

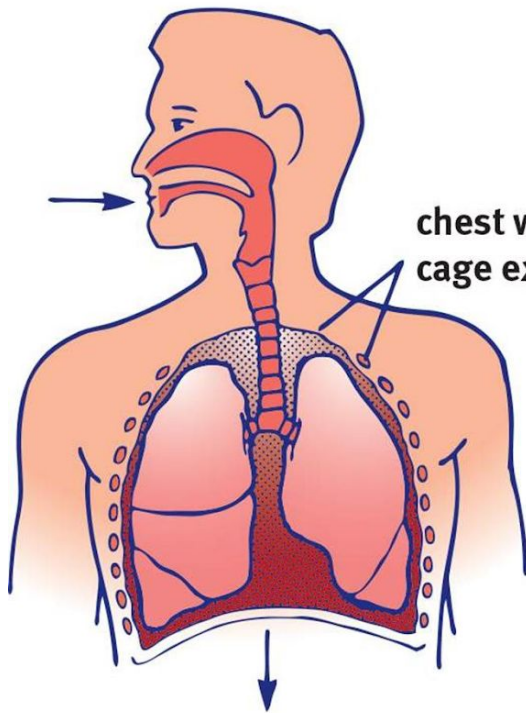
PRI (Postural Restoration Institute)

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Diaphragm during normal inspiration / expiration

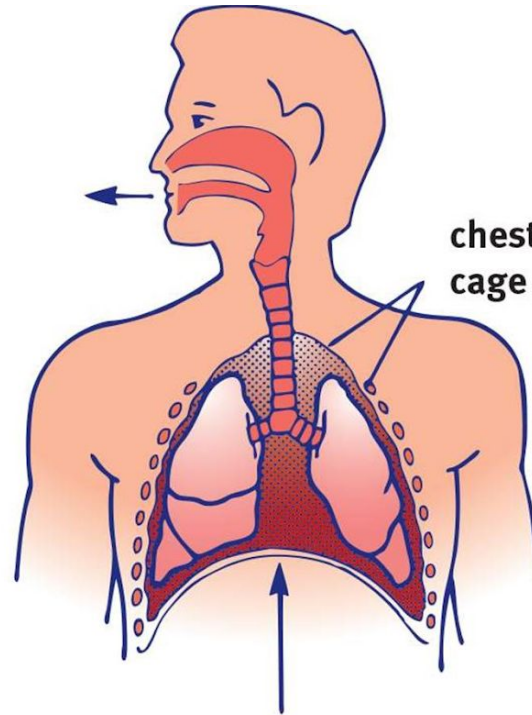
- Inspiration - lungs / chest expands as the diaphragm contracts *downward*
- Expiration- lungs/ chest wall contracts as the diaphragm relaxes and moves upward



chest wall and rib
cage expanded

diaphragm contracted

inhalation



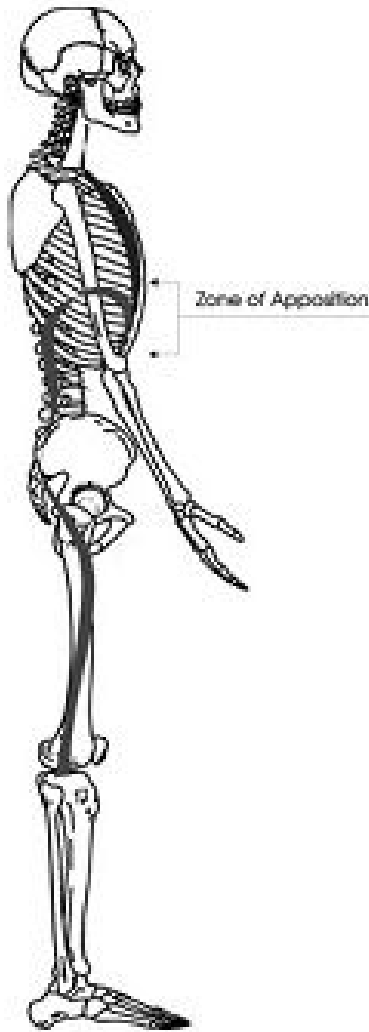
chest wall and rib
cage contracted

diaphragm relaxed

exhalation

ZOA- Zone of Apposition

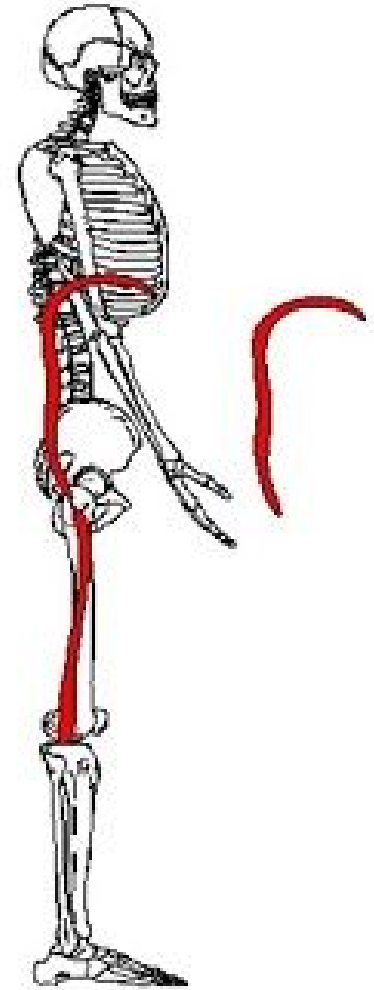
- Dome shape of the Diaphragm
 - Optimal = ZOA is DOME shaped and ribs are tucked in
 - Sub-optimal= ZOA is more FLAT diaphragm shape with rib flare
 - Starting in a more flattened position = doesn't have any where to go therefore making less negative pressure and HARDER for air to draw into the lungs → accessory muscles increasing work to bring in air to lungs (SCM, UT, Scalenes)



Zone of Apposition



Optimal ZOA



Sub-Optimal ZOA

Exercises:

90 /90 Bridge w/ Ball with Balloon Blowing exercise (BBE)



Figure 3. Instructions for Performance of the 90/90 Bridge with Ball and Balloon:

1. Lie on your back with your feet flat on a wall and knees and hips bent at a 90-degree angle.
2. Place a 4-6 inch ball between your knees.
3. Place your right arm above your head and a balloon in your left hand.
4. Inhale through your nose and as you exhale through your mouth, perform a pelvic tilt so that your tailbone is raised slightly off the mat. Keep low back flat on the mat. Do not press your feet into the wall, instead pull down with your heels.
5. You should feel the back of your thighs and inner thighs engage, keeping pressure on the ball. Maintain this position for the remainder of the exercise.
6. Now inhale through your nose and slowly blow out into the balloon.
7. Pause three seconds with your tongue positioned on the roof of your mouth to prevent airflow out of the balloon.
8. Without pinching the neck of the balloon and keeping your tongue on the roof of your mouth, inhale again through your nose.
9. Slowly blow out as you stabilize the balloon with your left hand.
10. Do not strain your neck or cheeks as you blow.
11. After the fourth breath in, pinch the balloon neck and remove it from your mouth. Let the air out of the balloon.
12. Relax and repeat the sequence 4 more times.

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