{kcal}}{\text{kg} \times \text{h}}$$

where

- kcal = kilocalorie
- kg = kilogram
- h = hour



- Tremblay, M.S., Aubert, S., Barnes, J.D. et al. **Sedentary Behavior Research Network (SBRN) Terminology Consensus Project process and outcome.** *Int J Behav Nutr Phys Act* **14**, 75 (2017). <https://doi.org/10.1186/s12966-017-0525-8>

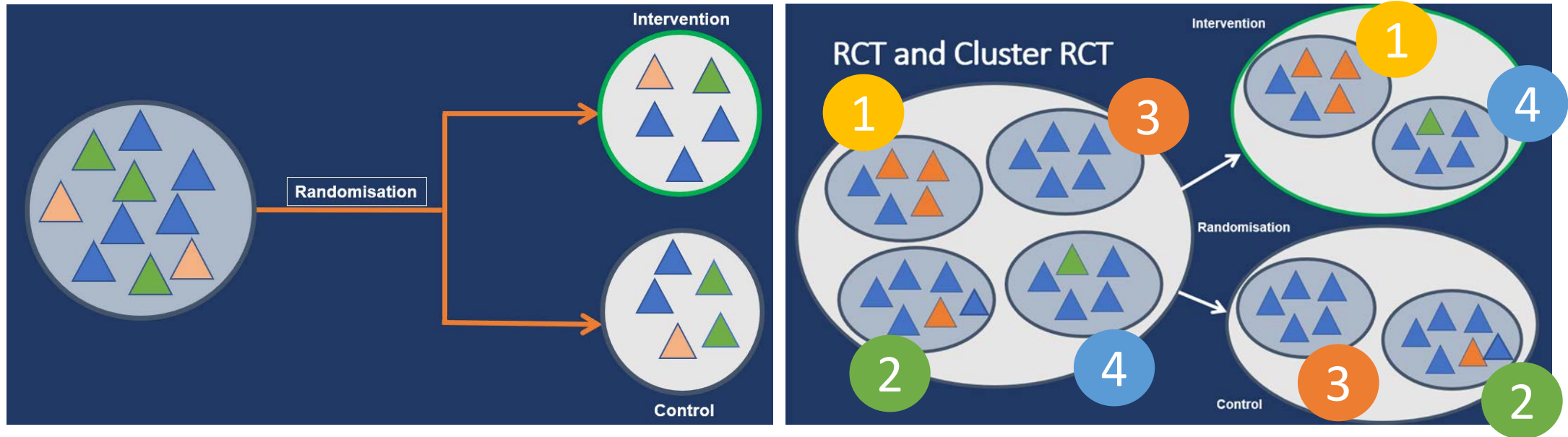


# Objectives

- Create feasible **complex intervention** to reduce sedentary behaviour in office workers
- **Test** the intervention
  - Effectiveness
  - Efficacy
- **Compare** with other researches to inform Policy Makers
  - Umbrella review



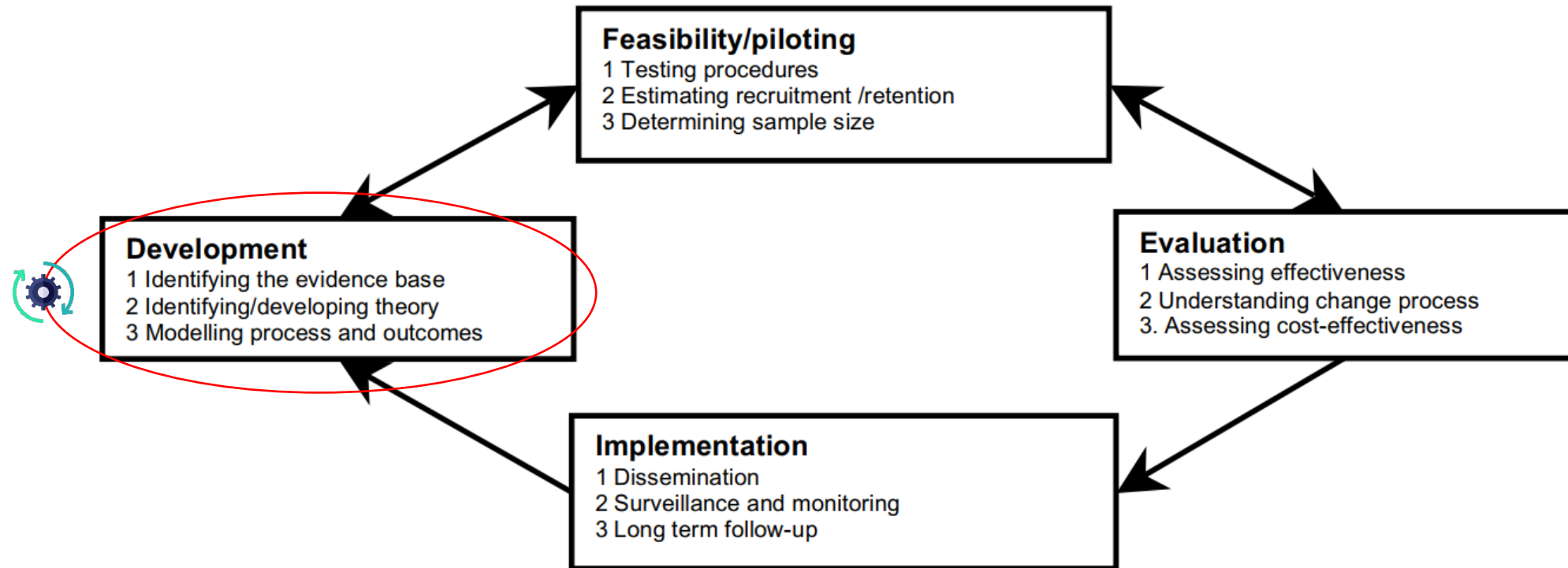
# Why Cluster Randomised Controlled Trial?



1. Intervention necessarily acts at the cluster level: movement breaks
2. Contamination between members of a cluster

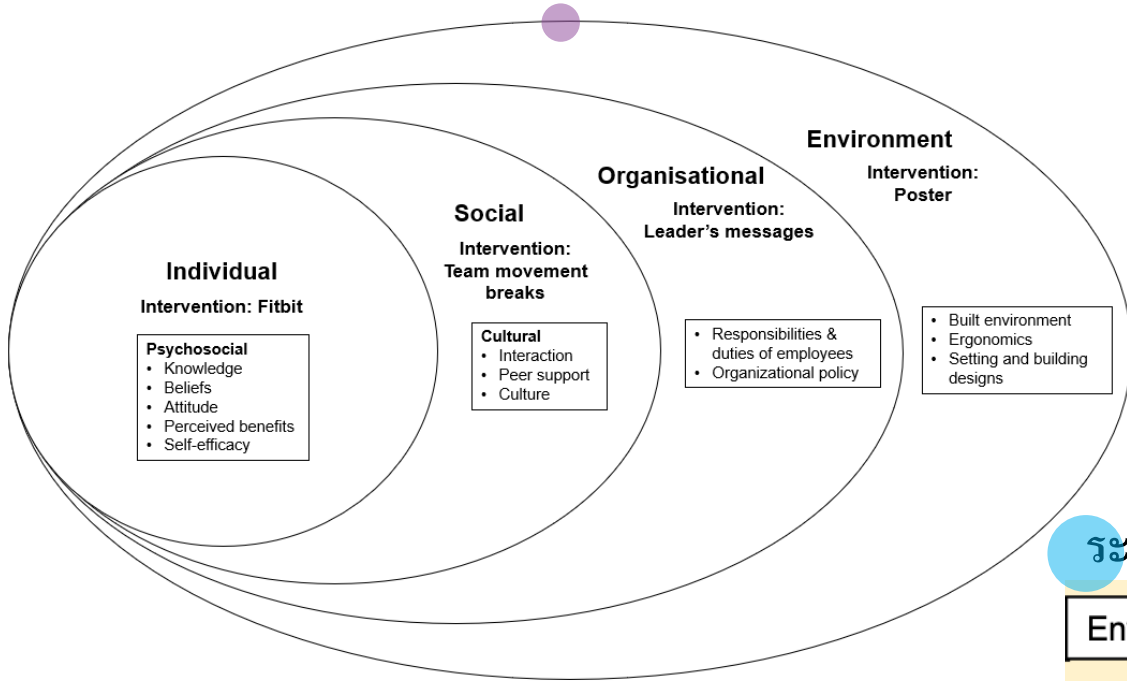
# Complex intervention development

Figure 1 Key elements of the development and evaluation process



Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, Petticrew M; Medical Research Council Guidance. Developing and evaluating complex interventions: the new Medical Research Council guidance. *BMJ*. 2008 Sep 29;337:a1655. doi: 10.1136/bmj.a1655. PMID: 18824488; PMCID: PMC2769032.

# Ecological model

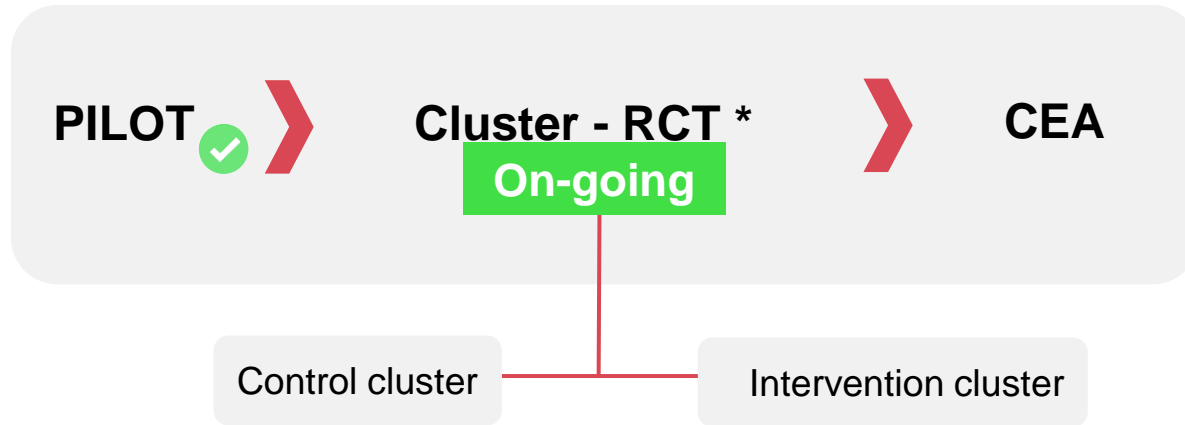


## 4 มาตรการ

|                     |                       |                      |                  |
|---------------------|-----------------------|----------------------|------------------|
| ระดับสิ่งแวดล้อม    | ระดับสังคม            | ระดับที่ทำงาน        | ระดับบุคคล       |
| Environmental level | Societal level        | Organisational level | Individual-level |
|                     |                       |                      |                  |
| Posters             | Team movement breaks  | Leadership support   | Fitbit           |
|                     |                       |                      |                  |
|                     | Team-based incentives |                      | Lottery          |







## Timeline

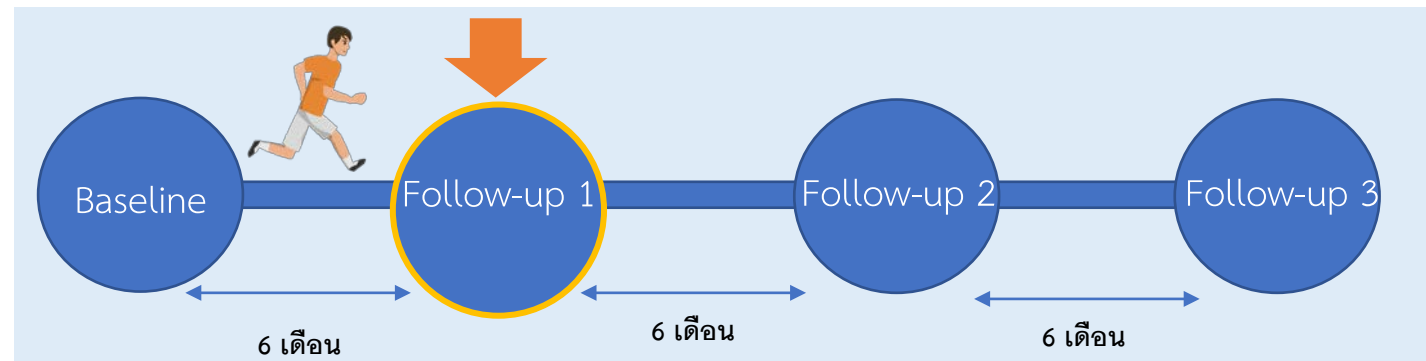
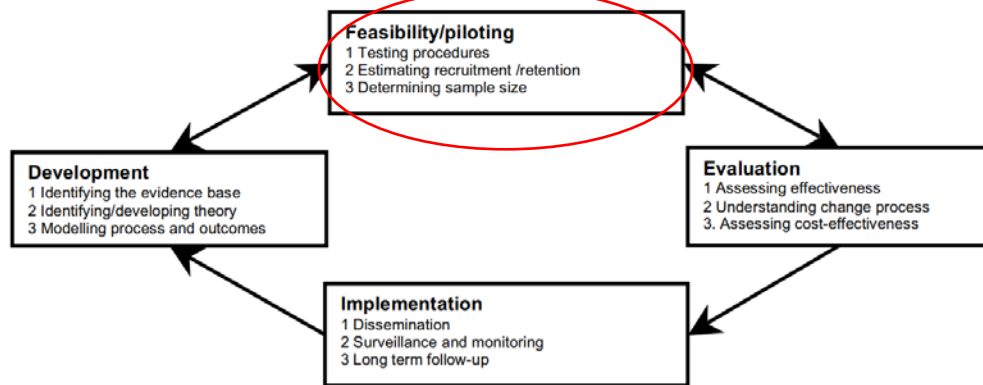


Figure 1 Key elements of the development and evaluation process



# Data collection 2

## Objective

### ActiGraph

- 80 AG at HITAP!  
(640,000 ₪)
- Gold standard

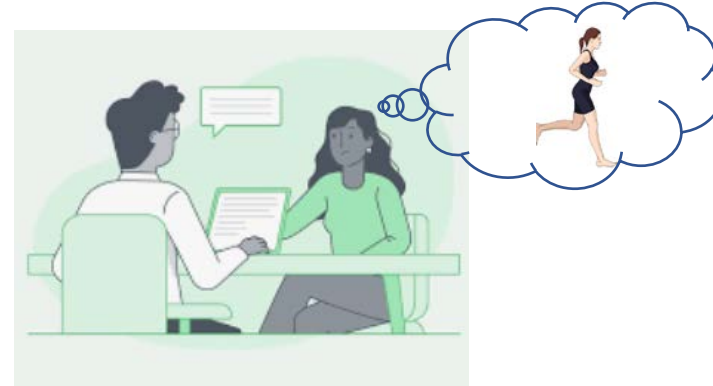


### Biomarkers



## Subjective

### Questionnaire interview

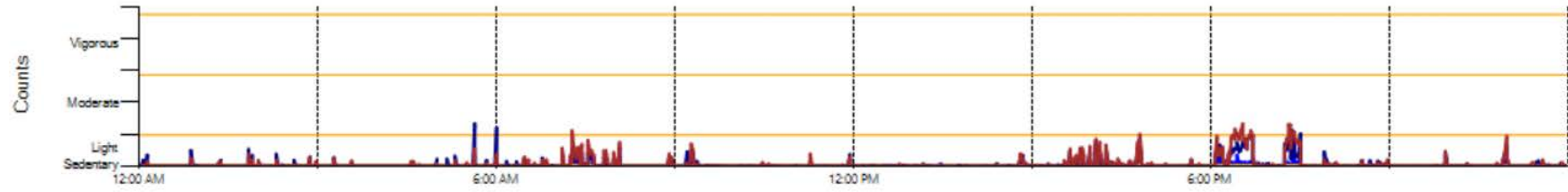


Special thanks to:

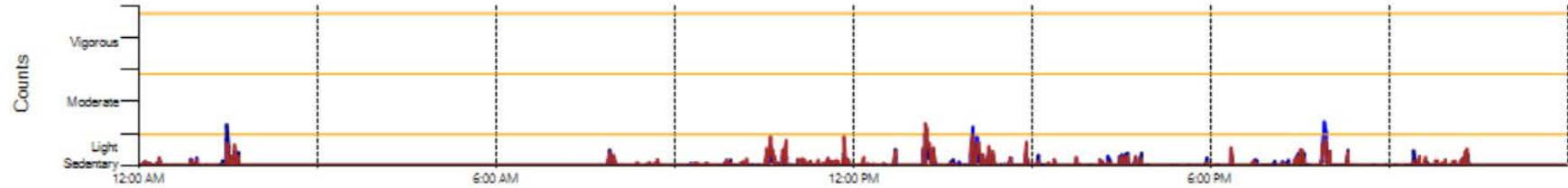


## ActiGraph data

Thursday  
20-May-21

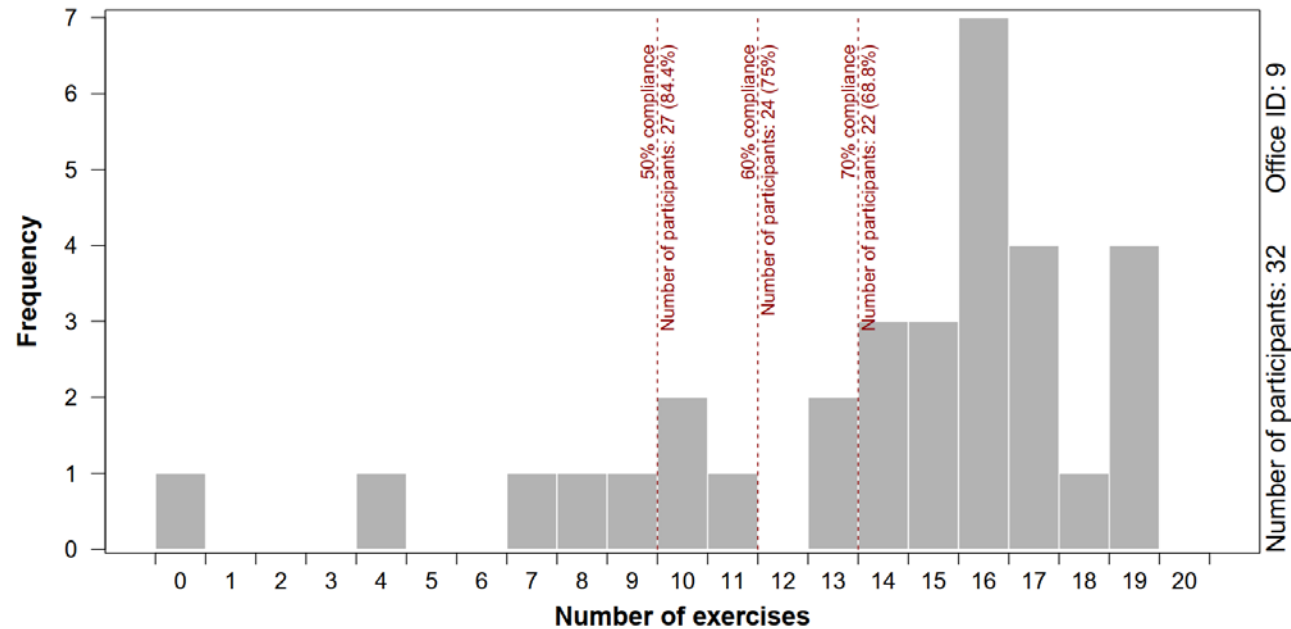


Friday  
21-May-21



## Fitbit data

### Week 41: Histogram of total number of exercises done



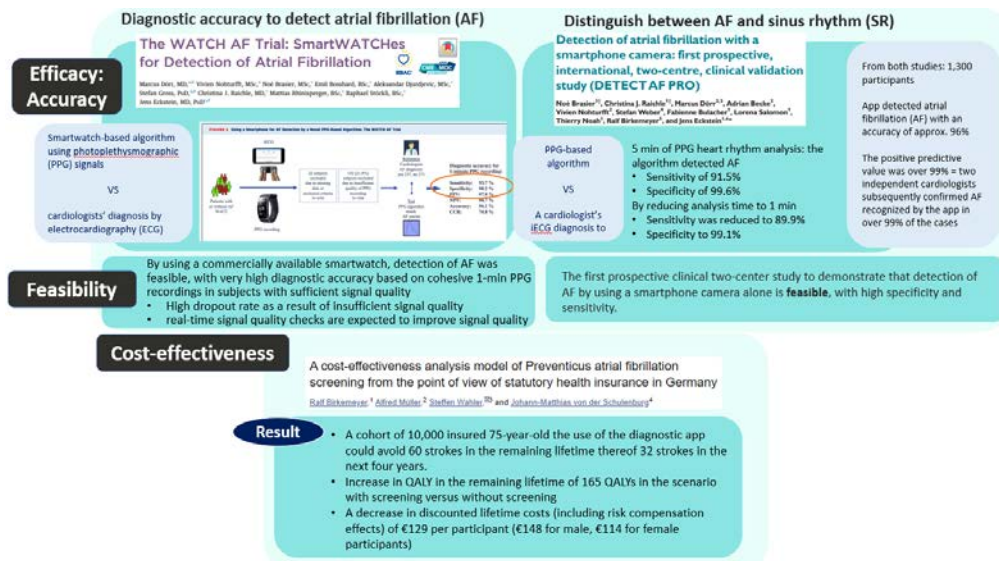
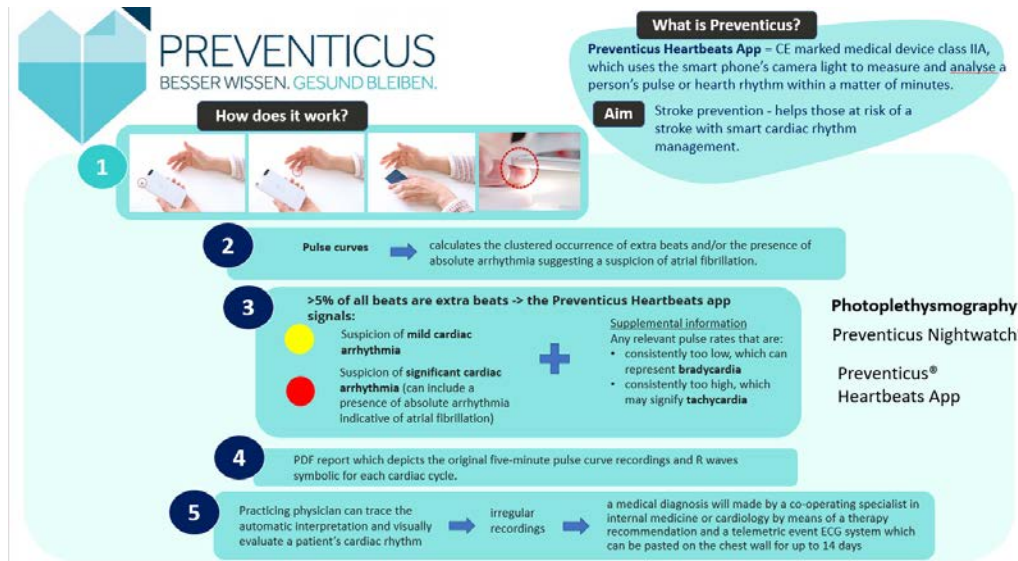
## Behavioural change research

- Complex intervention
- Cluster RCTs

## Digital health research



## Example:





# ขอขอบคุณ

---



HITOTSUBASHI  
UNIVERSITY

