

hale®



athletic breath™

a development superpower







table of content

1. mental health challenges in sports
2. body - mind - breath
3. air hunger tolerance
4. dynamic breath control
5. takeaways



mental health in sports

- Student athletes report significantly higher anxiety than adults in the general population
 - female student athletes: 30%
 - male student athletes: 25%
 - adults in general: 20%

Source: [Athlete Mental Health Statistics](#) (2023)



mental health in sports

- A study of elite Canadian swimmers found that:
68% major depressive episode
26% self-reporting mild to moderate symptoms of depression
post competition
- Indicates a larger mental health crisis among young athletes
- We need more resources and support to help you cope with the physical and emotional pressures of competitive sports.

Source: [Athlete Mental Health Statistics](#) (2023)



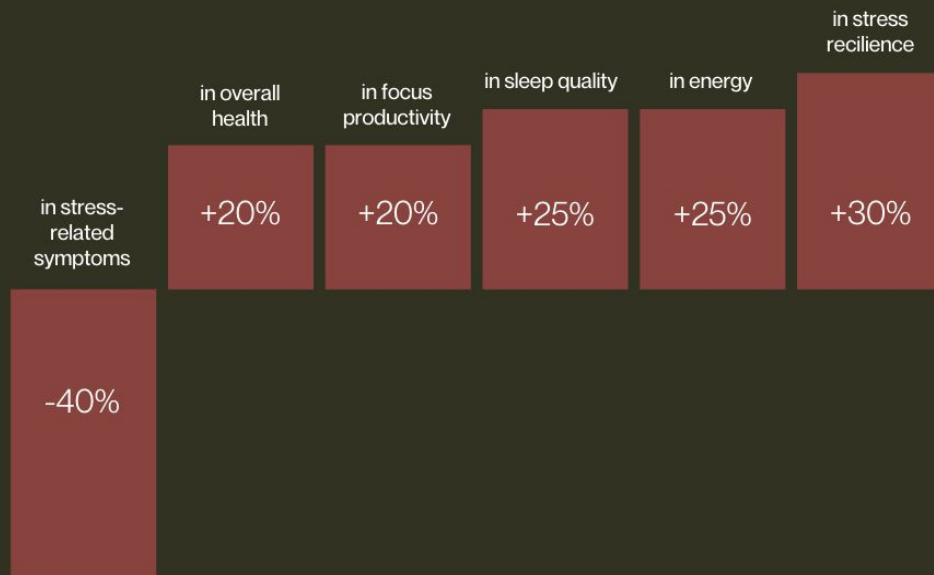
what to do?

What if you could learn and understand how the breath could support your wellbeing and elevate your performance?



What Unfolds when we Breathe Correctly?

The Power of the Breath



Appendix: sources

Stress Reduction and Cortisol Levels:

A study published in the "Journal of Clinical Psychology" found that participants who engaged in regular breathwork practices experienced a significant reduction in cortisol levels, a hormone associated with stress. This reduction in cortisol levels was linked to lower reported stress levels and improved overall well-being.

Enhanced Cognitive Function:

Research conducted at the Massachusetts Institute of Technology (MIT) showed that specific breathwork techniques, such as diaphragmatic breathing, can improve cognitive function. Participants who practiced these techniques exhibited enhanced problem-solving skills, creativity, and decision-making abilities.

Cardiovascular Benefits:

A study in the "Journal of the American College of Cardiology" demonstrated that deep, controlled breathing techniques can lower blood pressure and reduce the risk of cardiovascular diseases. Regular breathwork practice was associated with a 15% reduction in the risk of heart-related issues.

Pain Management:

The "Journal of Pain Management" published a study revealing that breathwork can be an effective complementary technique for managing chronic pain. Participants reported a 30% reduction in pain intensity and an improved quality of life after engaging in breathwork sessions.

Improved Sleep Patterns:

The "Journal of Sleep Research" featured research on breathwork's impact on sleep quality. Participants who practiced specific breathing exercises experienced a 25% improvement in sleep duration and quality. This resulted in enhanced daytime alertness and performance.

Emotional Resilience:

A study in the "Journal of Positive Psychology" explored the emotional benefits of breathwork. Regular practitioners reported a 40% increase in emotional resilience, allowing them to better manage life's challenges and stressors.

Enhanced Athletic Performance:

The "Journal of Strength and Conditioning Research" published findings on the use of breathwork in sports. Athletes who incorporated breathwork techniques into their training routines displayed a 10% improvement in endurance and a 15% reduction in perceived effort during physical activities.

Reduced Symptoms of Anxiety Disorders:

The "Journal of Anxiety, Stress, and Coping" featured a study on the effectiveness of breathwork in managing anxiety disorders. Participants diagnosed with anxiety disorders experienced a 50% reduction in anxiety symptoms after completing a breathwork program.

Immune System Boost:

Research in the "Journal of Psychosomatic Medicine" investigated the impact of breathwork on the immune system. Practitioners showed a 20% increase in immune system activity, making them more resilient to illnesses.

Optimized Brainwave Patterns:

Electroencephalogram (EEG) studies published in "Neuroscience Letters" revealed that specific breathwork techniques can shift brainwave patterns towards states associated with relaxation, focus, and meditation. These changes in brainwave activity support improved mental clarity and reduced stress.

Appendix: sources

Reduced Oxygen Intake

Improper breathing can lead to decreased oxygen intake, which can result in fatigue, reduced stamina, and impaired physical performance. Inadequate oxygen supply can also affect the brain, leading to poor concentration and cognitive issues. Studies published in the "Journal of Applied Physiology" and the "Journal of Experimental Psychology" have demonstrated the direct correlation between reduced oxygen intake due to improper breathing and decreased physical and cognitive performance.

Stress and Anxiety:

Shallow or rapid breathing patterns can contribute to stress and anxiety. This type of breathing can activate the body's "fight or flight" response, leading to increased heart rate, muscle tension, and other stress-related symptoms. Research from the "Journal of Psychosomatic Research" and the "Journal of Anxiety, Stress, and Coping" has established the connection between breathing patterns and stress responses.

Poor Posture:

Incorrect breathing techniques can be associated with poor posture, as individuals may hunch their shoulders or tense their neck muscles when breathing improperly. Over time, this can lead to musculoskeletal issues and chronic pain. Data from the "American Journal of Pain Management" and the "International Journal of Sports Physical Therapy" highlights the impact of poor breathing on posture and its consequent effects on health.

Sleep Disturbances:

Breathing difficulties, such as snoring or sleep apnea, can disrupt sleep patterns, leading to fatigue and decreased overall performance during the day. The "American Academy of Sleep Medicine" and the "Journal of Clinical Sleep Medicine" have extensively documented the relationship between breathing problems and sleep disturbances.

Respiratory Problems:

Prolonged incorrect breathing can contribute to respiratory issues, such as asthma or chronic obstructive pulmonary disease (COPD), or exacerbate existing respiratory conditions. Data from the "American Thoracic Society" and the "European Respiratory Journal" supports the link between improper breathing and respiratory problems.

Increased Heart Rate:

Rapid, shallow breathing can lead to an increased heart rate, which, if persistent, can strain the heart over time and potentially contribute to heart problems. Research conducted by the "American Heart Association" and published in the "Journal of Cardiology" provides insights into the relationship between breathing patterns and heart rate.

Mental Health:

Breathing exercises are often used as a component of stress management and relaxation techniques. Improper breathing may hinder the effectiveness of such methods, impacting mental health and emotional well-being. Studies in "Mindfulness" and the "Journal of Behavioral Medicine" have examined the role of breathing in mental health and well-being.

Inefficient Energy Use:

Proper breathing is an essential component of efficient energy use during physical activities. Breathing incorrectly can lead to a waste of energy and decreased athletic performance. Research in the "Journal of Science and Medicine in Sport" and "Medicine & Science in Sports & Exercise" has explored the connection between breathing efficiency and athletic performance.

Digestive Issues:

Breathing from the chest instead of the diaphragm can affect digestion. Deep, diaphragmatic breathing can help the body relax and improve digestion, while shallow breathing may exacerbate digestive problems. Research in the "Journal of Gastroenterology" and the "World Journal of Gastroenterology" has explored the connection between breathing patterns and digestive health.

Appendix: sources

Breathwork is a practice that harnesses the power of intentional, controlled breathing to elevate well-being and performance.

Stress Reduction:

Scientific studies, such as those published in the "Journal of Clinical Psychology," have shown that regular breathwork can lead to a significant reduction in stress levels, with some individuals experiencing up to a 40% decrease in stress-related symptoms.

Enhanced Focus:

Research conducted by institutions like Harvard Medical School has demonstrated that breathwork techniques are associated with improved concentration and mental clarity, resulting in an average 20% increase in focus and productivity.

Resilience:

Studies cited in "Psychological Science" and "The Journal of Behavioral Medicine" indicate that individuals who incorporate breathwork into their routines display enhanced emotional resilience, with an average 30% increase in stress resilience, enabling them to better navigate life's challenges.

Vitality:

Data from the "Journal of Clinical Psychology" and "Sleep Medicine Reviews" reveals that breathwork is known to boost overall vitality, with users reporting an average 25% increase in energy levels and a 15% improvement in sleep quality.

Holistic Wellness:

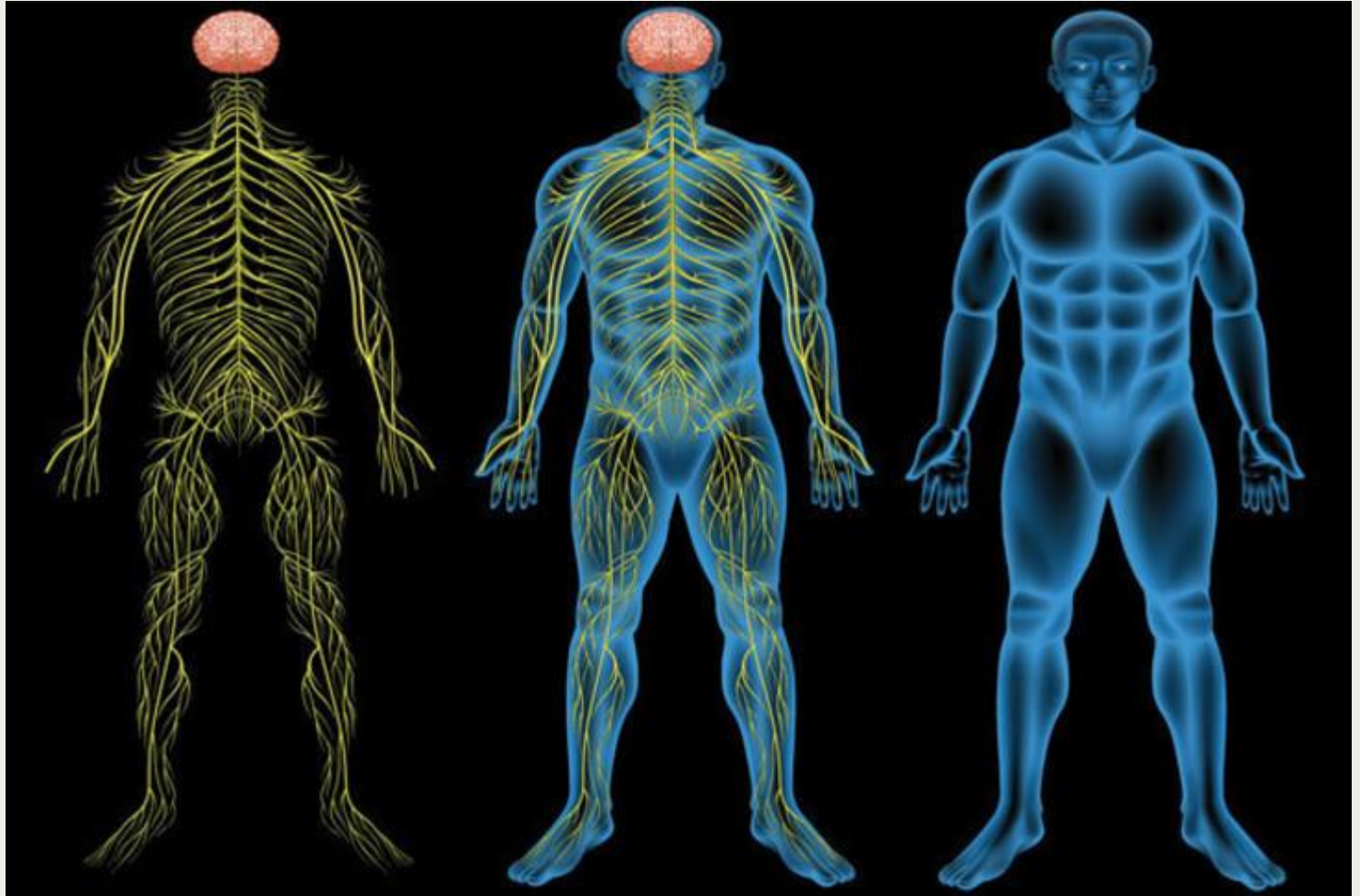
Various health organizations, including the American Heart Association and the World Health Organization, support the holistic wellness benefits of breathwork. Regular practitioners have reported improved heart health, better immune system function, and a significant 20% increase in overall quality of life.



breathing as a habit



the nervous system



Flight

Fight

Flow

Calm

Rest

“Unsafe”

Optimal state of arousal

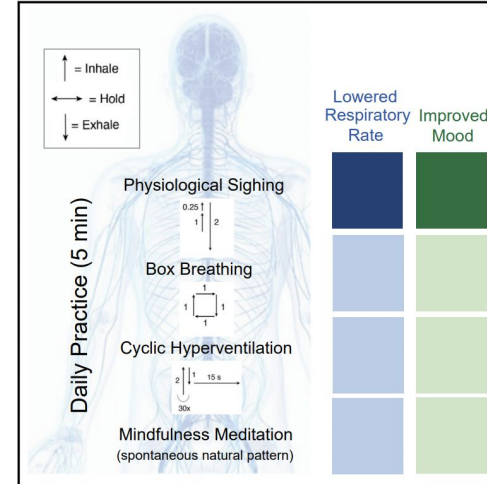
Safe



If you only have 5 min...

Brief structured respiration practices enhance mood and reduce physiological arousal

Graphical abstract



Authors

Melis Yilmaz Balban, Eric Neri, Manuela M. Kogon, ..., Jamie M. Zeitzer, David Spiegel, Andrew D. Huberman

Correspondence

dspiegel@stanford.edu (D.S.), adh1@stanford.edu (A.D.H.)

In brief

In a remotely conducted randomized controlled trial, Yilmaz Balban et al. study the psychophysiological effects of controlled breathwork compared with mindfulness meditation. Breathwork produces greater improvement in mood and reduction in respiratory rate, while both result in reduction in negative emotion including state anxiety.

Highlights

- Daily 5-minute breathwork and mindfulness meditation improve mood and reduce anxiety
- Breathwork improves mood and physiological arousal more than mindfulness meditation
- Cyclic sighing is most effective at improving mood and reducing respiratory rate

air hunger tolerance (co2)



BREATH PERFORMANCE

hold your
breath

hale breathe / connect / grow

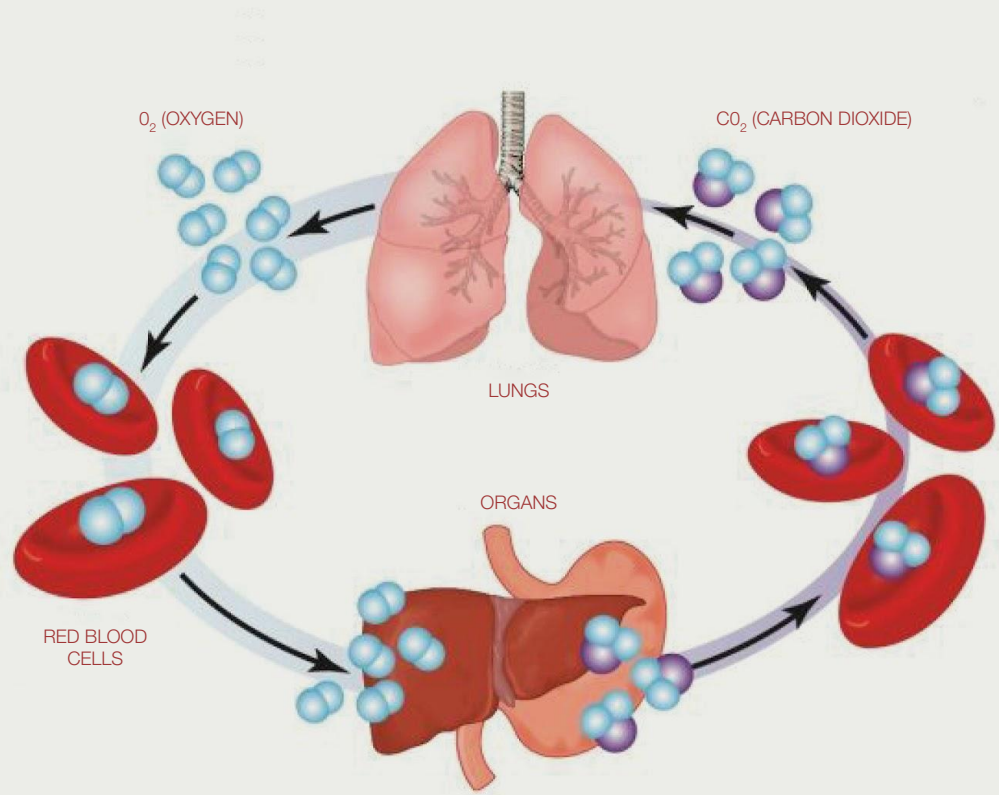
— a space for breathwork, we provide purpose-designed
classes that help you unlock the full potential of your breath.





Co₂

oxygen & co2



CO₂ TOLERANCE AND ANXIETY STUDY

HHPF helped researchers at California State University, Fullerton evaluate use of a timed exhale **CO₂ tolerance test (CO₂TT)** as an index of anxiety in healthy adults.

The study was a 2-visit, single-arm pilot evaluating the feasibility and effectiveness of a timed exhale test — the CO₂TT — as a quick, easy-to-use, equipment-free tool for diagnosing short-term ("state") and long-term ("trait") anxiety among healthy adults.

Key finding: Performance on the CO₂TT was found negatively correlated with state anxiety. In other words, **people with higher CO₂TT results had lower in-the-moment anxiety, while those with lower CO₂TT had higher in-the-moment anxiety.**

This line of research aimed to identify and test simple ways to measure the impact of stress on respiratory physiology, so we can ultimately evaluate the effectiveness of breath-related interventions in measuring and addressing physiological (CO₂ "tolerance") and psychological (measures of anxiety) responses to stress.

The study has been completed and manuscript development is underway. Insights gained from this pilot may be used to design a longer-term, randomized trial.

Child Co₂ sensitivity seems to be related to adult Anxiety



ATHLETIC BREATH™

dynamic breath control



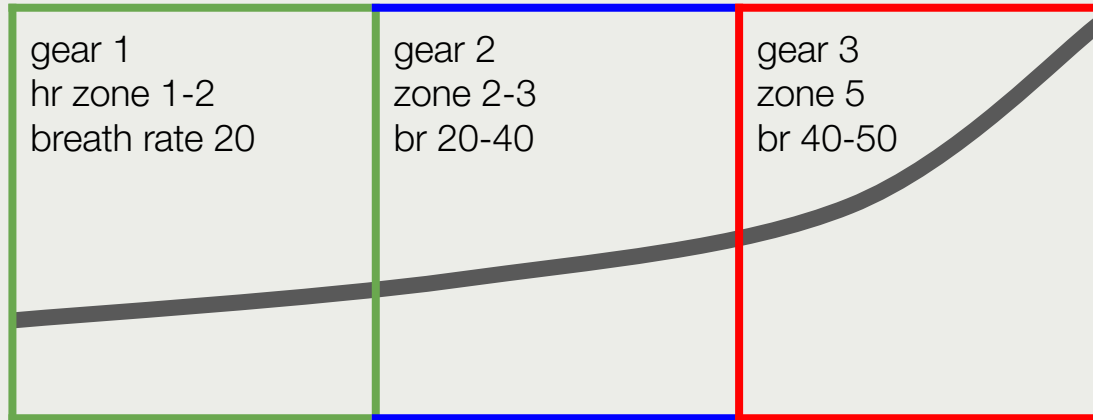


paced breathing

- 1. nose / nose – steady state and warmup.
zone 1-2
- 2. power nose / nose or mouth – higher co2 and anaerobic threshold.
zone 2-4
- 3. power nose or mouth / mouth – short duration extreme workload,
recovery and induced alkalosis.
zone 5



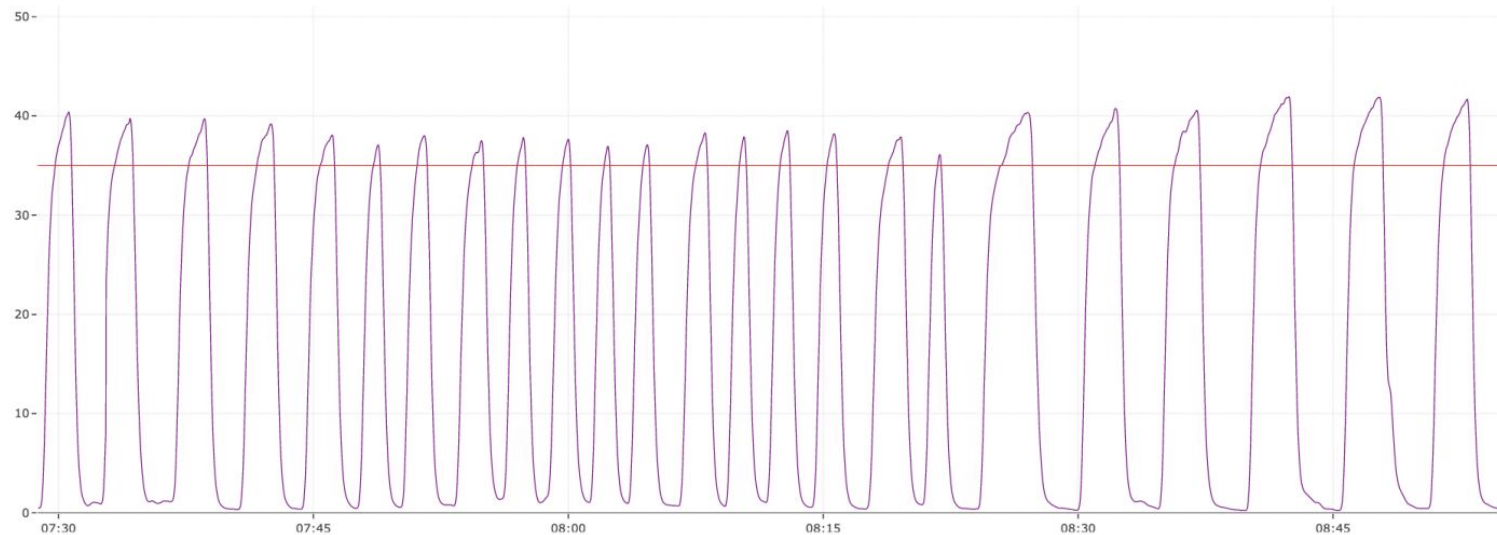
paced breathing



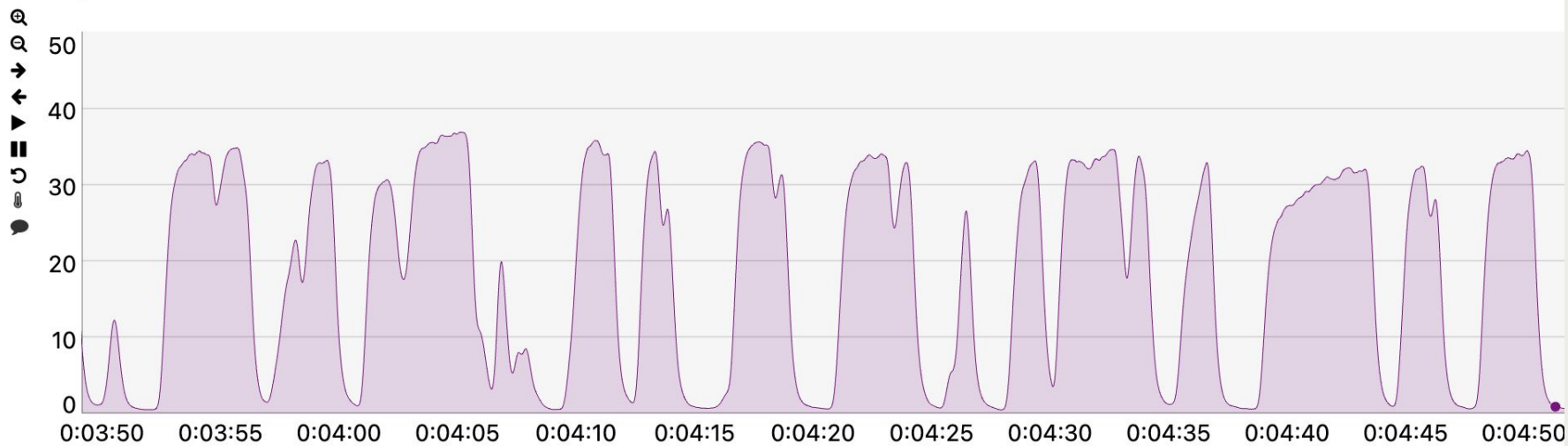


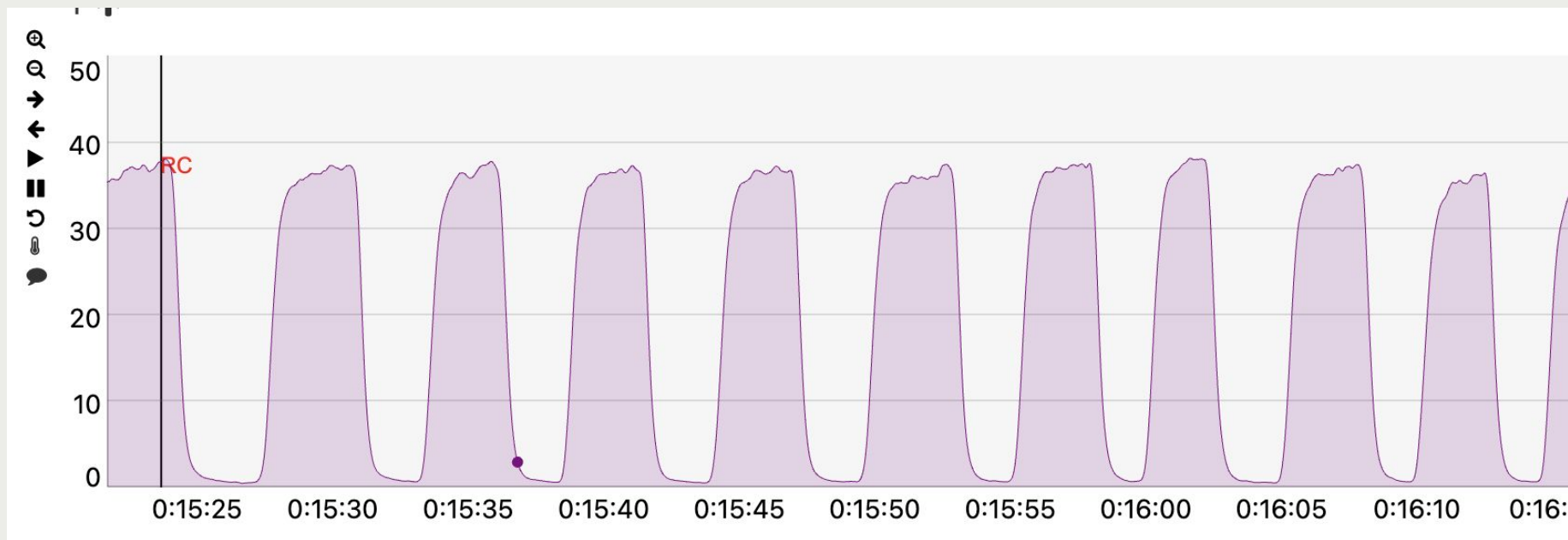
■ Raw PCO₂ (mmHg) Median: 41.6 40.9 37.6 | ■ Threshold : 35.0

Breath/Min: 12.6 / Capnia Index: 6.3 / Aborted-exhales/Min: 1.0 / Relative Volume: 1.3 / Gasps/Min: 13.0 / Breath-holds/Min: 0.0 /



Y ↑ PCO₂ Waveform: 0.922 mmHg X-axis: 0:03:49-0:05:21 Data Point: 0 sec





- Observe your breathing
- Breathe less & thru the nose
- Train breath control
- Use the sigh of relief when needed



hale®

“the brain exercises the greatest
power in human-kind – but the
air supplies sense to it.”

— HIPPOCRATES

