

## DIAPHRAGMATIC BREATHING and DEEP BREATHING

### Main Points:

- Diaphragmatic breathing is a technique that optimizes the use of the body's main breathing muscle, the diaphragm, to allow for deeper, relaxed breathing
- Once diaphragmatic breathing is mastered, progress to deep breathing
- Deep breathing can be practiced using the 4-7-8 or Box breathing techniques

### What is Diaphragmatic Breathing?

- Diaphragmatic breathing is a technique that optimizes use of the body's main breathing muscle, the diaphragm, which is located at the bottom of the ribcage
- This technique allows for in slower, deeper breathing, encourages oxygen exchange, and promotes relaxation (Harvard Health, 2016) (USDVA, 2016)

### How to Start Diaphragmatic Breathing:

- Begin with the client seated comfortably in a chair with feet touching the ground or laying supine on a mat or bed
- Ask the client to place one hand on their upper chest (over their sternum) and one hand on their abdomen at their navel
- Ask the client to take a few relaxed breaths and observe which hand is moving
  - If the chest hand is rising, the chest muscles are doing more of the breathing work rather than the diaphragm
  - If the abdomen is rising, the diaphragm is doing more of the breathing work
- If the chest hand is rising more, ask the client focus bring their breath down to their belly
  - Focus on expanding the belly with the breath
  - Take slow, relaxed breaths
- Practice 5-10 minutes, 2x/day (USDVA, 2016); can practice more often if helpful
  - Encourage the client to pair with an activity they client are already doing (before/after eating meals, brushing teeth, etc.) to facilitate practice

### What is Deep Breathing?

- After diaphragmatic breathing is mastered, encourage the client to progress to deep breathing to promote relaxation
- Deep breathing involves fully expanding the lungs
- There are several different deep breathing methods; 4-7-8 breathing and Box breathing are two common techniques
  - The exact count with these deep breathing techniques is not important; the main goal is the fill the lungs to where comfortably full, hold for a comfortable length of time, and then exhale for a comfortable length of time
- With deep breathing, encourage the client to visual the air going to the bottom of their lungs and then gradually filling their lungs all the way to the top. As their lungs fill, the hand on their chest WILL rise as their lungs fill with air. Movement should still come

from their diaphragm, not their upper chest muscles like practiced with diaphragmatic breathing

- Repeat 3-5 times periodically throughout the day
  - Encourage the client to pair with an activity they are already doing (before/after eating meals, brushing teeth, etc.)
- Take a normal breath every 1-2 deep breaths to avoid getting light headed

## Deep Breathing Techniques:

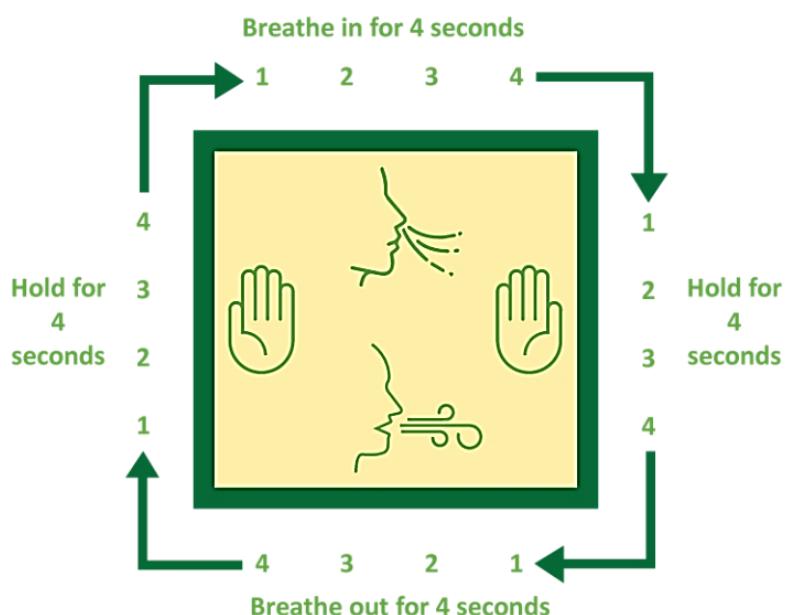
- **4-7-8 Breathing Technique**

- Breathe in 4 seconds, hold breath 7 seconds, breathe out 8 seconds



- **Box Breathing Technique**

- Breathe in for 4 seconds, hold for 4 seconds, breathe out for 4 seconds, hold for four seconds



## Benefits of Diaphragmatic and Deep Breathing:

- **Sleep Benefits**
  - Effective for improving sleep quality and reducing anxiety (Liu et al., 2020)
  - Reduces stress and increases relaxation (Khalik et al., 2020)
- **Other Benefits**
  - Lowers heart rate and stabilizes blood pressure (Harvard Health, 2016) (USDVA, 2016)
  - Helps the body to transition out of “fight or flight” and into “rest and digest”
  - Reduces anxiety symptoms (St. Joseph Health, 2021)
  - Improves core muscle stability (St. Joseph Health, 2021)
  - Enhances the body’s ability to engage in intense exercise (St. Joseph Health, 2021)

## Other Resources:

- [Guided Diaphragmatic Breathing Video](#) (3.5 minutes by KUMC Sleep, Health, & Wellness Lab)
- [Step-by-Step Guide to Diaphragmatic Breathing with Infographic:](#) (St. Joseph Health, 2021)
- [Diaphragmatic Breathing Technique Handout](#)

This handout was created by the Sleep, Health, & Wellness Lab directed by Catherine (Katie) Siengsukon, PT, PhD, DBSM, CHWC at the University of Kansas Medical Center. It is not intended to be used as medical advice.



## References

- Eman Fadl Abd El Khalik, Marwa Mohammad Abd Elbaky, Naglaa Ahmed Ahmed, Sahar Hamza Taha Moursy. The Effectiveness of Using Breathing Exercise on Sleep Quality Among Hospitalized Patients. *American Journal of Nursing Science*. Special Issue: Evidence Based Nursing. Vol. 9, No. 4, 2020, pp. 272-280. doi: 10.11648/j.ajns.20200904.28
- Harvard Health. (2016, March 10). Learning diaphragmatic breathing.  
<https://www.health.harvard.edu/healthbeat/learning-diaphragmatic-breathing#:~:text=Diaphragmatic%20breathing%20%28also%20called%20abdominal%20breathing%22%20or%20belly,heartbeat%20and%20can%20lower%20or%20stabilize%20blood%20pressure>
- Jerath, R., Beveridge, C., & Barnes, V. A. (2019). Self-Regulation of breathing as an adjunctive treatment of insomnia. *Frontiers in Psychiatry*, 9, 780.  
<https://doi.org/10.3389/fpsyg.2018.00780>
- Liu, Y., Jiang, T. T., Shi, T. Y., Liu, Y. N., Liu, X. M., Xu, G. J., Li, F. L., Wang, Y. L., & Wu, X. Y. (2021). The effectiveness of diaphragmatic breathing relaxation training for improving sleep quality among nursing staff during the COVID-19 outbreak: A before and after study. *Sleep Medicine*, 78, 8–14. <https://doi.org/10.1016/j.sleep.2020.12.003>
- Newsom, R. (1 April, 2022). Relaxation Exercises to Help Fall Asleep. Sleep Foundation.  
<https://www.sleepfoundation.org/sleep-hygiene/relaxation-exercises-to-help-fall-asleep>
- St. Joseph Health. (2021, May 16). Deep breathing exercises for anxiety: Tips and tricks.  
<https://stjoseph.stlukeshealth.org/healthy-resources/blogs/deep-breathing-exercises-for-anxiety-tips-and-tricks>
- United States Department of Veterans Affairs. (2016). The power of breath: Diaphragmatic breathing. <https://www.va.gov/WHOLEHEALTHLIBRARY/tools/diaphragmatic-breathing.asp>