

Breathing Exercises Protocol

Statement of the Problem

In the US, treatment for asthma is very medicine-oriented. However, breathing exercises are another evidence-based approach that might be helpful for some people in some situations, when they begin to experience asthma symptoms.

Background

Breathing exercises have been used in many countries along-side pharmacological treatment of asthma patients.¹ “Breathing exercises aim to control the hyperventilation symptoms of asthma and can be performed as the Papworth Method, the Buteyko breathing technique, yoga or any other similar intervention that manipulates the breathing pattern”.¹ A review of studies of breathing and/or relaxation exercises for asthma reported improvements in symptoms, quality of life and/or psychological measures, but not in physiological outcomes or risk of exacerbations.² Perceived improvement with breathing exercises may be largely due to factors such as relaxation, voluntary reduction in use of rescue medication, or engagement of the patient in their care.³

Breathing Exercises:

Among those available in English, these are the breathing exercises that seem most successful or well-studied. You’ll notice that the techniques promoted through these different organizations have many more similarities than differences. The main point is this: Learn one or two breathing techniques and practice them often enough so that they are second nature when you do feel short of breath. In our breathing exercises tutorial, we highlight the American Lung Association video resources, which are the most straightforward.

American Lung Association:

<https://www.lung.org/lung-health-diseases/wellness/breathing-exercises>

Why Breathing Exercises Help

When you have healthy lungs, breathing is natural and easy. You breathe in and out with your diaphragm doing about 80 percent of the work to fill your lungs with a mixture of oxygen and other gases, and then to send the waste gas out. Lung HelpLine respiratory therapist Mark Courtney compares the process to a screen door with a spring, opening and shutting on its own.

¹ Santino TA, Chaves GS, Freitas DA, Fregonezi GA, Mendonça KM. Breathing exercises for adults with asthma. *Cochrane Database Syst Rev*. 2020 Mar 25;3(3):CD001277. doi: 10.1002/14651858.CD001277.pub4. PMID: 32212422; PMCID: PMC7096190.

² Freitas DA, Holloway EA, Bruno SS, Chaves GS, Fregonezi GA, Mendonca KP. Breathing exercises for adults with asthma. *Cochrane Database Syst Rev* 2013;10:CD001277, (from GINA guidelines Cochrane #325).

³ Slader CA, Reddel HK, Spencer LM, Belousova EG, Armour CL, Bosnic-Anticevich SZ, Thien FC, et al. Double blind randomised controlled trial of two different breathing techniques in the management of asthma. *Thorax* 2006;61:651- 6. (from GINA guidelines reference #327)

"Our lungs are springy, like the door. Over time, though, with asthma and especially with COPD, our lungs lose that springiness. They don't return to the same level as when you start breathing, and air gets trapped in our lungs," Courtney explains.

Over time, stale air builds up, leaving less room for the diaphragm to contract and bring in fresh oxygen. With the diaphragm not working to full capacity, the body starts to use other muscles in the neck, back and chest for breathing. This translates into lower oxygen levels, and less reserve for exercise and activity. If practiced regularly, breathing exercises can help rid the lungs of accumulated stale air, increase oxygen levels and get the diaphragm to return to its job of helping you breathe.

Step 1: Relax neck and shoulder muscles

Step 2: Breathe in slowly through your nose

Step 3: Exhale through pursed lips

1. Pursed Lip breathing video

This exercise reduces the number of breaths you take and keeps your airways open longer. More air is able to flow in and out of your lungs so you can be more physically active. To practice it, simply breathe in through your nose and breathe out at least twice as long through your mouth, with pursed lips.

- This method is a quick and easy way to slow your pace of breathing, making each breath more effective
- When you feel short of breath, pursed lip breathing helps get more oxygen into your lungs and calms you down so you can better control your breath.
- To practice
 - Sit down in a chair and relax your neck and shoulder muscles
 - Breathe in slowly through your nose, keeping your mouth closed
 - Some people find it helpful to count to themselves up to 10 (inhale one, exhale two...)
 - Pucker or purse your lips as if you were going to whistle or gently blow out a candle
 - Breathe out all the air in your lungs slowly through your mouth. Gently through pursed lips
 - Try to breathe out longer than your inhale
 - Continue to repeat this exercise of slowly inhaling through the nose and exhaling through pursed lips until your breath becomes normal.
 - Pursed lip breathing works by more effectively moving oxygen into your lungs and carbon dioxide out of your lungs. This technique helps to keep airways open longer so that you can remove the air that is trapped in your lungs by slowing down your breathing rate and relieving shortness of breath.

- If you continue to be short of breath, use your rescue medicine as outlined in your asthma action plan, call your provider and seek immediate medical attention, or call 911.

2. Belly Breathing (Diaphragmic Breathing) video

Belly breathing is very similar to pursed lip breathing, but with more focus on using your belly and diaphragm to breathe. As with pursed lip breathing, start by breathing in through your nose. Pay attention to how your belly fills up with air. You can put your hands lightly on your stomach, or place a tissue box on it, so you can be aware of your belly rising and falling. Breathe out through your mouth at least two to three times as long as your inhale. Be sure to relax your neck and shoulders as you retrain your diaphragm to take on the work of helping to fill and empty your lungs.

- This technique helps to slow down your breathing so you can catch your breath and use less energy to breathe.
- When you feel short of breath, belly breathing helps get oxygen into and carbon dioxide out of your lungs more effectively and calms you down so you can better control your breath.
- To practice
 - Sit down in a comfortable chair, sit up straight and put your hands on your belly. Or you can lay down if it is more comfortable.
 - Close your mouth and take a slow deep breath in through your nose.
 - When you breathe in you want your belly to fill with air and get bigger, like a balloon.
 - Blow all of the air out slowly and gently through pursed lips as if you were blowing bubbles.
 - Concentrate on your breathing as you continue to breath in through your nose and out through your mouth
 - Repeat belly breathing for 5-10 minutes and relax
 - Remember to keep your hands on your belly as it helps you to concentrate on the air going in and out.
 - The more you practice the easier it will be to calm down and breathe more freely
 - If you continue to be short of breath, use your rescue medicine as outlined in your asthma action plan. If your symptoms continue to worsen call your provider and seek immediate medical attention or call 911.

Ideally, you should practice both exercises about 5 to 10 minutes every day until they become second nature.

Other Breathing Exercise Resources:

Breathing Freely:

https://lifeguidehealth.org/player/play/breathe_hcp_v1?thiz=s9_p1_mbminro

3. **Stomach and Nose Breathing** - Stomach breathing can be used to relieve your asthma symptoms (such as feeling short of breath). You should aim to practice stomach breathing regularly during the day. Nose breathing stops dust and bacteria getting into your breath, as well as making it warmer. You should try to nose breathe all the time, or whenever you remember.
 - a. Lie down in a comfortable place. You may want to place 1 or 2 pillows behind your head and loosen any tight clothing.
 - b. Close your mouth and breathe through your nose.
 - c. Relax your shoulders and chest.
 - d. Put one hand on your stomach and one on your chest.
 - e. Breathe in and out as normal. Be careful not to take any big breaths.
 - f. Now, as you breathe in gently, try to keep your chest still while allowing your stomach to rise ('pushing your stomach out').
 - g. As you breathe out allow your stomach to fall gently – do not force it.

4. **Slow Breathing** - aims to help you take fewer breaths a minute. This means you are less likely to over-breathe and take in too much air, or exhale too much carbon dioxide, which can cause its own problems. Before you start, some people like to use a clock or timer to count their breathing, others prefer without.
 - a. Lie down in a comfortable place. You may want to place 1 or 2 pillows behind your head and loosen any tight clothing.
 - b. Close your mouth and breath in your nose.
 - c. Relax your shoulders and chest.
 - d. Now practice the [stomach breathing](#).
 - e. Try to slow down your breathing. It can help to count in your head with your breathing, e.g., breath in for a slow count of 2 and out for a slow count of 3.
 - f. Now, slow your breathing down more – put a short pause after you have fully breathed out, before you take the next breath. Breathe in for a count of 2, then pause for 2 or 3. Don't pause so long you feel faint though!

5. **Controlled Breath Holding** - The aim of controlled breath holding is to practice holding your breath without needing to gasp for air afterwards. As you get used to breath holding, you are less likely to feel breathless in your everyday life
 - a. Sit upright and well supported.
 - b. Breathe gently in and out through your nose.
 - c. Relax your shoulders and chest.

- d. Take a normal relaxed breath in and gently breathe out, using your stomach breathing.
- e. At the end of your breath out, pinch your nose and hold your breath.
- f. Keep holding your breath until you feel a very slight urge to breathe in. Then let go of your nose and breathe normally.
- g. The next breath should be a relaxed breath, using your stomach breathing technique. If you have to take a deep breath or gasp for air at this point, you may have held your breath for too long. This isn't dangerous – next time you practice, try not to hold your breath for so long.
- h. Once you are able to hold your breath in this way, repeat it 3 more times, with a 1-minute rest in between each breath hold.
- i. You may find it useful to time your breath holds each week with a stopwatch or counting in your head – you can record this time in your progress chart [here](#).
- j. You should aim to practice 3 to 4 controlled breath holds twice a day. Lie down in a comfortable place.

6. **Relaxation Training** - There are many relaxation techniques you can try, to help you master your slow breathing. Some people like silence, while others prefer to play peaceful music or natural sounds. Before you start relaxing, start by getting yourself in a comfortable position, like lying flat or sitting up straight (use plenty of pillows if you need). You can then relax your whole body, working up from your feet to your head.

- a. *Breathing*. Close your eyes and breathe through your nose, using your stomach.
- b. *Feet*. Gently point your toes towards the floor. Hold this position for a count of 5 seconds and relax. Repeat once.
- c. *Legs*. Tighten your thigh muscles and push your knees down. Hold for 5 seconds and relax. Repeat once.
- d. *Buttocks*. Tighten your buttocks, hold for 5 seconds, and relax. Repeat once.
- e. *Back/abdomen*. If you're lying down, push the small of your back into the floor, hold for 5 seconds and relax. If you're sitting, pull your stomach muscles in, hold for 5 seconds, and relax. Repeat once.
- f. *Shoulders*. Shrug your shoulders towards your ears, hold for 5 seconds, and relax. Repeat once.
- g. *Arms*. Push your arms downwards, hold for 5 seconds and relax. Repeat once.
- h. *Hands*. Clench your fists, hold for 5 seconds, and relax. Repeat once.
- i. *Eyebrows*. Raise your eyebrows as though surprised, hold for 5 seconds, and relax. Repeat once.
- j. *Jaw*. Gently stretch your jaw downwards with your mouth closed. Hold for 5 seconds and relax. Repeat once.
- k. *Head*. Push your head back into the pillow. Hold for 5 seconds and relax. Repeat once.

7. **Breathing while Walking** - As you practice, you will become more confident with your breathing retraining. Once you're happy doing your stomach and nose breathing, and slow breathing while lying down, you can move on to trying them while sitting and standing upright.

Stomach and nose breathing can also be done while standing and walking. It can help to breathe 'in time' with your walking. It's important to breathe out for longer than you breathe in.

8. **Advanced Slow Breathing** - Many people tend to take larger breaths when they slow down their breathing, which means they may actually 'over-breathe'.
 - a. Sit down and practice your slow breathing (using your stomach and your nose).
 - b. Try to breathe in less than you normally would. You can place your hand on your stomach. You should be able to feel that your stomach goes out less.
 - c. Go back to your normal breathing as soon as you start to feel uncomfortable.
9. **Breathing in Everyday Life** - Practicing the breathing techniques in everyday life can get your body used to breathing more freely. As you learn to breathe from the stomach and through the nose, and practice the slow breathing and breath hold techniques whenever you need to, you should find that you are more able to take part in activities you may have previously found difficult – like swimming, gardening or playing with children.

Woolcock Institute (program linked from GINA)

<https://www.youtube.com/playlist?list=PLW20ov7mgy21ExqyRBvCEQHdWzDrktBz2>

Synopsis of research study

The Woolcock Institute in Australia completed a double-blind randomized control trial of two different breathing techniques in the management of asthma. In this type of study, the doctors and patients don't know which group the participants are assigned to – those receiving the intervention or not. This is the best way to find out if the intervention has an effect without bias.

The study assessed the effect of two breathing techniques on lung function, asthma symptoms, the use of asthma medication, airway sensitivity and the quality of life. Participants practiced the exercises twice daily at home for about 20 minutes each. They were to use a shorter form of the exercises if they had asthma symptoms.

Results show a reduction of reliever use by 86% and a reduction in inhaled corticosteroid dose by 50% for those using the breathing exercises. *There was no evidence to favor one breathing technique over the other.* The intervention effect was improvement of symptoms and quality of

life and reduction of reliever medication use. There was no change in the underlying severity of asthma.

1. Reduced Breathing Exercise
 - Types of breathing exercises
 - Nasal Route of Breathing
 - Relaxed Breathing
 - Extended Delay
 - Practicing Daily: Routine Daily
 - Relief of Symptoms: Reliever Techniques
2. Physical Movement Breathing Exercise
 - Types of breathing exercises
 - Control of Breathing
 - Upper Body Exercises
 - Practicing Daily: Routine Daily
 - Relief of Symptoms: Reliever Techniques

Preparations for Breathing Exercises

- When breathing keep these things in mind:
 - **Posture:** Remember your posture – sit up right with your feet on the ground and legs uncrossed
 - **Relax:** Remember to relax – keep your chest and tummy muscles relaxed while you are breathing
 - **Focus:** Maintain focus by looking up or closing your eyes.

Reduced Breathing Exercise Components

Daily Exercises (*Breathing Techniques 3 Video*)

Recommended practicing twice a day

1. Gentle Breathing
2. Awareness of Reduced Breath
3. Breathing Check
4. Relaxed Breathing
5. Extended Delay

Reliever Techniques (*Breathing Techniques 4 Video*)

1. Try using breathing exercises two times before using your reliever medication
2. Go through breathing exercise process – Reduced Breathing Exercise Components.
3. Have reliever medication nearby to use if necessary

Physical Movement Breathing Exercises

Daily Exercise Routine (*Breathing Techniques 5 Video*)

1. Control of Breathing
2. Rest Position
3. Shoulder Rotation
4. Forward Curl
5. Arm Raise

Reliever Techniques (*Breathing Techniques 6 Video*)

1. Try using breathing exercises before reliever medication
 - a. Try 2 times
2. Go through breathing exercise process – Physical Movement
Breathing Exercise Components
3. Have reliever medication nearby to use if necessary

CHW Assessment

- Ask the patient if they currently use any specific breathing techniques to control their asthma
- Assess patient's level of interest in learning breathing techniques

Educational Messages

- Breathing exercises may be a useful supplement to asthma pharmacotherapy for symptom reduction and improved quality of life, but they do not improve lung function or reduce exacerbation risk (Gina citation here)
- Practice these techniques frequently enough so that they are second nature. Then they can be used readily in the event of worsening symptoms

Actions

- CHW Actions
 - Share educational messages
 - Understand patient's level of readiness to use breathing techniques as an adjunct to usual medical care. Motivational interviewing techniques may be useful here.
 - Demonstrate specific breathing techniques
 - Discuss when and why to use these techniques
 - Review breathing techniques with the handout and ask patient to demonstrate them
- Caregiver/Patient Actions
 - People with asthma should practice these exercises frequently enough to be readily used in the event of worsening symptoms
 - Practice these techniques often enough so they are readily available when needed

- Be ready to demonstrate these techniques to your CHW at the next visit

Follow-up Visits

- Ask your patient/client to demonstrate and describe breathing techniques taught at previous session.
- Review evidence based breathing techniques as needed

Supplies

- N/A

Educational Handouts

- Breathing technique descriptions hand-out