

# InnoSleep

## Activity 2.1

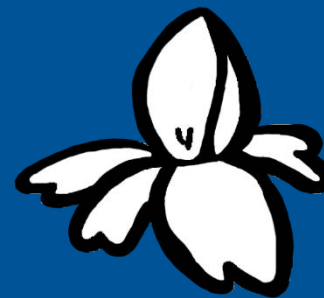


# SLEEPINESS

a search for biomarkers of sleepiness in obstructive  
sleep apnoea

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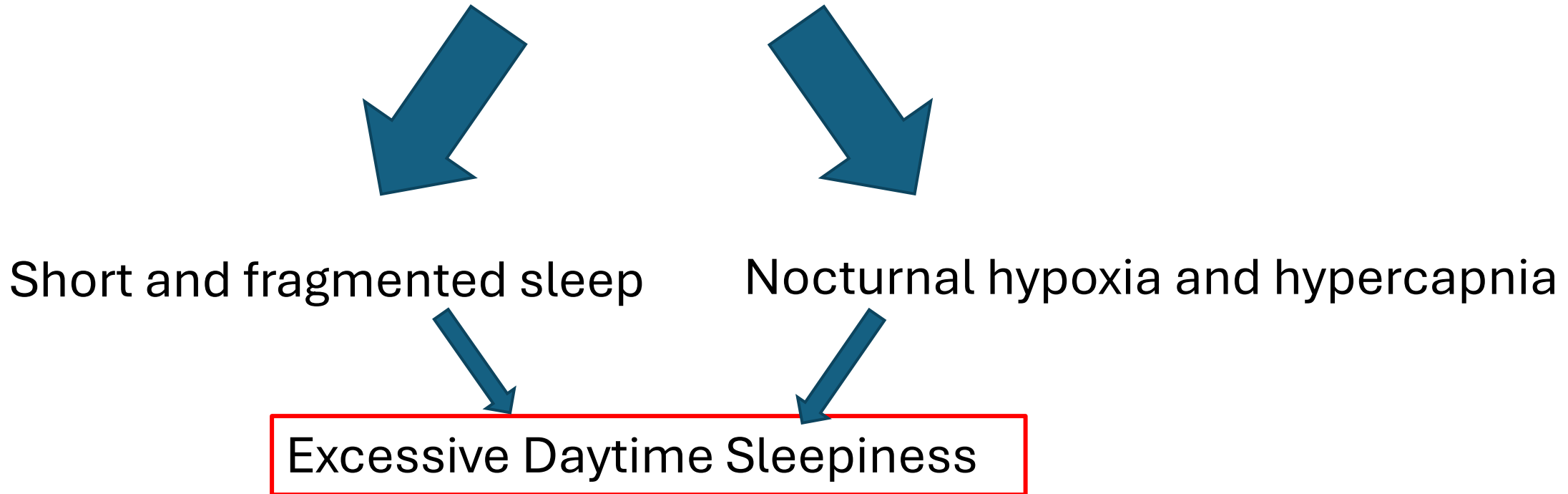
An explorative study



UNEEG™ medical

# Background

- Sleep apnea is a common condition (estim. global prevalence 1 billion) <sup>1</sup>
- Repetitive upper airway collapse during sleep (e.g.  $30 * 7,5h = 225$ )
- Associated with daytime sleepiness, neurocognitive dysfunction, risk of CVD, metabolic dysfunction, quality of life impairment <sup>2</sup>



# Excessive daytime sleepiness

*“the **inability to maintain** wakefulness and alertness during the major waking episodes of the day, with **sleep occurring unintentionally** or at inappropriate times almost daily for at least three months”<sup>1</sup>*

A coiled yellow measuring tape with black markings and numbers, resting on a dark surface. The tape is partially unrolled, showing the numbers 3, 4, 5, 6, and 7. The background is a dark, textured surface.

Kan man måle træthed?





## EPWORTH SLEEPINESS SCALE

How likely are you to doze off or fall asleep during the following situations?

0 = would never doze      2 = moderate chance of dozing  
1 = slight chance of dozing      3 = high chance of dozing

	Score
1. Sitting and reading	0 1 2 3
2. Watching TV	0 1 2 3
3. Sitting, inactive in a public place	0 1 2 3
4. As a passenger in a car for an hour without a break	0 1 2 3
5. Lying down to rest in the afternoon when circumstances permit	0 1 2 3
6. Sitting and talking to someone	0 1 2 3
7. Sitting quietly after a lunch without alcohol	0 1 2 3
8. In a car, while stopped for a few minutes in the traffic	0 1 2 3

Total \_\_\_\_\_

How do we assess if patients are too SLEEPY today?







Implant is placed subcutaneously to collect EEG data



External recorder attached to the skin behind the ear, placed directly above the implant housing



Implant housing is placed subcutaneously behind the ear; lead with three electrodes is placed in the subgaleal space



Small and discrete solution collects EEG data day and night during everyday life



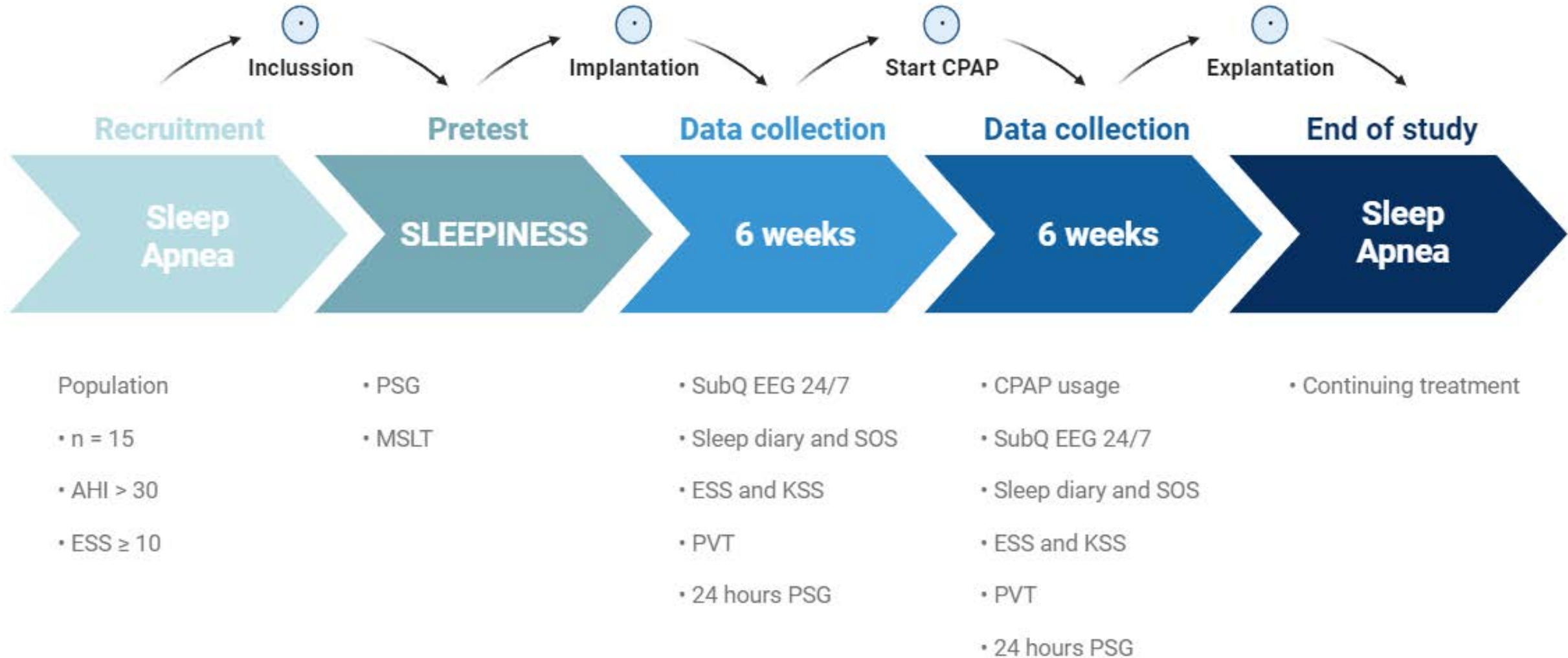


## Lidt nemmere end standard EEG

Undersøge hjemme fremfor på hospitalet



## Study flowchart

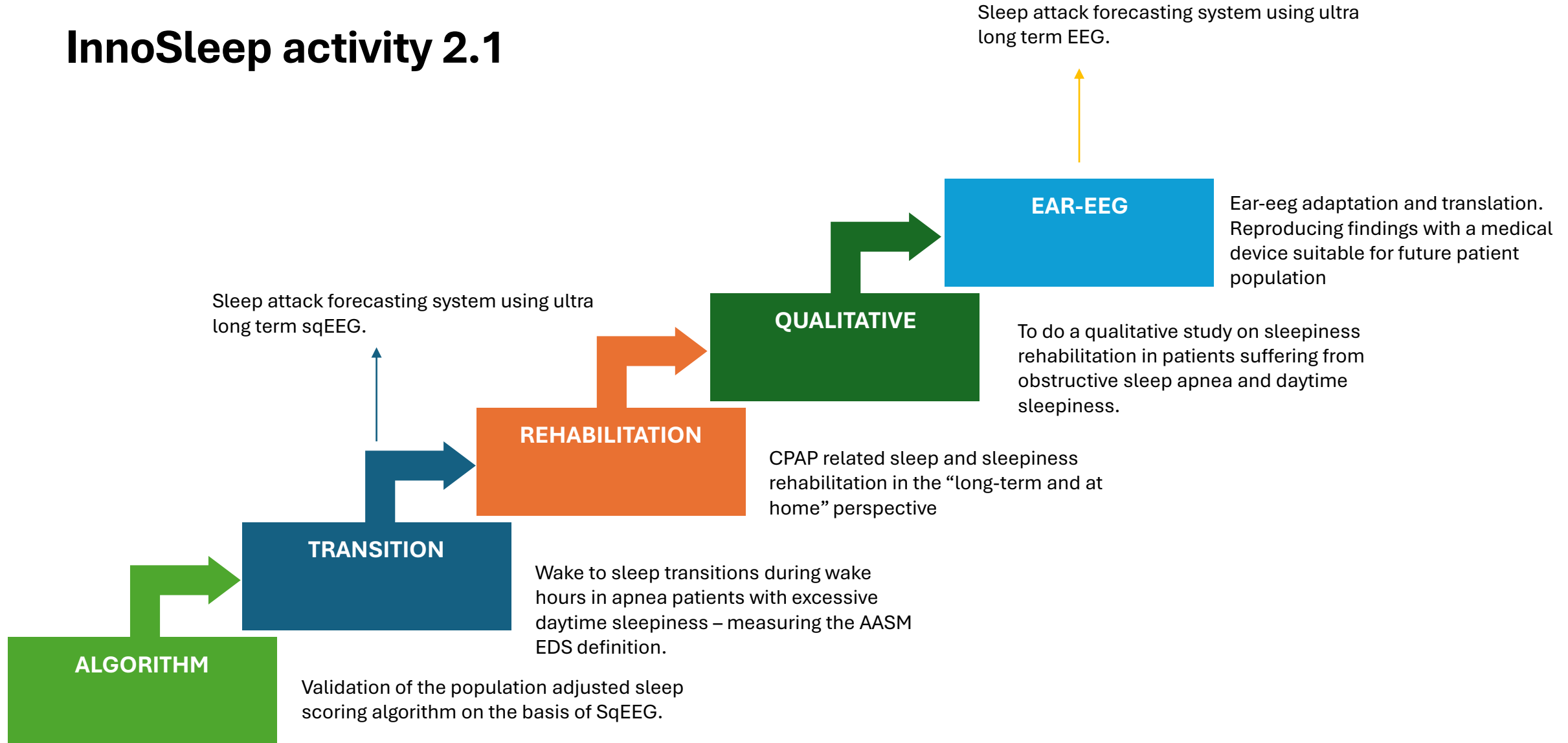


# Ecological momentary assessment

- Koble subjektive søvnsscore, reaktionsevnetest
- EEG derivedede sleepiness biomarkører
- MobilSensing: skridttal, placering, vejrfænomener, skærmbrug

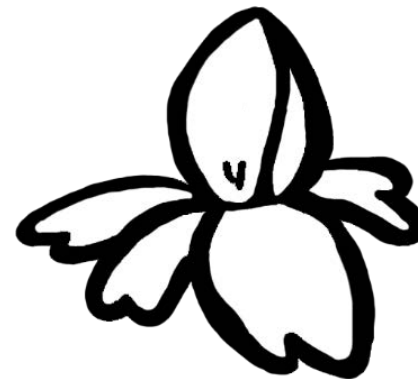


# InnoSleep activity 2.1





# Tak





## Epworth Sleepiness Scale

Name: \_\_\_\_\_ Today's date: \_\_\_\_\_

Your age (Yrs): \_\_\_\_\_ Your sex (Male = M, Female = F): \_\_\_\_\_

How likely are you to doze off or fall asleep in the following situations, in contrast to feeling just tired?

This refers to your usual way of life in recent times.

Even if you haven't done some of these things recently try to work out how they would have affected you.

Use the following scale to choose the **most appropriate number** for each situation:

- 0 = would **never** doze
- 1 = **slight chance** of dozing
- 2 = **moderate chance** of dozing
- 3 = **high chance** of dozing

*It is important that you answer each question as best you can.*

Situation	Chance of Dozing (0-3)
Sitting and reading _____	_____
Watching TV _____	_____
Sitting, inactive in a public place (e.g. a theatre or a meeting) _____	_____
As a passenger in a car for an hour without a break _____	_____
Lying down to rest in the afternoon when circumstances permit _____	_____
Sitting and talking to someone _____	_____
Sitting quietly after a lunch without alcohol _____	_____
In a car, while stopped for a few minutes in the traffic _____	_____

THANK YOU FOR YOUR COOPERATION









# Vi ser en fantastisk forandring i den kliniske hverdag

Men hvad er det? Kan vi  
måle det?