Yoga Therapy in Practice

Yoga for Asthma

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Abstract

This article reviews relevant research on the possible benefits of Yoga interventions for individuals with asthma. Research suggests that Yoga, especially when practiced with inclusion of the whole of its traditional techniques (including asana, pranayama, meditation, and relaxation) provides benefit for asthma sufferers. The article then offers suggestions for Yoga teachers and Yoga therapists who would like to develop a Yoga practice for students with asthma. Specific pranayama and asana practices are described. The recommended practices will help students with asthma develop a new awareness of how physical posture and breathing techniques can minimize the frequency and severity of asthma episodes.

Introduction

Airway constriction in asthma is a complex and often not fully understood process. Because asthma has many possible contributing factors, including exercise, allergic reactions, air pollution, emotional factors, and genetics, it is best to consider a multifaceted approach to prevention and treatment. In a review of nontraditional approaches to asthma, Perlman and Serbin reported that Yoga is a helpful complementary therapy for asthma. Holistic approaches to asthma care can include establishing a regular and effective Yoga practice that includes asana, pranayama, and meditation. It is these methods combined, rather than any individual Yoga technique, that seems to offer the most benefit.

Breathing Difficulties in Asthma

Asthma is characterized by a combination of increased mucous production, thickening of airway tissue, smooth muscle contraction around airways, and hyperinflation of the lungs. Individuals with asthma experience a decreased ability to exhale, and residual air held is within the lungs after exhalation. Vital capacity (the capacity for air exchange within the lungs) is decreased. These symptoms can be triggered or made worse by emotions, stress, and other psychosocial factors. Chronic asthma can lead to chronic inflammation and loss of lung tissue elasticity.

The breathing difficulties associated with asthma can lead the asthmatic individual to try many breathing adaptations, such as spontaneously assuming pursed lip breathing to steady and improve the flow of breath. However, many other adaptations are more harmful than helpful. For example, individuals may increase their respiratory rate during an asthma attack in an attempt to increase oxygen and carbon dioxide exchange. However, this leads to a loss of carbon dioxide levels in the blood stream and spinal fluid to below normal levels, causing cerebral arterioles to constrict, and leading to reduced oxygen delivery to the brain. This can trigger fatigue, irritability, lightheadedness, inability to concentrate, and panic attacks.

Individuals with chronic asthma also rely more on accessory respiratory muscles such as the intercostals ("between the ribs"). There may also be a tendency to lift the shoulders forward and up in a compensatory attempt to create more lung space and movement with each breath. This postural adaptation actually reduces breathing efficiency and the ability to fully exhale. Lung spaces are filled with stagnant air, and the amount of fresh oxygen brought in for the capillaries to absorb is reduced.

These compensatory adaptations must be addressed. Breathing and posture training, including Yoga methods, provide an opportunity to increase awareness and create healthier breathing patterns.
Research on Yoga and Asthma

Several studies have looked at the effects of Yoga practices on breathing quality. In a study of individuals without asthma, a Yoga-based guided relaxation led to decreased oxygen consumption and increased breath volume. Combining Yoga postures with periods of meditation was found to be better at decreasing oxygen consumption and increasing tidal volume (volume of air exchanged during a breath) than relaxation alone. Both of these studies suggest that Yoga practice improves the efficiency of relaxed breathing.

Looking specifically at the effects of Yoga techniques on individuals with asthma, one study found that airways become less reactive with the practice of Yogic meditation, and another study showed a similar effect from practicing a Yogic breathing technique. In this second study, the airways of asthmatics reacted less strongly to a histamine challenge test, which is similar to inducing an allergic type of asthma episode. It is worth noting that this study used the "pink city breathing device," which requires slow breathing and extended exhalation, to teach the participants how to practice the Yogic technique.

Two studies found that training in a combination of Yoga poses, breath-slowing techniques, and meditation reduced the number of asthma attacks per week, the use of asthmatic medication, and improved peak expiratory flow rate. Another study found that university students trained in Yoga postures, relaxation, and breathing techniques showed an increased tolerance for exercise and decreased use of asthma medications.

As indicated above, practices that slow and deepen the breath may be the most helpful for asthma. Research on a similar (non-Yogic) breathing technique, Buyteko breathing, provides further evidence for this. Buyteko breathing was developed in the 1960s as a method of treating or improving asthma symptoms through nasal breath modifying techniques similar to some prānāyāma methods. A randomized controlled trial of the Buteyko technique showed symptom improvement and decreased bronchodilator use.

More generally, Yoga practices of relaxation and controlled breathing reduce stress-associated increases in sympathetic activity, which may help individuals prevent or recover from asthma attacks.

Research on the benefits of Yoga needs to be considered carefully. As with most complementary modalities, research on Yoga is challenged by the holistic principles of the practice. Yoga is inherently multifaceted, and cause and effect are not easily defined or quantified.

Āsana and Prānāyāma

Suggestions and Precautions

The first precept for any Yoga practice should be ahimsa (nonviolence) or "do no harm." Under the guidance of a qualified Yoga teacher, the following breathing practices and poses can be modified to fit the individual needs of the patient or client. Yoga techniques should complement medical treatment, and prescribed medication or other treatment should continue as prescribed by the healthcare provider. The student should be directed to consult with a healthcare provider before beginning āsana or prānāyāma instruction.

Aims of a Yoga Practice

Prānāyāma techniques alone and with āsana practice teach the student new methods of engaging the breath. Even in the throes of a full-fledged asthma episode, the student can begin to recognize breathing patterns and experience some control over the breath.

Initial assessment

Each encounter should begin with an assessment of the client/student. Asthma symptoms are intermittent, and different practices are appropriate for non-symptomatic and symptomatic periods.

The student should always be asked, "How comfortable is your breathing today?" A numeric scale (1= extreme discomfort, 10= total ease) is useful in helping the student communicate his or her subjective perception. The student's degree of comfort or discomfort will guide the teacher's instruction either to a more energizing and strengthening practice, or to a calming and cooling practice.

In addition to the student's subjective response to this scale, the Yoga teacher/therapist needs to observe the student for signs of respiratory difficulty. Signs of distress might include:

- Rapid respiratory rate
- Strained facial expression
- Breathing through pursed lips
- Lifting the shoulders toward the ears during inhalation
- Muscular tension around the neck and clavicles
- Wheezing or cough
- Breath strain during or following activities such as walking a short distance across the room or moving in and out of poses

If any of the above signs are evident, the student may be experiencing an actual or impending asthma attack. The student may obtain relief from inhaled or other medication,
but if the condition does not improve, the student may need clearance from the healthcare provider to proceed. Delay in seeking medical care in a timely manner when experiencing symptoms of an acute asthma attack is unsafe and contradicts the precept of ahimsa.

**General Benefits of Prânâyâma Practice**

Methods that slow and deepen breathing seem effective for those with asthma. Slowing the breath insures that the volume of inspired and expired air is maximal, and reduces symptoms of stress and anxiety. Prânâyâma practice encourages breathing through the nose, which warms and purifies the air as it enters the lungs, and also provides for a longer and more complete exhalation.

**Specific Prânâyâma or Breathing Practices**

The following techniques can be helpful for individuals with asthma, although not all techniques will be appropriate for all individuals. Always begin with the student’s comfort level, and encourage the student to observe and communicate the effects of each practice.

- **Ujayyî (breathing):** If done very lightly with emphasis on extended exhalation, ujayyî breathing can be helpful in training the mind to follow the flow of the exhalation to completion. The sound gently directs the attention back to breath through distraction, anxiety, or pain. Do not use this breath if an asthma attack is approaching, as it requires the upper throat area to close slightly at a time when everything needs to instead remain very open.

- **Viloma (three-part breathing):** This complete three-part breath slows breathing by creating small pauses within and between the breath cycles. Paying attention to the movements of the belly, lower ribs, and upper ribs can be helpful. During an asthma episode, this method may be more beneficial if done with very brief pauses during inhalation, to encourage maximal entry of oxygen, and long, slow, uninterrupted exhalation. A possible visualization during this breathing technique is to “follow the breath up a silken thread and down again,” which emphasizes smoothness and continuity.

- **Extended exhalations:** Start by making inhalation and exhalation even in length if the exhalation seems shorter. Once equal, proceed to a 1:2 ratio of inhalation to exhalation. Begin where the student is, and proceed at his or her comfort level. Engaging mula bandha and uddiyana bandha on exhalation will help teach the student how to exhale fully by supporting the diaphragmatic movement.

- **Alternate nostril breathing:** This technique can slow down the breath, and its calming effect balances the nervous system’s sympathetic and parasympathetic activation.

- **Yoga chair breathing:** To practice this technique, have the student sit on a chair facing the back of another chair. Have the student place the arms on the back of the chair he or she is facing, to lift and open the ribcage. Inhale while gradually lifting the head and spine and opening the chest. Then exhale while moving the spine, chest, and neck into gentle flexion. Do five times. Then repeat the sequence producing the sound “ah” while exhaling five times, then the sound “mmm” five times while exhaling. Engaging the voice teaches smooth, continuous, and complete exhalation, and also encourages complete engagement of the accessory abdominal muscles through uddiyana bandha during exhale. This supports fuller emptying of the residual air before the next inhale, increasing breathing efficiency.

- **Kapâlabhâti (breathing):** When begun gently and advanced with comfort, this technique emphasizes exhalation and can have a purging effect on the entire airway, from bronchioles upward through the larynx and nasal passages. This can help to clear mucous secretions that may accumulate due to inactivity, upper respiratory infection, and allergies.

- **Contraindicated practices:** Prolonged breath holding and forceful rapid breathing techniques should not be part of a program for individuals with asthma.

**General Benefits of Āsana Practice**

Breath awareness during āsana provides the student the opportunity to become intimately aware of how certain positions prevent or assist full inspiration or expiration. The use of āsana to improve posture—particularly by lengthening the spine and opening the front body—will increase breathing capacity and maximize the effects of diaphragmatic movement.

**Developing Breath Awareness in Āsana**

Breath awareness in āsana is a form of svadhyâya, or self-study. The key to using āsana to learn to breathe better is discovering how altering one’s physical posture can increase breathing potential.

One method for increasing awareness is to have the student change his or her posture after inhaling or exhaling “completely.” For example, have the student inhale in
tadasana, with hands and arms folded forward and together in anjali mudra. Then have the student open the arms wide to the sides and notice the spontaneous further inhalation that occurs. For exhalation, have the student exhale with the arms wide and then draw the hands/arms to anjali mudra. The student will notice that even more exhalation is now possible. This simple technique demonstrates clearly to the student how connected breathing capacity and posture are.

This technique can be referred to as mild resistive technique, and can be applied to any of the traditional asanas. Provide mild resistance at first to the inhalation or exhalation by beginning in a pose that opposes the complete inhalation or exhalation. Then have the student move to a pose that opens the breath or completes the exhalation. The initial mild resistance allows the student to strengthen respiratory musculature. Vital capacity is increased as the breath is fully moved in or out when shifting to another position within the pose. There is no kumbak or breath retention/holding, only opportunity to open further, assisted by posture change.

Bandhas can also be used as a resistive technique. To do so, have the student engage the mula and uddiyana bandhas as inhalation begins, then release the bandhas to allow deeper inhalation through further diaphragmatic descent. The opposite can be done with the exhalation, engaging bandhas after an exhalation to allow for an even more complete exhalation. However, if the student is not at a good comfort level, leave this subtle resistive technique until asthma is under better control.

Take care that the student is not holding the breath with this technique. Note that this technique is not advised when the student is suffering from symptoms of asthma or any distress in the moment with the breath. Instead, the student should focus on practices that lengthen the exhalation.

Special Asana Considerations for Asthma: Avoiding Gastro-esophageal Reflux

Some poses can potentially trigger or worsen asthma symptoms. Avoid poses with the head below the abdomen to prevent gastro-esophageal reflux, which can cause airway constriction and trigger or exacerbate an asthma attack. Also avoid doing poses for two hours following a meal. Prone poses with abdominal compression such as locust (shalabhasana) and cobra (bhujangasana) may induce reflux even on an empty stomach. Focus on standing and sitting poses in which there is no external compression of abdominal contents.

Yoga Poses that Promote Healthy Breathing

The following poses may be practiced in the order listed, or in a sequence that follows basic principles of sequencing. If the student is having asthma symptoms, limit poses to the last three on the following list. These three poses are more restorative and concentrate on extending the exhalation.

Cat/dog tilts with resistive technique: See photos 1-3. Start on hands and knees in table pose. From table pose, expand chest up and away from the belly in dog tilt (or sometimes called cow) on inhale, and then contract the belly, round the low back (cat tilt), then lower chest to thighs on exhale in child’s pose. Inhale to return up to table and repeat five times. This flowing sequence promotes thoraco-diaphragmatic breathing and strengthens the abdominal muscles. To apply resistive technique, begin inhaling after resting in child’s pose, then continue upward to dog tilt to have the student experience spontaneous full inhalation. To reverse, begin exhaling while in dog tilt, then transition to cat tilt and child’s pose again and notice the significant deepening of the exhalation. This sequence strengthens muscles of respiration (diaphragm, abdominals, and intercostals).

Cobra (bhujangasana): See photos 4-5. This pose promotes thoraco-diaphragmatic breathing, stretches the chest, strengthens the upper back and shoulders, and diminishes kyphosis. The resistive technique may be introduced here by having the student begin in full prone position with forehead resting on floor, taking an inhalation before lifting to full effort, then lifting up smoothly into cobra and noticing how the inhalation can open further. Reverse by exhaling to full effort in the uplift of cobra, and then allow the torso to come back down to the floor and notice the ability to exhale even further. Beginning the exhalation in cobra strengthens the internal intercostals by offering mild resistance to the exhalation, thus strengthening muscles that assist full exhalation.

Sage twist (marichyasana): See photo 6. This pose strengthens the diaphragm, intercostals, and abdominal oblique muscles when it is practiced in an upright position with an engaged core. The spine lengthens and lifts with the inhalation and the twist deepens on the exhalation. Have the student visualize the torso as a large sponge (which the lung tissue actually looks like) that can soak up and squeeze out oxygen. External oblique intercostal muscles are strengthened here due to the mild resistance to inhalation the twist produces, and the paraspinal and shoulder muscles are given a good stretch, releasing the ribs to expand and contract more freely. Priority should be given to lifting the spine fully rather than the degree of twist obtained. Have the student decrease effort if the student tends to hold the breath on the twist.

Mountain pose (tadasana) with back to wall: See photos 7-8. Special attention is given here to maintaining or recovering normal spinal curvature. This pose opens the ribcage, strengthens the back, improves spinal alignment, and strengthens the diaphragm via thoraco-diaphragmatic
breathing. Have the student observe the deepening of exhalation when moving the arms inward to anjali and the deepening of inhalation when opening the arms outward. Tadasana also offers an opportunity to focus on engaging mula bandha and uddiyana bandha on the exhalation.

**Downward facing dog pose** (adho mukha svanasana): See photo 9. Modify to use a wall or table if a sinus infection, gastro-esophageal reflux, or asthma is symptomatic. This pose diminishes kyphosis and opens the shoulder girdle. This also is a good pose to again practice mula and uddiyana bandhas to support full exhalation.

**Pyramid pose** (parsvottanasana): See photos 10-11. Begin upright while catching elbows or strap behind the body, and move toward a gentle backbend to increase lung space. Then move forward with the spine fully extended, not collapsing lung space. The forward fold will assist in full exhalation. Engaging mula and uddiyana bandhas will further support the movement and exhalation.

**Side angle pose** (parsvakonasana): See photos 12-13. This pose promotes thoraco-diaphragmatic breathing, stretches intercostals, strengthens paraspinals, and can reverse scoliosis with attention to stretching the contracted side of the spine. Use resistive technique here by coming into the pose with the upper arm resting along the side and hip. Inhale to full effort, then reach that arm overhead to further open the inhalation. Work in reverse by beginning the exhalation with the arm extended, then sweep the arm back to the side and notice the exhale deepen. Keep transitions fluid, so there is no breath holding, only a slight pause, as in viloma breathing.

**Fish pose** (matyåsana): See photo 14. This pose opens the rib cage, deepens the breath, and reverses kyphosis. An alternative to this is supported fish (using blankets or bolsters to support the basic shape of the pose) if a more restorative pose is needed.

**Sitting forward fold** (paschimottanasana): See photo 15. Allow the pelvis to hinge forward away from the top of the femur bone to prevent moving into cat tilt and collapsing the anterior torso. Keep the upper shoulders and neck area relaxed, and use gravity to release outward and forward to calm and soothe the nervous system.

**Elevated supine corpse pose** (savasana): Elevate the torso on a bolster or blankets with additional support for arms and legs to the student’s comfort. The anterior muscles and lung space can stretch and expand passively in this position. With the torso elevated, the mechanical weight of the abdomen upward on the diaphragm is reduced, allowing for a full inhalation and a long, relaxing exhalation. Relaxation may be taken in this restorative posture. This pose is useful for training the body and mind to full relaxation, and for minimizing the likelihood and effects of a possible asthma attack.

**References**


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