

Breathing: Effective versus Efficient

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What is “breathing”

- “Talking about ‘breathing’ is like discussing mobility. We can use big words, but we really aren’t being specific. ‘Breathing’ means nothing.”

Breathing

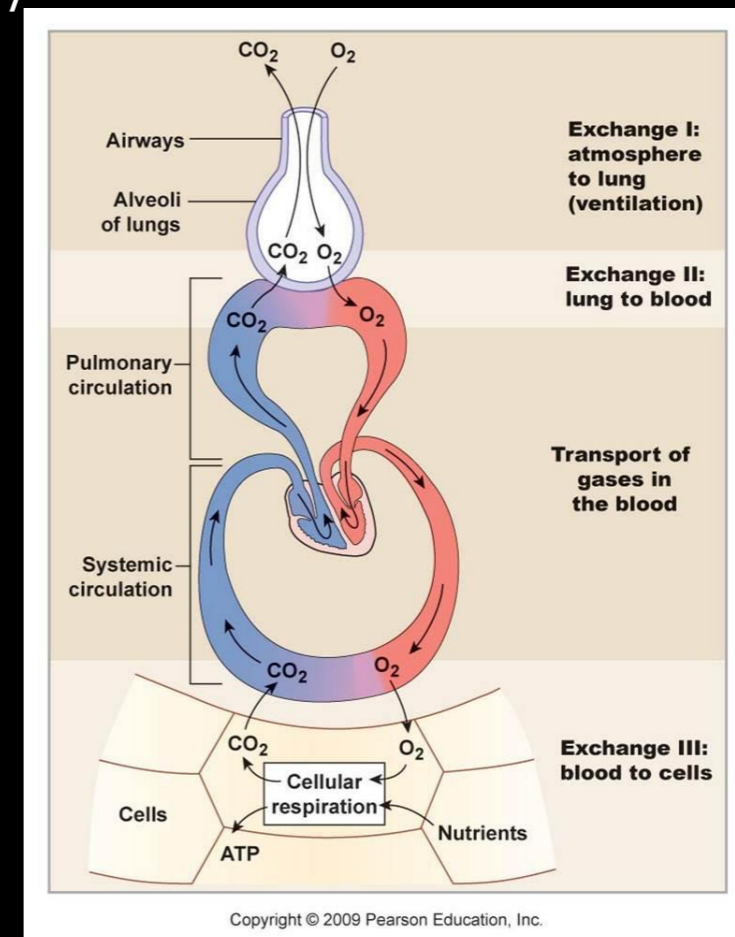
Ventilation (Effective)

- Mechanical
- Airflow in/out



Oxygenation (Efficient)

- Physiology
- O₂/CO₂ balance



Test 1

- What are we looking for in breathing quality.

Physiology 101 (-100)

Inhalation

- Oxygen in

Phys 101 (-100)

Exhalation

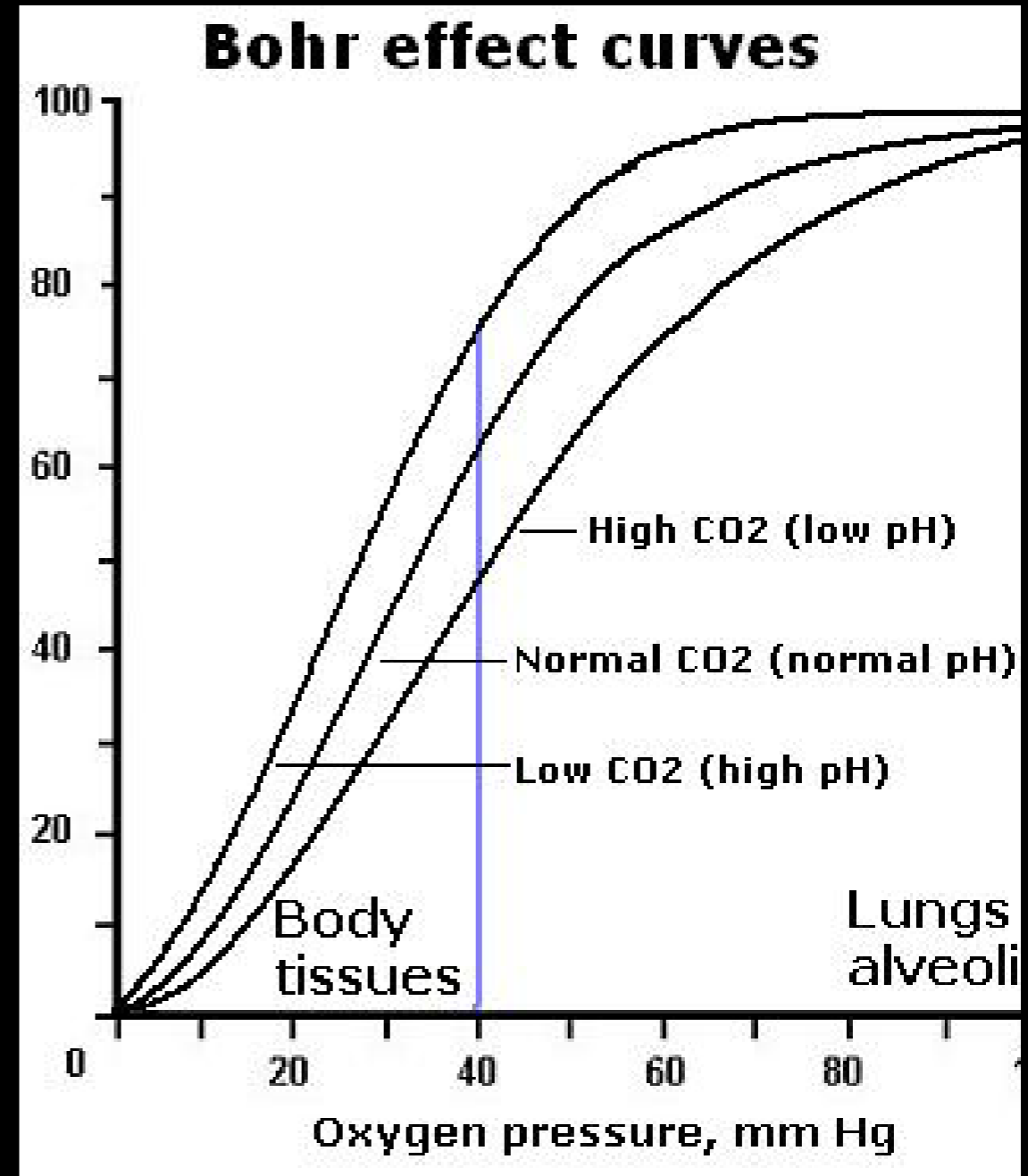
- Carbon Dioxide Out

Why it is important:

- autonomic nervous system
- tissue physiology
- Posture
- CO₂ Tolerance
- Oxygenation

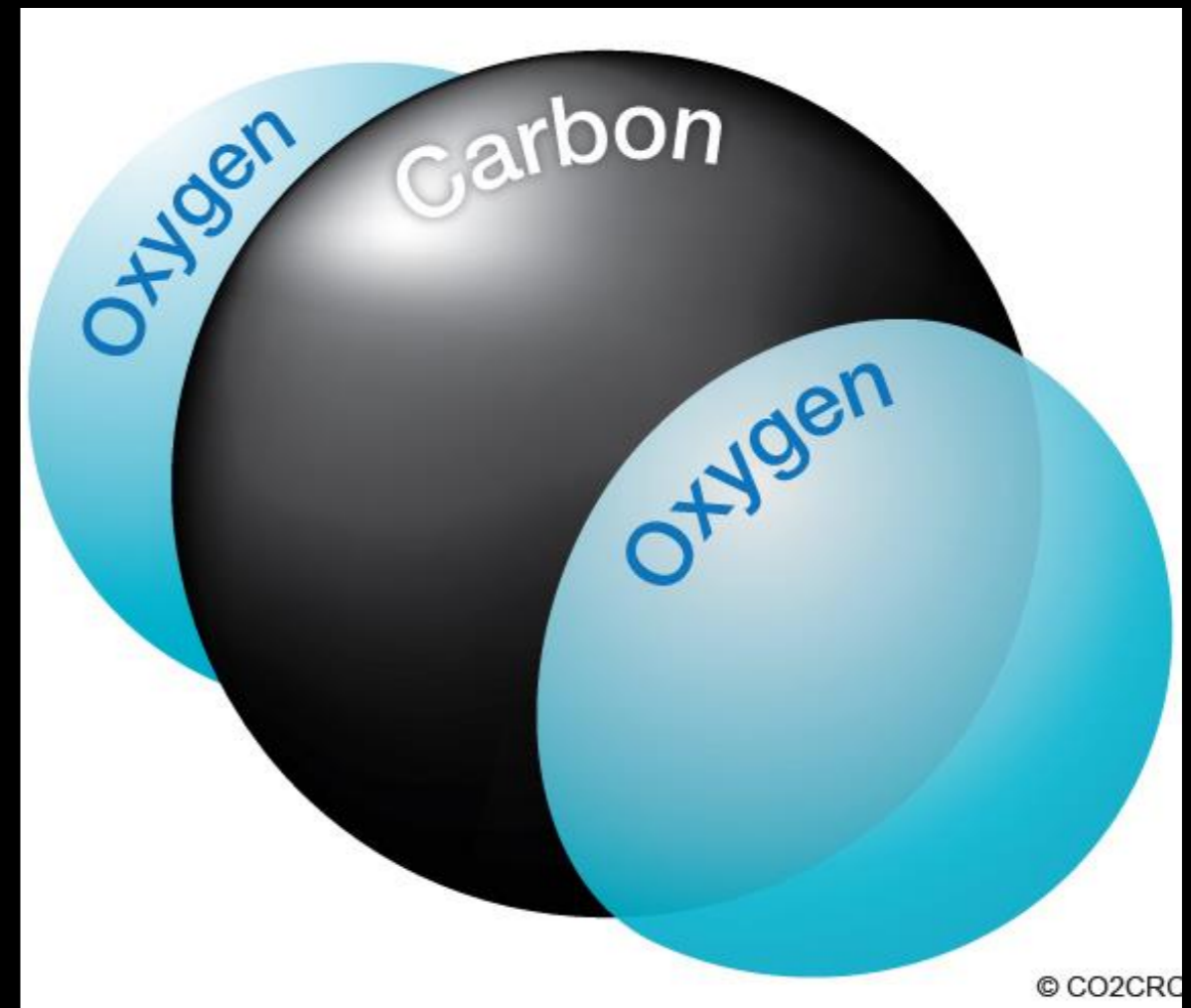
The Bohr Effect

- CO₂ - allows the release of O₂ from the rbc to the working cells (muscles, tissue, etc)
- over breathing - exhale too much CO₂, preventing O₂ from being released at the cellular level - *hypocapnia*
- hb ONLY releases O₂ in the presence of CO₂
- ***HOW WELL DOES A HYPOXIC MUSCLE WORK?***



CO₂

- too low
 - blood vessels constrict
 - hb cannot release O₂
- too high
 - stimulates breathing

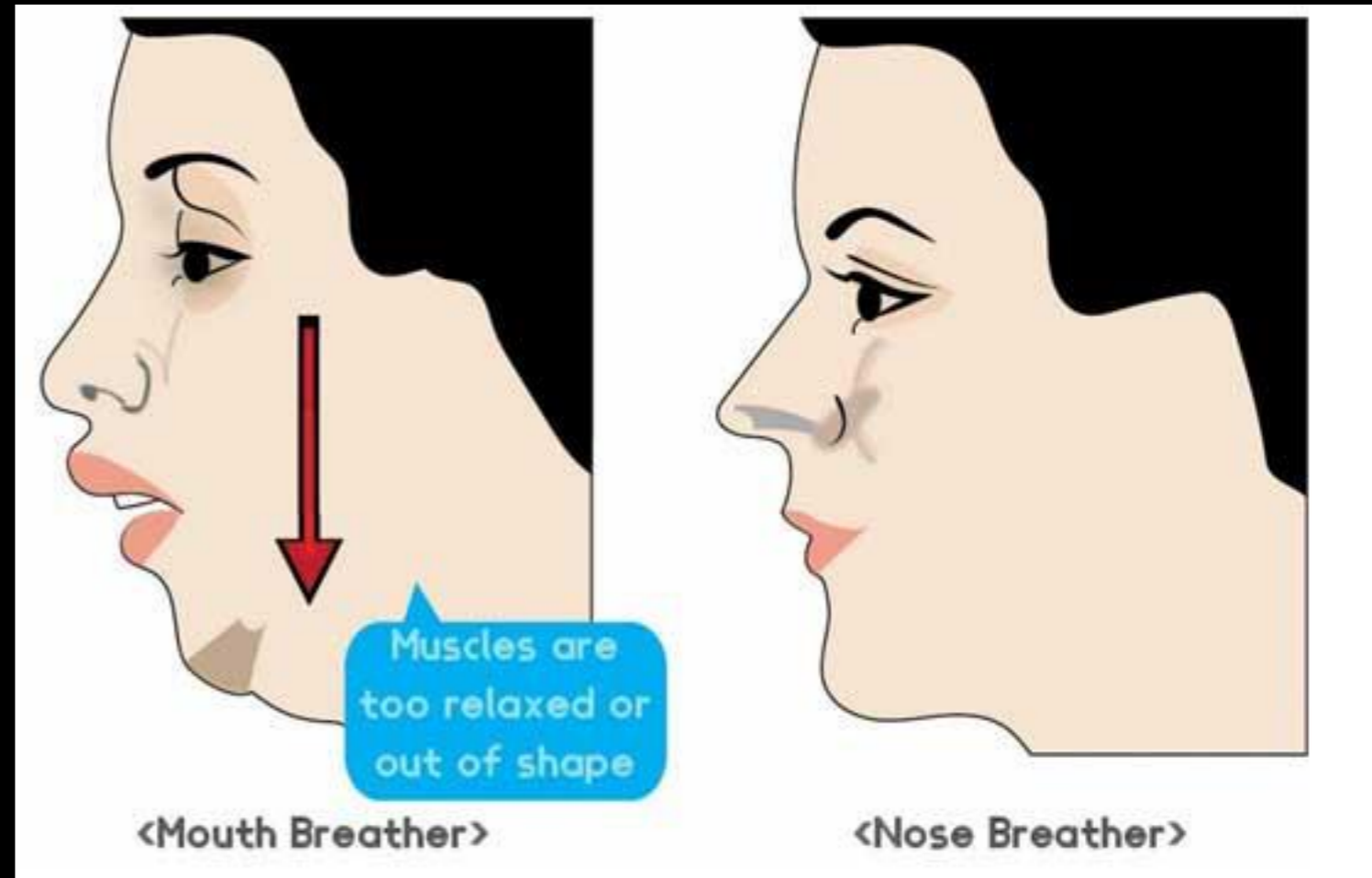


Nasal Breathing

- *“It was only when our ancestors were in dangerous situations that they reverted to mouth breathing to take in greater volumes of air in preparation for intense physical activity.”*
- stimulates fight or flight response
- MB - forward head, reduced respiratory strength
- increases humidity, warms air



Posture



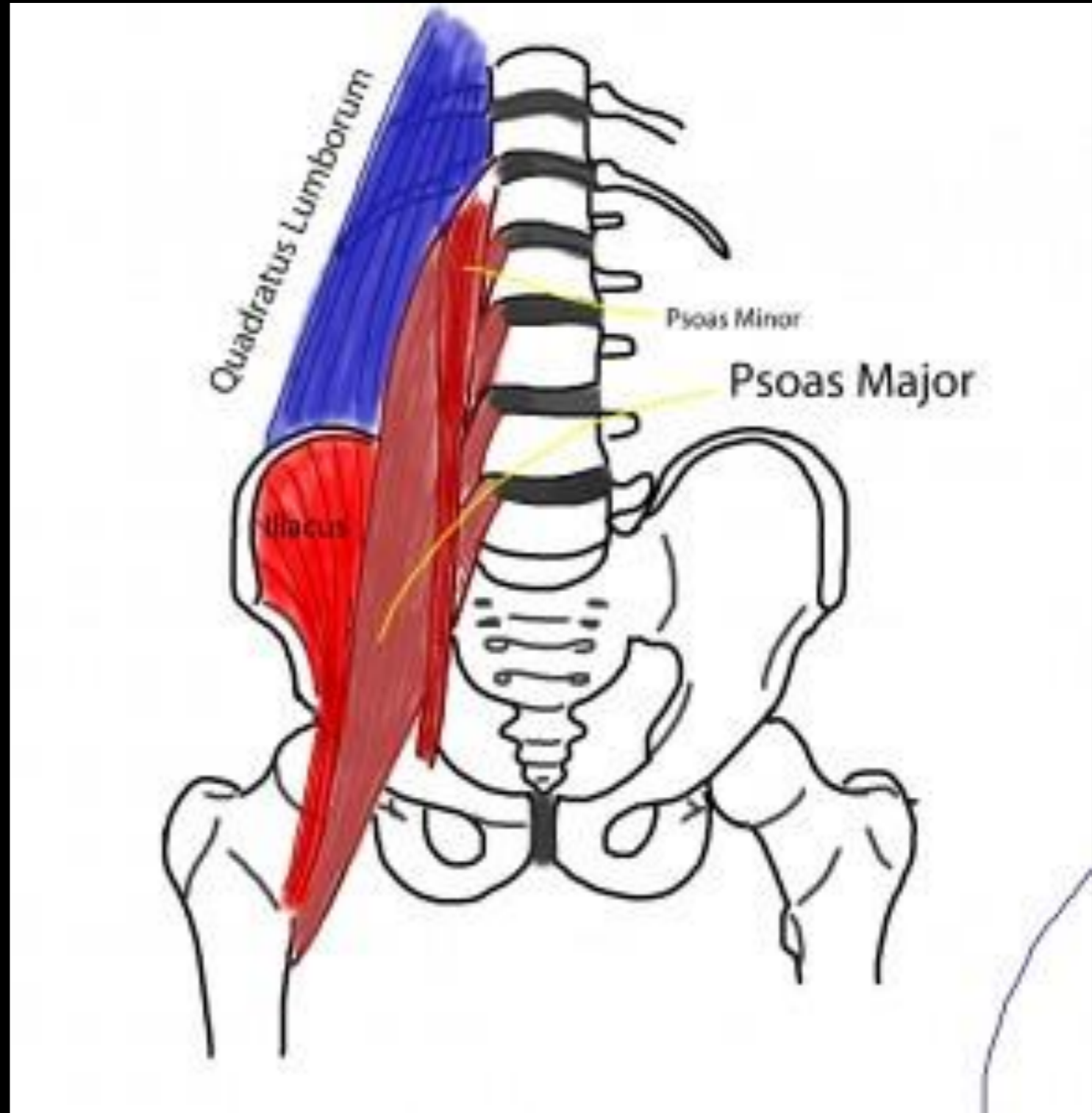
Abdominal breathing

- activates parasympathetic NS
- promotes lymphatic drainage



Psoas? So what?

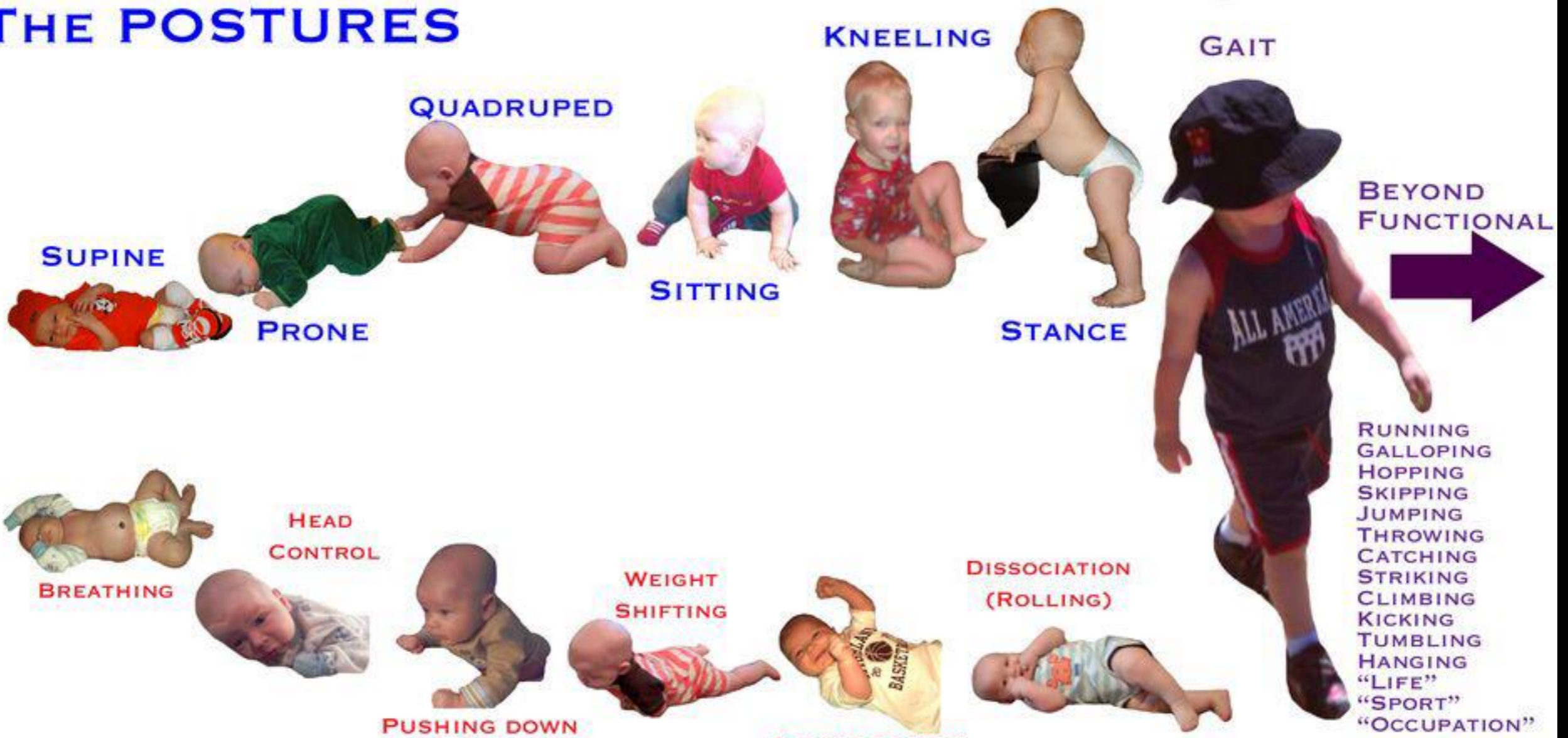
- Iliopsoas
- post crura diaphragm



The foundation of all Stability

- Unlimited mobility
- Survival reflexes
- Undeveloped nervous system
- Breath

THE POSTURES



THE PATTERNS

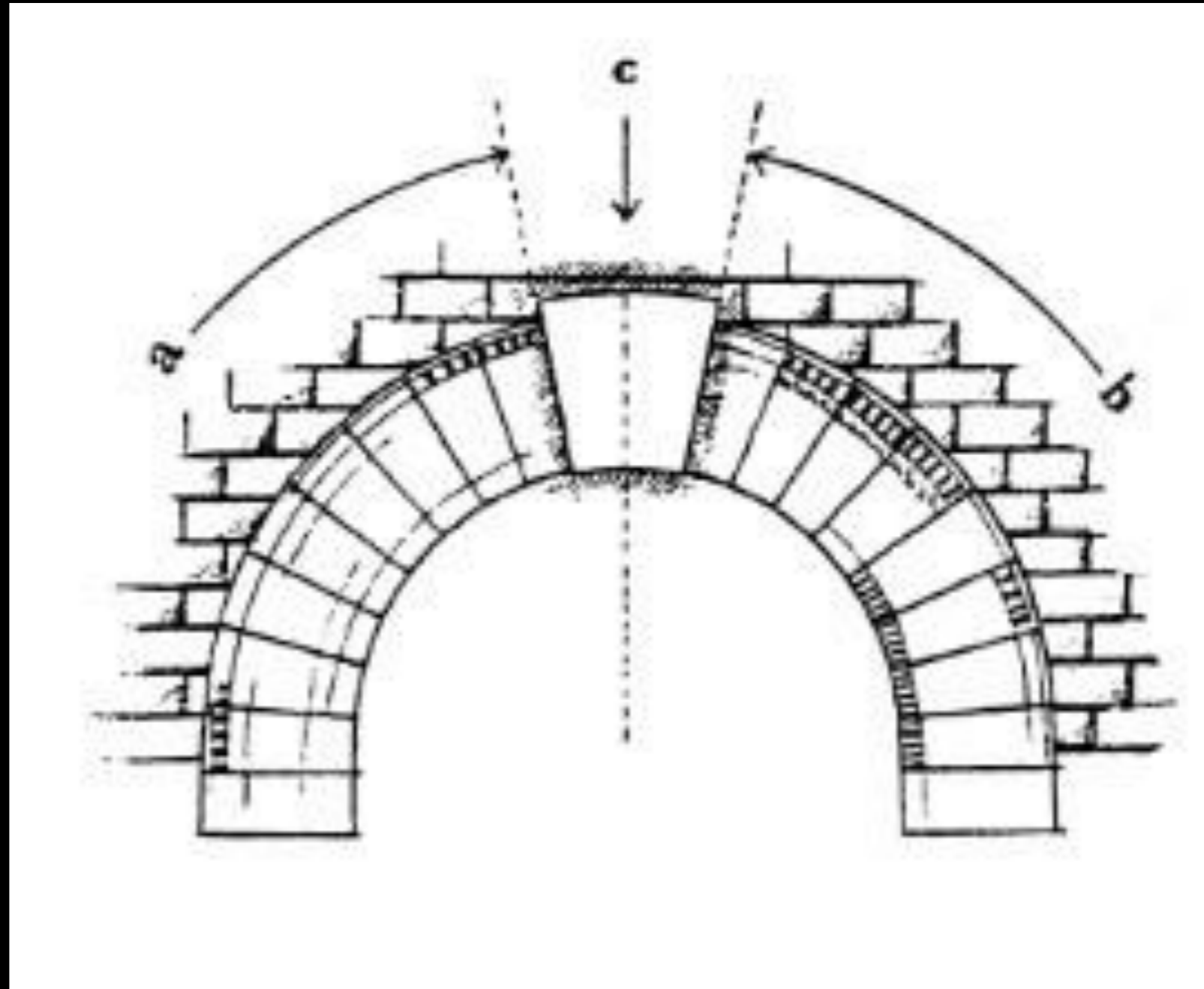
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The NDS

NOT JUST MILESTONES

The foundation of all Strength

- Strength
- Motor Control



Test 2

Timing of interventions

- parasympathetic activation

Application

- crocodile breathing
- wall ASLR Breathing
- squat hold breathing
- prone 90/90 breathing
- periscope breathing
- quadruped breathing
- partner loaded drills
 - supine
 - standing rack
- walk (BOLT)

If you can't
control your breath...

you can't
control
your
movement.



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In review

- lymphatic drainage
- parasympathetic NS
- manipulates tissue pH
- bv dilation via CO₂ levels
- tissue tension via CO₂ and PNS