

BE HERE WELL

# The Breath Academy - Level 1

Scientific, Simple, Safe & Effective

# Session Three

## Science of Breathing

Understanding the Body-Mind Connection

# Agenda



- Muscles of breath
- Nose Breathing
- Oxygen's Role
- CO<sub>2</sub>'s Role
- The Bohr Effect
- Breath holding and Self-Mastery

# Muscles of Breathing

- STEP 1: Diaphragm - jelly-fish/umbrella muscle 30%
- STEP 2 (optional): Intercostal muscles (rib cage) 60%
- STEP 3 (optional): Accessory muscles (neck, shoulders, back) 10%

# Training the Diaphragm

- The blood coursing through the arteries and veins does a full circuit once a minute, an average of 2000 gallons of blood a day.
- What influences much of the speed and strength of the circulation is **the thoracic pump**, the name for the pressure that builds inside the chest when we breathe.
- What powers that thoracic pump is the diaphragm, the muscle that sits beneath the lungs in the shape of an umbrella.
- The diaphragm drops down on inhalations to expand the lungs. and lifts during exhalations, which shrinks the lungs.
- This up and down movement occurs some 50000 times a day.
- The problem is **most of us only engage a small range of the diaphragm when breathing**, which **elevates blood pressure** and causes circulatory problems.
- Simply extending those breaths to 70% or even 50% of the diaphragms capacity will ease the burden on the heart and allow the body to work more efficiently.
- The point is to get the diaphragm accustomed to this wider range so that deep and easy breathing became unconscious.

# Nose Breathing

*“The nose is the silent warrior, the gatekeeper of our bodies, the pharmacist of our minds, and the weathervane to our emotions”*

*Niraj Naik*

# Nose Breathing

- The nose is one of the most vital organs. Apart from it's function as an air conditioner, heater, filter and moisturiser, it has a direct effect on physical, mental, emotional, psychic and spiritual states.
- Adds friction and control to the breath that increases breath efficiency
- Triggers neuroreceptors in your nose and sinuses that signal safety
- Affects quality and quantity of sleep (mouth breathing has huge implications)



# Nose Breathing

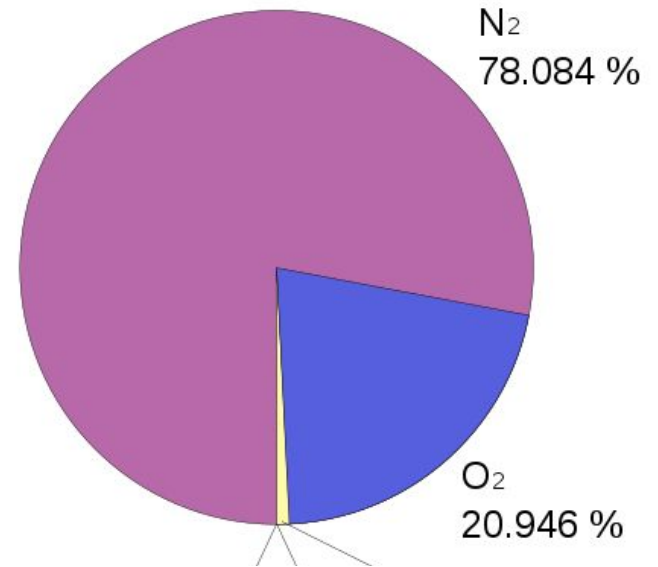
- Adds nitric oxide to the breath, (vasodilator, increases blood flow and lowers blood pressure).
- Our mind responds to our body, and our body responds to our mind in this kind of bio-feedback loop: nostrils controls temperature and blood pressure, while feeding the brain chemicals to alter moods emotions and **sleep states.**
- **Mouth breathers take note!**

# Try This!



- Clean your nose with neti pot and saline solution.
- Try taping your mouth shut at night with a small amount of micro derma tape.
- Walk and running and try to breathe through your nose only.

# Dry Air Inhaled

- 78.09% nitrogen
- 20.95% oxygen
- 0.93% argon
- 0.04% carbon dioxide
- Traces of other gases



# Dry Air Exhaled

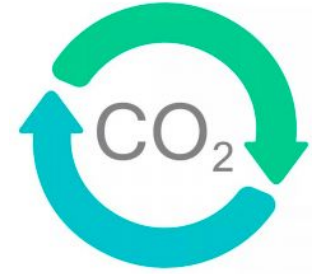
- 78.09% nitrogen
-  15% oxygen - SMALL DECREASE
- 0.93% argon
-  5% carbon dioxide - BIG INCREASE
- Traces of other gases

# Oxygen's Role



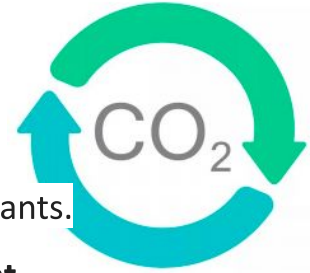
- Chemically changes food and liquid into **energy** - oxidation
- Oxidation is a normal and essential process that takes place in every cell of your body.
- Contracts muscles
- **Repairs** your cells
- **Feeds** your brain
- **Cleanses** the body
- Blood Oxygen Levels usually between 95%-99%

# CO<sub>2</sub>'s Role



- Regulates pH in the body.
- Dilates smooth muscle.
- Helps increase **absorption** of O<sub>2</sub> (Bohr Effect)
- Vasodilation
- **Dilation** of breathing passageways
- Relaxes smooth muscle
- **Elimination** of waste (through our breath) - weight loss!

# The Power Of CO<sub>2</sub>



- Oxidative stress occurs when there's an imbalance between free radicals and antioxidants.
- CO<sub>2</sub> **reduces oxidative stress** & decreases inflammation, acts as a **natural anti-oxidant**.
- Higher levels of CO<sub>2</sub> has a **calming effect** on the nervous system and neurological function.
- A lot of people are over breathing, 12-15 breaths per minute, which means they're throwing off CO<sub>2</sub>, which would normally make you relax.
- When you have less CO<sub>2</sub>, you're putting yourself into a stressed state and you're not able to absorb nutrients. Your body de-prioritises digestion and prioritises your heart and muscles - this is why you can't eat when you're stressed, or why your digestion goes off.
- Lower than normal levels of CO<sub>2</sub> also decreases our body's ability to fully oxygenate, due to the Bohr effect.

# The Bohr Effect

- This is important to understanding why the way we breathe matters.
- The ability of the cells to receive O<sub>2</sub> is dependent upon the presence of sufficient levels of CO<sub>2</sub> in our system - a phenomena known as The Bohr Effect.
- SpO<sub>2</sub> - shows I'm at 99%. Can't get much more O<sub>2</sub> than that.
- Having lots of oxygen in the blood is one thing, but the real question is whether the oxygen in the blood is getting where we need it—into the cells.
- That can only be done with the presence of CO<sub>2</sub>.
- **The more CO<sub>2</sub> there is, the easier it is for hemoglobin to let go of O<sub>2</sub> into the cells the tissues that need it.**
- Low levels of CO<sub>2</sub> in the bloodstream will result in the rest of the body (including the brain) actually being oxygen deprived!



# The Bohr Effect

- Imagine a tube on the underground. Trains are hemoglobin full of O<sub>2</sub> passengers.
- CO<sub>2</sub> are the people on the platform, and the platform represents the hungry cells and tissues.
- O<sub>2</sub> can only be let off the train by CO<sub>2</sub> people on the platform.
- The more CO<sub>2</sub> there is on the platform, the more O<sub>2</sub> can disembark.
- No CO<sub>2</sub> = O<sub>2</sub> can't disembark, it just stays on the carriage and comes back out again, if it's not used.
- In other words, CO<sub>2</sub> holds the key to opening the door to the train and the delivery of O<sub>2</sub> to the tissue.

# CO2 Holds The Key



CO2 LEVELS LOW (fast breathing) =>  
LOW AMOUNT O2 RELEASED =>  
LOW LEVELS OF O2



CO2 LEVELS NORMAL-HIGH =>  
STRONG RELEASE OF O2 =>  
GOOD ABSORPTION OF O2

# O<sub>2</sub> & CO<sub>2</sub> = Good

- The goal is balance
- O<sub>2</sub> is good, CO<sub>2</sub> is also good
- The exchange is essential for health
- Conscious breathing is mostly about manipulating CO<sub>2</sub> levels in the lungs / blood, **increasing** our CO<sub>2</sub> tolerance and our ability to relax.



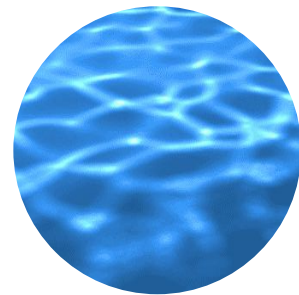
# GUIDED PRACTICES

# Guided Practices



- **Bellows Breath (Coffee Category)**
- Bellows Breathing, 3 Rounds Bellows x 20
- Alternative: Huffing like a dog! :)

# Guided Practices



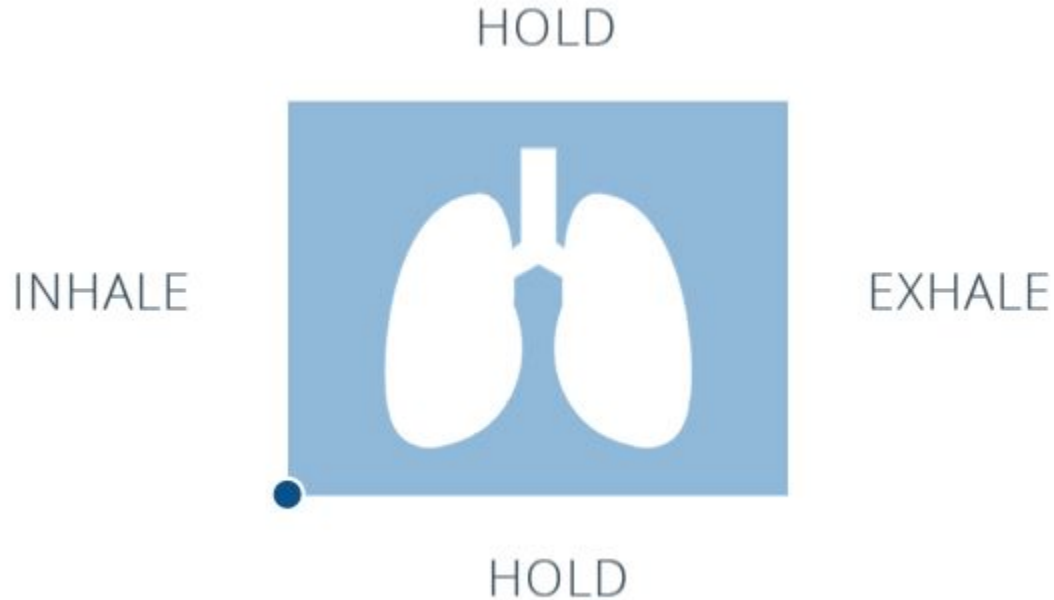
- **Alternate Nostril Breathing, 4:4 (water)**
- Alternate Nostril x 10 rounds
  - Level up with ocean breath
  - Level up with diaphragm or full 3-phase breath
  - Level up with 4:4:4 with intention & retention

# Guided Practices



- **Box Breathing (whiskey)**
- 4:4:4:4 Box Breathing, x 10 rounds
  - Level up with ocean breath
  - Level up with diaphragm or full 3-phase
- NB: The controlled, extended exhalation helps to train the diaphragm and allows the CO<sub>2</sub> to build up. The more CO<sub>2</sub>, the easier it is to get O<sub>2</sub> to the cells the tissues that need it.

# Box Breathing





# The Power of The Empty Breath Hold

- When we hold at the top, we're holding with a lung full of oxygen with a dash of CO2.
  - Once the oxygen has done its job delivering energy in the body, what's left over converts to CO2.
  - Until we exhale, it has nowhere to go so it starts to accumulate.
  - When you have too much CO2, that's when you feel that trigger, that want to breathe.
  - Breath Hunger is actually a CO2 tolerance thing, not a lack of oxygen thing.
- 
- It can sometimes feel harder to hold empty at the bottom, after exhaling.
  - This is because with an empty hold, there is little or no air, but the **CO2 continues to flow in from your bloodstream at the same rate as a full breath hold.**
  - This means the amount of CO2 in your system increases FASTER on an empty breath hold than on a full breath hold, and why you can experience more intense feelings of breath hunger.
  - It's also why the empty breath hold is a good measure of how CO2 tolerant you are, and how healthy your system is.

# Breath Holding & Self-Mastery

- When you can comfortably control your mind in uncomfortable situations = mind control.
- For the most part with this course we are manipulating CO<sub>2</sub> and increasing our CO<sub>2</sub> tolerance, increasing our ability to relax.
- Slow breathing, like whiskey breathing, slows down your exhale and increases CO<sub>2</sub> and increases your body's absorption of O<sub>2</sub>.

# Practice Is Everything

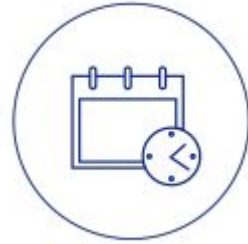
- It's not a TO DO. Don't make it a big deal. Make it as much a part of your day as brushing your teeth or making tea.
- Little and often will start to shape your brain. It's those little bits that happen all the time that move the needle because they make the difference.
- 1% improvement every day adds up to a 365% improvement over a year
- 3% improvement every day adds up to a huge exponential increase.
- Improvement based on where you are now to where you're going to be using daily consistent action.

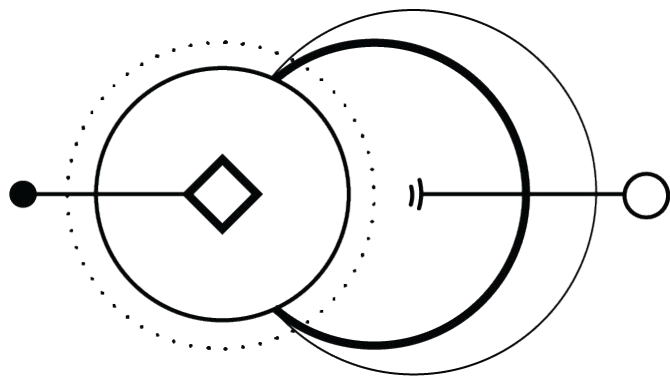
3 steps to forming a new healthy habit:

1. Do a breathing exercise.
2. Take consistent, daily action.
3. Choose the right breath for right time.

# Daily Regime

- 15 minutes, daily:
  - Morning: 5 mins Coffee Breathing
  - Midday / As Needed: 5 mins Water Breathing
  - Before Bed: 5 mins Whiskey Breathing
- Extra breathing therapeutically as needed
- Breath awareness throughout the day





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