# ASsessment and Treatment of Breathing Patterns 1,2

## Related imageAssessment 1,2

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* Posture
  + Poor posture limits the ability of the diaphragm to fully expand
  + Observe for:
    - Rounded Shoulders
    - Forward head posture
    - Decreased lumbar curvature
* Breathing pattern
  + “Normal” Breathing Pattern = diaphragmatic or “belly” breathing
  + Assess in several positions while patient places one hand on their chest and the other on their abdomen. Ask the patient to breath normally.
    - Supine (this position is more relaxing for the patient and allows for better assessment)

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* + - * Complete the same sequence as sitting/standing. Note any differences
      * Palpate the following areas for tender areas, jump signs, or withdrawal reflexes:
        + 1st/2nd ribs
        + 7th/8th ribs
        + 11th/12th ribs
    - Sitting/standing (these positions are more challenging and can be painful for the patient)

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* + - * Observe normal breathing
        + Does the hand on the chest or the abdomen rise?
        + Is there symmetrical or asymmetrical expansion laterally from the ribs? In the upper back?
        + For more specific, measurable outcomes, clinician may place a tape measure around the sternum at the level of the 11th and 12th rib and measure the distance between the beginning and end of an inhalation. This can be done at the patient’s navel as well.
      * Observe the patient’s musculature
        + Is the patient using their accessory muscles to inhale?
        + Are their accessory muscles defined?
        + Palpate their accessory muscles. Note the tension in the muscle? Is it painful/tender for the patient?
* Dysfunctional Breathing Pattern
  + Asymmetrical: Limited motion on one side of the abdomen
  + Paradoxical: During inhalation, the chest expands while the abdomen contracts. During exhalation, the abdomen expands.
  + Chest Breath: Excessive movement from the chest during inhalation.
  + Only abdominal: No lateral or posterior abdominal movement.
  + Only abdominal and lateral: No posterior abdominal movement.
  + Startle: when the patient exhibits a withdraw reflex when their 1st/2nd, anterior 7th/8th ribs, and 11th/12th ribs.

## Treatment 1,2

* Isolation
  + Have patient place one hand on their chest and one on their belly for visual cues while in supine. Cue the patient verbally to breathe “into their belly.” They should see and feel their abdomen rise during inhalation and fall during exhalation.
  + This can be applied to any area noted to have restriction.
    - If there is limited lateral motion, patient can be instructed to place their hands onto their lateral ribs. A sheet can also be wrapped around their distal ribcage to provide tactile cues. Cue the patient verbally to breathe “into their ribs.”
    - If there is limited posterior motion, have patient in prone (or sitting if the patient is unable to tolerate prone), place your hand on their upper thoracic spine, and verbally cue them to breathe “into their back.”
* 2 Inhales, 1 Exhale
  + Have patient place one hand on their chest and one on their belly for visual cues while in supine.
  + Instruct the patient to breathe “into their belly.”
  + Instruct the patient to then take a second breathe “into their chest” without releasing their first breath.
  + Allow patient to exhale the breathes slowly in a 4 count. It should take the patient 4 seconds to exhale fully.
* Prone Belly Breathing
  + Patient should be prone on table.
  + Instruct patient to breathe “into their belly,” using the table as tactile cueing for that patient to strengthen and expand diaphragm

Resources

1. Chapman EB, Hansen-Honeycutt J, Nasypany A, Baker RT, May J. A clinical guide to the assessment and treatment of breathing pattern disorders in the physically active: part 1. *Int. J. Sports Phys. Ther.* 2016;11(5):803-809.
2. Hansen-Honeycutt J, Chapman EB, Nasypany A, Baker RT, May J. A clinical guide to the assessment and treatment of breathing pattern disorders in the physically active: part 2, a case series. *Int. J. Sports Phys. Ther.* 2016;11(6):971-979.
3. ReLiva. *Back Pain, Ortho Physiotherapy, Posture, and Ergonomics*. 14 May 2018. Available at: http://reliva.in/cause-back-pain-poor-posture/.
4. Cleveland Clinic. *Diaphragmatic Breathing.* 14 September 2018. Available at: https://my.clevelandclinic.org/health/articles/9445-diaphragmatic-breathing.
5. Fairview. *Discharge Instructions: Diaphragmatic (Controlled) Breathing*. 2018. Available at: https://www.fairview.org/sitecore/content/Fairview/Home/Patient-Education/Articles/English/d/i/s/c/h/Discharge\_Instructions\_Diaphragmatic\_Controlled\_Breathing\_86507.