

Carbon Dioxide Tolerance Test

| Length of Control Exhale During CO ₂ Tolerance Test | Carbon Dioxide Tolerance | Box Breathing Exercise |
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| Under 25 Seconds | Low Carbon Dioxide Tolerance | Box Sides: 3 Seconds Each |
| 25-50 Seconds | Medium Carbon Dioxide Tolerance | Box Sides: 5-6 Seconds Each |
| 50+ Seconds | High Carbon Dioxide Tolerance | Box Sides: 8-10 Seconds Each |

The carbon dioxide tolerance test is a tool developed by human performance expert Brian Mackenzie to measure your ability to control the diaphragm and discard rate of CO₂. It's easy and free.

- Breathe normally for 4-5 breaths, then inhale 1x deeply through your nose, until your lungs are completely full.
- Then, start a timer and measure how long it takes for you to slowly exhale all of the air. Make the exhale as slow as possible.
- Stop the timer when you can no longer exhale any more air and note how long the exhale was. Stop the timer when your lungs are empty; it's not about measuring how long you can hold your breath! Then breathe normally.

From your results, practice 2-3 minutes of box breathing, 1-2x per week, to improve your diaphragmatic control and learn to increase your CO₂ discard rate. This will translate to less overbreathing when at rest, and you'll likely see improved performance during exercise — and reduced anxiety as well.

Box breathing is a pattern of: inhale-hold-exhale-hold, done repeatedly for a given period of time. (Think of each duration as a side of a four-sided box. See a [visual here](#)).

How long should the duration of each inhale-hold-exhale-hold be? It should be based on your timed exhale duration in the carbon dioxide tolerance test; reference the table below for the duration to practice box breathing.