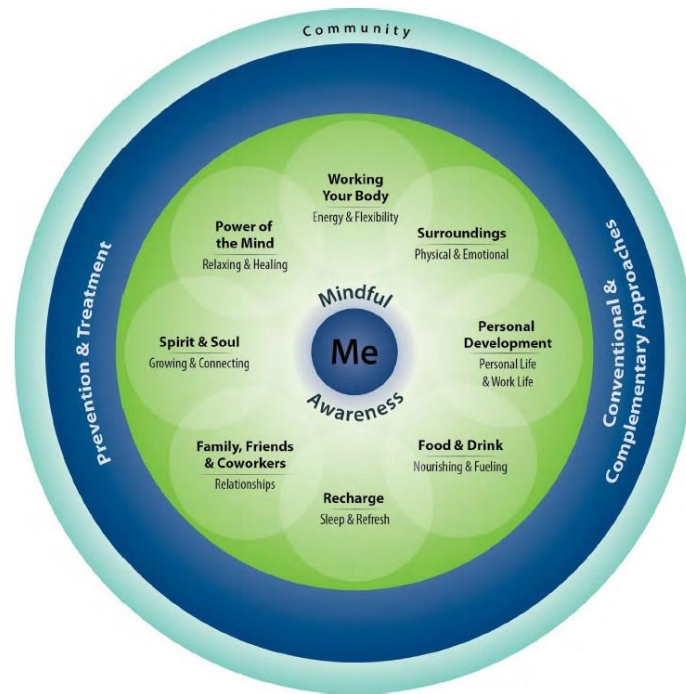


WHOLE HEALTH: CHANGE THE CONVERSATION

Advancing Skills in the Delivery of
Personalized, Proactive, Patient-Driven Care

Diaphragmatic Breathing to Assist with Self-Management of Pain Clinical Tool



This document has been written for clinicians. The content was developed by the Integrative Medicine Program, Department of Family Medicine and Community Health, University of Wisconsin-Madison School of Medicine and Public Health in cooperation with Pacific Institute for Research and Evaluation, under contract to the Office of Patient Centered Care and Cultural Transformation, Veterans Health Administration.

Information is organized according to the diagram above, the *Components of Proactive Health and Well-Being*. While conventional treatments may be covered to some degree, the focus is on other areas of Whole Health that are less likely to be covered elsewhere and may be less familiar to most readers. There is no intention to dismiss what conventional care has to offer. Rather, you are encouraged to learn more about other approaches and how they may be used to complement conventional care. The ultimate decision to use a given approach should be based on many factors, including patient preferences, clinician comfort level, efficacy data, safety, and accessibility. No one approach is right for everyone; personalizing care is of fundamental importance.

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This clinical tool is part of a series of six clinical tools designed to assist clinicians who want to enhance Veteran's chronic pain self-management skills. For additional information, see also the other materials in the [Self-Management of Chronic Pain](#) module.

Treating patients who have chronic pain can be challenging. Diaphragmatic breathing will not solve all of a person's pain problems, but it can be an important skill in a patient's self-management toolbox. With practice, most clinicians can teach this to their patients in 5-10 minutes. Most patients with pain and headaches benefit from instruction, support, and positive reinforcement in using this skill.

Pain itself is very stressful, as are the many changes that can result from having pain, such as inability to engage in various activities, changes in finances and employment, and many others. Shallow breathing often accompanies stress, as can anxiety and other psychological difficulties. This is typically a result of sympathetic overarousal, commonly referred to as the "fight or flight response." With practice, diaphragmatic breathing lead to a reversal of fight or flight, to a quieting response modulated by the parasympathetic nervous system.

Ways that Diaphragmatic Breathing Can be Useful

Diaphragmatic breathing:

- Shifts a person from a place of passivity to a place of activity; they are "doing something" about their symptoms
- Introduces training in pain self-management
- Provides a simple way to quiet high-arousal states caused by either pain itself or the emotions it elicits
- Is extremely portable
- Costs nothing except an initial investment of time
- Can be used to manage other life stressors as well
- Can be used during difficult procedures, such as injections, imaging studies, etc.
- Provides a positive distraction
- Can be used to interrupt negative patterns of thought
- Demonstrates that clinicians consider non-pharmacologic interventions important for pain management

The facts

Diaphragmatic breathing is sometimes referred to as belly, deep, relaxed, or abdominal breathing. It optimizes use of the main muscle of breathing, the diaphragm, resulting in slower, deeper breathing.

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In contrast to shallow breathing, diaphragmatic breathing is marked by expansion of the abdomen rather than the chest during the inbreath. With shallow breathing, also known as thoracic breathing, or chest breathing, minimal breath is drawn into the lungs, usually through the use of the intercostal muscles and not the diaphragm. When lung expansion occurs lower in the body, breathing is described as “deep” and corresponds with observed or felt movement of the abdomen outward with inhalation.

Research

The FDA has approved a relatively simple respiration monitor that facilitates slowing one’s breathing rate for the reduction of blood pressure.¹ A review of research on several specific breathing techniques found a trend toward improvement in asthma symptoms.² Breathing exercises or retraining have been applied to hyperventilation, and a review of seven randomized controlled trials found a trend toward improvement in symptoms.³ More recently, evidence suggests that breathing practice can assist postoperative lung cancer patient with pulmonary function and quality of life.⁴ In the National Health Interview Survey of 2007, it was found that 24% of the adults surveyed with severe headaches/migraines, as well as 19% of adults with neurological conditions, used deep breathing exercises.⁵ An experimental study found that deep and slow breathing associated with relaxation resulted in the modulation of sympathetic arousal and pain perception.⁶

Five Steps to Teaching Diaphragmatic Breathing

Step 1: Observation

Observe patients’ breathing while they are seated for a minute or so. It is helpful to have them place one hand on the abdomen and another on the chest. To reduce performance anxiety, you could have them close their eyes or distract them with a different activity to allow you to observe comfortably.

- Ask them to breathe normally, just as they would in their life outside the clinic.
- Observe the movements of the hands including whether there is more movement in the upper hand (chest) or the bottom hand (abdomen).
- Notice if their breathing rate is fast, slow or somewhere in between. Observe whether the breathing pattern is smooth or choppy.

Step 2: Education

The acronym DASS—Deep, Abdominal, Slow and Smooth—describes the goal pattern. If patient’s breathing pattern is shallow, fast or choppy consider discussing or demonstrating:

- The importance of the diaphragm muscle as the main muscle of breathing.
- Breathing as it relates to the sympathetic and parasympathetic nervous systems.
- What diaphragmatic breathing looks like (the provider can use DASS breathing to demonstrate to the patient).
- The role of stress, and how it can lead to shallow chest breathing. Clinicians can acknowledge that pain (and its accompanying issues) are significant stressors and can influence their breathing patterns.

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- Taking time with the exhalation assists in activating the quieting response mediated by the parasympathetic nervous system.

Step 3: Instruction

Teaching several different techniques and finding what works best for each individual can be helpful. If an examination table is present, training can begin with patients lying down. Each technique can be practiced for a minute or so to give the patient ample time to determine what works best. *Note: Some individuals become much more anxious when they focus on their breathing, and other techniques may be more appropriate.* See other relaxation techniques described in the **Power of the Mind** module.

Here are four simple diaphragmatic breathing techniques that can be tried:

- **Technique 1**
Start simply by having them place a hand on the abdomen and gently attempt to breathe under that hand. If this is too effortful or they are “trying too hard” (over breathing or too forceful), move on to other techniques or see if they can reduce effort.
- **Technique 2**
This next technique encourages deeper breaths. Have the patient breathe in for a count of “2” (with each counted number taking a second) and out for the count of “3.” If this feels too fast, try slowing it to breathing in for “3” and out for “4.” Adjust the numbers so that the exercise is comfortable and not stressful. The elongation of the outbreath can often create an opportunity for a deeper next breath.
- **Technique 3**
In this technique, the individual inhales normally. On exhalation, the goal is to focus on exhaling all of the air completely out of their lungs. Then, rather than quickly inhaling again, they pause and wait until the body wants to breathe again. They should let any sense of effort drop away.
- **Technique 4**
Imagery can be helpful to some patients. The patient imagines a breathing hole (like a whale’s or dolphin’s) in the bottom of each foot. With each breath, they imagine breathing in through the bottom of their feet and up to their abdomen. On the exhalation, this is reversed as they imagine breathing out the bottom of their feet.

Step 4: Evaluation of techniques and assignment of at-home practice

Many patients will say that the above activities were challenging or felt “different,” due to the fact that they habitually engage in shallow breathing. This is perfectly normal, and as they become more accustomed to deeper breathing, it will feel more natural. *Note:*

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Any sense of feeling light-headed is a sign of trying too hard or over breathing, and effort should be decreased. Changing techniques might prove more helpful.

- Ask the patient which of the techniques worked and was easiest for them, or which they enjoyed the most. Encourage them to practice this technique at home.
- Practice 5-10 minutes, twice daily, in a comfortable position. Chronic pain patients frequently have sleep disruptions so difficulty falling asleep or intermittent awakening are additional practice times and may assist with increasing comfort or falling back to sleep.
- In addition, ask them to practice off and on throughout the day and in a variety of positions (this is to encourage generalization). It is also helpful to have them practice at times of relatively low stress until they become accustomed to it.

What to do if all of this proved difficult or extremely taxing for the patient. Have the patient practice at home, lying on the belly if possible. Not all pain patients are capable of lying on their stomachs, but most can for the few minutes needed to become aware of their breathing. Lying down on the belly typically allows people to feel the diaphragm muscle even when breathing with minimal effort. This can be practiced for 5 minutes, focusing on the sensation of deeper breathing. Following this, they can turn over on their back and recall the sensations experienced when they were on their belly.

The goal is for the individual to practice feeling the sensations and experience of diaphragmatic breathing until they become habituated to it. Twice-daily practice should aid in their learning. Eventually, once more comfort and familiarity has been achieved, another goal will be to do diaphragmatic breathing while sitting up.

Step 5: Follow-Up

Follow up is critical to the integration of this activity, and it can be challenging for the busy clinician; making use of a team approach and working with other team members becoming skilled in teaching these techniques can be helpful. Even brief attention from a clinician communicates to patients that these approaches are important and that they should follow through. Breathing patterns can be a very strong habit forged over many years and change needs time and reinforcement. Consider the following four areas for follow-up:

- Review the exercise to determine if the patient still understands the practice. Have them demonstrate slower, deeper abdominal breathing.
- Discuss how and when they are using it (e.g., when awake in the middle of the night due to pain, when upset or distressed about finances, when in a pain flare-up, etc.) and encourage continued use. Reinforce the ways that it might help them, even if it has helped just a bit or only decreases their level of emotional distress rather than the pain itself.
- Explore how they can apply these skills more generally in their lives is a final important part of following up with training. Ask them to consider other times when they could use the skill, such as when they are in a doctor's waiting room, driving the car, off and on throughout the day, etc.

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- Remember the goal. Slower deeper breathing while maintaining a relaxed state and without undue effort is optimal for breathing most of the time, except during certain limited situations where the sympathetic arousal (the fight or flight response) is truly helpful.

Summary

Breathing can be a useful tool, not only in quieting sympathetic arousal due to pain and stress, but also as a way to increase a patient's efficacy toward self-management of health. The five easy steps to teaching diaphragmatic breathing are:

1. Observation
2. Education
3. Instruction
4. Evaluation and homework
5. Follow-up in future appointments

See also Power of the Mind clinical tool **Breathing** for a clinician self-practice activity.

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<http://projects.hsl.wisc.edu/SERVICE/>

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