Engagement Training ET

HOW ENGAGEMENT TRAINING WORKS

Engagement Training is an audio guided and biofeedback-based form of resonant frequency training combined with bilateral (brain) stimulation.

Engagement Training (ET) trains to a ***physiological state that underlies sustainable peak performance, flow state and engagement, and ability to let go and recover, even under pressure***. This can lead to *better management of stress and extreme emotions, improved and sustained emotional and physical health and improved performance.*
ET promotes and protects emotional and physical health.

The Benefits of Engagement Training

This training can be beneficial in the following ways, as it helps you to:

- Train your autonomic nervous system dynamic towards flexibility, rhythm and balance
- Improve coherence and balance of heart rate variability, a key indicator of health and performance
- Helps functional integration of the eft and right brain hemisphere
- Reduce the negative impact of stress
- Reduce symptoms of low mood
- Reduce symptoms of anxiety
- Build resilience
- Feel calmer
- Feel energised
- May reduce chronic pain
- May improve quality and duration of sleep
- Enhance your capacity to stay well under pressure
- Enhance your capacity to perform well (under pressure)
- Improve focus, concentration and working memory
- Enhance your capacity to recover

In scientific studies, when performed for 10 or 20 minutes once or twice a day for six weeks, Resonant Frequency Training has been shown to significantly reduce negative stress, depression and anxiety and to improve performance.

Resonant Frequency Training is a scientifically validated method to increase heart rate variability in real time and permanently.

- Heart rate variability is a highly correlative predictor for ill health and death in adults.
- Heart rate variability is also a performance indicator.
- Heart rate variability is low, when we are stressed, and when we experience extreme emotions, such as depression, anxiety and anger.

Engagement Training ET

- Heart rate variability is also low when we suffer with emotional and physical health problems. It decreases with age. It has been researched and successfully applied in a number of cases of emotional and physical illness.
- Increase of heart rate variability has been shown to correlate with ***better stress tolerance, emotion regulation and improved performance***, which has led to its application in stress management and resilience.
- Heart rate variability gives an indication about the ***relationship between strain and recovery***. This balance can be positively influenced through Engagement Training.

Certain parts of heart rate variability are increased when we are engaged, i.e. ***do what we do with love and excitement***. Such activities are accompanied by ***positive emotional states like appreciation, enthusiasm, enjoyment, empathy and calmness***. During these times of engagement, the autonomic nervous system is flexible, adaptable and balanced, and brain activity, breathing rhythm, blood pressure rhythm and heart rate are functionally aligned. We call this state physiological **'coherence'**. Through states of coherence we can *improve our physical and emotional health*.

We can also *increase sport and work performance* through being in a *'flow state'* or *'in the zone'*. In this state we are simultaneously alert, mobile and laid back (relaxed).

Engagement Training ***mimics the physiology of engagement and flow*** by creating physiological coherence. Engagement Training does this through ***audio guided breathing, biofeedback*** and ***bilateral brain stimulation***.

The breath is paced with two tones (perfect fifth) into a frequency of either 5, 5.5, 6 or 6.5 breathing cycles per minute. This leads to the above-described state of coherence.

A bilateral drum (1 beat every 2 seconds, alternating left and right) entrains the brain into an alert and relaxed state, where stress and extreme emotions can be more easily processed.

The effect of the guided breathing process on your body (autonomic nervous system) can be followed on the screen of your smartphone in real time.

Optimal results are achieved when the guided breathing is practiced 2 x 10 minutes (or one 20-minute session) daily for six weeks. Reasonable results can also be achieved with shorter training sessions.

The body learns to create the state of coherence with time, and it can be activated at will—even in challenging situations. This allows us to *cope better with stress and perform better under pressure*.

Performing Engagement Training before a challenging task can *improve performance*, as it will *reduce inhibiting performance anxiety and create a state of system coherence*.

Engagement Training is not a relaxation exercise. *It can calm and relax when we are agitated or overexcited, and it can stimulate and activate when we feel low, withdrawn or lack energy.*

Engagement Training ET

Everybody has an ***individual breathing rhythm (pace) at which training of emotional and physical health, wellbeing and peak performance (engagement) happens at an optimal level***; this individual rhythm can change over time and with ongoing training. This individual pace of breath (between 5 and 6.5 breathing cycles per minute) will be assessed by measuring the impact that pacing your breath at these different rhythms has on your physiology. The whole assessment takes 12 minutes (Resonant Frequency Test).
Once your optimal rhythm has been identified, the audio and visual breath pacer will automatically default to this identified rhythm during your Engagement Training. After every 200 training minutes, you will automatically repeat the **Resonant Frequency Test** to optimize the effect of the next 200 training minutes.

Breathing with your individual resonant frequency creates a maximum amplitude of heart rate variability in the mid frequency range MF (0.08 – 0.15Hz).

The Effect of Bilateral Stimulation on Brain & Autonomic Nervous System

Bilateral stimulation is stimuli (visual, auditory or tactile) which occur in a rhythmic left-right pattern. Auditory bilateral stimulation involves listening to tones that alternate between the left and right sides of the head.
Bilateral stimulation is a treatment element of EMDR, trauma therapy. It was discovered accidentally by Francine Shapiro Phd as she was walking in a park in the late 1980's. She discovered that when a person deliberately focuses on a distressing memory, and then concentrates on bilateral stimulation, their distress is reduced. Moreover, the distressing memory seems to become less distressing in a long-term way.

Bilateral stimulation produces the following main effects:

1. A relaxation effect including decreased physiological arousal.
   This is also shows in the EEG in increased brainwaves activity in the range of Delta 1.5Hz.
2. Increased attentional flexibility (meaning that your thoughts become less 'stuck' on whatever was bothering you). This may be related to the rhythmic alternating activation of both hemispheres.
3. Distancing effect (meaning that the problem seems smaller and further away).
4. Decreased worry.
5. Relief from physical pain
6. Stress reduction
7. Sleep improvement

These effects are experienced as a 'bottom-up' cascade of changes meaning that they are experienced in the lower areas of the brain first, as a physiological response (i.e.: decreased tension) then travel 'up' the brain leading to mental changes (e.g.: decreased worry).
Because this order works with how the brain normally processes information, the effects are often experienced more quickly and easily than with say top-down strategies such as insight and conscious introspection.

For more information on the scientific background of bilateral (brain) stimulation, please refer to text and bibliography in the Section: 'Science behind our App'

Engagement Training ET

Contraindications

For most people bilateral stimulation is distracting and relaxing and perfectly safe. However, because it involves direct sensory stimulation of the nervous system, bilateral stimulation can trigger unexpected responses in people with conditions which involve hypersensitivity to sensory stimuli, e.g.: people with acquired brain injury (where the condition involves sensitivity to complex visual or auditory stimuli), migraine sufferers (usually when they have the migraine), people with complex PTSD, people with Dissociative Identity Disorder (where different ego states may be activated by sensory changes), please suffering with schizophrenia or uncontrolled mood disorder (mania and depression). People with these kinds of conditions are not advised to use this process without the guidance of a trained therapist.

Engagement Training ET

RESONANT FREQUENCY TEST (RFT) INSTRUCTIONS

Sit in a quiet and comfortable space and avoid distraction or disturbance.
Connect your earbuds or headphones to your smart phone.
Enable the Bluetooth function.
Switch on the oximeter.
Allow the App to connect with the oximeter.
Put on the earbuds or headphones.
Make sure that the right speaker is over or in the right ear and the left speaker is over or in the left ear.

Open the main menu of the app.
Select Resonant Frequency Test (RFT).
Press the blue arrow at the bottom to start the assessment.
You will now hear the lower tone 'C' in the right ear, and the higher tone 'G' in your left ear.

When you hear the lower tone 'C' in the right ear: INHALE.
When you hear the higher tone 'G' in the left ear: EXHALE.
Inhale smoothly and gently through your nose, filling your lungs from the diaphragm upwards to approximately 75% full of air.
Exhale smoothly and gently through your nose, starting the exhalation with your diaphragm.

Continue this process for the whole duration of the session (12 minutes).
The pace of breathing will change 4 times every 3 minutes.

At the end of the assessment, your resonant frequency will be displayed, and when you start your Engagement Training it will automatically default to the assessed pace for the next 200 training minutes.

After 200 training minutes, you will be prompted to repeat the assessment.
Should you be disturbed during the assessment, please repeat it at a later time.

Only repeat a successful RFT when you are prompted to (after 200 training minutes), unless the previous Resonant Frequency Test was disturbed, interrupted or not completed.

TROUBLE SHOOTING THE RFT

The arrow at the bottom of the RFT page is white instead of blue.
Please check whether Bluetooth is enabled, your oximeter is switched on, the batteries are charged, and whether the oximeter is properly paired and connected.

I lose focus during the 12-minute assessment and do not always accurately follow the breath pacing.
Do not worry, with practice you will find you can follow the breath pacing more precisely. The measured values will still be accurate enough to get you started. You may also decide to repeat the assessment earlier (before 200 training minutes have been completed, when you feel more able to follow the pacing.

ENGAGEMENT TRAINING (ET)

In order to get the maximum beneficial effect from your ET, we recommend either ***one or two daily training sessions of 10-20 minutes each,*** in which you practice slow diaphragmatic breathing at your individual resonant frequency over a period of six weeks.

To sustain the impact of the training after this period, shorter and fewer training sessions will still allow you to maintain the progress you have made.

You may also use the training to improve your performance or to wind down before and/or after challenging events and tasks. In certain circumstances, **shorter and less frequent training sessions can be of benefit, too,** for example if you feel well, but would like to deal better with certain challenges.

The training is conducted by **audio breath pacing (tones)** and/or **visual (bulls eye)**. The audio breath pacing aided by the bilateral drum sound is particularly effective, as it helps to instantly let go of distressing experiences and to develop an internal focus. It also substantially enhances the training effect.

If you wish to practice some of your Engagement Training sessions without the oximeter or Polar H7 belt, then select "without sensor" in the 'Device" Section. Practice as much as possible and/or convenient with one of the sensors, as it will allow you allows you to track the effect of your training in real time and also to compare the efficacy of different training sessions. The Resonant Frequency Assessment that is required to constantly adapt the training to your physiological needs (optimisation), can only be done with a sensor.

Engagement Training **promotes a balance between stimulation and relaxation, which has an energising and alerting effect when you feel tired and a calming effect when you feel agitated or overstimulated**.

It also balances and makes more rhythmical the functioning of the autonomic nervous system, mediating between the 'fight or flight' and the 'freeze or flop' responses—between 'strain' and 'recovery'.

ET physiologically supports the development of sustainable peak performance and good judgment and decision making under pressure. ET can also be used to prepare for challenging or highly demanding situations.

Engagement Training ET

ENGAGEMENT TRAINING INSTRUCTIONS

Sit in a quiet and comfortable space and avoid distraction or disturbance.
Connect your earbuds or headphones to your smart phone.
Enable the Bluetooth function.
Switch on the oximeter.
Allow the App to connect with the oximeter.

Put on the earbuds or headphones.
Make sure that the right speaker is over or in the right ear and the left speaker is over or in the left ear.

Open the main menu of the app.
Press Engagement Training (ET).
Press the blue arrow at the bottom to start the training.

You will now hear the lower tone 'C' in the right ear, and the higher tone 'G' in your left ear.
When you her the lower tone 'C' in the right ear: INHALE.
When you hear the higher tone 'G' in the left ear: EXHALE.
Inhale smoothly and gently through your nose, filling your lungs from the diaphragm upwards to approximately 75% full of air.
Exhale smoothly and gently through your nose, starting the exhalation with your diaphragm.

After you have established a rhythm of regular, deep, slow breathing, **focus on your heart**:

- Focus alternatingly on the area underneath the center of your chest bone, where your heart crosses the midline of your chest and on the area that surrounds your body (up to 5 feet into space).
    - **As you inhale, imagine that you are shifting your focus of attention from your heart towards the surrounding periphery (expansion).**
    - **As you exhale, imagine that you are that you are shifting your focus of attention from the surrounding periphery into your heart (contraction).**
    - **This will create a sense of rhythmic movement and flow from the heart to the periphery (inhalation) and from the periphery back to the heart (exhalation).**
    - You can add a simple sentence, such as an affirmation, that you rhythmically repeat with every exhalation.
    - Initially, you may find it helpful to localize your heart by putting the palm of your dominant hand on the centre of your chest bone. This is where your heart crosses the centre of your chest. After a while, you will no longer need to do this.

Continue with this process for either 10 or 20 minutes one or twice daily.

This technique can also be practiced, for example, after a distressing experience or to prepare for a challenging event.

Engagement Training ET

TROUBLE SHOOTING (ET)

The arrow at the bottom of the ET page is white instead of blue.
Please check if your oximeter is switched on, the batteries are charged, and whether the oximeter is properly paired and connected.

I lose focus during my training and do not always accurately follow the breath pacing.
Do not worry, with practice you will find you can follow the breath pacing more precisely. The training will still be effective even if you initially only listen to the breath pacer, and as you continue with the training, you will be able to follow the breath pacing for extended periods of time.

I get dizzy whilst practicing Engagement Training.
If you get dizzy, this is usually because you are hyperventilating, which is an undesirable effect. Please stop the deep and slow breathing at once and normalize your breathing. When you have returned to your normal self, restart the training, but breathe less deeply by filling your lungs with less air during the paced breathing cycle.

During my training, I experience some discomfort in the region of my heart or some mild palpitations.
This is usually temporary, of no major concern and will stop soon, but if it should persist then you may have to stop and/or take advice from your health professional.
(Palpitations, too slow, too fast or irregular heartbeat combined with dizziness, chest pain or shortness of breath are a medical emergency and require immediate attention. The above condition can develop entirely independent of the training, but in rare cases coincide with it.)

Tips for Practicing Engagement Training

As you practice this exercise, it is helpful to try to ***remain focused and present***. Over time, you will become more and more skilled at maintaining and deepening your focus and relaxation. Be patient with yourself and try to avoid being too goal-orientated with this exercise.

Although you will feel some immediate and substantial relief from stress and from the effects that negative emotions have on you when practicing these exercises, the impact that deep-seated problems have on your health and performance may need time to improve or resolve.

Do not practice this exercise for more than twenty minutes at a time.

Practicing this exercise for 10 to 20 minutes at the same time every night and/or every morning for a period of 6 weeks is likely to create a permanent positive effective.
When practicing this breathing exercise, you may initially experience various bodily sensations, such as mild dizziness, which are often an indication that your perception of your

body is changing or coming into sharper focus. Take things slowly and open your eyes during the exercise to regain control and ease the sensations. If needed, take a break. Do not force any of the exercise unless it feels natural to you. Most of these sensations are short-lived and tend to disappear entirely with practice.

Some disturbing feelings can also arise, such as fear and anxiety, which may have been previously suppressed. At times, memory images or imaginative pictures can surface as a result of the relaxation process. Sensations of floating and physical weightlessness, increased circulation (warmth), or pins-and-needles may be experienced. These feelings are usually of a mild and transient nature and mean that you need to proceed very slowly, gradually adapting to the new psychological and physical experiences. All of these experiences will stop when the exercise ends.

If you experience any dizziness as you practice this breathing technique, try to breathe less deeply—this will stop any signs of hyperventilation.

Perform these exercises gently, and do not put yourself under any pressure.

Initially, it is good to do the exercises in a sitting position, so as not to fall asleep. But you can also do them standing or lying down, depending on your alertness at the moment and what feels right for you. The aim is to achieve a state of awareness between focus and relaxation.

You may keep your eyes open during the exercise or close them—whichever feels better and more appropriate.

Don't be concerned if you are distracted by any thoughts or memories as you practice this exercise. You may intentionally focus on any randomly appearing thoughts, memories or images for a while, giving them your undivided attention, before you send them away and refocus on the breathing, your heart, and your body periphery.

As you practice every evening and every morning, you will find it easy to establish, at will, this state of focused relaxation before, during, and after challenging events during the day.

Focusing on slowing and deepening your breathing and alternating your focus rhythmically between heart and periphery with every breath will allow you to change your physiological and emotional response to challenging situations within a few seconds, greatly reducing stress and preparing for improved performance under pressure.

Make practicing these exercises an enjoyable experience. This is time with and for yourself, and it will benefit your health, your work, and your private life. Engagement Training is not primarily a relaxation exercise; it is a powerful balancing exercise that enhances focus and relaxation and is calming and energizing at the same time. ET reduces the impact of stress and enhances heart rate variability to improve health and performance.

Engagement Training ET

REVIEW OF THE STEPS

1. Resonant Frequency Test

The Resonant Frequency Test on your app will pace your breath through four paces and simultaneously compute your heart rate variability to assess your optimal training breath pace.

2. Engagement Training

Your app will pace your breath for the next 200 training minutes at the optimal pace and then repeat the Resonant Frequency Test to optimise your training.

3. Breathing Pattern

Inhale when you hear the lower tone C in your right ear.
Exhale when you hear the higher tone G in your left ear.

- Breathe deeply, initially filling your lungs approximately 75% full of air. This can later be extended to 100%.
- Start breathing from your diaphragm.
- Fill your lungs slowly from the bottom (diaphragm) upwards.
- Breathe in and out though your nose.
- Should you suffer from asthma, you can try exhaling through the resistance of your pursed lips, which may contribute towards relaxing the bronchi.
- Do not to force your breath and keep the rhythm easy and natural.
- Avoid hyperventilating. Should you get dizzy, stop. When you return to normal, restart, breathing less deeply to avoid hyperventilating.

4. Focus on your heart

After you have established a rhythm of regular, deep, slow breathing:

- Focus alternatingly on the area underneath the center of your chest bone, where your heart crosses the midline of your chest, and on the area that surrounds your body (up to 5 feet into space).
- **As you inhale, imagine the focus of your attention moving from your heart towards your body periphery (expansion).**
- **As you exhale, imagine the focus of your attention moving from the surrounding periphery of your body into your heart (contraction).**
- **This will create a sense of rhythmic movement and flow from the heart to the periphery (inhalation) and from the periphery back to the heart (exhalation).**
- You may also use a simple sentence, such as an affirmation, that you rhythmically repeat with every exhalation.
- Initially, you may find it helpful to localize your heart by putting the palm of your dominant hand on the center of your chest bone. This is where your heart crosses the center of your chest. After a while, you will no longer need to do this.

Engagement Training ET

HOW TO READ THE REAL-TIME DATA (LIFE) PAGES

On these pages, you will see:

A second counter that will show you the duration of the assessment (count down timer)

Plethysmogram

- This graph shows you the pulse curve—its regularity indicates that your hand is resting and that the pulse signal is being picked up in a stable fashion.

Power Spectrum of Heart Rate Variability:

- **Red** = predominantly sympathetic activity – **strain**
- **Gold** = sympathetic & parasympathetic activity – **engagement, flow**
- **Blue =** parasympathetic activity – **relaxation, recovery**

As you train, the amplitude of **MF (gold)** will increase, whereas the amplitude of LF (LF-MF strain) and HF (recovery) will reduce.

MF/LF [%] – horizontal graph mid frequency/high frequency – engagement ratio – capacity to engage or be in the zone (flow state)

This is the core value, as an increase in MF and a lowering of LF (and HF) is the targeted effect of the training. During training (and long term, you should see an increase in MF/LF), which means your MF/LF ratio moves towards 100% as you continue practicing and improving

HOW TO READ THE RESULT PAGE (Engagement Training)

HR – heart rate (reflects autonomic balance and fitness)

SDNN – standard deviation between two heartbeats – measures the intensity of speeding the heartbeat up and slowing it down within seconds. It is a measure of the body's health-promoting rhythm and flexibility; it declines with age and poor emotional and physical health. During training (and long term, you should see an increase in SDNN).

MF – mid frequency – engagement, positive & stimulating emotional state – balance of ANS

HF/[LF+HF] – high frequency/ low frequency + high frequency – relaxation ratio – measure for overall relaxation or recovery – high when traumatised or exhausted. This is because the body uses parasympathetic activity as a physiological emergency recovery strategy.

(RR) Values outside the reference range (too high or too low) are displayed in red.
(RR) Values inside the reference range (normal) are displayed in green.

As you continue practicing, you will see a continuous increase of MF and MF/LF from training session to session.

Engagement Training ET

CAUTION

Do not do the Resonant Frequency Training whist driving or operating machines, or whilst doing any activity that requires your full alertness and attention.

Do not do the Resonant Frequency Training without permission and/or guidance from your health professional or therapist if you suffer from brain injury, mental health problems, have experienced major traumas or suffer from post-traumatic stress disorder.

DISCLAIMER

Although in many cases complementary, the Emotional Health Assessment (DASS), Autonomic Health Assessment (AHA), Resonant Frequency Training (RFT), Relaxation Training (RT) and Engagement Training (ET) do not replace the diagnostic, advice or intervention from your health care professional, therapist and/or health and performance coach.

Should you suspect that you suffer from a physical, emotional or mental health problem, or should any of the autonomic data collected be outside the recommended range, please see your health care professional or therapist for advice.