



**Kracht door balans - Biofeedback workshops**

[www.biofeedbackworkshops.nl](http://www.biofeedbackworkshops.nl)

# **HRV PRACTITIONER TRAINING COURSE**

Day 2

# Course schedule day 2

- Multimodal HRV assessment
- Ways to teach effortless diaphragmatic breathing
- HRV home training, tips for success
- Hands-on coherence check with Elite HRV app
- Applying HRV biofeedback for
  - chronic stress
  - insomnia
  - anxiety & panic disorder





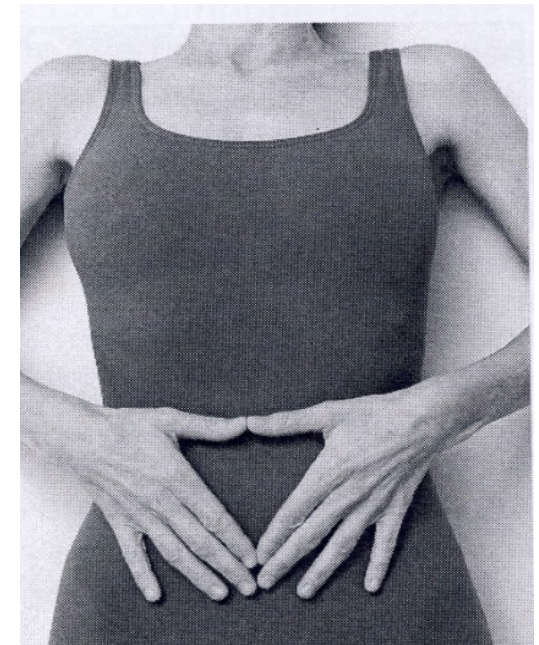
# Home work

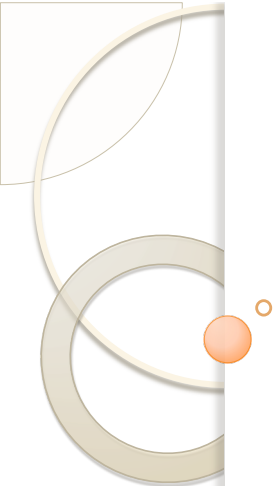
**Install the Elite HRV app**



**Wind down before going to sleep**

- Slow breathing with hands on belly





# Multimodal assessment

*Assessment of effortlessness in slow breathing*



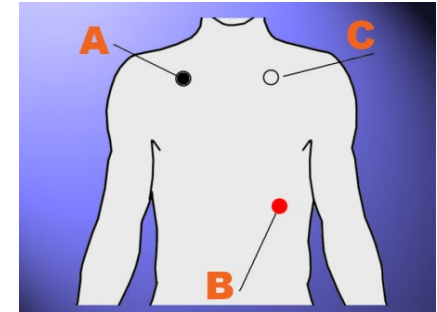
# Multimodal measurement of HR/HRV



*Respiration sensor*



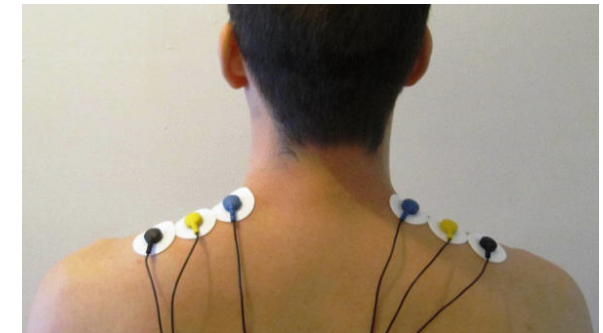
*HR/HRV with BVP sensor or ECG sensor*



*Skin conductance  
Reacts when  
breathing with too  
much effort*



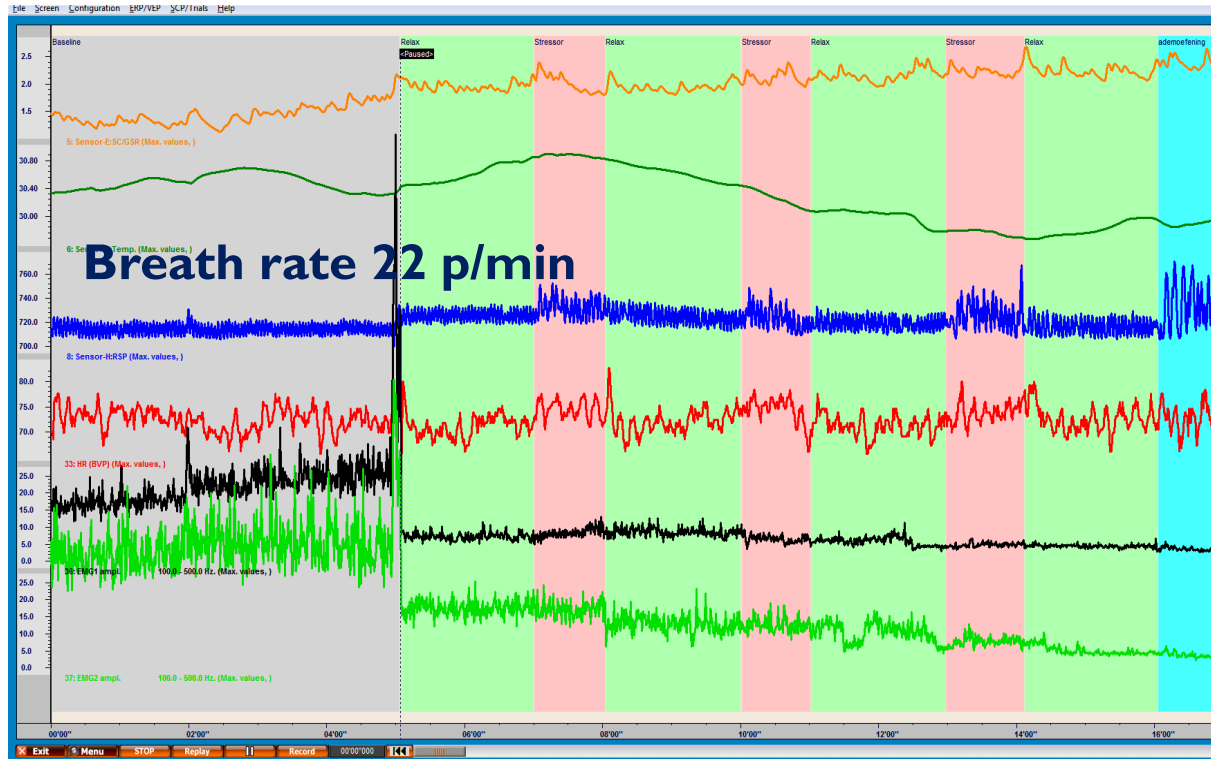
*Hand temperature  
Decreases with stress  
and with overbreathing*



*Muscle tension in  
neck-shoulder  
area reacts to  
chest breathing*



# Panic disorder



Skin conductance

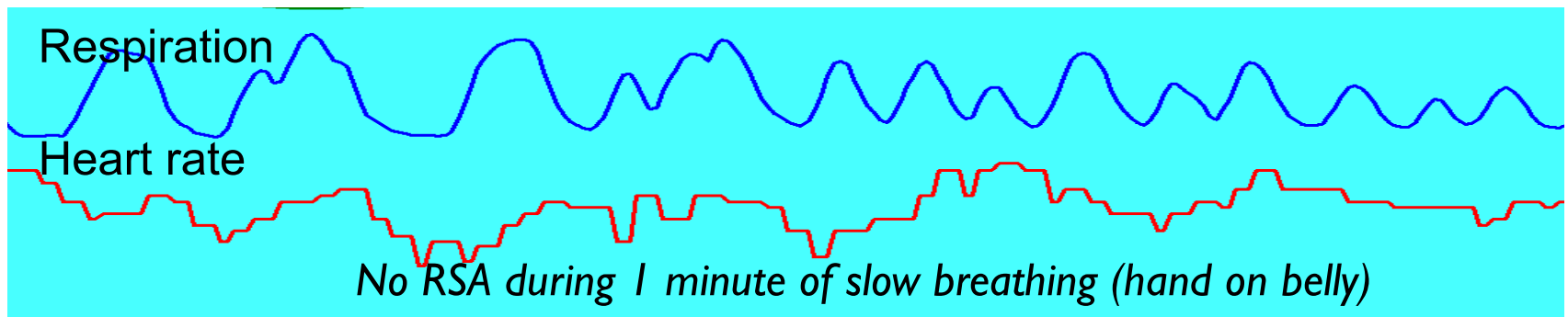
Hand temperature

Respiration

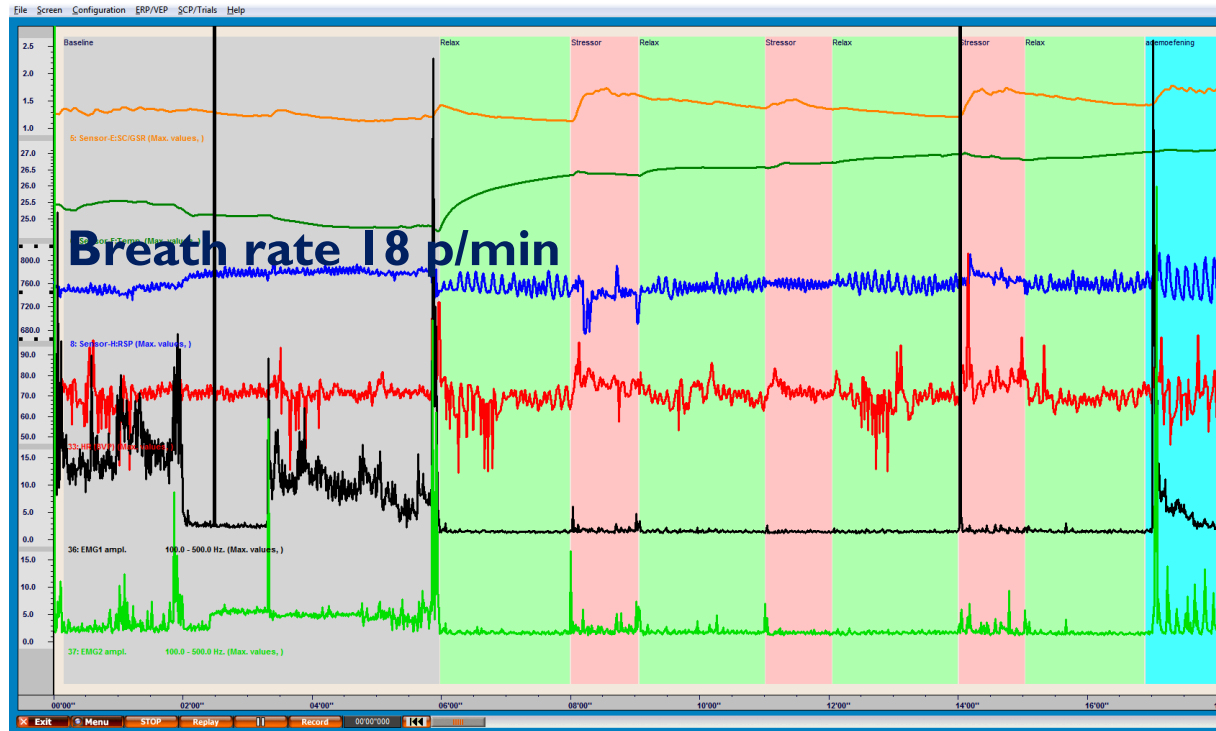
Heart rate

EMG right shoulder

EMG left shoulder



# Menopause



Skin conductance

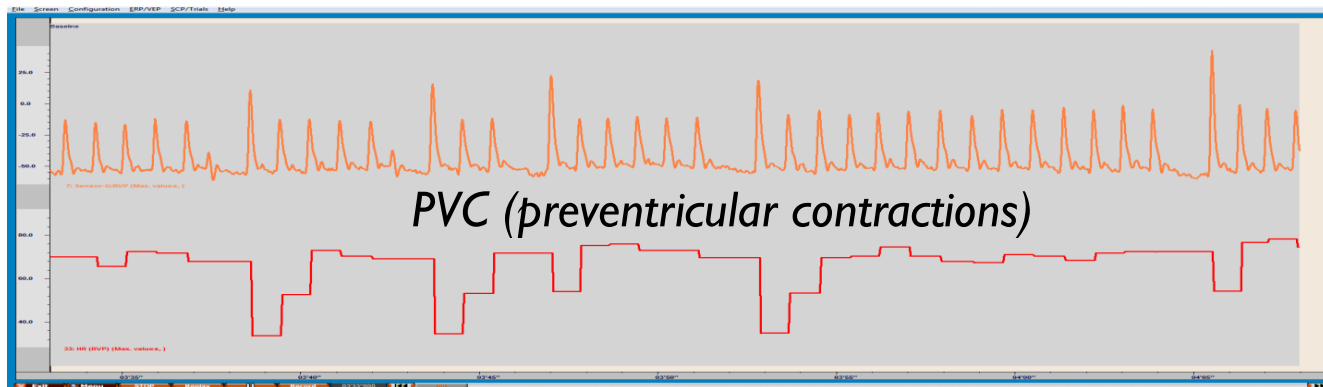
Hand temperature

Respiration

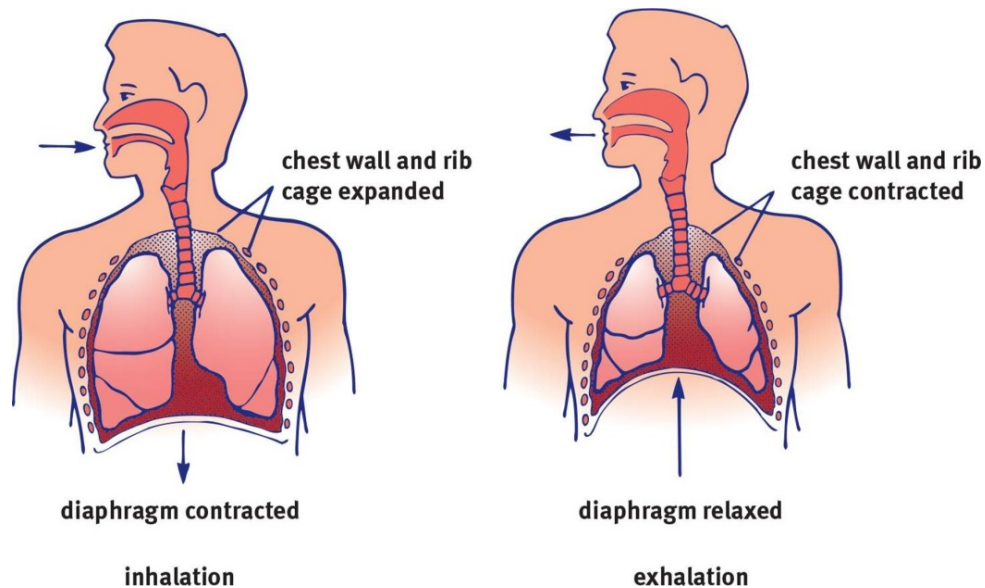
Heart rate

EMG right shoulder

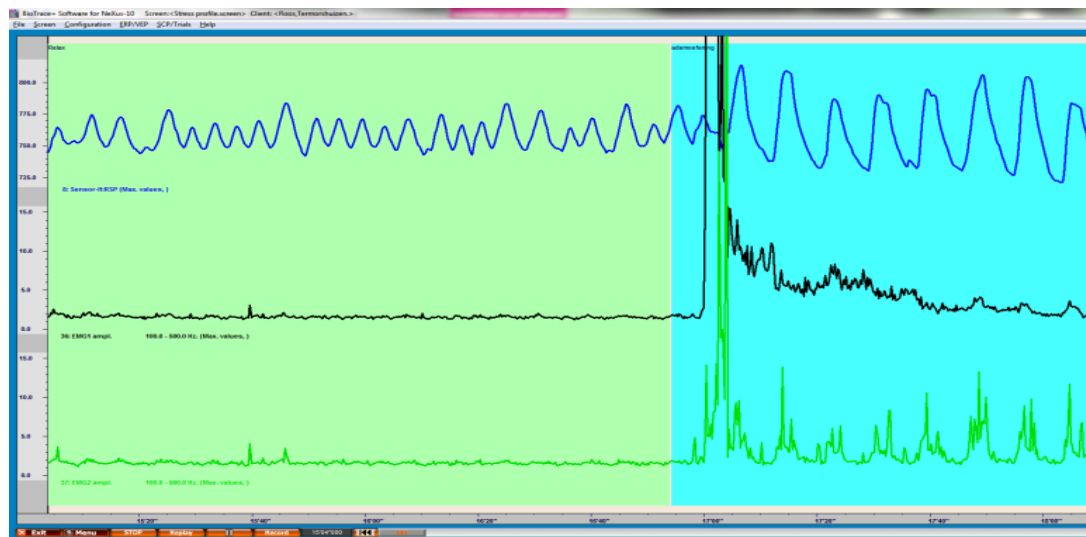
EMG left shoulder



# EMG shoulders follow respiration



When the diaphragm does not contract during exhale the shoulder muscles (trapezius) tense to make space for the lungs to expand.



Respiration

Right  
shoulder

Left  
shoulder





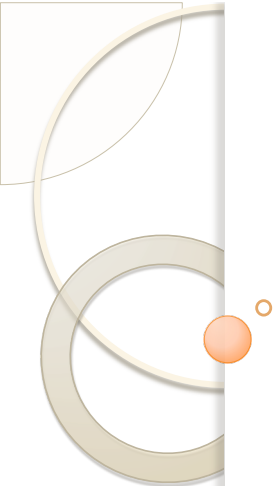
# Hands-on

*Test slow breathing while measuring  
EMG shoulders, hand temperature, skin  
conductance and BVP*



| Condition<br>Press segment<br>button | Instruction to the client                                                       | Duration  |
|--------------------------------------|---------------------------------------------------------------------------------|-----------|
| <b>Baseline</b>                      | Just sit and relax the way you like                                             | 2 minutes |
| <b>Relax</b>                         | Slow your breathing (extend the exhalation)                                     | 2 minutes |
| <b>Non verbal<br/>Stressor</b>       | Calculation: 25 x 49 or<br>Fluency: think of as many animals<br>starting with R | 1 minute  |
| <b>Relax</b>                         | Slow your breathing (extend the exhalation)                                     | 2 minutes |





# Optimising breathing

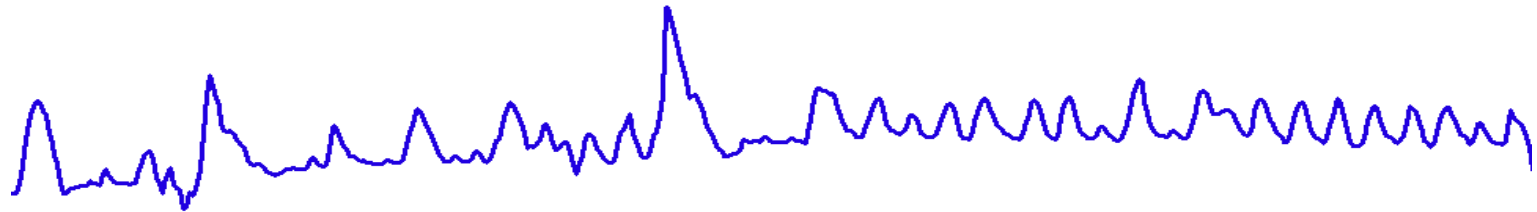
*Ways to teach effortless  
diaphragmatic breathing*





# Dysfunctional breathing

- Chest breathing
- Fast breathing ( $> 15$  p/min in baseline)
- Irregular breathing
- Breath holding or apnoea
- Overbreathing (hyperventilation)



**In case of dysfunctional breathing HRV training is not possible!**



# Overbreathing / hyperventilation

**Hypocapnia** = a decrease in blood carbon dioxide (CO<sub>2</sub>). Assessed with a capnometer.

Normal values  
35-45 mmHg

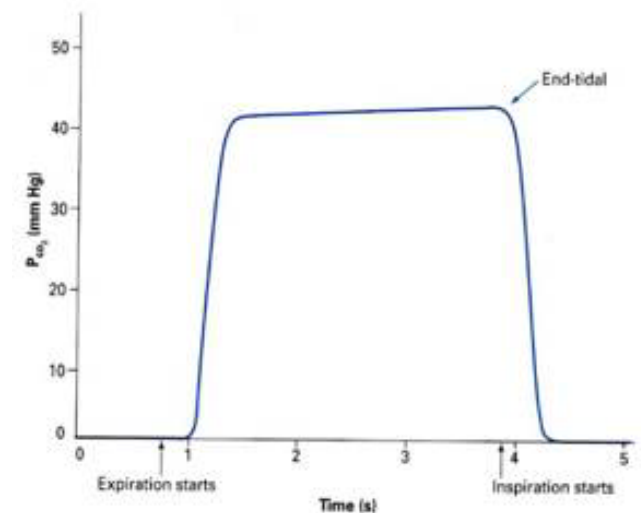
Overbreathing:

- 30-35 mmHg,  
mild overbreathing
- 25-30 mmHg  
moderate overbreathing
- < 25 mmHg  
severe overbreathing

(Khazan, 2013)



*Capnometer*



# Hypocapnia

## Bohr effect

Low blood CO<sub>2</sub> causes

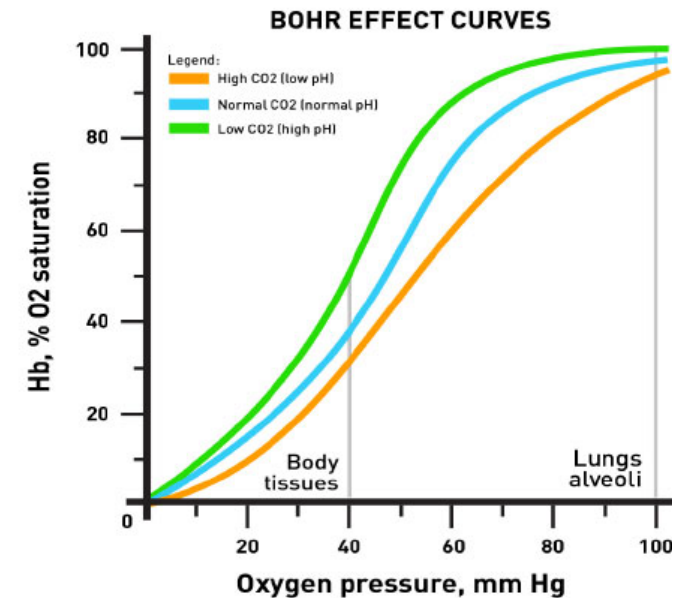
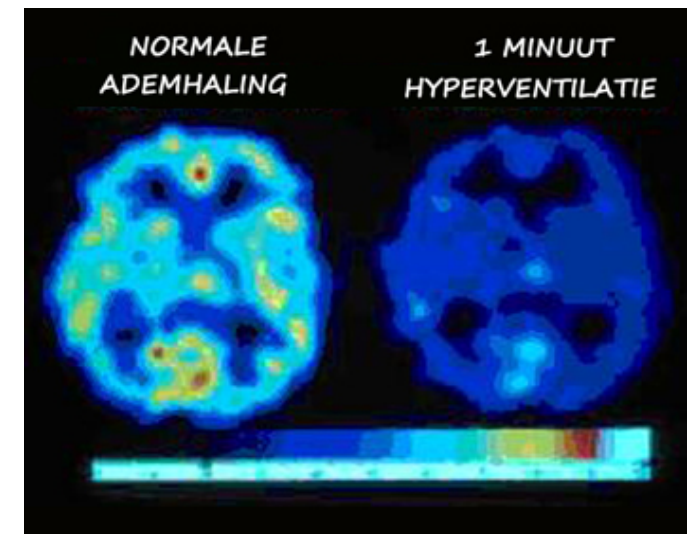
- a too strong binding of oxygen to the hemoglobin
- insufficient oxygen in the cells

## Physical effects

- Increased heart rate
- Vasoconstriction (cold hands)

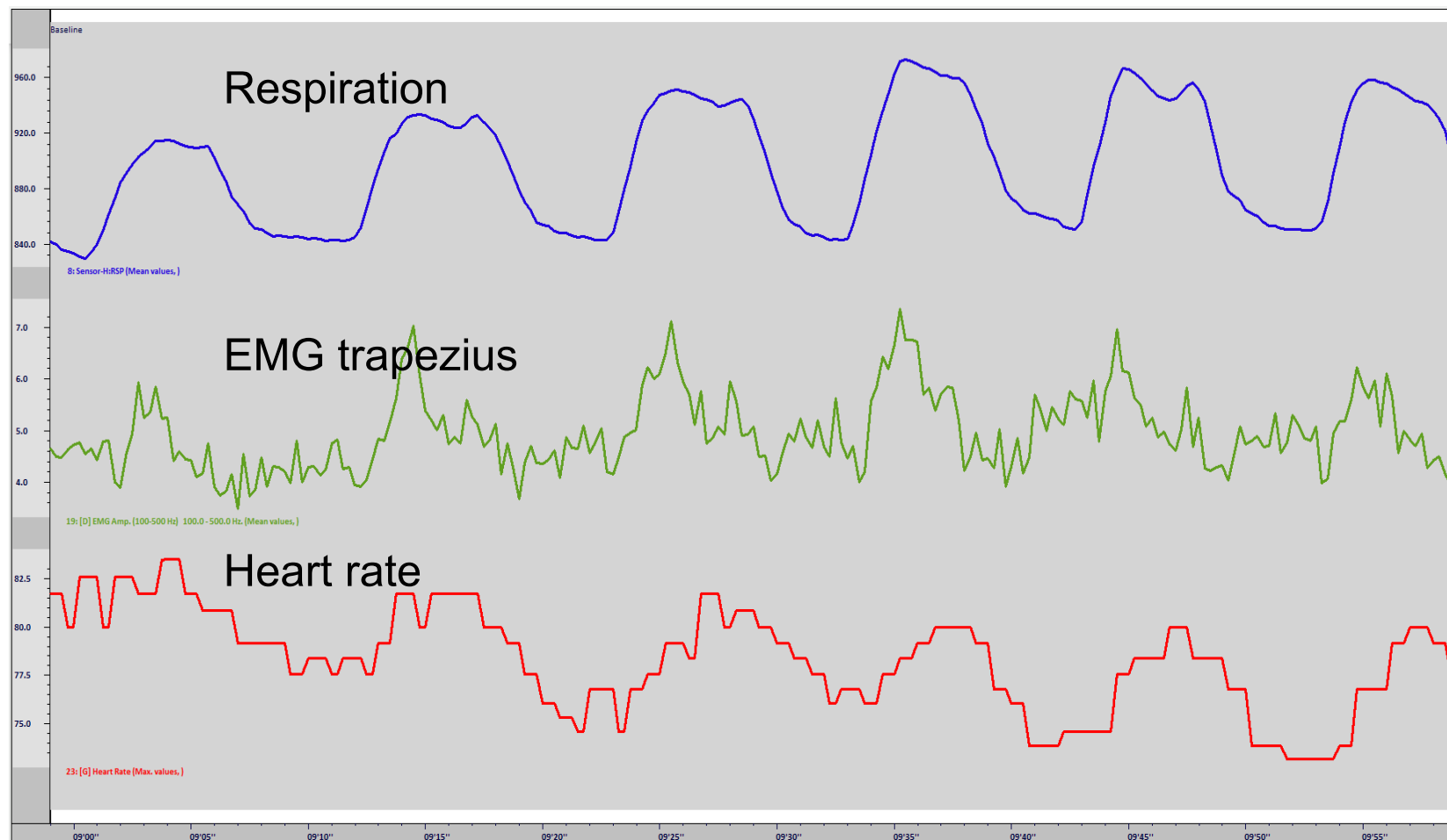
## Effects on the brain

- Lightheadedness, cognitive problems, dizziness



Cortical hypoxia

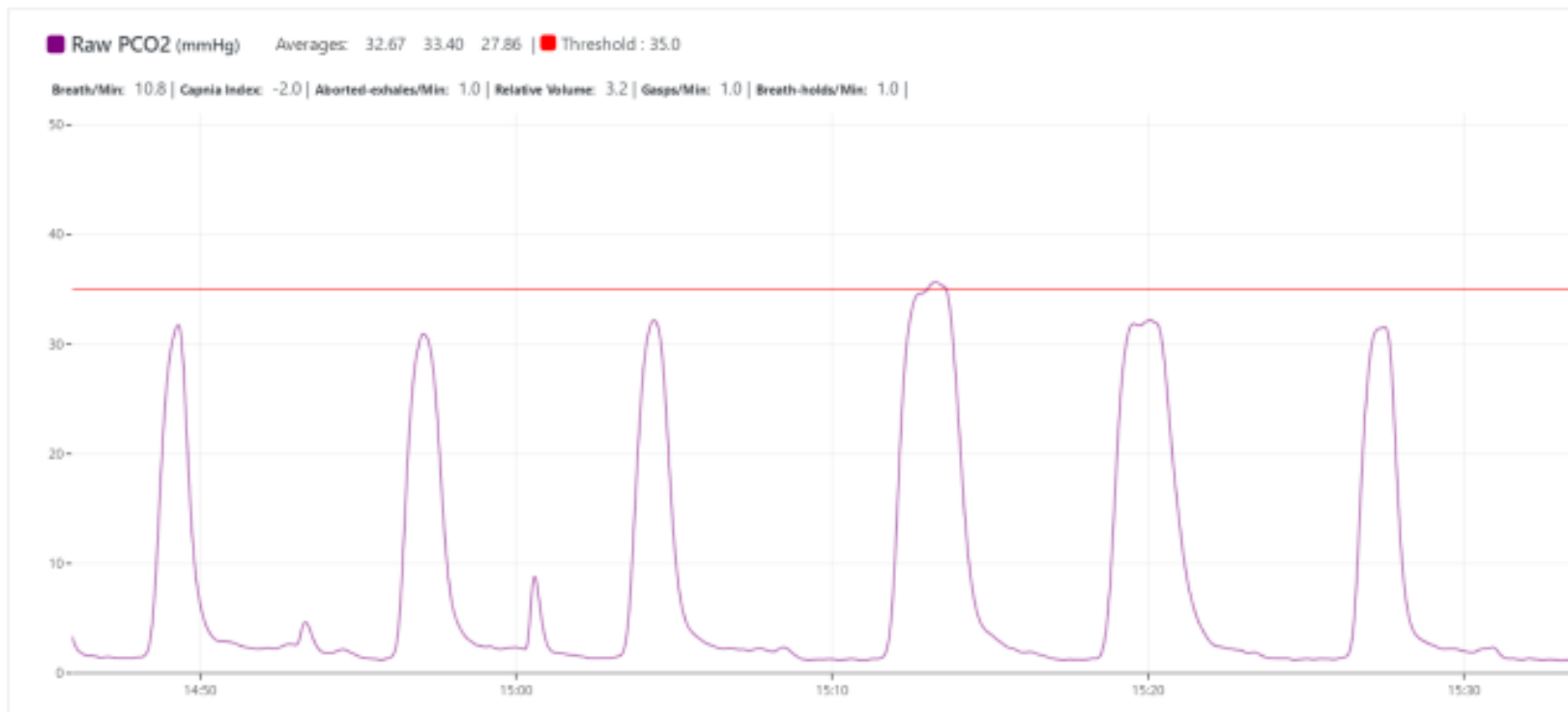
# Capnometer case



*Measuring with NeXus shows a fairly normal slow breathing pattern,  
with nice RSA pattern.  
(shoulders are contracting upon inhalation = chest breathing).*



# Capnometer case



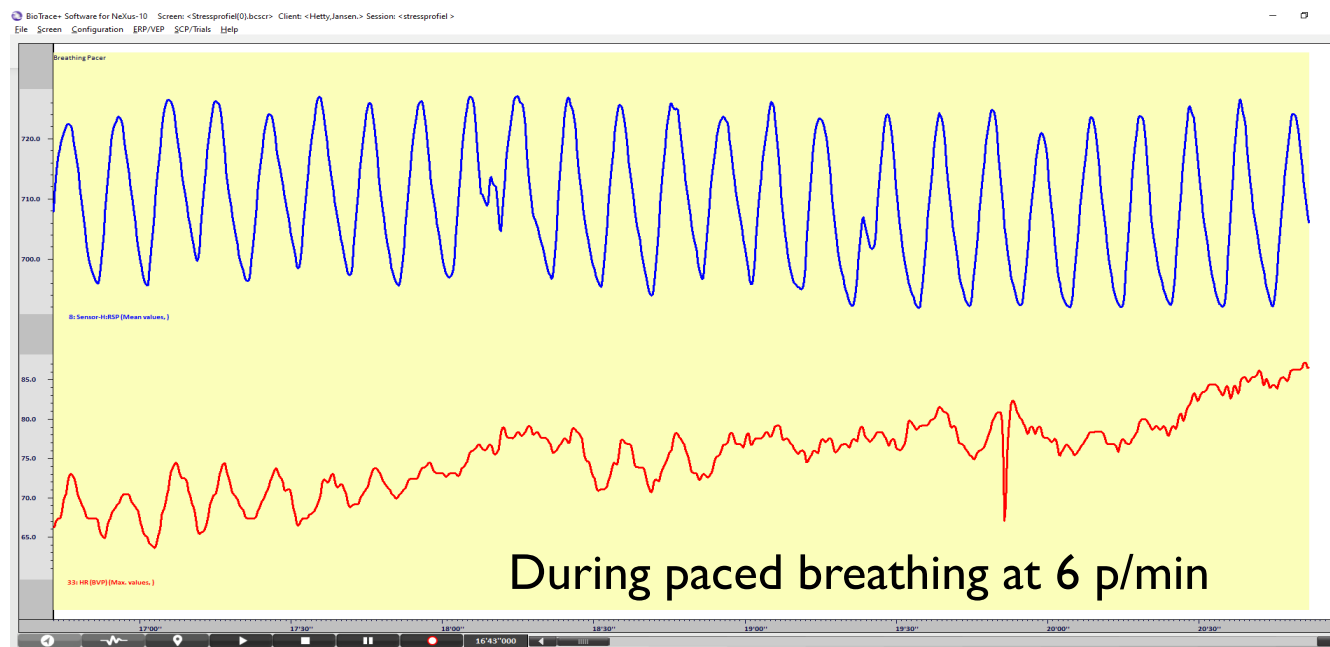
*At the same time the client is overbreathing.  
Too much focus on respiration and movement of the abdomen –  
inhalation of large volumes of air.*



# Symptoms of overbreathing

Clients who are not able to breathe slow, may experience:

- Light headedness
- Feeling as if you can't catch your breath
- Headache
- Fast heart rate and no RSA
- Cold hands



Respiration

Heart rate



# The Nijmegen Questionnaire

|                                           | Never | Seldom | Sometimes | Often | Very often |
|-------------------------------------------|-------|--------|-----------|-------|------------|
| 1. Chest pain                             |       |        |           |       |            |
| 2. Feeling tense                          |       |        |           |       |            |
| 3. Blurred vision                         |       |        |           |       |            |
| 4. Dizziness                              |       |        |           |       |            |
| 5. Confusion, losing contact with reality |       |        |           |       |            |
| 6. Fast or deep breathing                 |       |        |           |       |            |
| 7. Shortness of breath                    |       |        |           |       |            |
| 8. Tightness in the chest                 |       |        |           |       |            |
| 9. Bloating abdominal feelings            |       |        |           |       |            |
| 10. Tingling of the fingers               |       |        |           |       |            |
| 11. Cannot breathe deeply                 |       |        |           |       |            |
| 12. Stiffness in fingers or arms          |       |        |           |       |            |
| 13. Stiffness around the mouth            |       |        |           |       |            |
| 14. Cold hands or feet                    |       |        |           |       |            |
| 15. Thumping of the heart                 |       |        |           |       |            |
| 16. Anxiety                               |       |        |           |       |            |

Never=0   Seldom=1   Sometimes=2   Often=3   Very often=4  
Range= 0-64





# Nijmegen Questionnaire scoring

| Score                      | Interpretation                           | HRV training                                                                           |
|----------------------------|------------------------------------------|----------------------------------------------------------------------------------------|
| Total <18                  | Normal                                   | Yes, if slow breathing (<8 p/ min) is possible                                         |
| Total >25                  | Very high                                | No, score suggests overbreathing or anxiety disorder                                   |
| Score subitems 1,2,15,16   | If high score: anxiety/stress            | Yes, if slow breathing (<8 p/ min) is possible                                         |
| Score subitems 6,7,8,11    | If high score: respiratory problems      | Start with preparatory breathing exercises to facilitate slow breathing                |
| Score subitems 10,12,13,14 | If high score: possibly overbreathing    | No HRV training: check CO <sub>2</sub> (capnometry) or refer to a breathing specialist |
| Score subitems 3,4,5       | If high score: possibly cortical hypoxia | No HRV training: check CO <sub>2</sub> (capnometry) or refer to a breathing specialist |



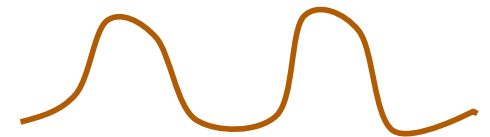
# Intermediate step before HRV training

## Stimulate PNS activity

- More breaks
- No pressure
- Wind down at the end of the day
- Improvement of sleep
- Mindfulness/meditation
- Positive emotions



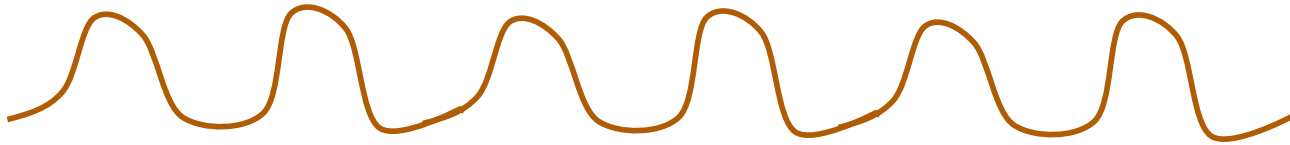
## Exercise



*Draw respiration to assess respiration rate*



# A simple way to measure respiration rate



Take a piece of paper

Sit down with a pen in the dominant hand.

Put the non-dominant hand on your abdomen.

Upon inhalation draw the line up and upon exhalation draw the line down, creating a wave form.

Continue for 3 minutes.

Calculate the number of breaths by dividing the number of waves by 3.



# Breathing technique

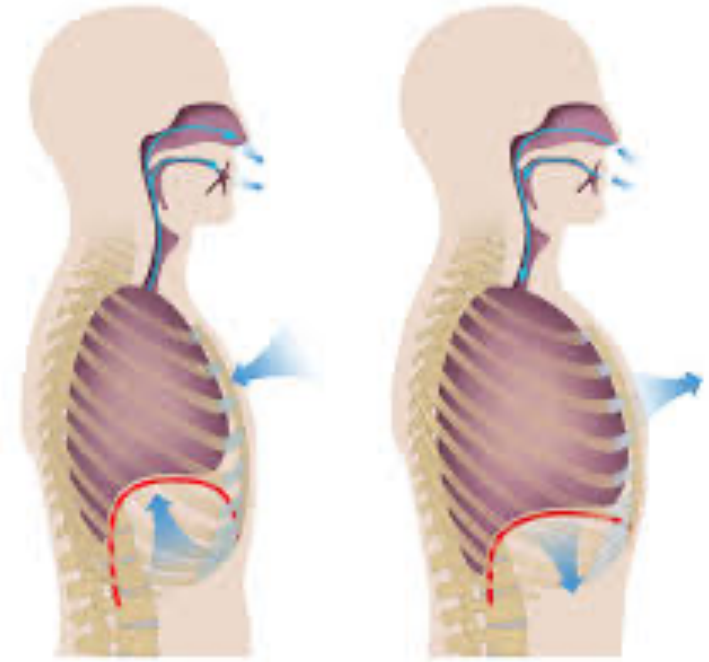
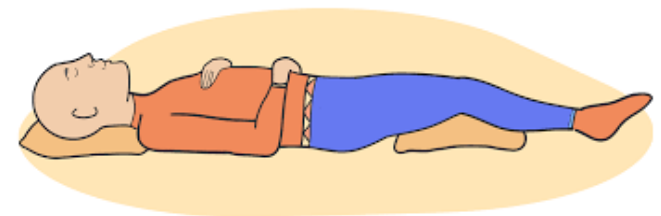
Slow breathing → larger volumes of air in the lungs → lungs expand

Only possible with enough movement in the diaphragm!

It is helpful to focus on the movement in the area below your rib cage (lower back, abdomen)

Allow your body to breathe, don't put any effort in the breathing!

Practice while lying down or sitting.



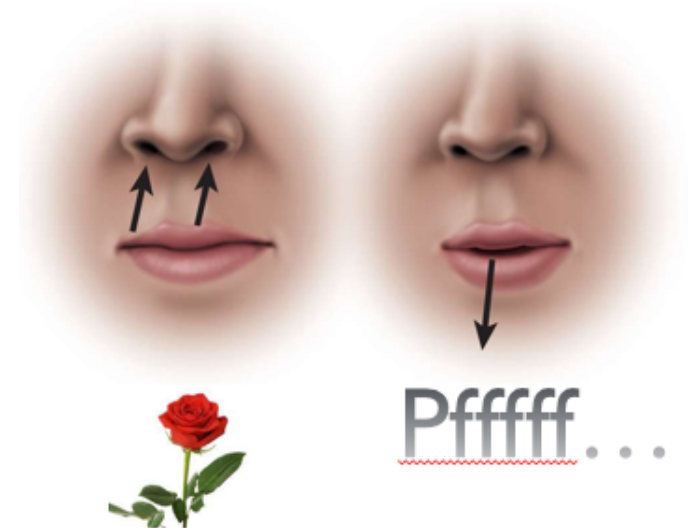
# Diaphragmatic breathing

- In through the nose (put the tip of your tongue at the back of your front teeth, try saying “Neh!” to find that spot)
- Out through the mouth with pursed lips

## The Mechanics of Respiration

Isolated View of Diaphragm in Motion  
Video Demo

[www.3D-Yoga.com](http://www.3D-Yoga.com)



*3d movie diaphragm*

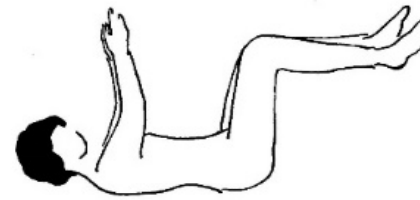
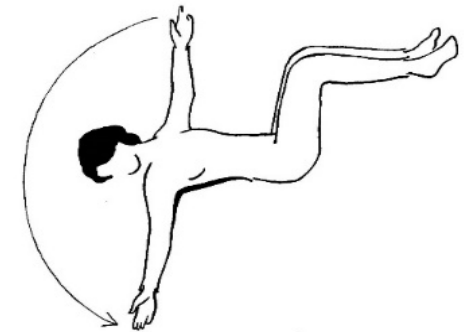


# Release diaphragmatic tension

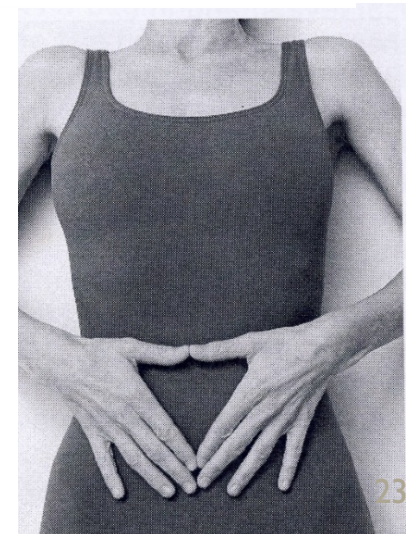
## 1. Windscreen wipers



## 2. Butterfly



## 3. Guided natural breathing





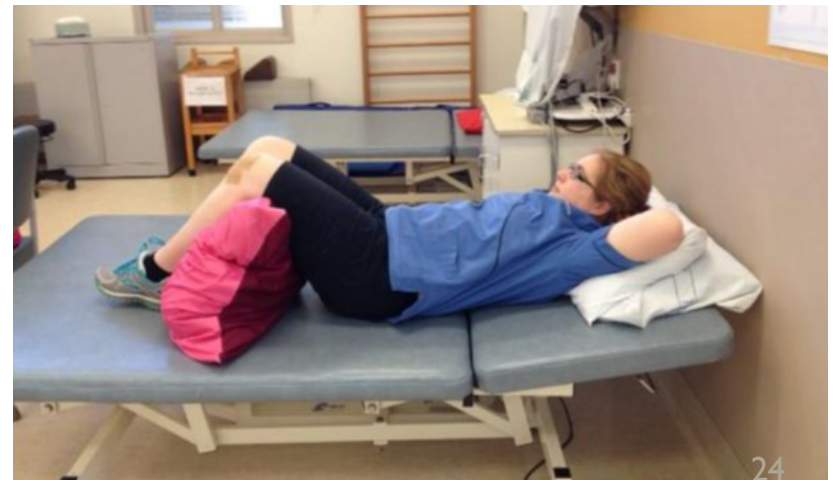
# Release diaphragmatic tension

4. Foot press

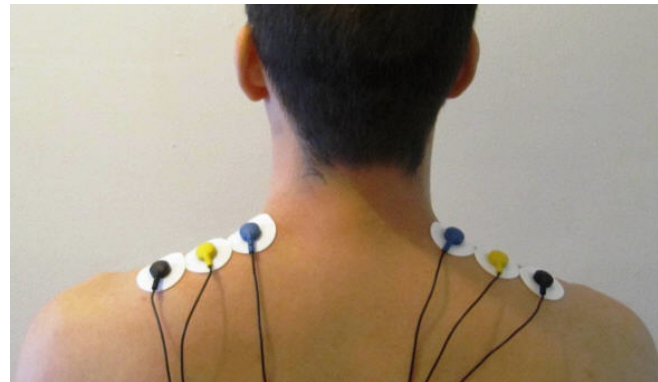
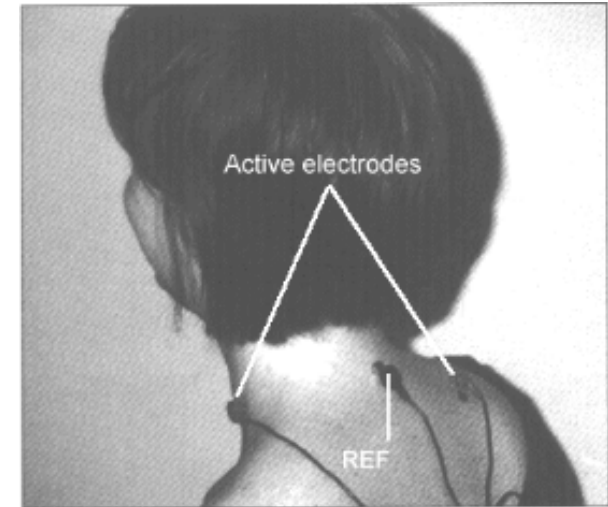
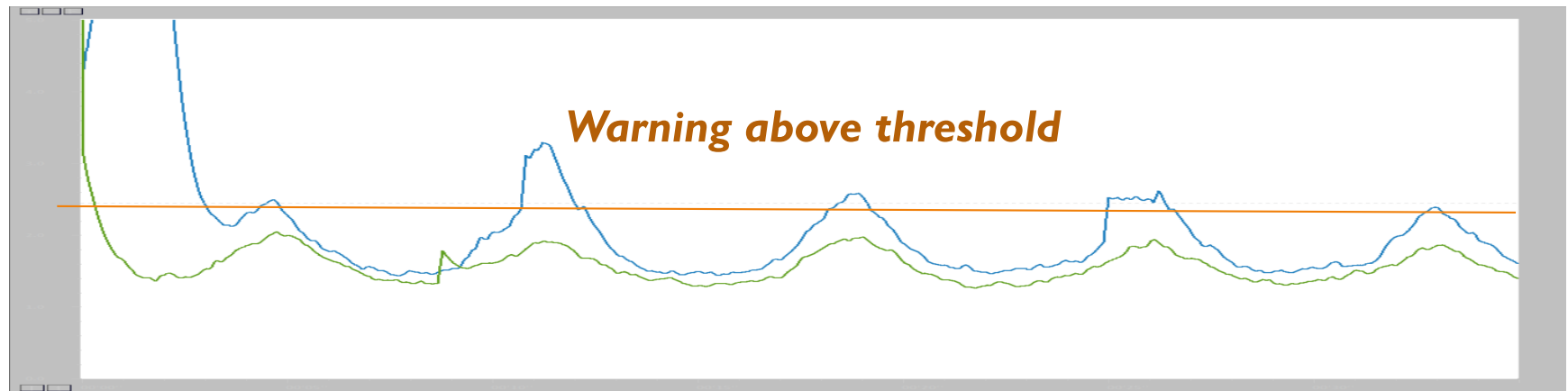
5. Hand press

6. Scarf “biofeedback”

7. Beach pose

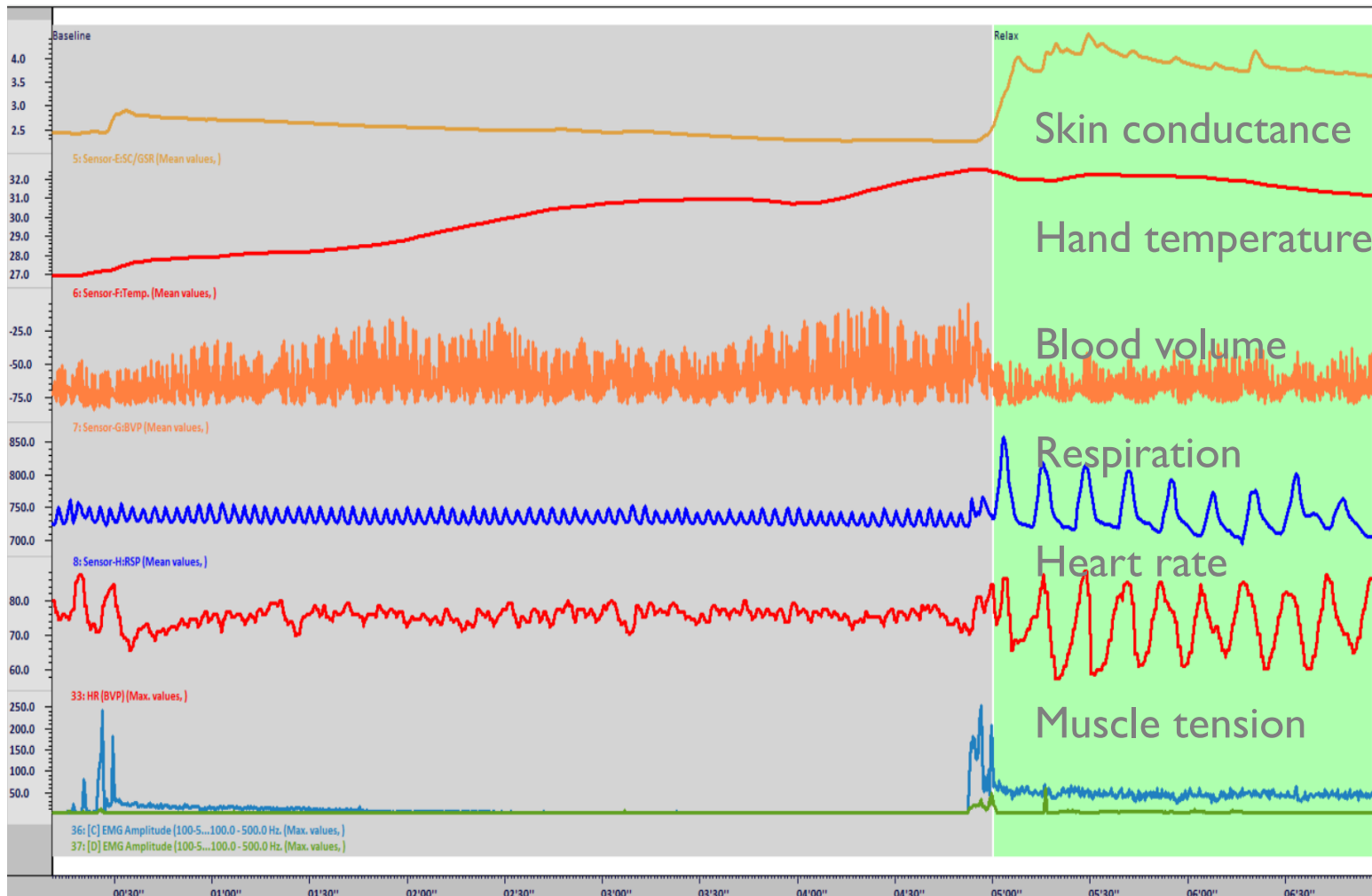


# EMG training for “belly breathing”

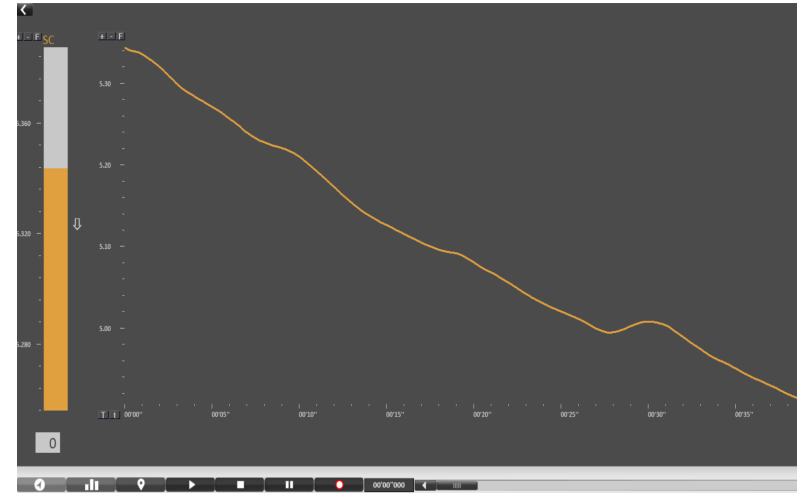
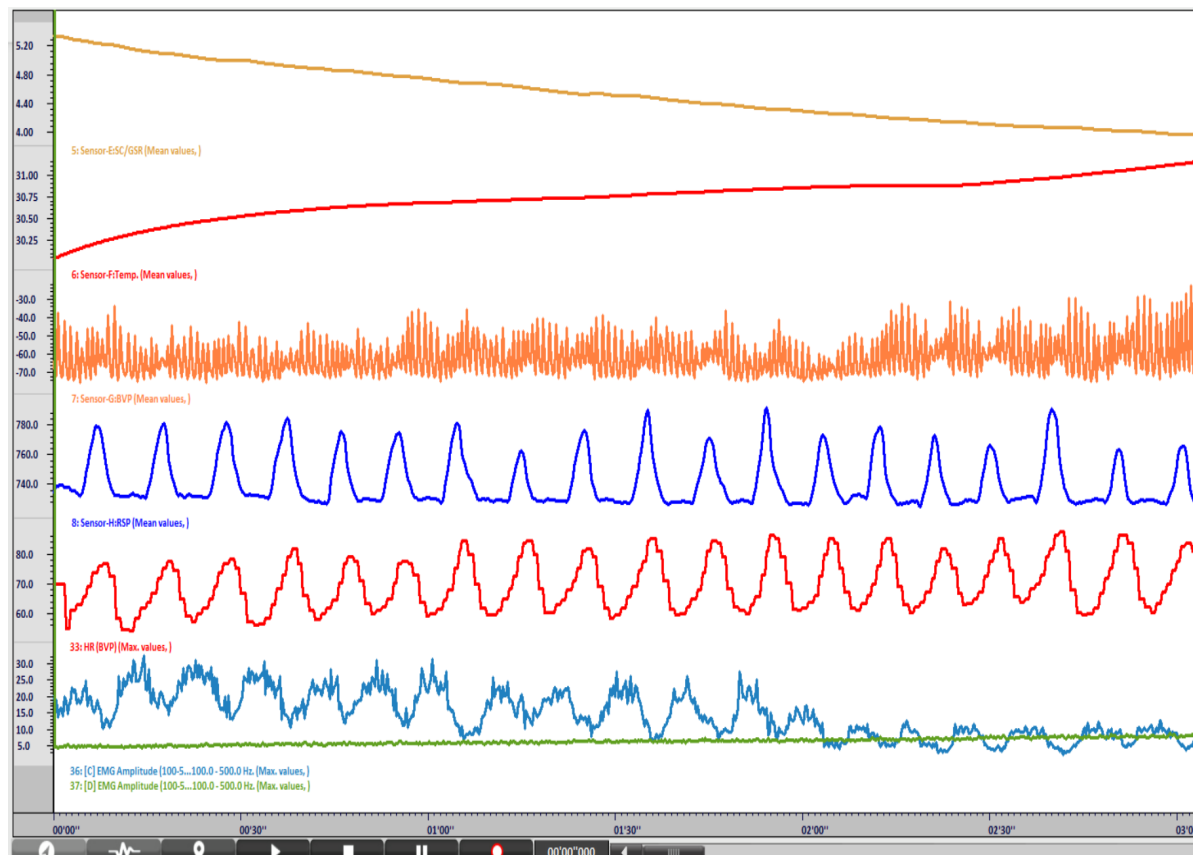




# Slow breathing with RSA, but not effortless



# Skin conductance feedback while slow breathing



Skin conductance

Hand temperature

Blood volume

Respiration

Heart rate

Muscle tension



# Slow breathing with temperature feedback

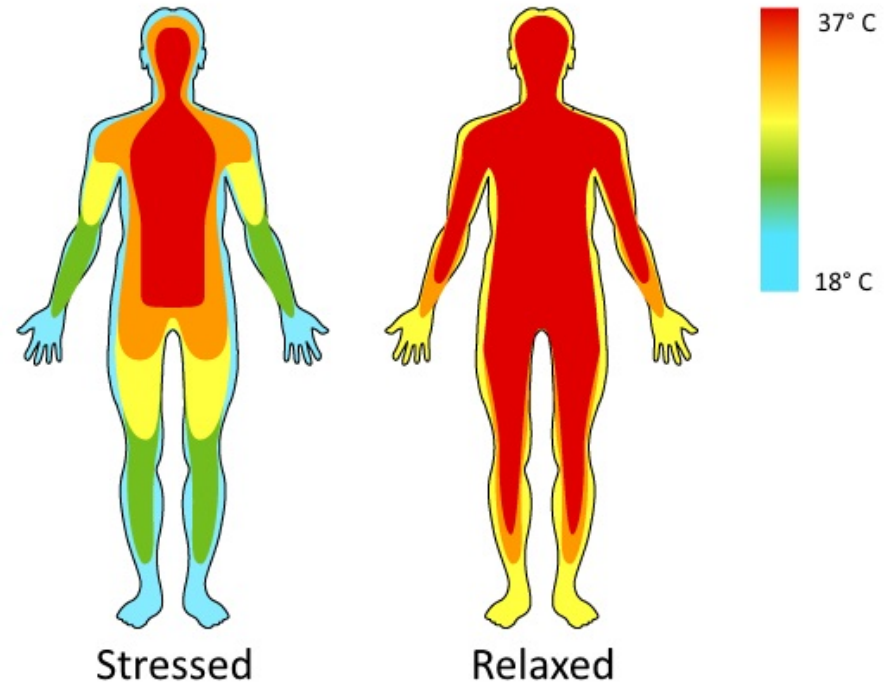
## Normal values

> 30° C women

> 32° C men



**Thermometer**



**Stressed**

**Relaxed**

## Instructions

- Allow the breathing to be slow and easy
- Create a feeling of peace and quiet
- With each exhale send warmth to your hands



# HRV biofeedback training tips

## Coach interactively

- Breathe with your client (follow the same breath rate and make an f-sound during exhalation)
- Promote awareness by asking what happened when you see a sudden large change in the signal.
- In case of EMG in auxiliary muscles ask a question to promote awareness: “how are your shoulders?”
- In case of skin conductance activity: “just let the air flow in and out”
- In case of cold hands: “During exhale imagine that warm air is flowing to your hands” (*Adapted from E. Peper*)
- Reward and ask what technique the client uses if the training is going well.



# Additional tips for the therapist

## **Do the HRV training yourself!**

Test your own resonance frequency and do the home work exercises 10 weeks twice a day for 20 minutes.

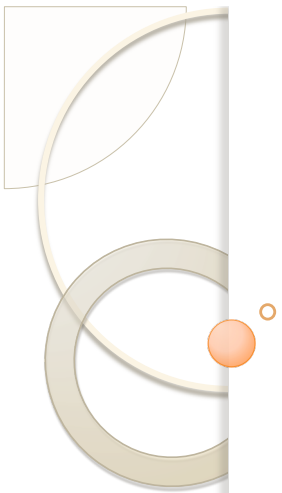
Only then you can understand what your client has to experience.

Keep a record: aim for 100% (7 days a week, twice a day), but 80% is OK.

## **Be a role model**

Model effortless breathing, a relaxed state and a positive emotion each time you are with your client.





# HRV home training

Elite HRV app



# HRV home training program

- Clients can learn effortless breathing in 4 sessions, however they may require extended training and practice (10 or more sessions) to achieve maximum psychological, physiological, and performance gains (Lagos et al., 2011).
- Instruct the client to continue the training for at least 10 weeks (Lagos, 2017).
- Combine the home training with regular HRV training sessions at the office.





# HRV training sessions

Preferably work with 2 monitors and use a multimodal setup. Protocol for HRV progress tracking:

- 3 min baseline
- 2 min breathing on RF without aid of a breath pacer
- 2 min breathing on RF with aid of a breath pacer



# Elite HRV app



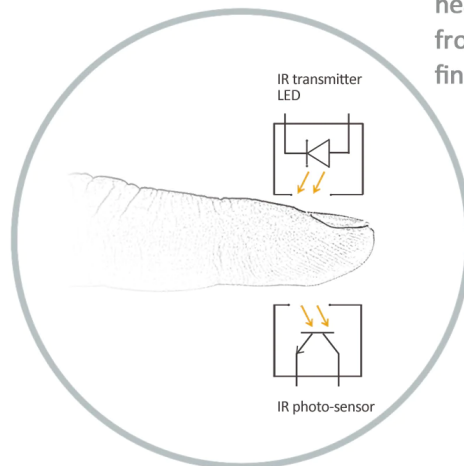
- Shows HRV (HRV snapshot, HRV open reading)
- Morning readiness measurement (morning HRV score, follow trend)
- HRV training (with breath pacer, finetune breathing technique)

# Heart rate sensors for use with Elite HRV



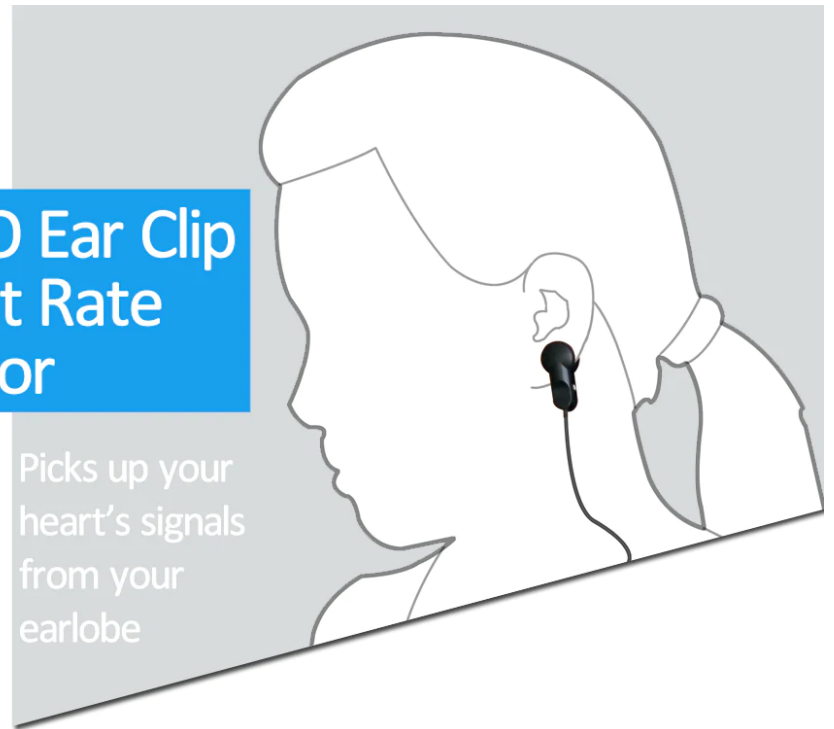
KYTO Fingertip  
Heart Rate  
Sensor

Pick up your  
heart's signals  
from your  
fingertip

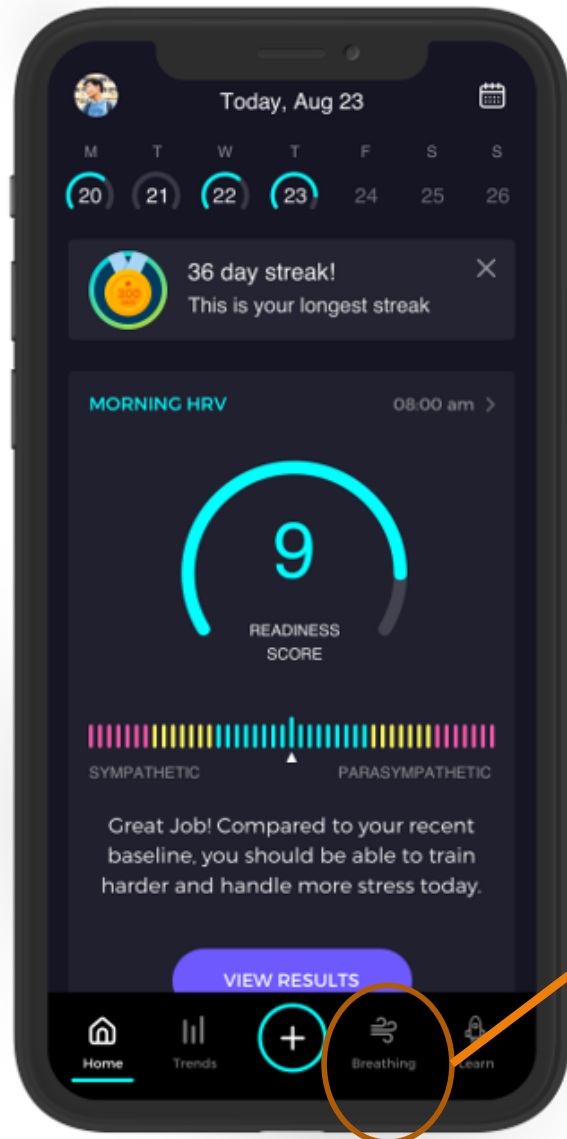
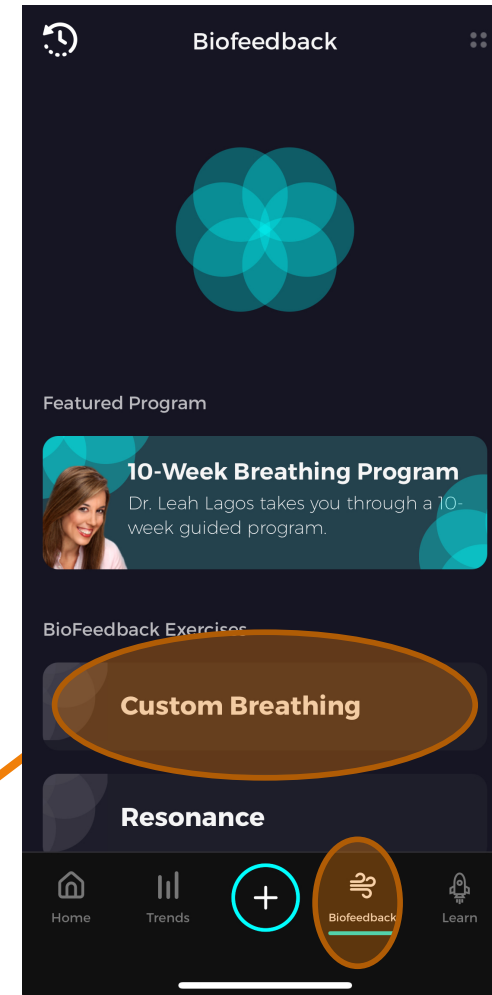


KYTO Ear Clip  
Heart Rate  
Sensor

Picks up your  
heart's signals  
from your  
earlobe



# RF breathing with Elite HRV app



Choose “Biofeedback” →  
“Custom breathing”

# Setup Elite HRV breath pacer

Bluetooth ON

Connect HR monitor (4 dots top right)

Go back (<)

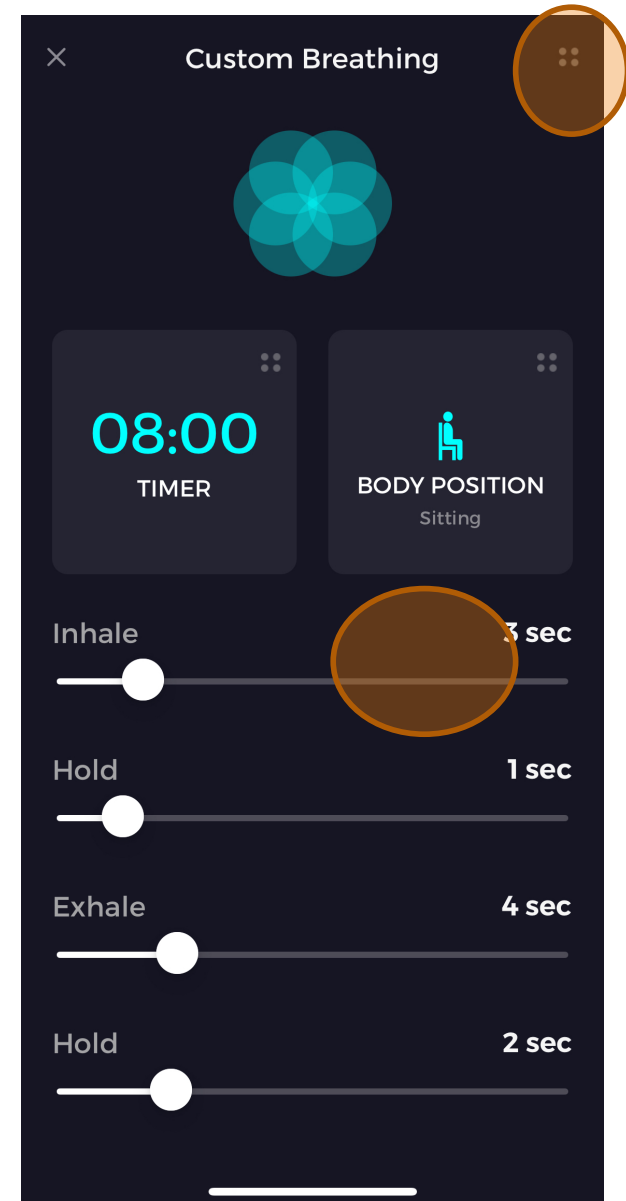
Set timer to 8 minutes

Set pacer to your RF

5 p/m = 4-1-5-2 sec

6 p/m = 3-1-4-2 sec

7,5 p/m = 2-1-3-2 sec



# Hands-on: coherence check

With HR measurement:

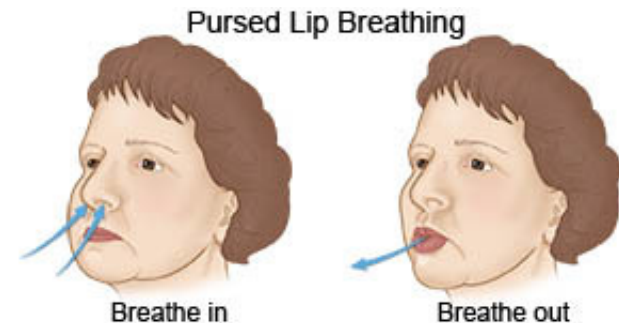
In Elite HRV: Scroll down and press Start practice

Without HR measurement:

In Breathing Zone app: Press Start for each condition of 2 minutes

Protocol (all conditions 2 minutes)

- a) In: right nostril / Out: left nostril
- b) Pursed lip breathing
- c) Focus on your lower back
- d) Focus on your heart with positive feeling



Analysis: which condition works best?





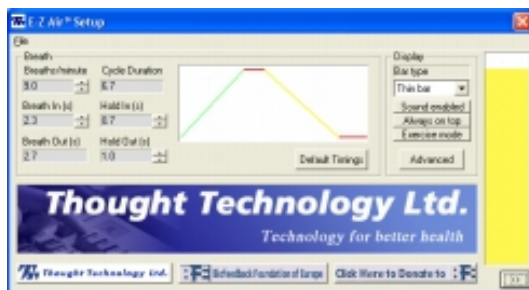
# Hometraining = RF breathing



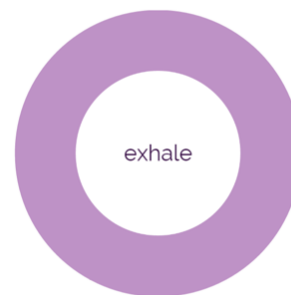
**Breath pacer apps**



*Pebbles breath pacer  
with HR/HRV*



*EZ-air*

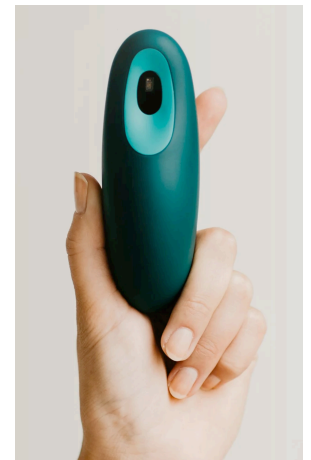


*xhalr.com*

## **Breath pacers for PC**



*Moonbird  
breath pacer  
with HR/HRV*





# RF breathing: practice moments

Client chooses 2 of these options:

## **RF breathing at the start of the day (20 min)**

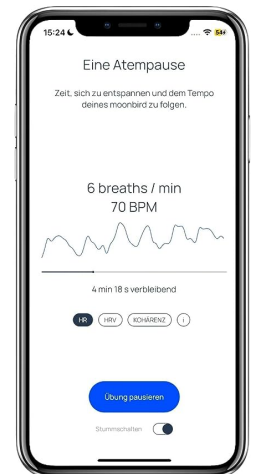
- Start the day quietly, as a reflective moment

## **RF breathing at the end of the day (20 min)**

- Wind down at the end of the day by becoming calm, releasing tension

## **RF breathing before bed (20 min)**

- As part of the sleep ritual:  
stimulating PNS
- Pacer on audio or tactile  
(Moonbird, Pebbles)



# HRV home training requires...

## **Commitment and planning**

Goal:

- ✓ home training with paced breathing on the RF
- ✓ with breath pacer app
- ✓ 2 x 20 minutes per day
- ✓ for 10 weeks (or more)

## Tips

- Nice breath pacer: let client choose!
- Discuss: when, where, how?
- Build gradually: 2x5 min, 2x10 min, 2x15 min, 2x20 min
- Use a habit tracker app



# How important is 2x20 min p/day?

Depending on the symptoms

**Stick to the 2 x 20 p/day for 10 weeks for:**

- Reset of an unbalanced autonomic nervous system
- Hypertension
- Cardiovascular health

**Because:**

- This protocol leads to a more durable autonomic balance, compared to 3x5 min or 1x15 min RF breathing per day
- Improving HRV and vagal tone takes at least 4 weeks of intensive training. Best proof is a decrease of heart rate during sleep.



# The effect of less intensive HRV training

## **Short periods of RF breathing (5-10 min):**

- Recovery after activity or stress
- Emotion regulation technique
- Connect with your body
- Checking in with yourself (being mindful)

## **10-15 minutes in the morning:**

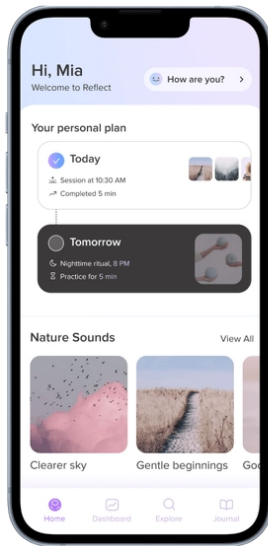
- Start the day relaxed
- Checking in with yourself (being mindful)

## **10-15 minutes in the evening:**

- Wind down at the end of the day
- Checking in with yourself (being mindful)
- As part of a sleep ritual



# HRV meditation trainers



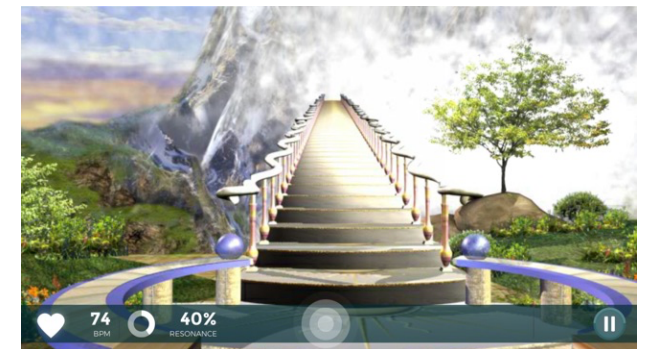
***Orb Reflect  
(HRV and Skin  
Conductance)***



***Inner balance (HR/HRV)***



***Wild Divine  
(HRV)***

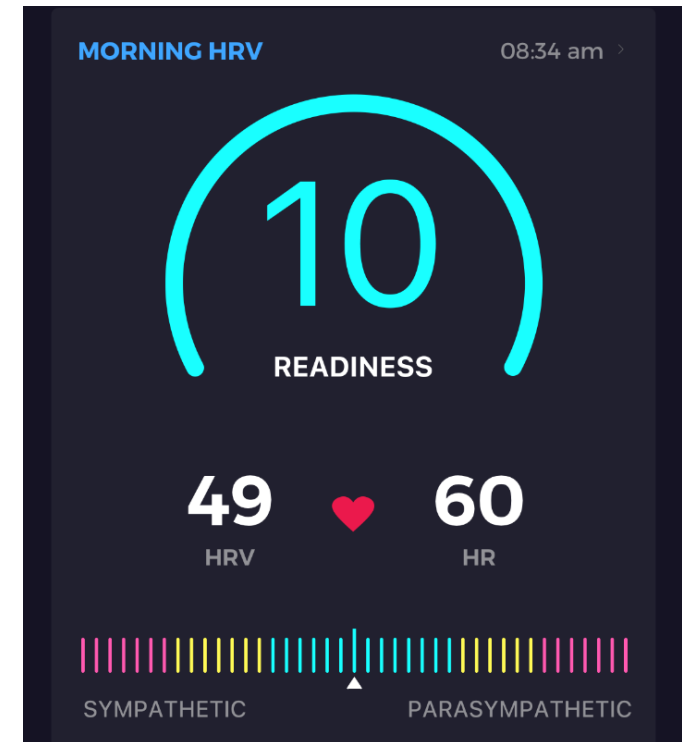


# Morning readiness measurement

## Daily 3-minute measurement

- in the morning
- with Kyto of Polar and Elite HRV app
- Under the same conditions
  - Attitude
  - Breathing technique
  - Mindset

Indicates your state  
of autonomic balance



*Elite HRV app*  
*Morning Readiness score:*  
*Autonomic balance*



# Sympathetic state

What do you notice?

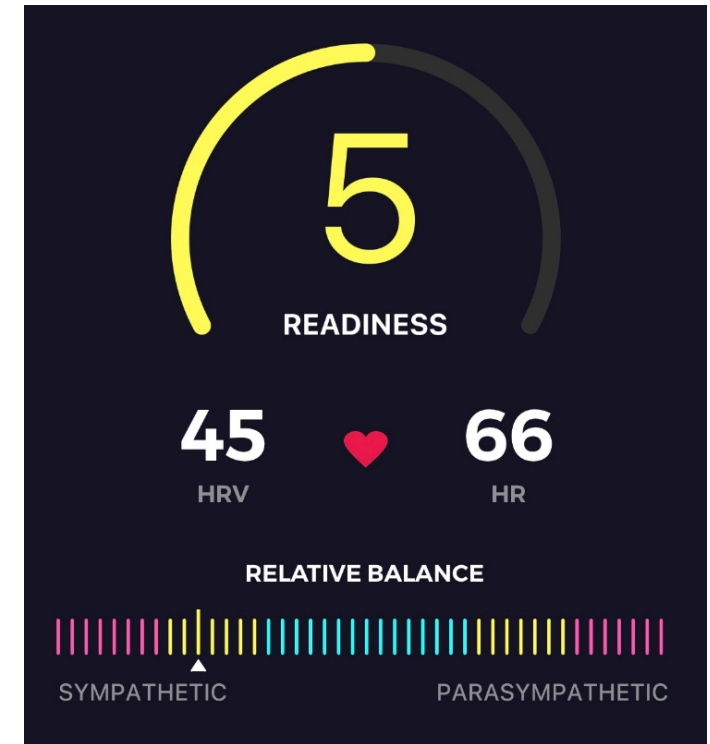
Busy head, easily distracted

Cause

Stress, bad recovery at night  
(e.g. alcohol)

Advice

- Avoid overload
- Take plenty of breaks
- Body-oriented exercises
  - Attention to your back
  - Mindful breathing
  - Focus on the feet / grounding



*Elite HRV app*  
*Morning Readiness score:*  
*Sympathetic state*



# Parasympathetic state

What do you notice?

Fatigue

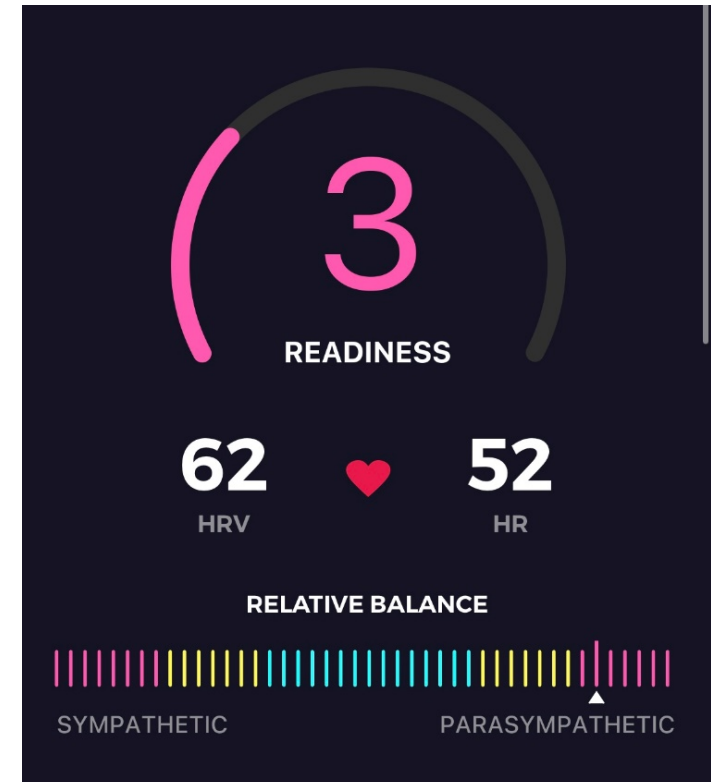
Cause

Deep recovery mode or fatigue  
(may happen when taking rest  
after a period of chronic stress)

Advice

Activating body exercises:

- Tapping your body
- Stretching
- Facilitate recovery (afternoon nap, early bedtime)

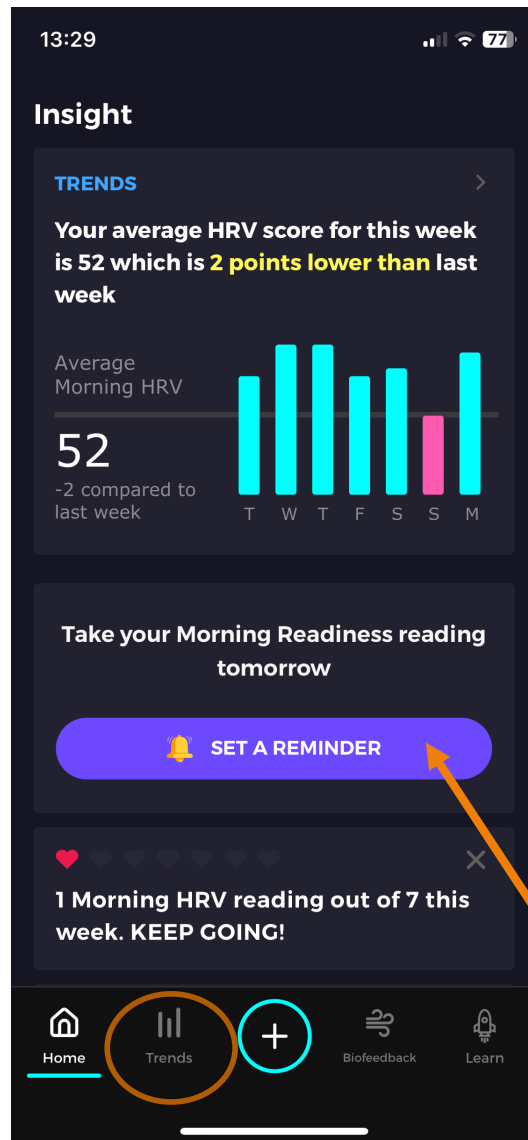
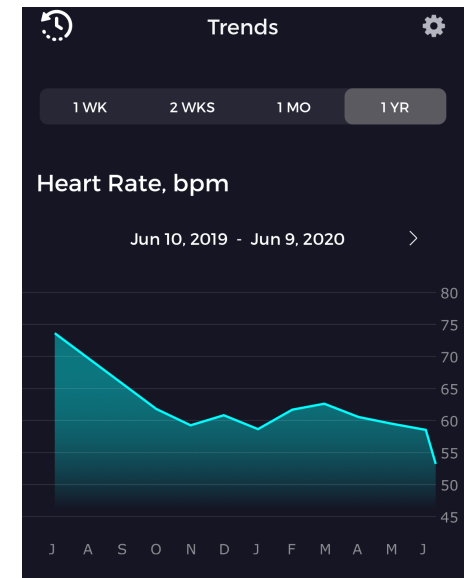


*Elite HRV app*

*Morning Readiness score:  
Parasympathetic state*

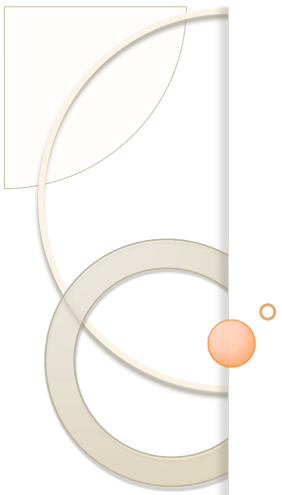


# MR helps to track progress



Click on the Trends button in the Elite HRV app to get trend reports on HR and HRV statistics.

Tip: set a reminder for a daily MR measurement



# Applying HRV biofeedback for chronic stress, insomnia and anxiety

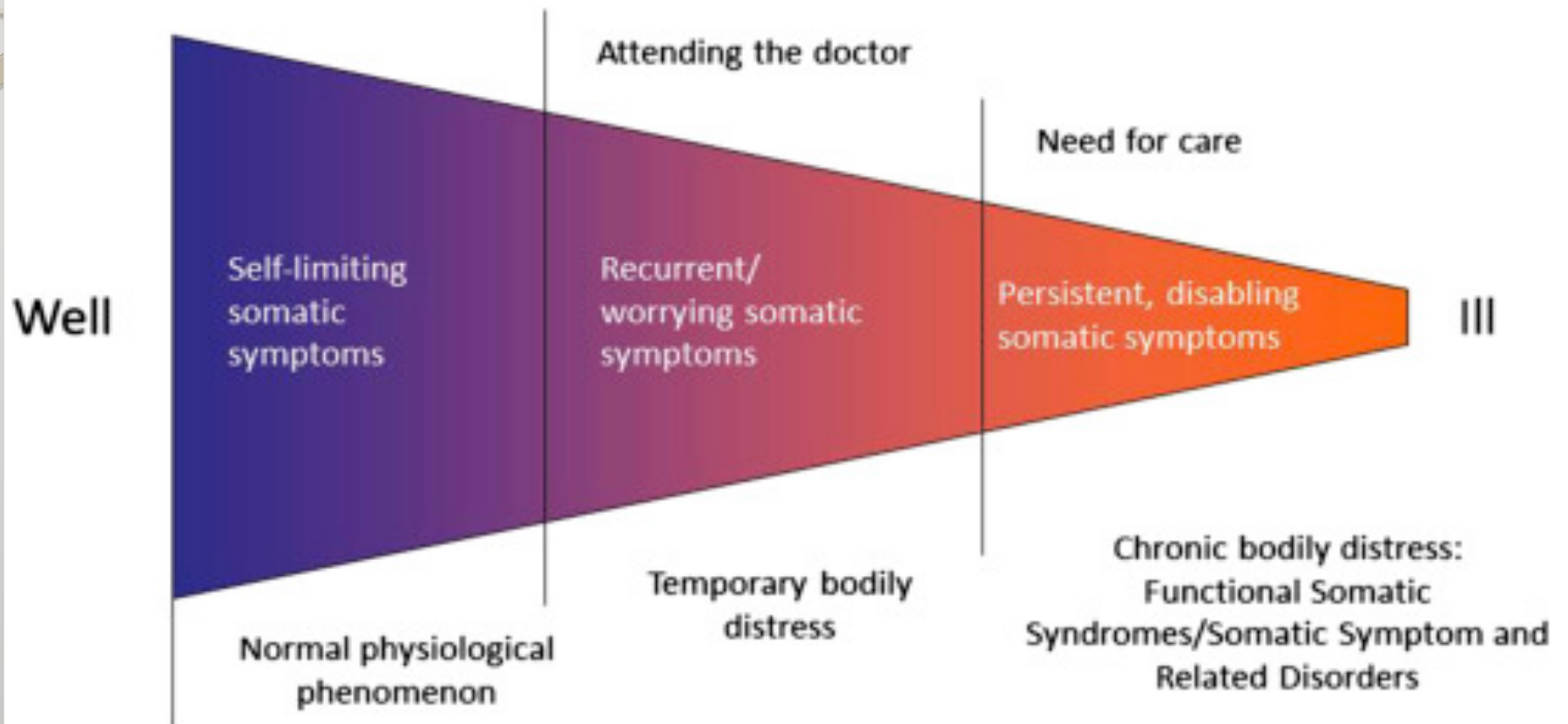


# HRV protocols

| Situation                                                                       | Advice for treatment                                                                                                                      |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sympathetic dominance /<br/>Parasympathetic<br/>withdrawal</b>               | <ul style="list-style-type: none"><li>• 10-week HRV protocol (2x20 min p/d) for restoring autonomic balance</li></ul>                     |
| <b>Autonomic balance with<br/>symptoms occurring in<br/>specific situations</b> | <ul style="list-style-type: none"><li>• Awareness of stress symptoms</li><li>• HRV as a tool for relaxation and self-regulation</li></ul> |



# From acute to chronic



**Awareness**

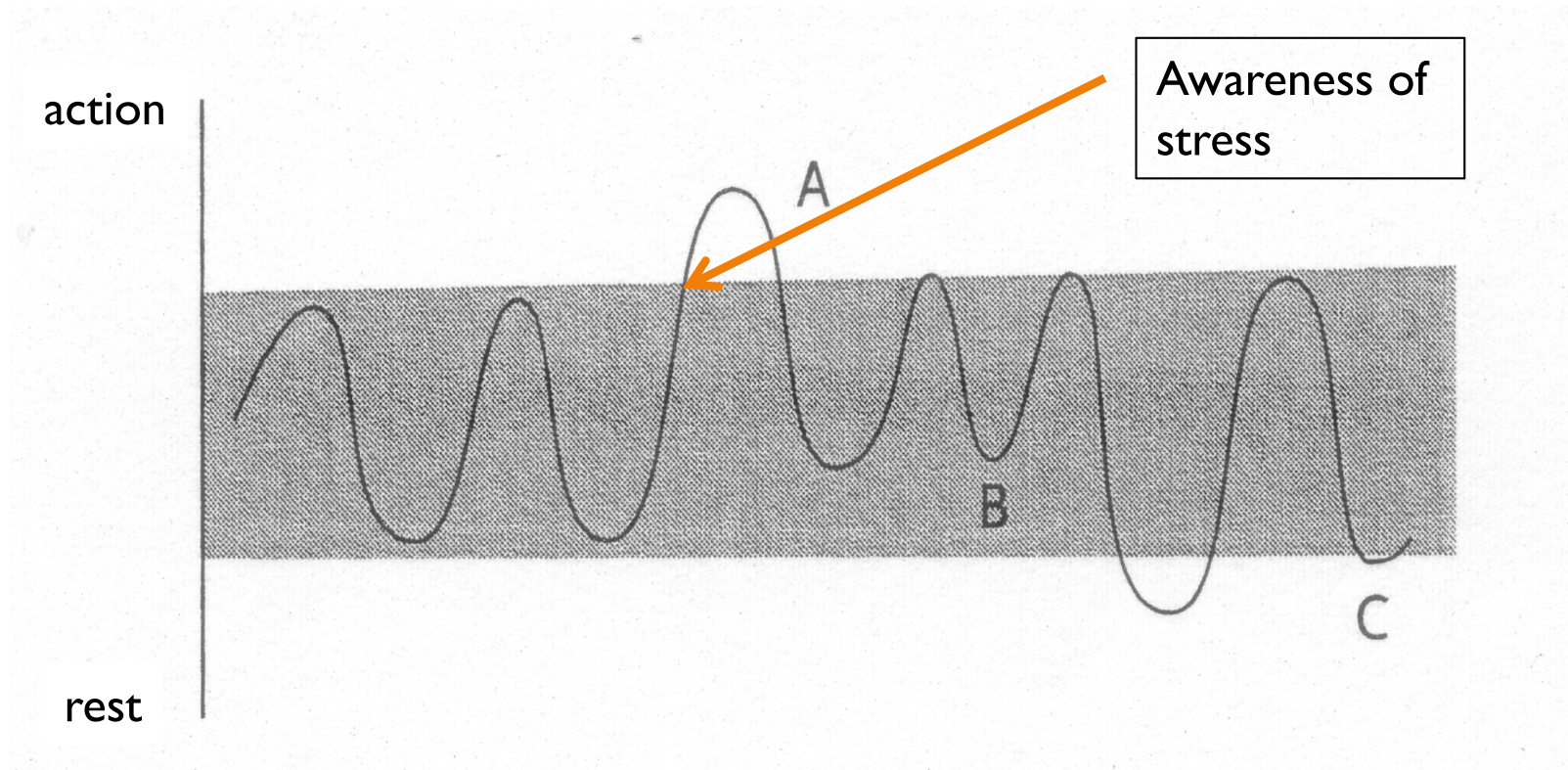
**Internal self-regulation**

**HRV training**

*< Skills to prevent & treat psychosomatic disorders >*



# ANS activity during wakefulness



Grey band = “internal referent” (perception of arousal level)

Normal situation with changes in arousal level:

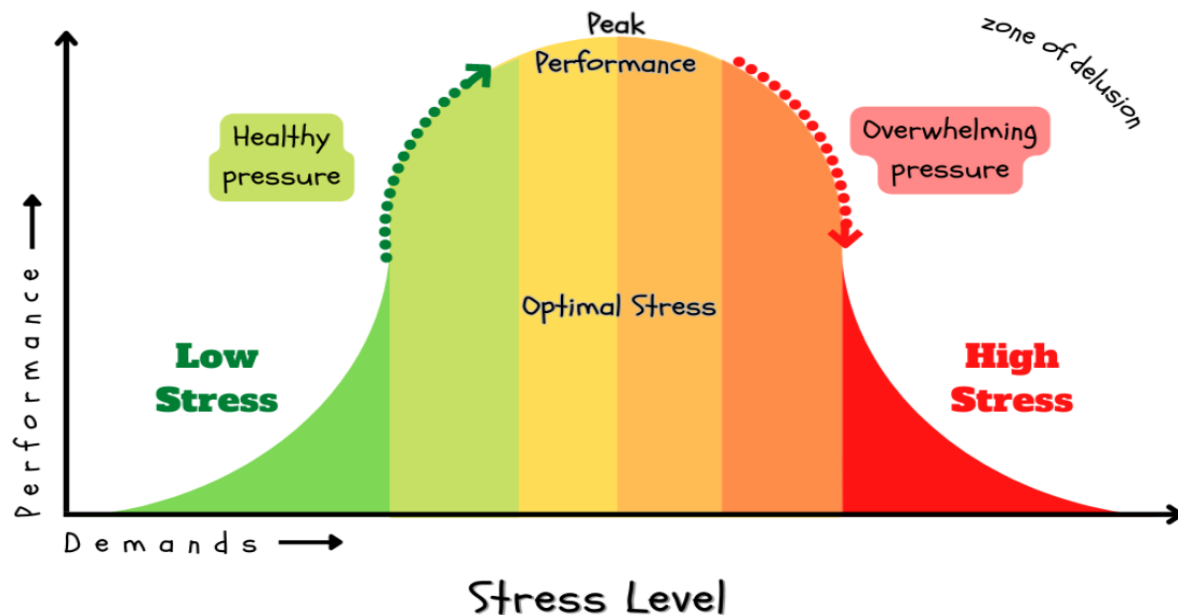
- action is perceived as “action”
- rest is perceived as “rest”





# Awareness of stress

## Stress Performance Curve



Physical signs:

- cold hands
- sweaty hands
- increased heart rate
- fast and shallow breathing
- tensed shoulders

Other signs:

- Emotional
- Behavioural
- Cognitive

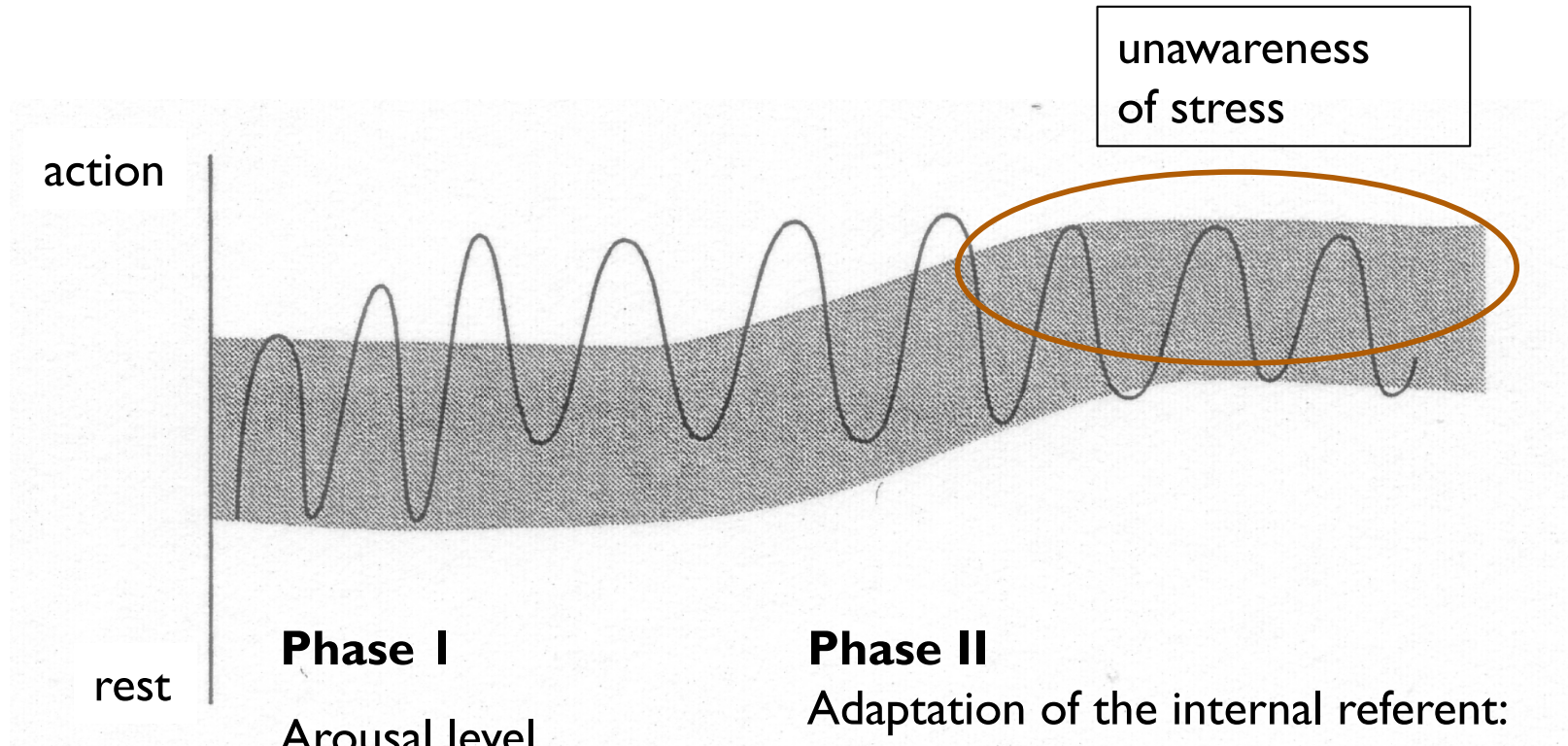
| Low                               | Moderate                          | Optimal                               | High                               | Too high                         |
|-----------------------------------|-----------------------------------|---------------------------------------|------------------------------------|----------------------------------|
| Inactive<br>Bored<br>Unchallenged | Engaged<br>Focused<br>Motivated   | Confident<br>In control<br>Productive | Distracted<br>Fatigue<br>Overwhelm | Exhaustion<br>Anxiety<br>Burnout |
| "I wish I had more to do!"        | "I'm feeling focused & energised" | "Now I'm really in the zone"          | "I feel anxious & unfocused"       | "I can't take this anymore"      |

Waking Waves





# Chronic stress



## Phase I

Arousal level increases and is perceived as such.

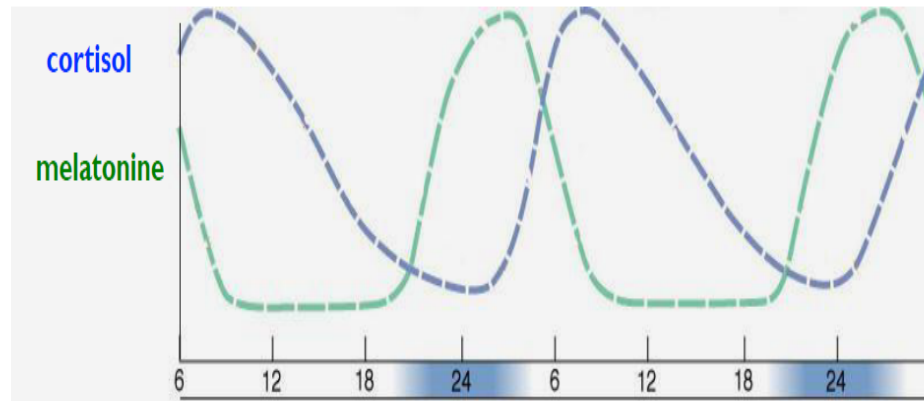
## Phase II

Adaptation of the internal referent:

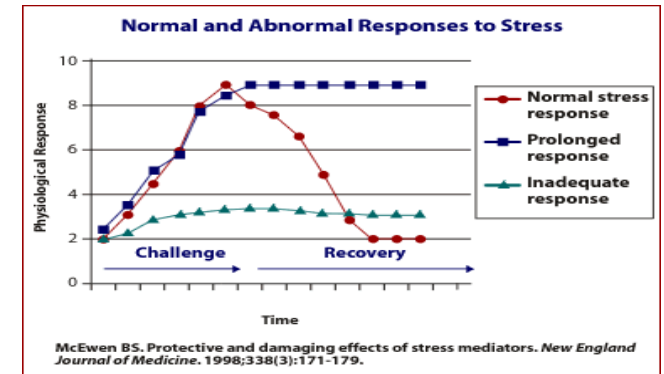
- the increased arousal level is perceived as “normal”
- previously normal action is perceived as rest
- the internal reference range tightens somewhat



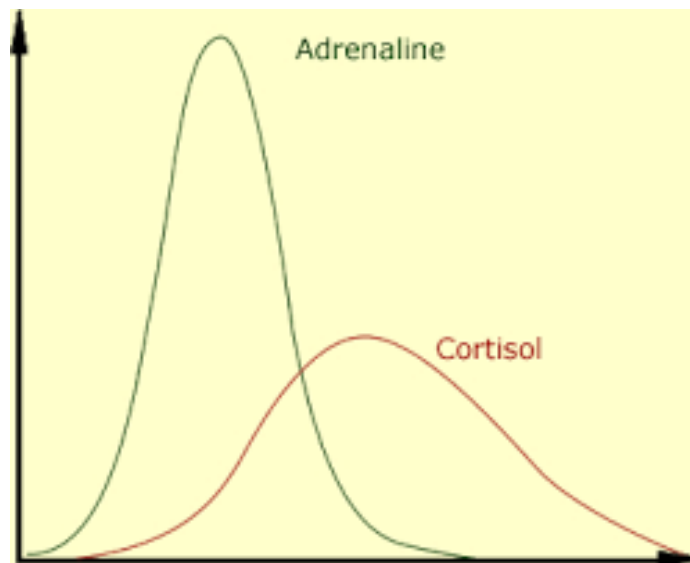
# Chronic stress → cortisol levels increase



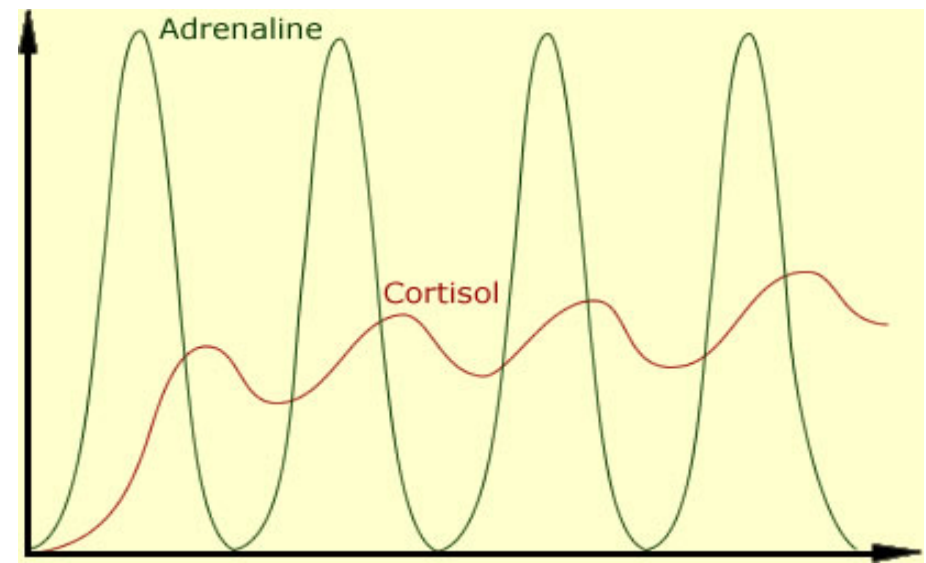
24-hour cortisol cycle 2 x 24 uur



Cortisol as a stress hormone



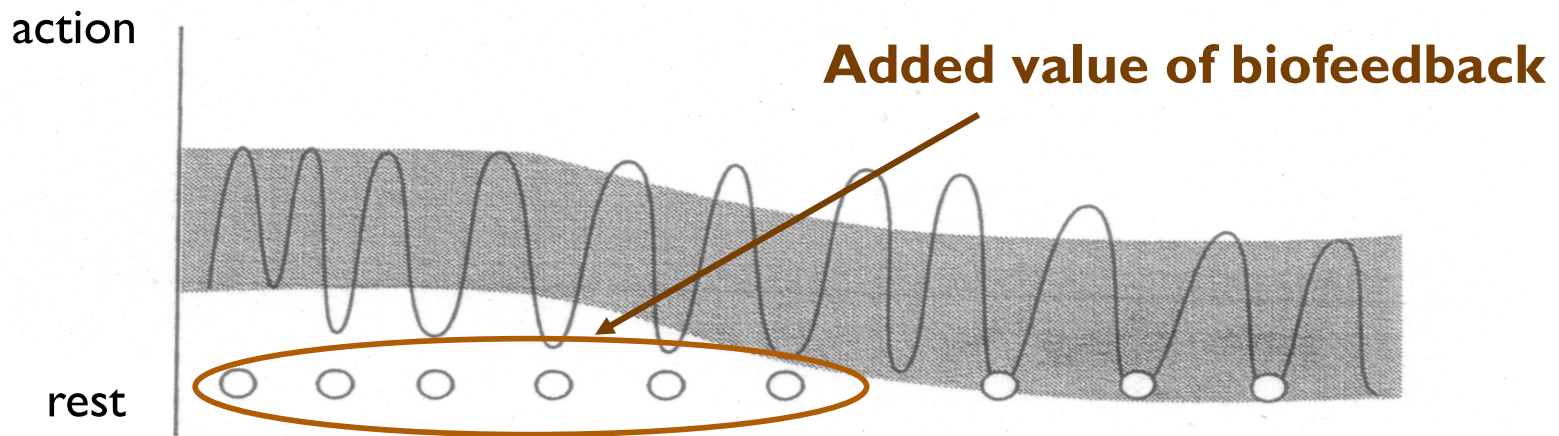
Normal recovery after stress



Inadequate recovery after stress



# Recovery of chronic stress



## Phase 1

Relaxation is possible, but feels strange.

## Phase 2

The relaxation experience is repeated and becomes more common.

## Phase 3

Adjustment of internal referent to a normal range.



# HRV training for chronic stress

## Awareness of stress signs

- Psycho-education about stress physiology
- Biofeedback stress profile
- Train awareness of stress signs
- Train self-regulation skills

## HRV biofeedback

- Teach diaphragmatic slow breathing
- 2x20 min protocol in case of autonomic disbalance
- Slow breathing as a self-regulation tool
- Morning readiness measurement for:
  - awareness of morning stress level
  - progress tracking (goal is HRV up and Min HR down)





# Treatment of insomnia

## **Insomnia**

### **Level 3 – Probably Efficacious**

Diego A. Garcia, PhD

Private Practice, Hawthorne, CA, USA

Interventions used: EMG or neurofeedback.

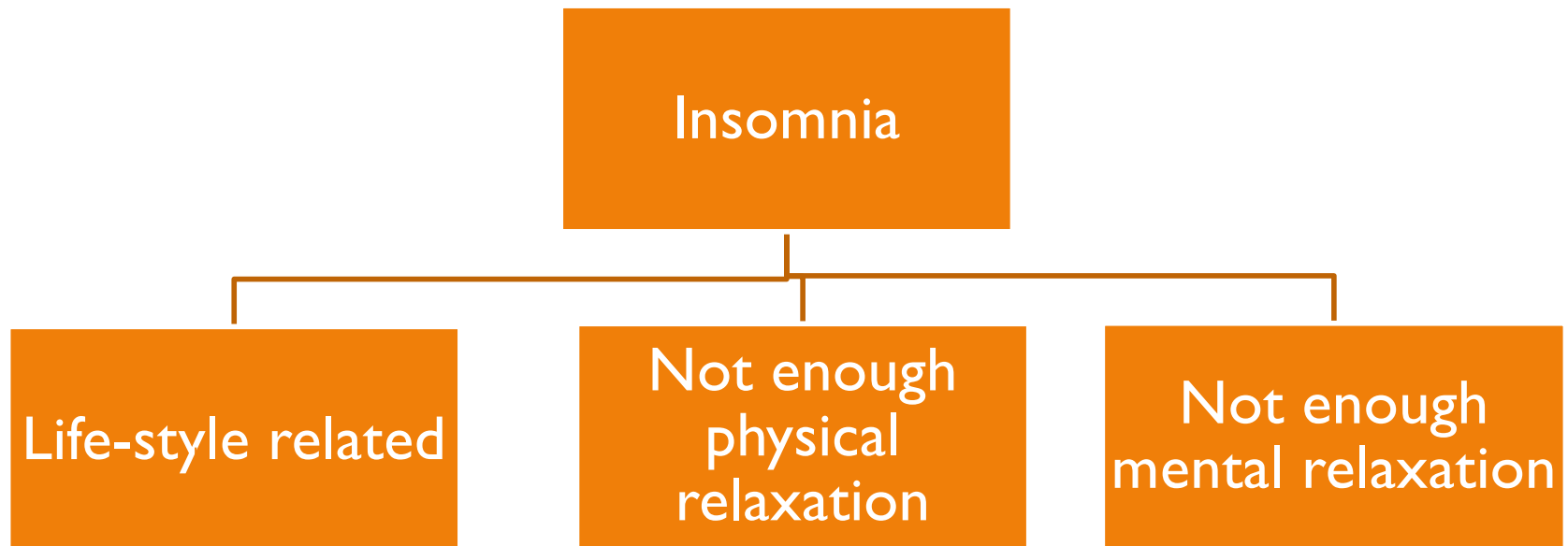
As insomnia is often caused by sympathetic dominance it makes sense that HRV is a useful training method. A study by McLay & Spira (2009) demonstrated a large positive effect on sleep quality and duration (n=1).

Further research is necessary to proof the effect of HRV biofeedback as a treatment method for insomnia.

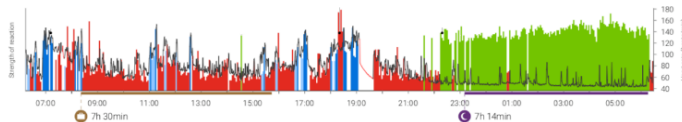




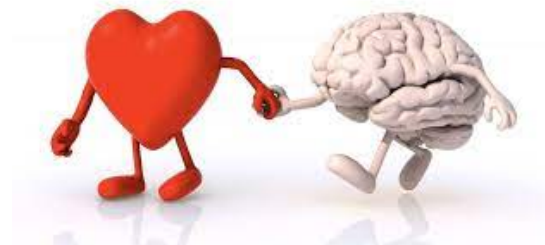
# Causes of insomnia



Psycho-education  
Sleep hygiene tips  
Firstbeat Life



Sleep ritual  
Calming the brain





# Lifestyle related: tips for good sleep

| Sleep pressure                           | Biorythm                             | Arousal                         |
|------------------------------------------|--------------------------------------|---------------------------------|
| Be active during the day                 | Regularity<br>(fixed sleep window)   | Healthy stress-recovery balance |
| No long naps during the day or evening   | Daylight and exercise in the morning | Wind down in the evening        |
| No caffeine in the afternoon and evening | Soft, warm light in the evening      | Relaxing sleep ritual           |



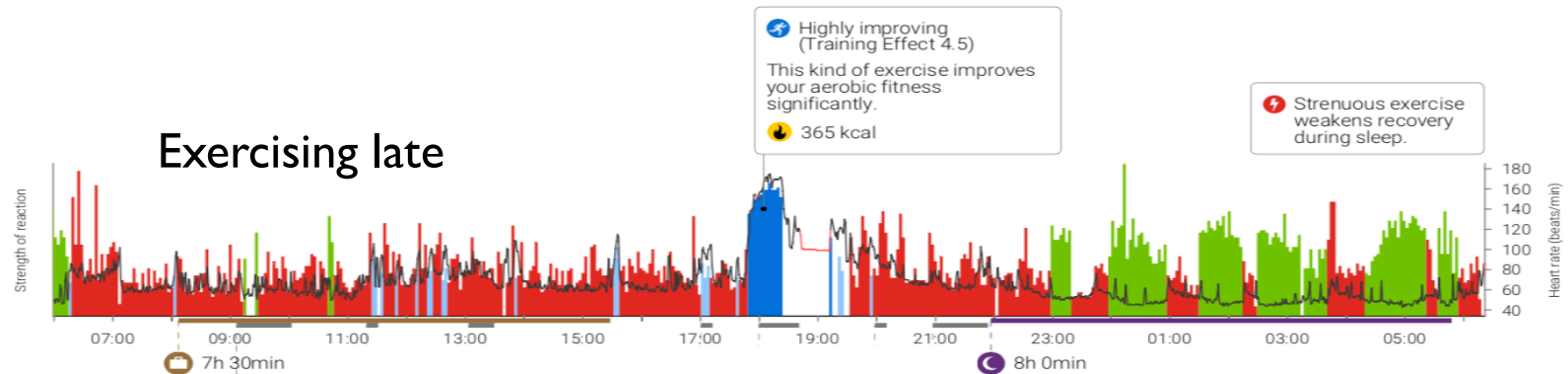


# Effect of sleep ritual on HRV

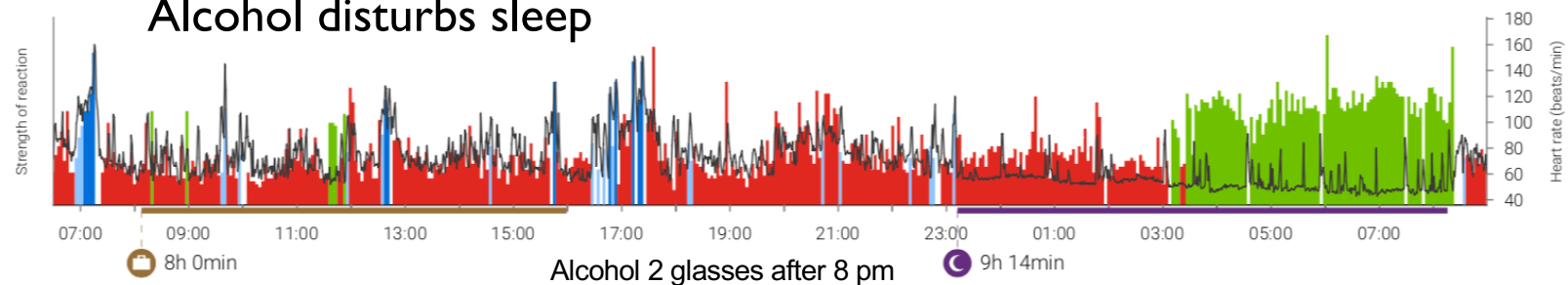


# The link between behaviour and sleep

## Exercising late

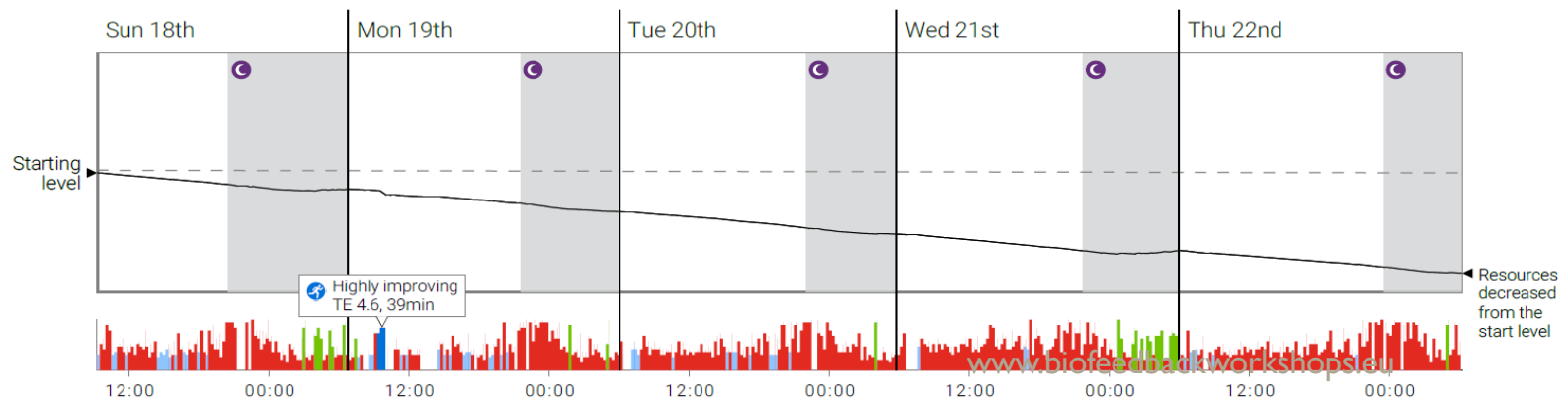


## Alcohol disturbs sleep



## BODY RESOURCES

➤ Resources increase   ➤ Resources decrease   + Significant recovery period   ● Stress   ● Recovery   ● Vigorous & moderate physical activity   ● Light physical activity



# Not enough relaxation

## Rationale

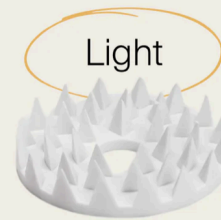
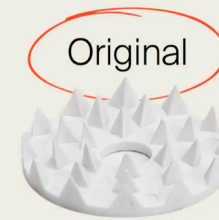
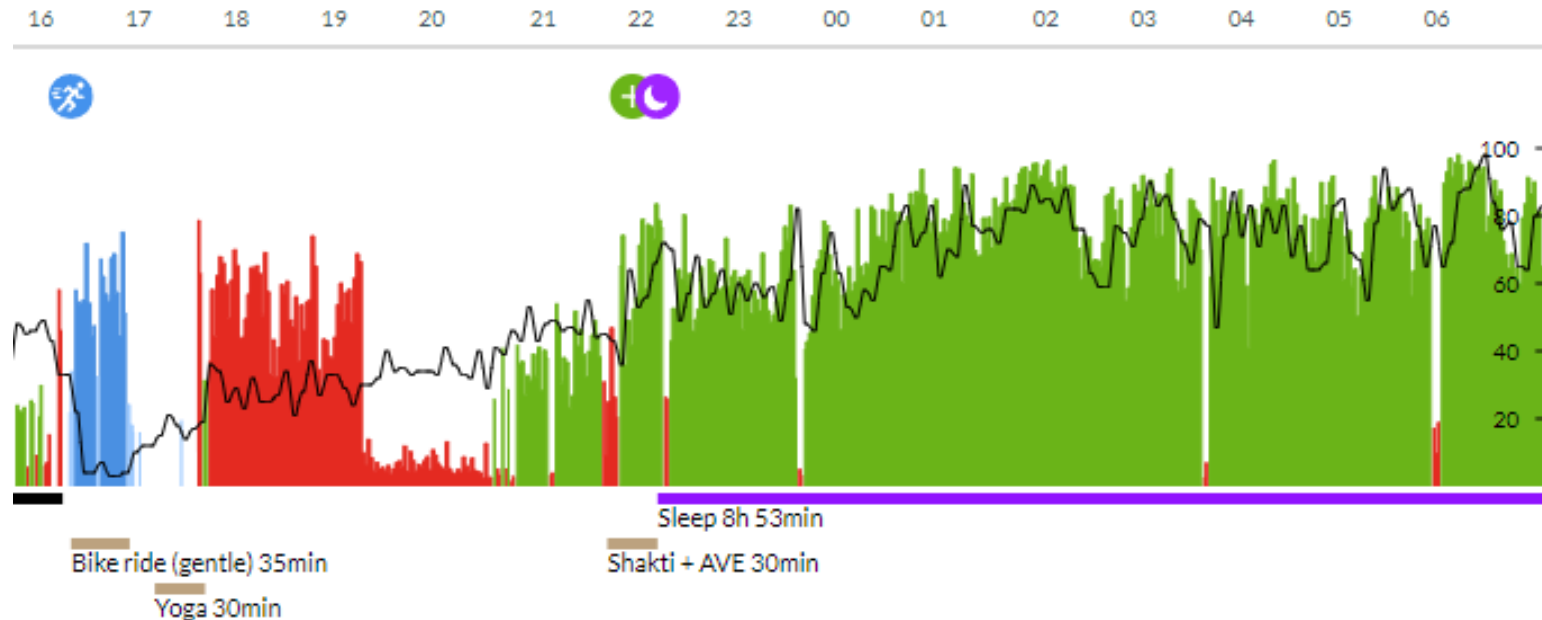
In order to sleep well the body and mind have to be in a calm, safe and comfortable state.

## BF related exercises for sleep

- Hands on belly (awareness of breathing, buddha belly)
- Slow breathing (breathe out negative feelings)
- Slow breathing with focus on heart, feeling positive emotions
- RF breathing with Moonbird or Pebbles
- Hand warming and slow breathing with secret handshake



# Shakti mat



- Lying on a shakti mat has a consistent calming effect in most people
- Combination with other techniques (HRV training, tVNS, meditation, etc. can further increase the effect (individually determined)



[www.shaktimat.eu](http://www.shaktimat.eu)







# Treatment of anxiety

## **Anxiety and Anxiety Disorders**

**Level 5 – Efficacious and Specific for Biofeedback/Neurofeedback for Panic Disorder**

**Level 4 – Efficacious for Biofeedback for Anxiety as a Life Problem; Biofeedback/Neurofeedback for Generalized Anxiety Disorder**

**Level 2 – Possibly Efficacious for Biofeedback/Neurofeedback for Phobias**

**Level 1 – Not Empirically Supported for: Biofeedback/Neurofeedback for Other Anxiety Disorders and Nonspecific Anxiety**

Donald Moss, PhD, BCB, BCN, BCB-HRV, and Matthew Watkins, MS

Saybrook University, Pasadena, CA, USA

30 years of research: the choice of modality for intervention has shifted over time, with a preponderance of early studies utilizing EMG and more recent studies favoring respiratory or HRV training.

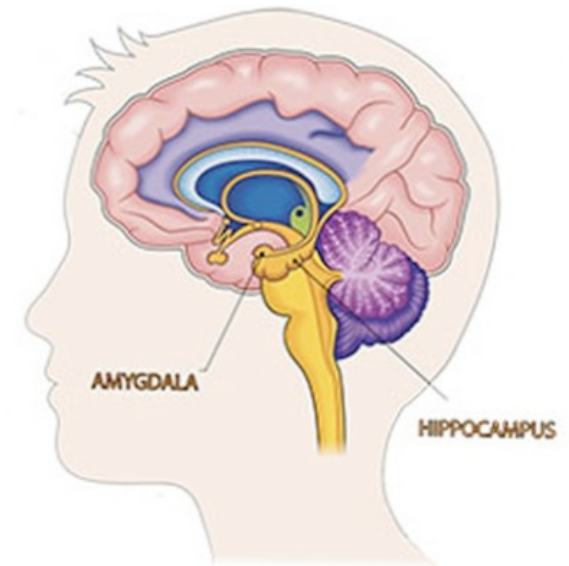


# Anxiety

Anxiety is a normal reaction to a real threat.

It gives a strong physical and emotional response

- activation of the amygdala
- awareness of a lot of details (where, when, what, who, ...)
- All these details are stored in longterm memory



## Lesson

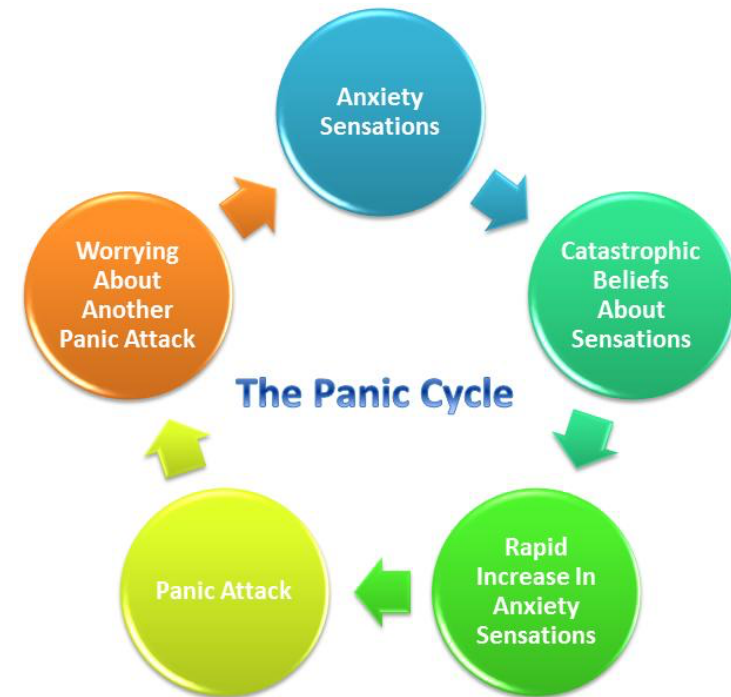
This may never happen again!!!! → every detail that is linked to the original threat triggers an alarm in the brain, leading to hypervigilance and a fear response



# Anxiety triggers



Suit of armour  
metaphor



Human beings have three basic needs:

## Competence

People need to gain mastery and control of their own lives & their environment.  
Essential to wellness

## Autonomy

People need to feel in control of their own life, behaviours and goals. This is about choice.

## Relatedness

People need to experience a sense of belonging and connection with other people.  
*Feeling cared for by others & to care for others.*

Based on the work of Richard Ryan and Edward Deci.







# Chronic anxiety

- Multiple anxious moments without sufficient self-regulation creates a more permanent feeling of unsafety.
- This is associated with:
  - Increase of depression and worrying
  - Hypervigilance
- Without treatment, anxiety may develop into a panic disorder (in case of a clear trigger) or a generalized anxiety disorder (the whole world feels unsafe)



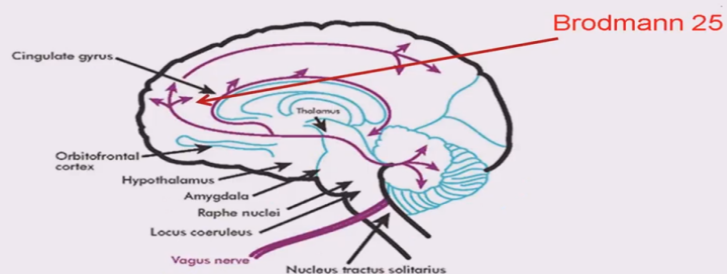
# HRV for Generalized Anxiety Disorder

Sympathetic dominance

Worrying, sleep problems and/or depression create extra stress

HRV training  
2x20 min p/day  
for 10 weeks  
+  
relaxation training

The vagus nerve: pathway to the limbic system

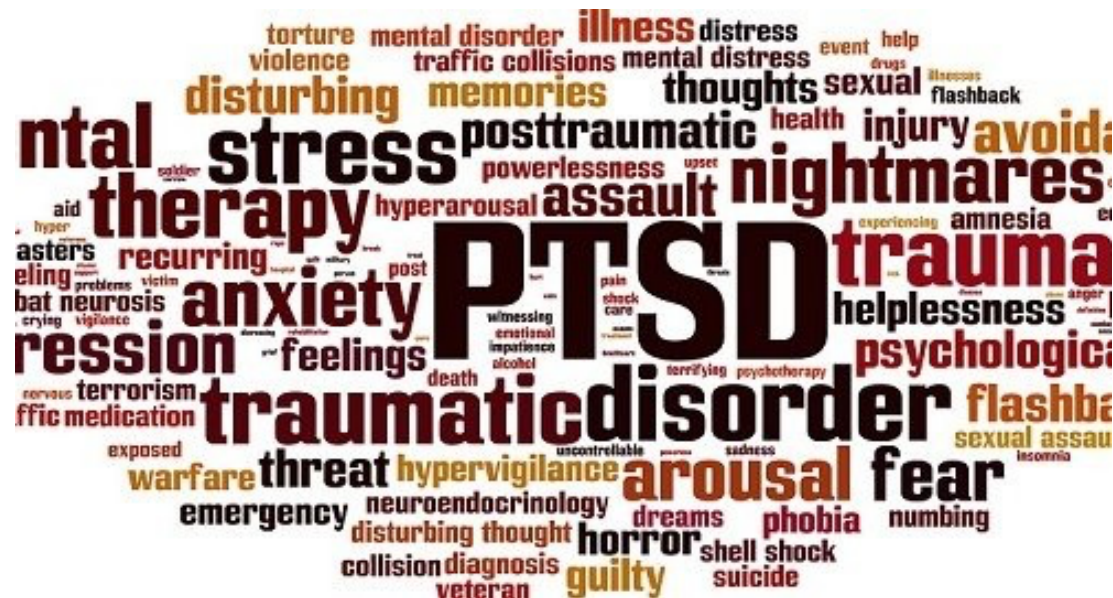


*HRVB leads to a calmer limbic system and is an evidence-based treatment of GAD*





## Relatedness



# Coping with stressors

| <i>Stressor</i>                                                                  | <i>Influence 0-10</i> | <i>Action</i>                                                                                                                                                                           |
|----------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Social life:<br/>Not enough social support, feeling lonely</i>                | <i>4</i>              | <ul style="list-style-type: none"><li><i>• Look for activities in your neighbourhood</i></li><li><i>• Say hello to nice looking people in the street</i></li></ul>                      |
| <i>Financial situation:<br/>House needs maintenance and no money on the bank</i> | <i>2</i>              | <ul style="list-style-type: none"><li><i>• Create an overview of incoming and outgoing money</i></li><li><i>• Which work around the house costs only effort and no money?</i></li></ul> |



**Make actions concrete: what, when, where, who can help?**

# HRV in panic disorder

There is a trigger of anxiety

Teach awareness of first signs of stress/anxiety

- List of stress signs
- Biofeedback stress profile

Teach self regulation skills: quick relaxation technique



*Break the panic circle in an early stage by offering an effective fast-working selfregulation skill*



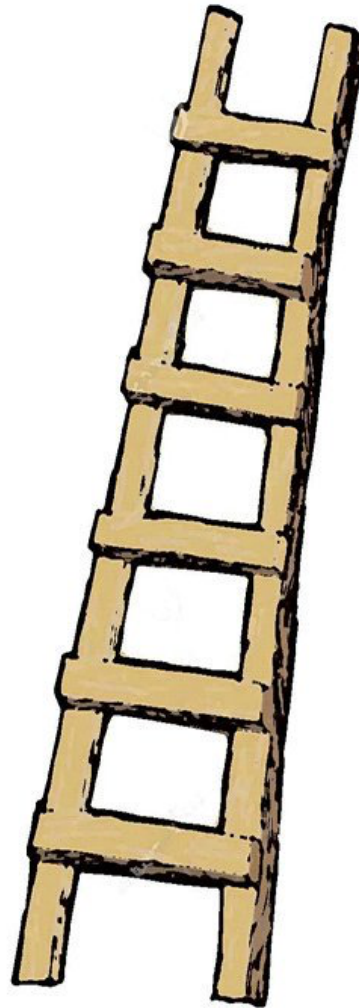


# Case example

- 34 years old male, software engineer, lives alone
- Social anxiety since he was a teenager
- His symptoms got worse during the pandemic, when he had no more practice in social situations
- After the lockdowns he experienced panic attacks related to upcoming social events, he ruminates and avoids these events
- In addition, he developed Delayed Sleep Phase Syndrome and feels bad when he has to wake up early.



# Exposure plan: anxiety ladder



Game night at the games store (1 p/w)

---

Birthday party with a lot of people

---

Going to a restaurant with a friend

---

Talk to a stranger

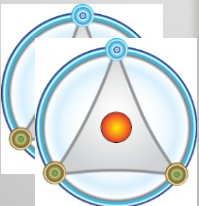
---

Have a coffee with a friend

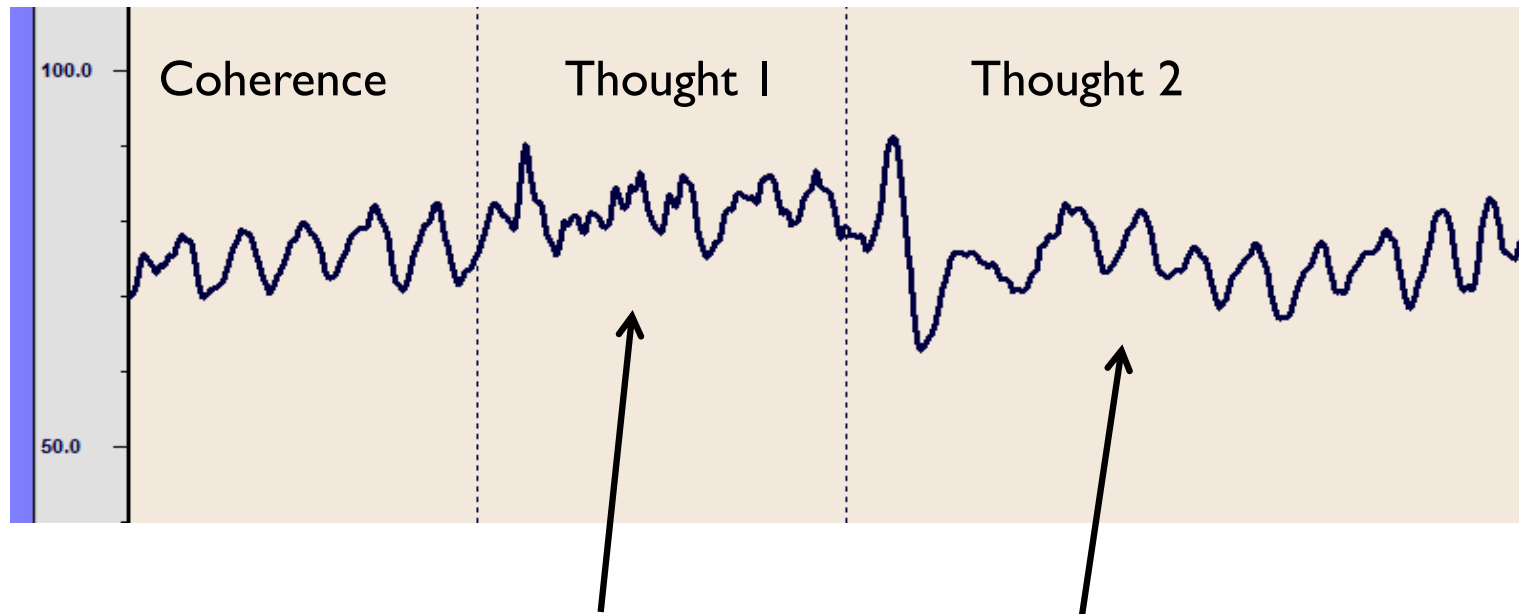
---

Go to the supermarket

---



# HRV to test success of exposure plan



This exposure step causes a chaotic pattern: the underlying cause can be fear or discomfort when thinking about that step.

This exposure step causes a coherent pattern: The autonomic nervous system is balanced. There is faith in the step.



# Treatment plan

- Regular normal sleep pattern
- Start the day with a walk outside (daylight and exercise)
- Work
- Lunch
- Anxiety ladder step
- Recovery (slow breathing, relaxation)
- Wind down in the eveing



## **When experiencing panic:**

- Focus on your feet
- Minimize “secret handshake”
- Breathe slow
- Focus on your lower back





# Result case panic disorder

- The daily structure and normal sleep pattern helped him to feel more relaxed.
- His vitality and productivity at work increased.
- He took the steps on the anxiety ladder and was able to break the panic circle in an early stage.
  - Supermarket and coffee with friends was easier than he thought.
  - He has visited a birthday party that he would have avoided normally and he has enjoyed himself
  - He went to the game night at the games store, hoping to meet new people. It wasn't as nice as he hoped, but he had no feelings of panic.



# BCIA HRV Certificate program

This course covered all 16 hours of the HRV blueprint.

HRV Anatomy and Physiology (3 hours)

Heart Rate Variability (2 hours)

HRV Instrumentation (3 hours)

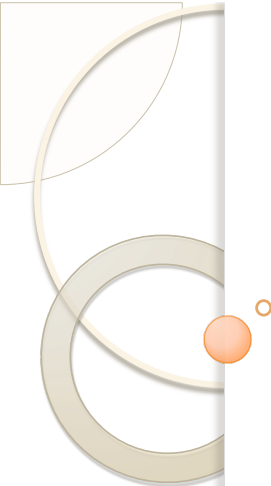
HRV Measurements (2 hours)

HRV Biofeedback Strategies (4 hours)

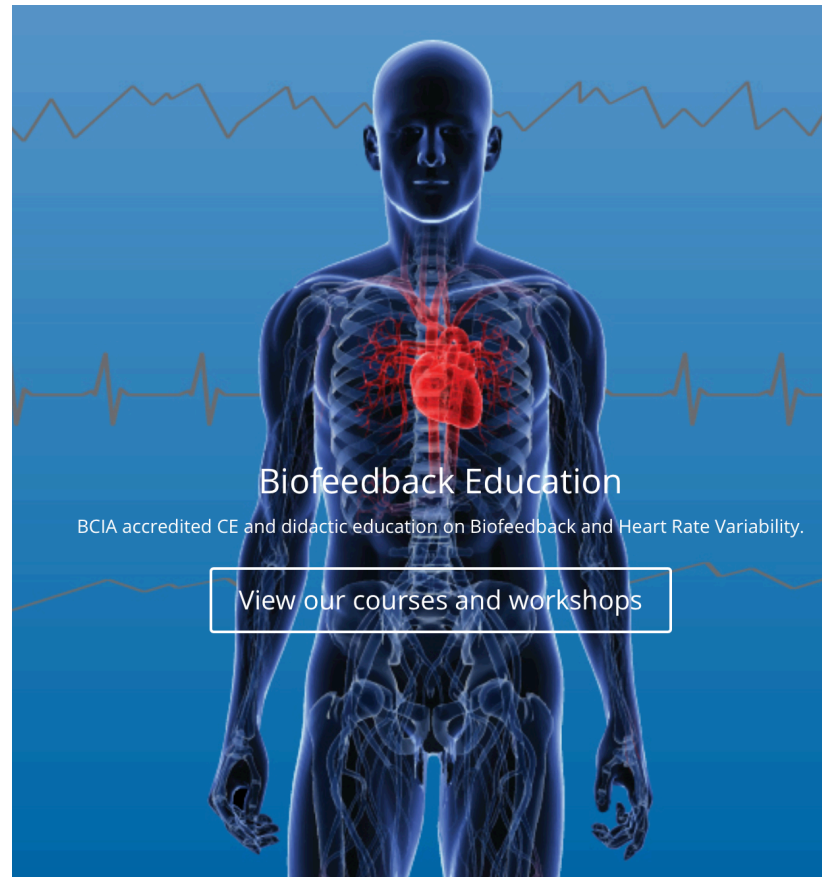
HRV Applications (2 hours)

Applicants can obtain the BCIA HRV certificate by passing a nationally-standardized online exam based on the 16-hour Blueprint of Knowledge, agree to abide by BCIA's Professional Standards and Ethical Principles (PSEP) and document completion of 3 hours of ethics/professional standards course work, taken within the last 5 years.





# Questions????



[biofeedbackworkshops.eu](http://biofeedbackworkshops.eu)