

# From HRV to stress: Firstbeat solutions for better lifestyle management

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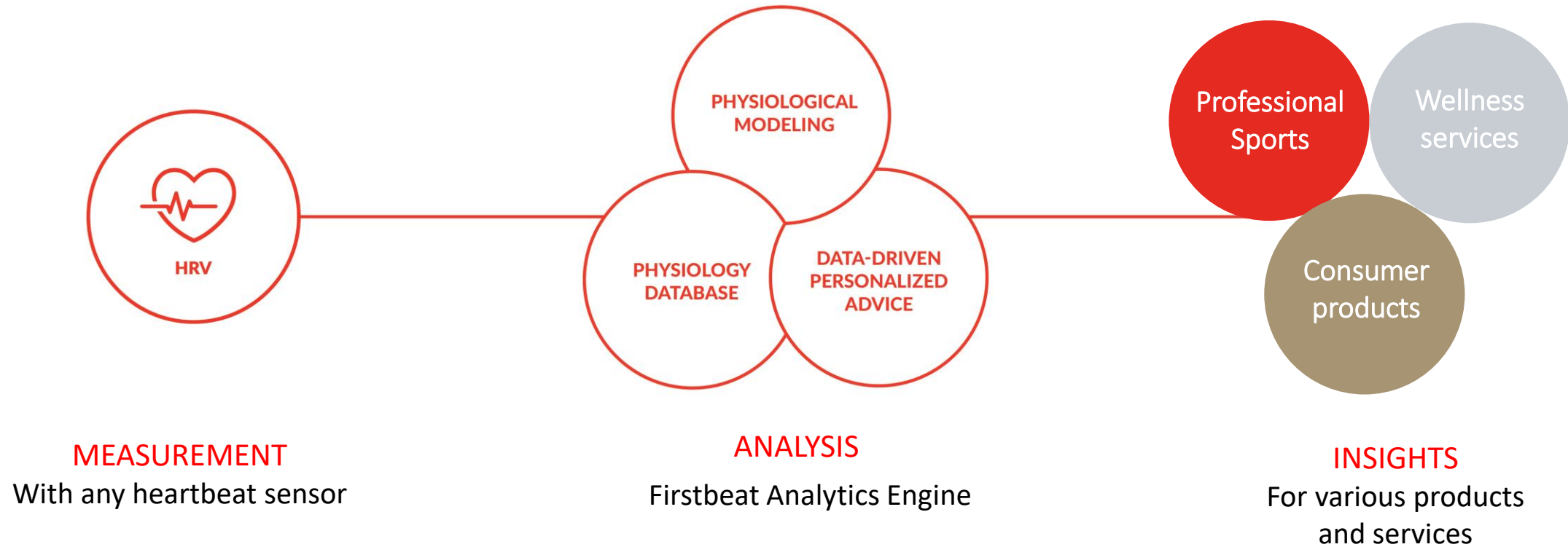
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# DIGITAL MODEL OF PHYSIOLOGY





# STRESS

- A natural reaction that increases the body's activation level and in the short term, improves mental and physical performance.
- Excessive, chronic stress weakens well-being and performance and makes us susceptible to physical & mental illnesses.
- Stress is a situation where the demands that the person is faced with are greater than the available resources.



# RECOVERY

- Calming down of the body
- Physiological process during which the body's physical and psychological state returns to the pre-stress level (homeostasis).
- Autonomic nervous system's parasympathetic branch is activated, decreasing the body's activation level: heart rate drops, breathing slows down and the mind calms down.

→ The key to resilience: Balance between stress & recovery.



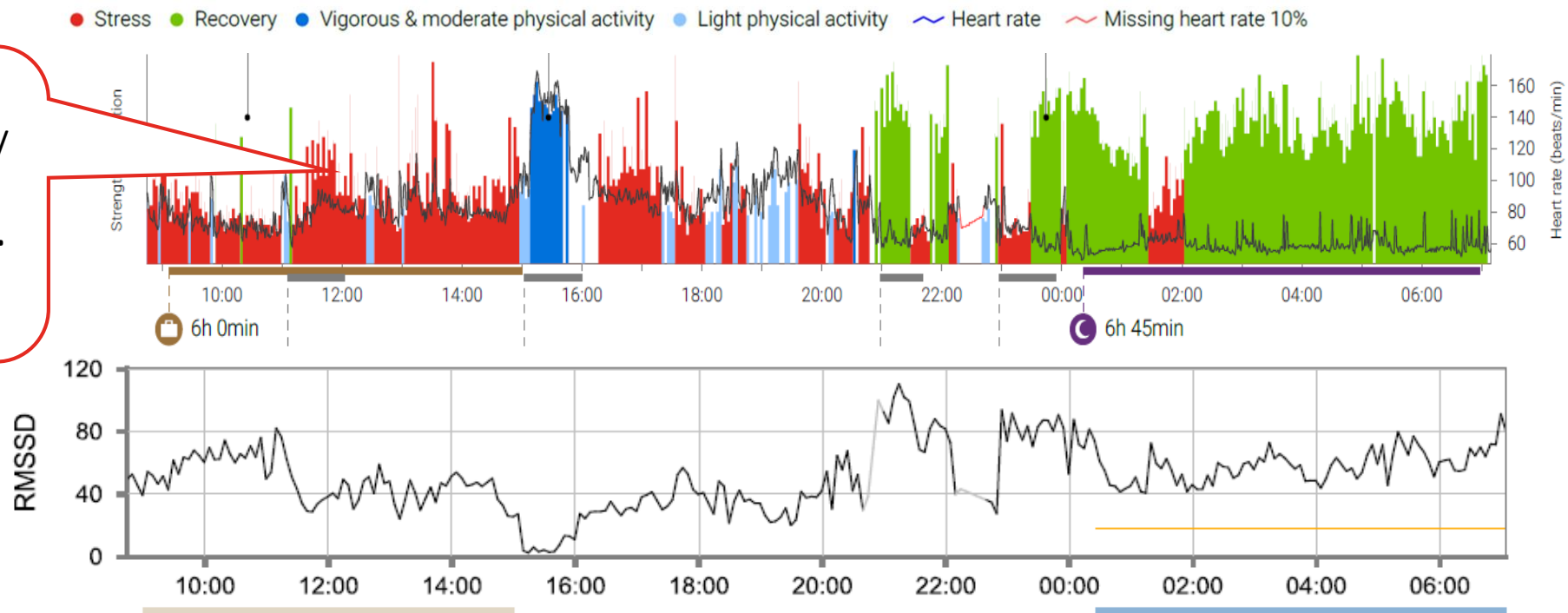
# VIDEO: FIRSTBEAT EXPLAINS STRESS IN 60 SECS



# FIRSTBEAT STRESS

- **Sympathetically dominated ANS** state: individually lowered HRV and increased HR.
- Body's activation level is elevated - and it is not caused by physical activity (*movement data*).
- HRV does not differentiate between positive and negative stress, and emotions cannot be detected from HRV.
- **Context tells whether the body is reacting appropriately** (e.g. during sleep, parasymp. activity should be dominant.)

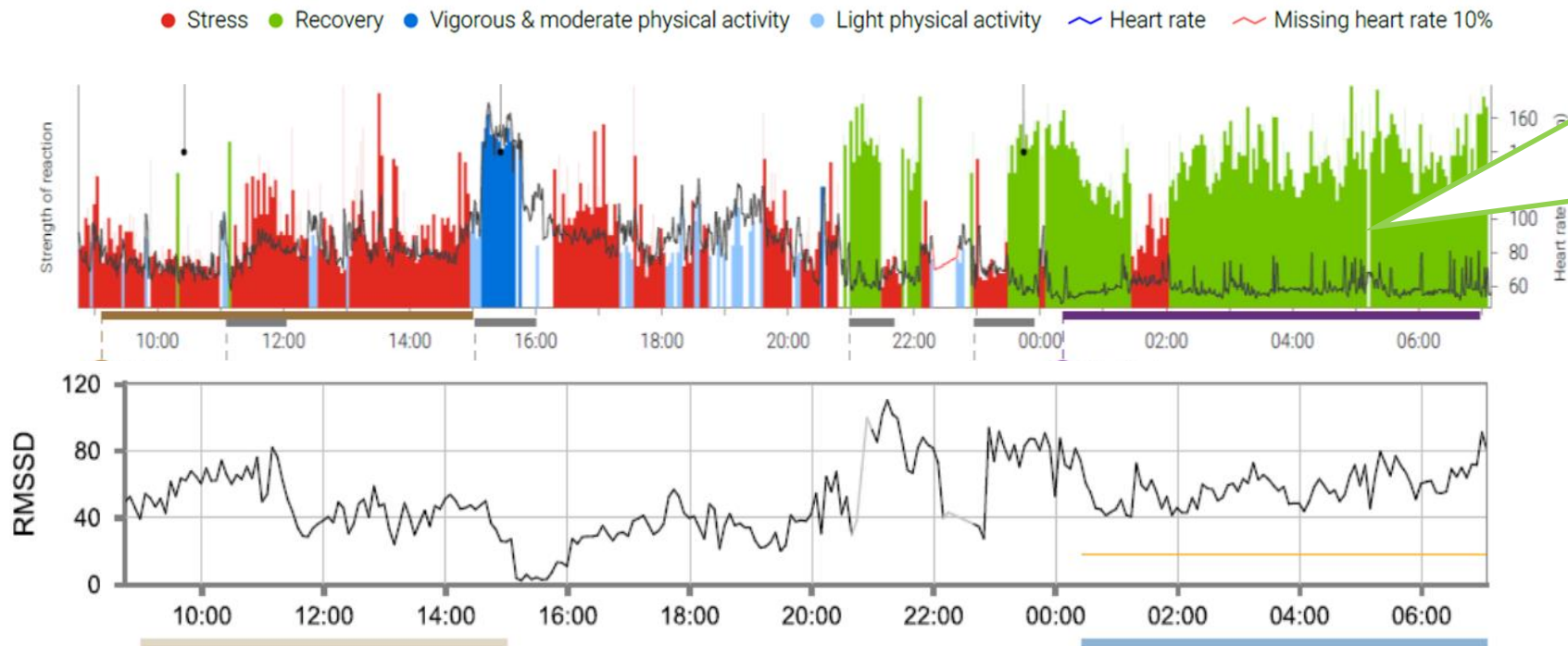
Parasympathetic activity is reduced/  
**sympathetic activity increased.**  
Signs of increased load in the body.





# FIRSTBEAT RECOVERY

- **Parasympathetically dominated ANS** state: individually increased HRV and low HR level & low respiration as a sign of strong parasympathetic modulation: sign of relaxation and **body's ability to recover from stress**.
- We don't measure whether you are asleep, but physiological recovery / the effect of sleep!
- Recovery is challenged by numerous stress factors, such as work stress, sleep problems, acute & chronic illnesses, medications, stimulants (alcohol, coffee), poor diet and being overweight.



Parasympathetic activity is increased, HRV increases, heart rate is low, body is recovering

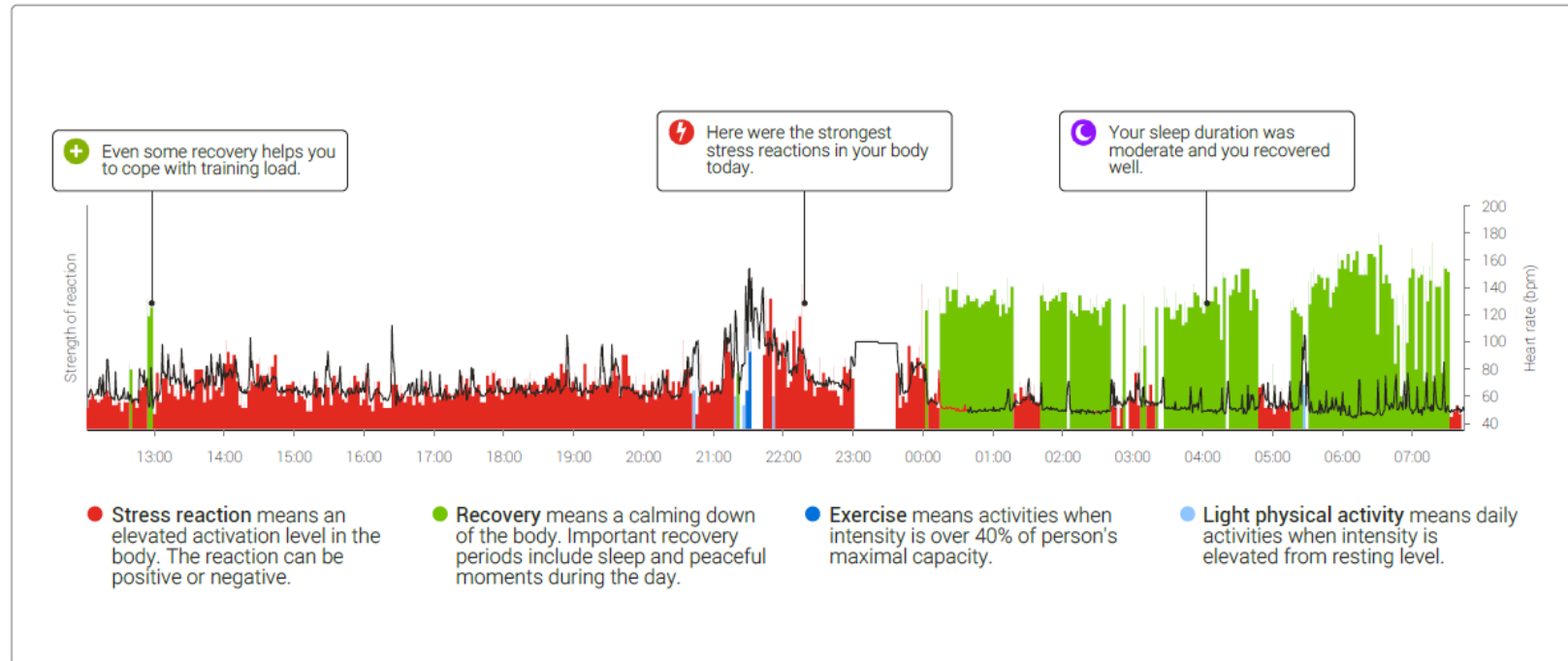


# FIRSTBEAT STRESS & RECOVERY IN WEARABLES

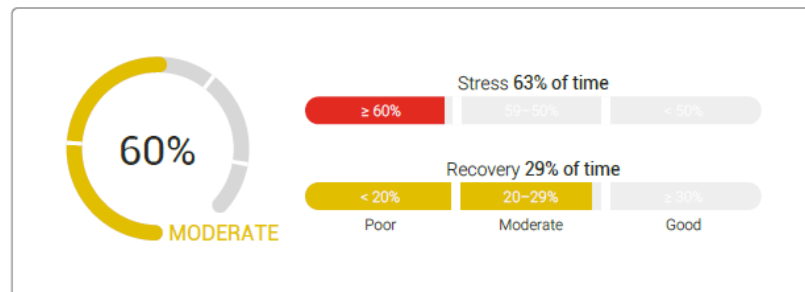


# FIRSTBEAT STRESS & RECOVERY IN SPORTS

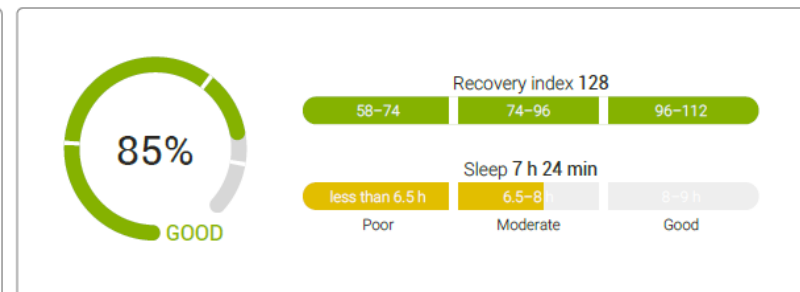
## BODY REACTIONS



## 24 H STRESS & RECOVERY BALANCE

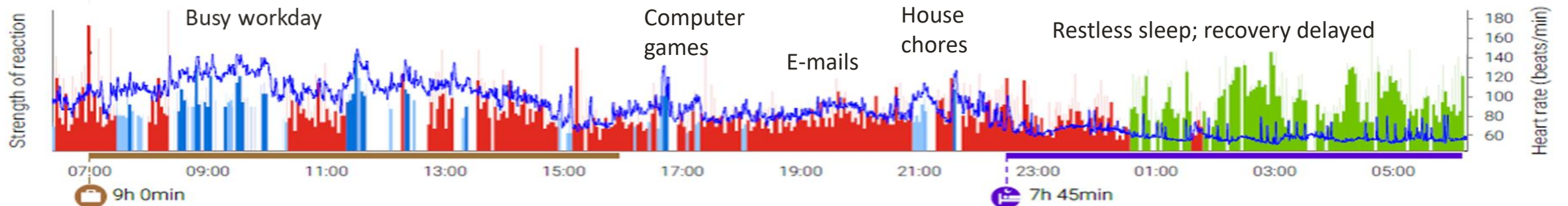
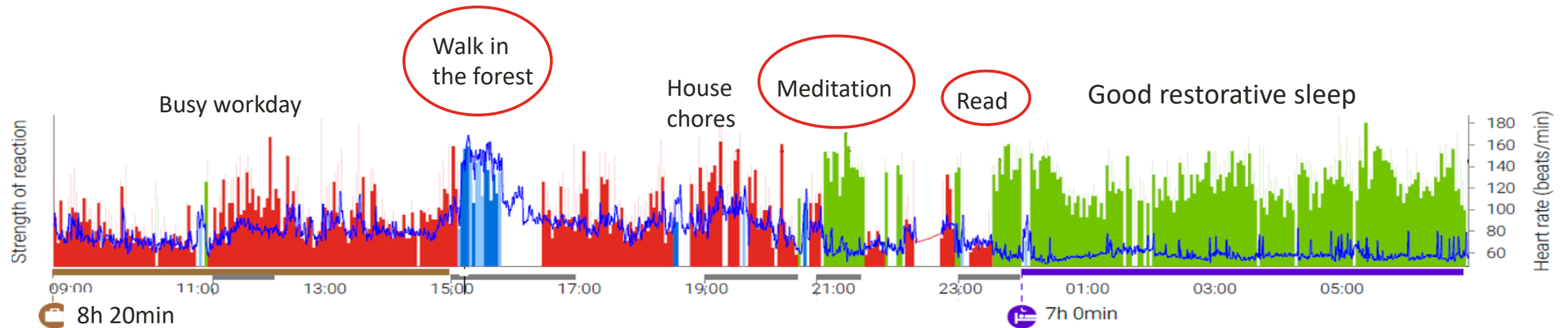


## OVERNIGHT RECOVERY

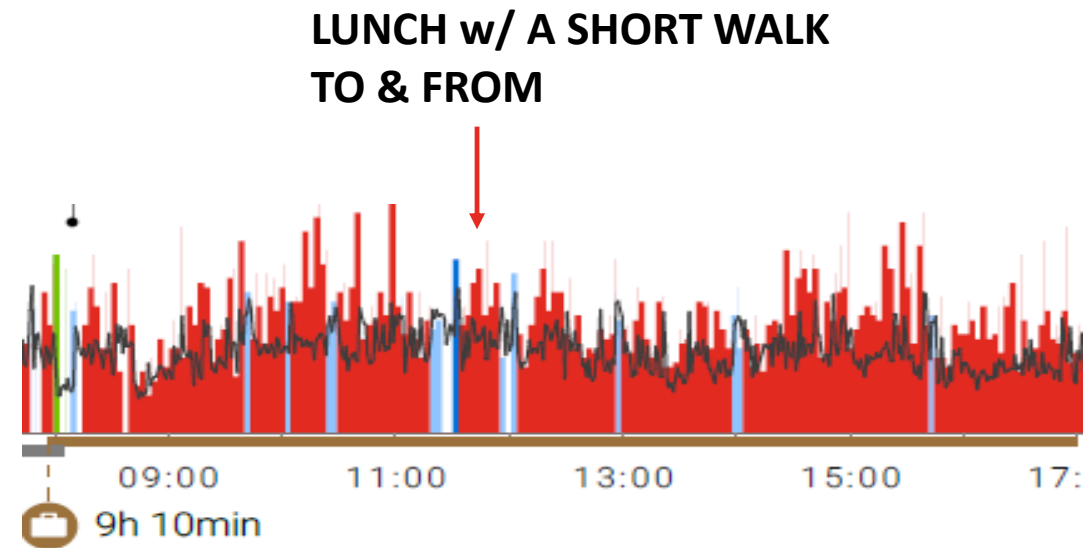
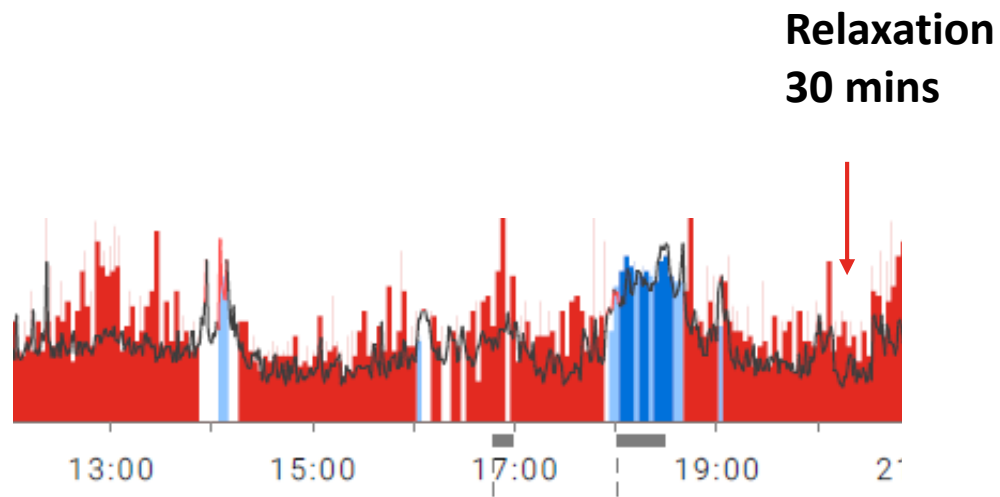


# LOOKING BEYOND STRESS → RECOVERY REVEALS THE TRUTH!

## *POSITIVE vs. NEGATIVE STRESS & THE ROLE OF GOOD CHOICES*

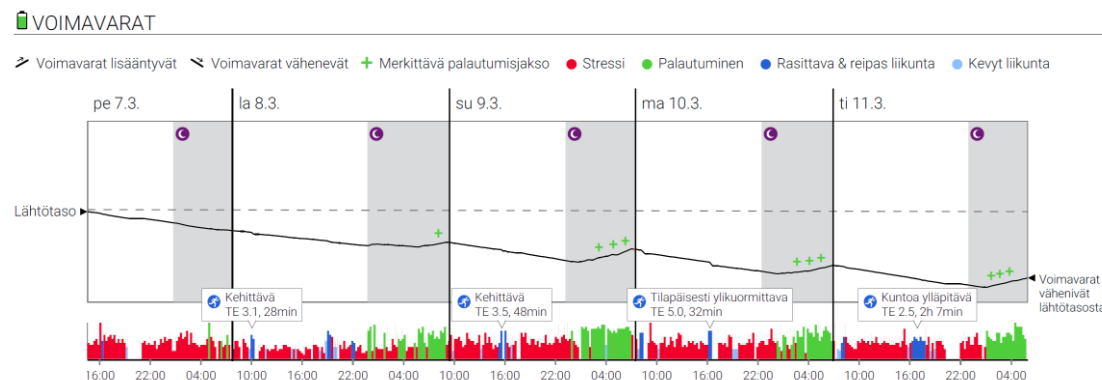
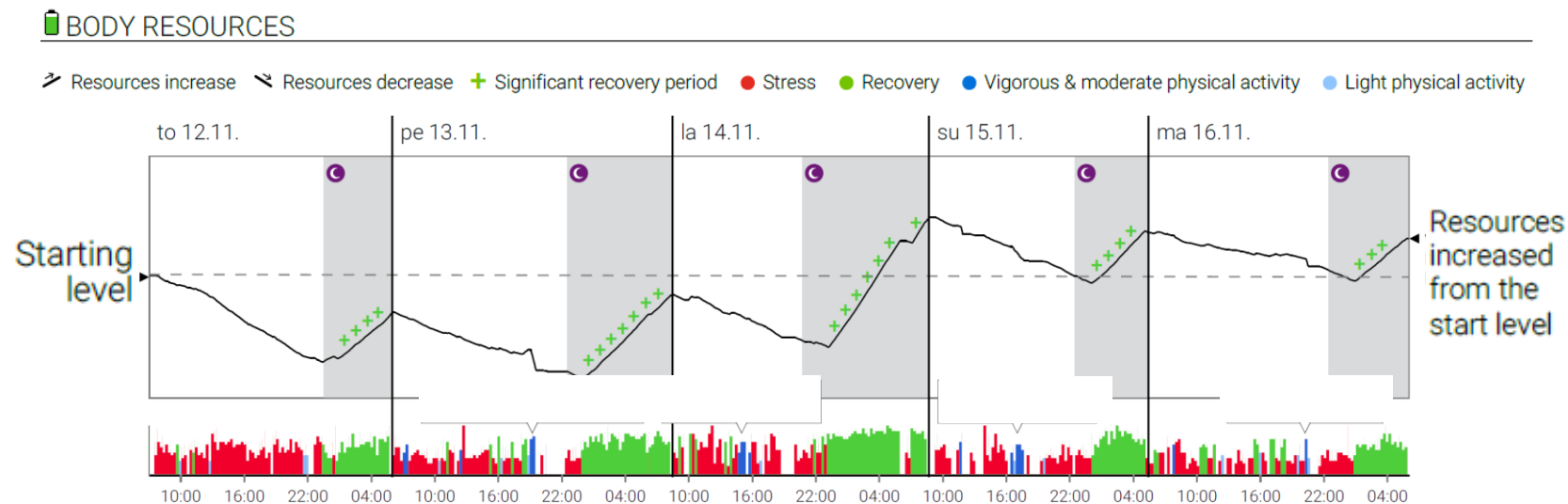


# CONTEXT MATTERS: WHY WE CAN'T ALWAYS "SEE" RECOVERY?





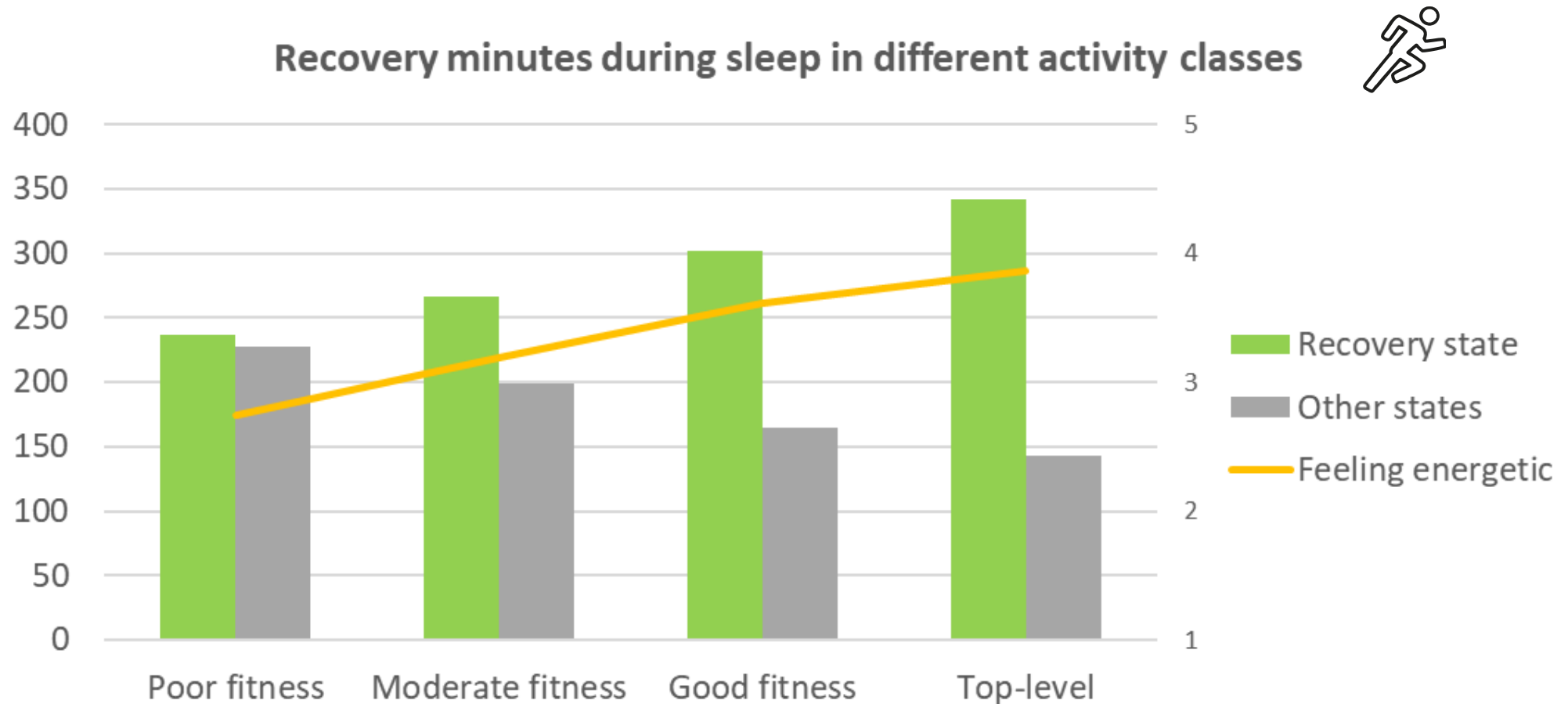
# ARE YOU RECOVERING ENOUGH TO CHARGE YOUR BATTERY: *SUPERCOMPENSATION OF LIFE*



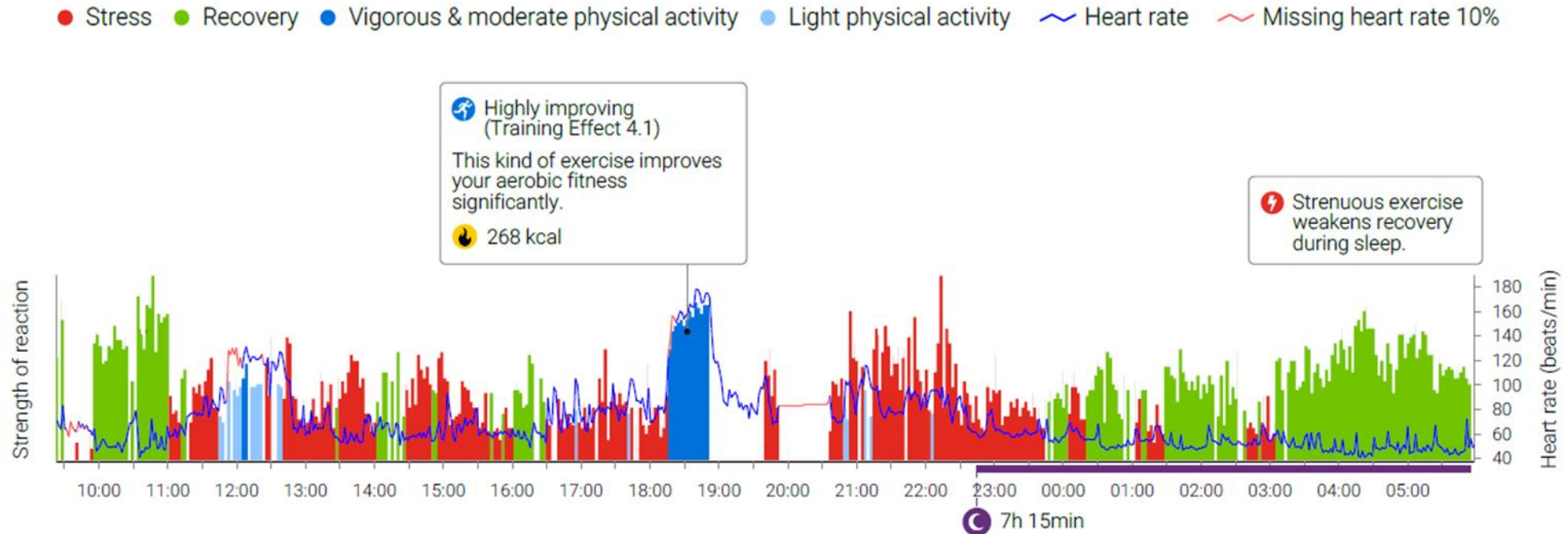
*You don't need to fear stress / load; demanding periods belong to life ...*

*... The key is finding a **good balance!**  
Reserve time for charging your battery & **prioritize sleep!***

# FACILITATORS OF GOOD RESILIENCE: *GET FIT!*



# INTENSIVE EXERCISE DELAYS OPTIMAL NIGHTTIME RECOVERY

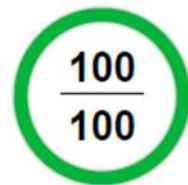


## HEALTH EFFECTS OF PHYSICAL ACTIVITY

**60 - 100p Good**

30 - 59p Moderate

0 - 29p Low



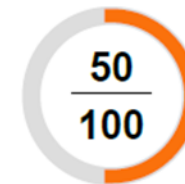
Good health effects

## RESTORATIVE EFFECT OF SLEEP

60 - 100p Good

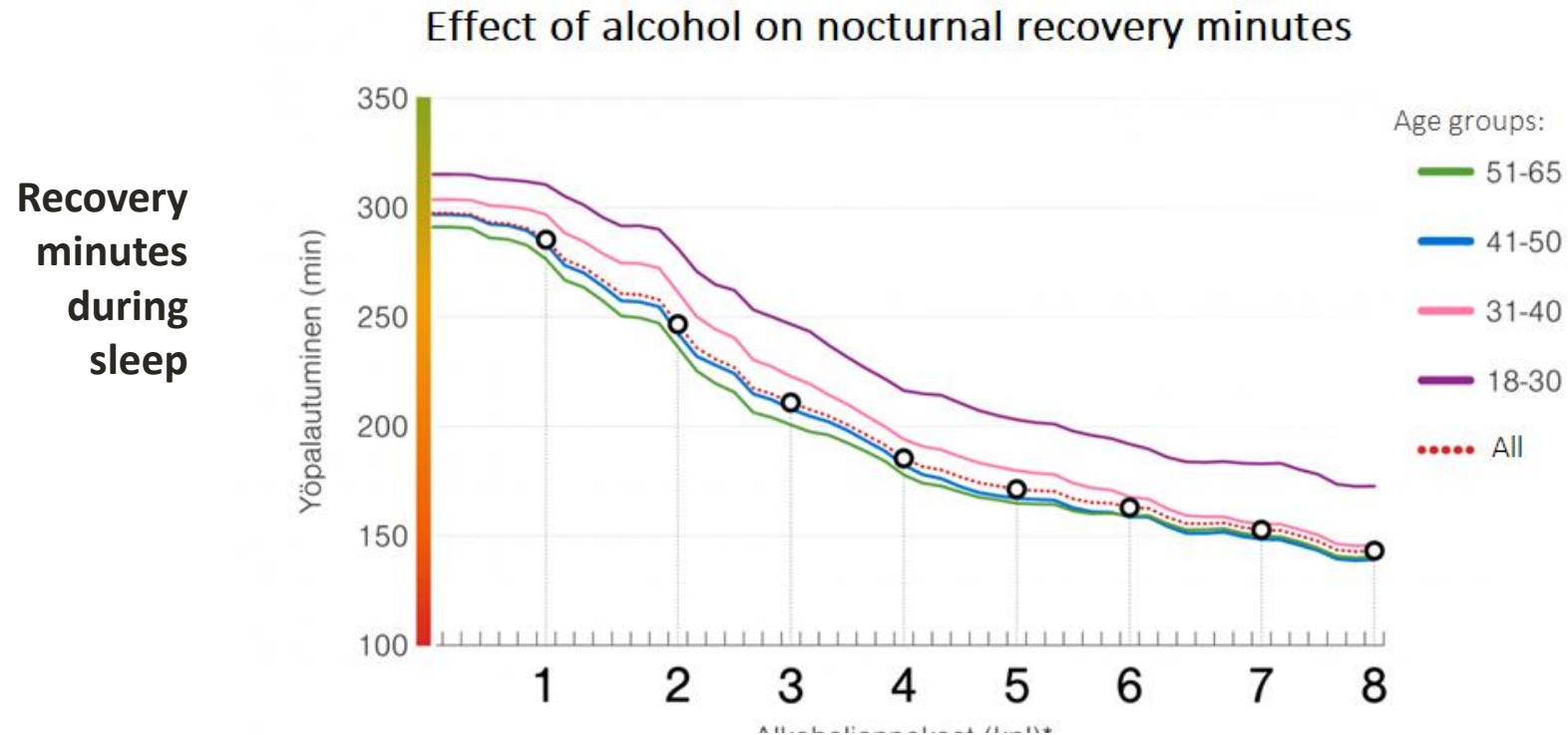
**30 - 59p Moderate**

0 - 29p Low



The sleep period was long enough, but recovery was only moderate.

# FACILITATORS OF GOOD RESILIENCE: *AVOID ALCOHOL*

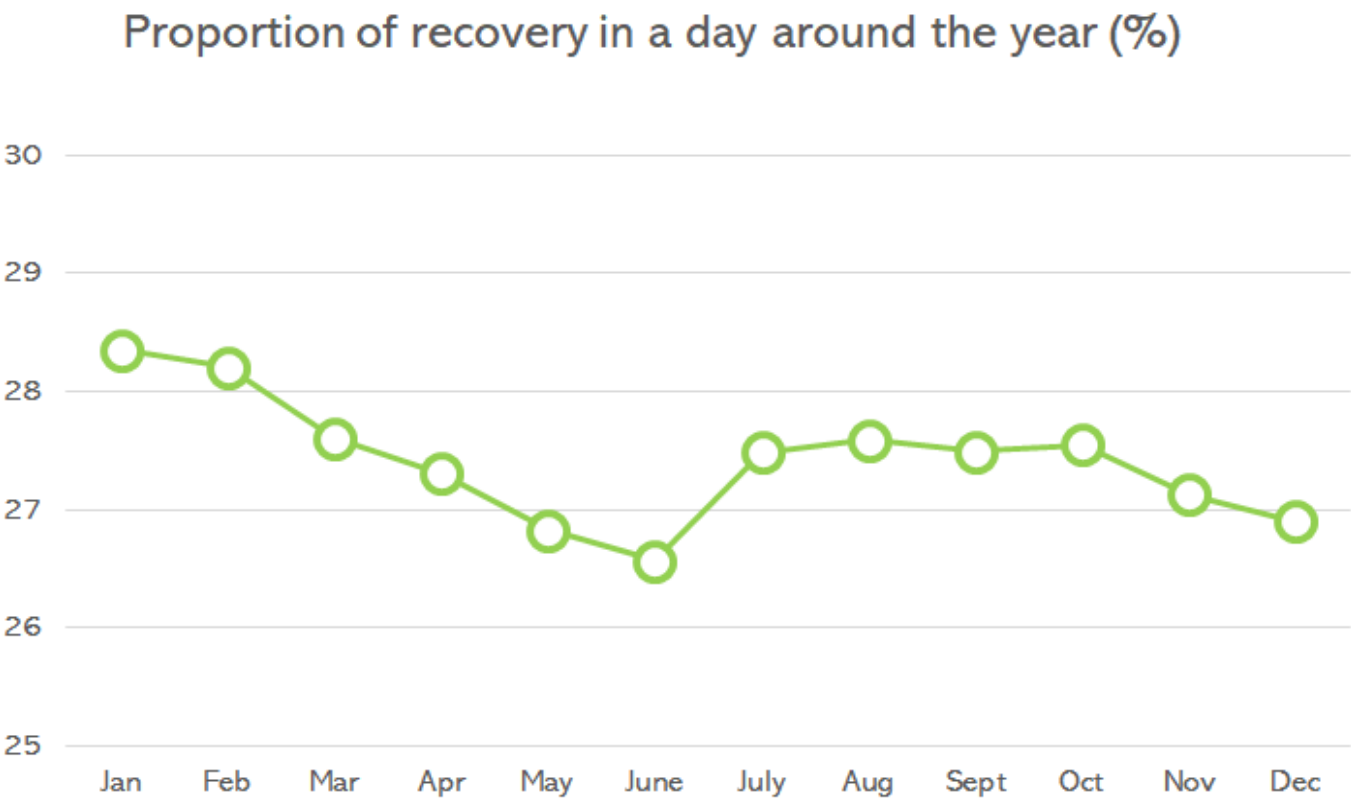


\* In relation to person weighing 80kg

Pietilä et al. 2018. Acute effect of alcohol intake on cardiovascular autonomic regulation during the first hours of sleep in a large real-world sample of Finnish employees. *JMIR Mental Health*



# THE ANNUAL RECOVERY TREND



We're all individuals, and what works for some, might not work for everyone. The answer has to come from within.

With the right science backing you up, you can make confident choices to help you reach your health and performance potential.

**You have it in you.**

Thank you!

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