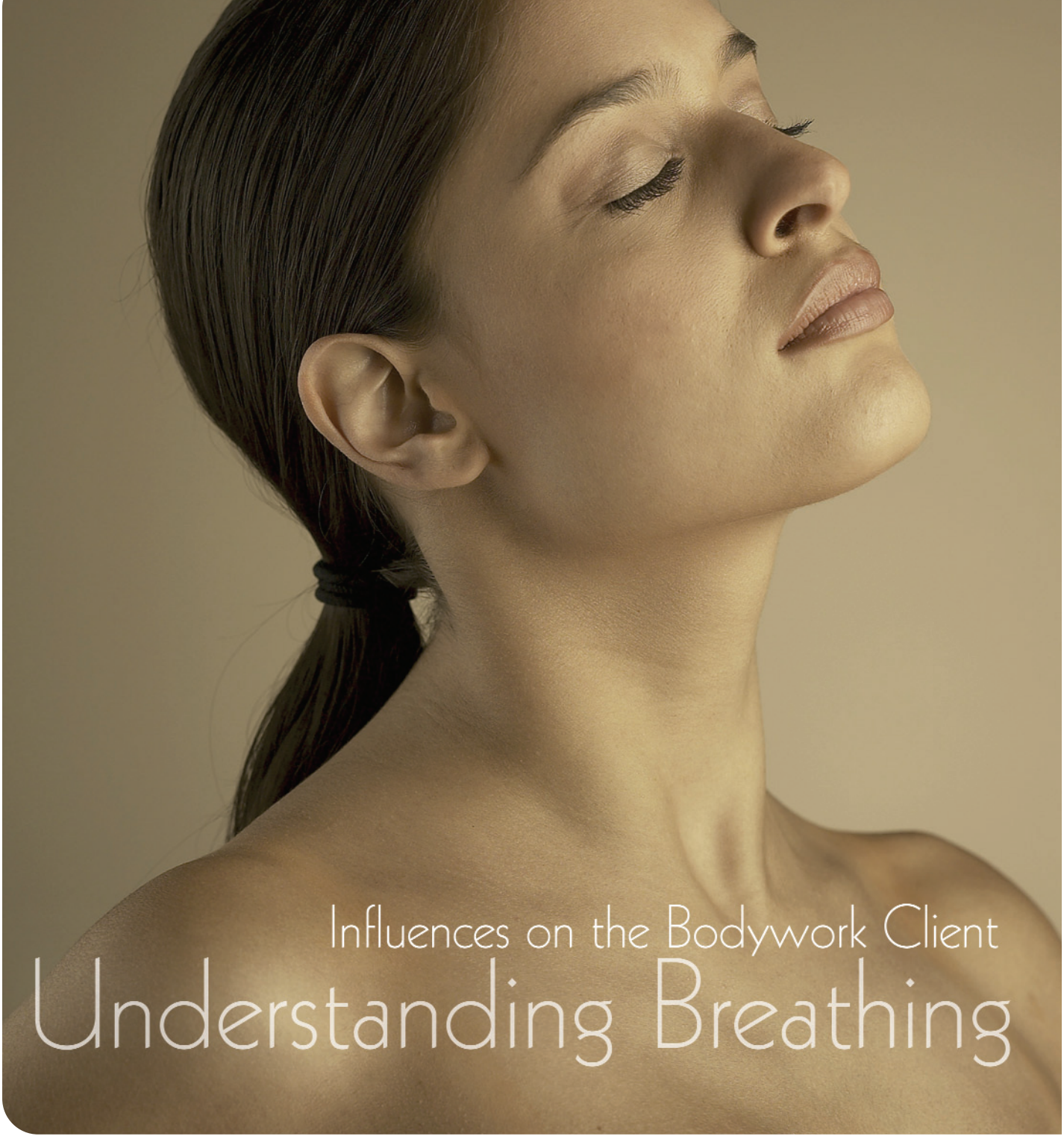


Influences on the Bodywork Client

Understanding Breathing

By Leon Chaitow

If you're reading this, you're breathing. And how well or how poorly you're breathing is not just a matter of how well oxygen is being supplied to your lungs, but is directly and profoundly influencing your mood, your digestion, the efficiency of the functioning of your brain and nervous system, the balance of calcium and magnesium in your body, how sensitive you are to pain, the tone of your muscles (and fascia), how many active trigger points you have (especially in the muscles of the neck, shoulder, and thorax), and how tired or alert you feel, among numerous other influences.

Of course, the same is true of your clients.

This article aims to lay out just how and why many of these symptoms occur, how you can learn to recognize breathing pattern disorders, and what you can do to help your clients rehabilitate this most basic of functions by a combination of reeducation, exercises, and, most importantly, appropriate bodywork.

The biochemistry, biomechanics, and psychology of breathing are complex, and yet it is relatively easy to observe and discern whether your client's breathing is functional or dysfunctional, and so whether it may be a part of the cause of an individual's symptoms or not.

It is relatively easy to observe and discern whether your client's breathing is functional or dysfunctional.

How Does It Begin?

An emotionally stressful period often produces an altered breathing pattern,[1] in which diaphragmatic function is reduced and an anxiety-linked, upper-chest pattern evolves.[2]

At first, this response is a physiologically normal adaptation to an acute/alarm situation—the sympathetically driven fight-or-flight response. If, however, the stress is prolonged and/or repetitive, the subsequent changes (not just the breathing ones) are likely to become chronic, as the adaptation phase of what has been called the General Adaptation Syndrome (GAS) develops.[3]

As far as the effects on breathing are concerned, these changes lead to excessive, physiologically undesirable, and ultimately unsustainably high levels of carbon-dioxide (CO_2) exhalation, causing what is known as respiratory alkalosis.[4] This pattern of breathing gradually becomes a habit, just as poor posture is often a habit, long after the original causes of the breathing pattern changes have ceased.[5]

This happens because CO_2, which is being breathed out excessively with upper-chest breathing, reduces the level of carbonic acid in the blood, changing its pH from a normal of 7.4 to around 7.5—a highly undesirable increase in alkalinity. Increased pH (alkalosis) causes smooth muscle constriction. Smooth muscles surround the blood vessels and the gut and are embedded throughout connective tissue.[6] As a result, one of the first effects of alkalosis is that the diameter of blood vessels reduces, impeding normal circulation, increasing blood pressure,[7] as well as altering fascial tone throughout the body and interfering with normal peristaltic function in the intestines, thus leading commonly to irritable bowel syndrome or constipation.[8] One research study suggested that up to 90 percent of non-cardiac chest pain can be brought on by over-breathing.[9] It is therefore important that chest pain associated with breathing pattern disorders, such as hyperventilation, are investigated, so that heart disease can be excluded as a diagnosis and breathing rehabilitation started.

Respiratory alkalosis also induces a change in red-blood cell behavior called the Bohr effect. When this occurs, hemoglobin's attachment to oxygen increases, making delivery of oxygen to the tissues (brain, muscles) less efficient,[10,11] leading to reduced motor control,[12] lower pain threshold,[13] impaired balance,[14] increased feelings of agitation,[15] fatigue, and a variety of cognitive ("brain-fog") and emotional repercussions (anxiety, panic tendencies, etc.).[16]

So we now have less blood and, therefore, oxygen getting through to the tissues, as well as less oxygen being released—all because too much CO_2 is being breathed out.

As might be expected, the body's self-regulating mechanisms do not take kindly to such disruptions and so homeostatic adaptations start. One of the first of these changes involves the kidneys stepping up elimination of bicarbonate in an effort to return pH to normal (~ 7.4).[17] The effect of bicarbonate elimination is to disturb calcium and magnesium balance,[18,19] which impairs neural and muscular function, altering motor control, and increasing pain awareness as important consequences.[20,21]

In addition, dysfunctional breathing results in an inefficient degree of support for the spine from the respiratory diaphragm. This impacts on the

function of the pelvic diaphragm (the pelvic floor), potentially resulting in symptoms such as pelvic pain, stress incontinence, interstitial (i.e., non-bacterial) cystitis, vestibulitis, and dyspareunia (painful intercourse).[22]

If normal diaphragmatic (breathing) function can be restored, and the pelvic floor muscles retrained, many of these symptoms can also be helped.[23]

Consequences Throughout

The over-breathing individual's symptoms might include irritable bowel; bladder and pelvic problems; short-term memory loss; perception of a variety of areas of increased head, neck, shoulder, chest, and back pain (commonly associated with overuse of accessory breathing muscles and the presence in these of multiple trigger points); vertigo; feelings of sympathetic arousal; anxiety; panic; and general fatigue.[24]

Trigger points often develop in overused muscle tissues, especially if they are relatively oxygen starved (ischemic), as they would be when there is an upper-chest breathing pattern.[25] Many other symptoms might evolve as this cycle of compensation, adaptation, decompensation, and possible illness behavior advances.[26]

Ultimately, in a state of chronic pain and fatigue, and with minimal likelihood of adequate aerobic activity, the deconditioned individual's energy production will come to rely on anaerobic glycolysis, resulting in lactic and other acid waste production that further stimulates hyperventilation/over-breathing tendencies, accelerating and exacerbating all the processes and symptoms described above.[27]

As Foster et al.[28] explain: "Respiratory alkalosis is an extremely common and complicated problem affecting virtually every organ system in the body [producing as it does] multiple metabolic abnormalities, from changes in potassium, phosphate, and calcium, to the development of a mild lactic acidosis. Hyperventilation [over-breathing] syndrome is a common etiology of respiratory alkalosis."

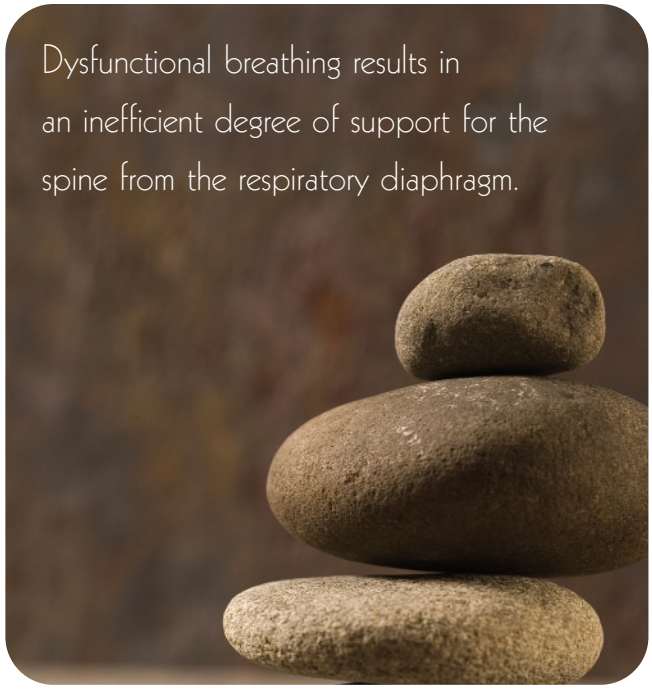
Women in Particular

Should these adaptive processes occur in a woman between the ages of fifteen and fifty (and chances are seven-to-one that this will be the case, rather than the individual being male) when progesterone levels rise following ovulation, the respiratory rate will accelerate, at which time CO_2 levels drop on average 25 percent. Additional stress can subsequently "increase ventilation at a time when carbon dioxide levels are already low," further aggravating all these symptoms during this premenstrual period. Many of the symptoms of PMT can be seen to be aggravated by over-breathing.[29]

In addition, all these symptoms will also be exaggerated if this pattern of breathing coincides with periods of hypoglycemia (low blood sugar)—something commonly associated with unbalanced eating patterns, as well as sugar/carbohydrate cravings and light-headedness if meals are missed.[30] Blood sugar level is "clinically a most important non-ventilatory factor. When blood glucose is below the middle of the normal range (i.e., below 4.4 mmol/L), the effects of over-breathing are progressively enhanced."[31]

This kaleidoscope of interacting influences, synchronicities, compensations, and adaptations offers a complex picture of biochemical, biomechanical, and psychosocial involvements—deriving from an initial adaptation to stress—leading to a variety of health problems.

Resolution demands, among other things, breathing rehabilitation,[32] which has been shown to be best achieved by a combination of relearning diaphragmatic respiration, structural mobilization of the thorax, stress management,[33] and a lifestyle that encourages nutritional excellence, adequate exercise, and sleep.[34]



How Widespread is this Picture?

As mentioned, symptoms as diverse as neck and head pain, chronic fatigue, anxiety and panic attacks, cardiovascular distress, gastrointestinal dysfunction, lowered pain threshold, spinal instability, and hypertension (and this is not a comprehensive listing) might be directly caused, or more commonly aggravated and maintained, by habitual breathing pattern disorders—the most extreme version of which is hyperventilation.[35]

In the United States, as many as 10 percent of patients in a general internal medicine practice are reported to have over-breathing (hyperventilation) as their primary diagnosis.[36] Katon and Walker[37] estimate that fourteen common physical symptoms are responsible for almost half of all primary care visits. Yet, over a one-year period, only about 10–15 percent of these symptoms were found to be caused by an organic illness. Abdominal pain, chest

pain, headache, and back pain are commonly found to be medically unexplained.

Lum[38] reports, "During moderate hyperventilation, loss of CO_2 ions from neurons stimulates neuronal activity, causing increased sensory and motor discharges, muscular tension and spasm, speeding of spinal reflexes, heightened perception (photophobia, hyperacusis—extreme sensitivity to light and noise), and other sensory disturbances."

Primary care physicians find patients with medically unexplained symptoms frustrating, and these patients tend to be frequent attenders who account for a disproportionate amount of healthcare resources. Consequently, they are also common among frequent attenders in secondary care, where they present in most specialties. Reid et al.[39] examined the records of 361 patients who attended outpatients most frequently (i.e., the top 5 percent). In 208 of the 971 consultation episodes, after full investigation, their symptoms were medically unexplained.

Many of these individuals will choose complementary and alternative medicine, with massage high on the list. Massage therapists need to know as much as possible about the various influences that may be operating to drive the described symptoms, which often have no obvious medical cause.

The complex sequences of biochemical, psychological, and structural adaptations and compensatory changes involved in many such cases highlight the need for attention to be paid to causes. Part of such attention needs to focus on the causes of breathing pattern disorders themselves, since these, after all, are also symptoms.

Breathing Rehab, Anxiety States

Can such clients be successfully rehabilitated? The evidence suggests this is readily achievable through a combination of education of the individual as to what is actually causing the symptoms, what they can do about it (breathing exercises, relaxation, stress management, etc.), along with appropriate treatment to mobilize and relax tense, tight, restricted structures involved in the breathing process. Following are examples of such retraining.

1. In a study in the United Kingdom,[40] more than one thousand anxious and phobic patients were treated using a combination of breathing retraining, physical therapy, and relaxation. Symptoms were usually abolished in one to six months, with some younger patients requiring only a few weeks. Twelve months after the treatment ended, 75 percent were still free of all symptoms, 20 percent had only mild symptoms, and only about one patient in twenty had intractable symptoms. This very impressive 95 percent success rate was achieved without medication, purely by retraining the breathing and regular bodywork.

2. In another study,[41] the effects of breathing retraining were evaluated in patients who had been diagnosed with hyperventilation syndrome using various assessment tools, one of which—the Nijmegen questionnaire—is discussed later in this article. Most of the patients also met the criteria for an anxiety disorder, based on the presence of several stress-related complaints. Many symptoms could be reproduced by having the patient voluntarily over-breathe. This allowed them to realize that it was breathing that was causing the symptoms. Caution: it is never wise to attempt to reproduce symptoms in this way, unless in a medical setting where resuscitation equipment is available, as people have been know to pass out when voluntarily over-breathing during such tests.

The individuals were then taught (by a physical therapist) an abdominal breathing pattern and a slowing down of the exhalation phase of the breathing cycle. After breathing therapy between two and three months, all symptoms were significantly reduced. The research showed that the reduction in symptoms was mainly due to slowing down of the breathing rate—how many breaths were taken per minute.

Recognizing Clients' Breathing Problems

Garland[42] summarized the structural modifications likely to inhibit successful breathing retraining, as well as psychological intervention, until clients are at least in part normalized. Many of these can be observed and others palpated or assessed.

Garland described a series of changes including: "Visceral stasis/pelvic floor weakness, abdominal and erector spinae muscle imbalance, fascial restrictions from the central tendon via the pericardial fascia to the basi-occiput; upper-rib elevation with increased costal cartilage tension, thoracic spine dysfunction, and possible sympathetic disturbance; accessory breathing muscle hypertonia and fibrosis; promotion of rigidity in the cervical spine with promotion of fixed lordosis; reduction in mobility of second cervical segment; and disturbance of vagal outflow ... and more."

These changes, he states, "Run physically and physiologically against biologically sustainable patterns, and in a vicious circle, promote abnormal function which alters structure which then disallows a return to normal function."

The most obvious visual evidence of poor respiratory function is the raising of the upper-chest structures by means of contraction of the upper fixators of the shoulder and the auxiliary cervical muscles (upper trapezius, levator scapulae, scalenes, sternomastoid).

This is both inefficient as a means of breathing and is a cause of stress and overuse to the cervical structures. It is clearly evident when severe, but may require a deeper inhalation to show itself, if only slight.[43] Evidence of dysfunction is almost always accompanied by structural modification of muscle and other soft tissues, as well as joints, making the palpation skills of the trained bodyworker invaluable in assessing such clients. →

Treatment

Observe: The Hi-Lo Test[44]

- The client sits in an upright chair (ideally in front of a mirror so that the test can be self observed).
- One hand (of the client) should be placed on the upper abdomen and the other on the upper chest.
- Observe the hands as the client inhales and exhales several times.
- If on inhalation the upper hand (the one on the chest) moves first, and especially if it also moves upward toward the chin, rather than slightly forward, and if it moves significantly more than the hand on the abdomen, this suggests an upper-chest pattern of breathing, with many of the consequences previously listed, including possible weakness of the diaphragm.
- The ideal is to see the abdomen move forward during inhalation, with a slight outward movement of the upper hand toward the end of the in breath.

Palpating and Assessing Aspects of Respiratory (dys)Function

- The person to be evaluated should be seated.
- Stand behind and place your hands, fingers facing forward, resting on the superior aspects of the lower ribs, thumbs touching on the midline posteriorly.
- The person exhales to her comfortable limit (i.e., not a forced exhalation) and then inhales slowly and fully.
- Is there a lateral widening of the thorax and, if so, to what degree?
- Or do your hands seem to be raised upward on inhalation?

Your hands should not move superiorly at all, but ideally should move apart slightly. Pryor and Prasad[45] report that normal total excursion is between 3 and 5 centimeters (1.5–2 inches).

The hands should move apart, but they will rise if inappropriate breathing is being performed, involving the accessory breathing muscles and upper fixators of the shoulders (upper trapezius, sternocleidomastoid, scalenes, levator scapula).

These muscles should later be assessed for shortness and for other dysfunctional features such as the presence of active trigger points.

- Does one side seem to move more than the other? If so, local restrictions (ribs? thoracic spine?) or muscle tensions are probably involved.
- Is there evidence of paradoxical breathing?

Pryor and Prasad[46] report, "Paradoxical breathing is where some or all of the chest wall moves inward on inspiration and outward on expiration ... localized paradox occurs when the integrity of the chest wall is disrupted."

Pathological causes may include rib fracture, diaphragmatic paralysis, and cases involving chronic airflow limitation. Far more commonly the cause of this unnatural thoracic cage motion is habitual upper-chest breathing, with no pathology. While the person being evaluated continues to breathe slowly and deeply, you should try to assess continuity of motion in the inhalation/exhalation phases.

Observe any starting and stopping, asymmetry or apparent mal-coordination, and any unexpected departures from smooth mobility. These patterns can be compared with a more normal pattern that should emerge as breathing reeducation (combined with soft-tissue treatment/mobilization) proceeds over the next weeks and possibly months of retraining.

Scalene Overactivity Evaluation

- Rest your hands over the upper-shoulder area, finger pads lightly resting on the superior aspect of the clavicles.
- On inhalation, do the hands rise?
- Does either clavicle rise on inhalation?
- Neither the clavicles nor your hands should rise, except on maximal inhalation, if the individual is breathing diaphragmatically.
- If any of these palpated structures do move, scalene overactivity is implicated, and these muscles require further assessment for shortness and for the presence of trigger points.
- With the hands still in this position, assess whether one side moves more than the other. If so, local restrictions (clavicles, upper ribs) or muscle tensions may be implicated.

Observe the Upper-Trapezius Muscles as They Curve Toward the Neck

- Are they convex (bowing outward)?
- If so, these so-called "gothic" shoulders are very taut and probably accompany inappropriate breathing, lifting the upper ribs (along with scalenes, sternomastoid, and levator scapulae).[47, 48]
- Palpate these muscles and test them for shortness and the presence of trigger points.[49]

Upright Paradoxical Breathing Assessment

- Palpate the abdomen, with the person seated, as she inhales deeply.
- Does the abdomen (slightly) bulge on inhalation? If yes, this is normal.
- In some instances, breathing is so faulty that the abdomen is drawn in on inhalation and pushed outward on exhalation—further evidence of a paradoxical pattern.

Evaluation of Functionality of the Individual's Breathing Pattern

- Return to the first position, with your hands on the sides of the lower ribs.
- Feel the degree of contraction on exhalation.
- Does this seem to be a complete exhalation, or does the person not quite fully exhale before commencing the next inhalation? If so, this leads to retention of excessive levels of tidal air, preventing a full inhalation.
- Inhalation efficiency can be said to depend on the completeness of the exhalation.
- Now, ask the person to take as long as possible to breathe in completely.
- How long did it take? If less than five seconds, there is probably dysfunction.
- Next, after a complete inhalation, ask the person to take as long as possible to exhale, breathing out slowly all the time.
- This should also take not less than five seconds, although people with dysfunctional breathing status, or who hyperventilate, and those in states of anxiety, often fail to take even as long as three seconds to inhale or exhale.
- Time the complete cycle of breathing (inhalation plus exhalation): this should take not less than ten seconds in good function.

Supine Palpation

- The person should now lie supine, knees flexed.
- Lightly rest one of your hands just above the umbilicus and have the client inhale deeply. Does your hand move toward the ceiling (ideally, yes)?
- Are the abdominal muscles relaxed (ideally, yes)?
- Did your hand actually move toward the floor on inhalation (ideally, no)?
- If the abdomen rises, was this the first part of the respiratory mechanism to move, or did it inappropriately follow an initial movement of the upper or lower chest?
- Paradoxical breathing such as this involves the mechanism being used in just such an uncoordinated manner.

Breathing Wave Assessment

- Next, ask your palpation partner to lie prone.
- Observe the wave as inhalation occurs, moving upward in a fan-like manner from the sacral area toward the base of the neck.
- This wave can be observed by watching the spinous processes or the paraspinal musculature, or the "wave" can be palpated by a feather-light touch on the spine or paraspinal structures during respiration.
- Areas of the thoracic or lumbar spine restricted in their ability to flex will probably rise en bloc.
- A full breath, where the diaphragm is functioning normally, and where the spine is flexible, will be demonstrated by a wave-like movement—starting close to the sacrum and ceasing in the upper-thoracic region.[50]

The spinal and rib joints, and muscles of the region, should be assessed for restriction, shortness, and other evidence of dysfunction.

Signs

The following features should be observed when breathing function is being evaluated, whether in the presence of pathology, or of a habitual breathing pattern disorder.[51]

1. What is the resting respiratory rate per minute? Normal adult range is ten to fourteen per minute.[52]
2. Is the client a nose or mouth breather? Inhalation via the mouth is seldom appropriate.
3. With the resting breathing pattern, is there:
   - Upper-chest breathing, even with quiet breathing?
   - Accessory muscle overactivity (i.e., shoulders rise on inhalation)?
   - Frequent sighs/yawns?
   - Breath holding ("statue breathing")?
   - Abdominal splinting?
   - Air hunger (where an attempt to inhale seems almost strangled, as there has not been a full exhalation, limiting capacity for inhalation)?
   - Combinations of the above?
   - Repeated throat clearing/air gulping?

Any or all of these signs suggest over-breathing tendencies and should improve as breathing retraining proceeds.

Possible Features Associated with Upper-Chest Breathing

- Jaw, facial, and general postural tension, tremor, tics, twitches, bitten nails.
- Adaptive upper thoracic and shoulder girdle muscle changes (e.g., raised shoulders, protracted scapula).
- Kyphosis.
- Scoliosis.
- Kyphoscoliosis: chest wall abnormalities, for example, pectus carinatum (anterior sternal protrusion) and pectus excavatum (depression of the sternum).

Nijmegen questionnaire

Rare = less than monthly. Sometimes = more than monthly, less than weekly.
Often = at least weekly, but not daily. Very often = at least daily.

Nijmegen questionnaire

	Never 0	Rare 1	Sometimes 2	Often 3	Very often 4
Chest pain					
Feeling tense					
Blurred vision					
Dizzy spells					
Feeling confused					
Faster or deeper breathing					
Short of breath					
Tight feelings in chest					
Bloated feeling in stomach					
Tingling fingers					
Unable to breathe deeply					
Stiff fingers or arms					
Tight feelings around mouth					
Cold hands or feet					
Palpitations					
Feelings of anxiety					
		Total:	/64*		

* Patients mark how often they suffer from the symptoms listed. A score above 23/64 is diagnostic of hyperventilation syndrome.

Confirming Your Suspicions (Nijmegen Questionnaire)

The Nijmegen questionnaire provides a noninvasive test of high sensitivity (up to 91 percent) and specificity (up to 95 percent). This easily administered, internationally validated questionnaire is the simplest, kindest, and to date, most accurate indicator of acute and chronic hyperventilation.[54] This questionnaire is not diagnostic, but offers a strong indication that breathing is disturbed and that retraining (combined with appropriate bodywork) will assist in improving this.

The questionnaire enquires about the following symptoms and their intensity: constriction in the chest, shortness of breath, accelerated or deepened breathing, inability to breathe deeply, feeling tense, tightness around the mouth, stiffness in the fingers or arms, cold hands or feet, tingling fingers, bloated abdominal sensation, dizzy spells, blurred vision, feeling of confusion, or losing touch with environment.

The Nijmegen questionnaire takes no more than a minute or two to complete.[55, 56, 57]

If the signs and symptoms above are present—and if the assessment by palpation and observation suggests a breathing pattern disorder, and if the Nijmegen questionnaire confirms this—there is a very good chance that unbalanced breathing is aggravating the client's symptoms, and may be causing them. In this situation, breathing rehabilitation is called recommended.

A combination of breathing exercises/homework and bodywork should be part of beginning rehabilitation. Strategies that can help to normalize such a cascade of health problems have been shown in many studies to require (for optimum results) a combination of breathing retraining and physical medicine interventions that focus attention on mobilization of the thoracic cage, diaphragm, and normalization of length and strength of the accessory respiratory muscles (including trigger point deactivation).[58]

Reducing levels of apprehension, anxiety, and fear may be seen to have the potential for encouraging improvement in breathing patterns and all the negative symptoms that flow from these.

Breathing retraining is one way of achieving this objective. There is good evidence that breathing rehabilitation is a useful method for achieving reduced anxiety/panic levels and for improving postural control and somatic complaints, such as low-back pain and chronic fatigue.[59, 60, 61, 62]

Over-breathing habits and tendencies can usually be corrected by breathing retraining. →

Pursed Lip Breathing—The Start of Retraining

One of the best ways to retone the diaphragm and retrain breathing is to use a slow exhalation pattern, breathing out through your mouth with the lips pursed into as narrow an aperture as can be managed (as though blowing out through a drinking straw).[63]

- Sit or lie and place a hand on your abdomen and the other hand on the chest to monitor the movement of the diaphragm as you inhale after the long, slow exhalation described below (your abdomen should move forward as you breathe in, if your diaphragm is working correctly).
- Breathe in through the nose (two to four seconds) and very slowly out through the mouth with pursed lips.
- This out breath should take anywhere from four to eight seconds.
- Repeat this not less than thirty times, twice daily, to begin the process of rehabilitating your diaphragm.
- To encourage pursed lip breathing, you might imagine that you are a) blowing through a straw, b) blowing slowly and steadily at a candle to make it flicker but not go out, or c) slowly blowing up a balloon.

Note: the action of slow, controlled exhalation against resistance (which is what is happening with pursed lip breathing) is an example of an isotonic eccentric contraction. The diaphragm is being asked to work harder (by creating the force with which you are blowing), at the same that it is relaxing from its contracted position (which it achieves during inhalation).

Additional exercises are probably needed; however, this is a good exercise to start with.

The Manual Therapy Side of Rehabilitation

The possible treatment sequence outlined below is one I have found effective in treating many clients with breathing pattern disorders; however, each individual requires a slightly different approach, and so the outline given should be seen as no more than a framework.

Some of the elements of this protocol have been discussed in this article, and details of others can be found in books such as *Multidisciplinary Approaches to Breathing Pattern Disorders* (Churchill Livingstone, 2002) and *Maintaining Body Balance, Flexibility & Stability* (Churchill Livingstone, 2004).

Possible Treatment Sequence

Research and clinical experience suggests that treatment and retraining for chronic breathing pattern disorders commonly involve up to twelve weekly sessions, followed by treatment every two to three weeks, up to approximately six months.

Note: an educational component should be included at each session to help the client's understanding of the condition and why the homework that is being suggested is necessary.

First two treatments (not less than weekly). Focus on the upper fixators/accessory breathing muscle (upper trapezius, levator scapulae, scalenes, strenocleidomastoid, pectorals, latissimus). Release/stretch if hypertonic and identify/deactivate active trigger points.

Diaphragm area (anterior intercostals, sternum, abdominal attachments costal margin, quadratus lumborum/psoas)—release and stretch if hypertonic and deactivate active trigger points.

Retraining—pursed lip breathing/control (as described above) and possibly additional breathing exercises.

Sessions (weeks) three and four. Perform as above, as well as mobilization of thoracic spine and ribs (with attention to lymphatic drainage).

Pay attention to fascial and osseous links (cranial, pelvic, limbs).

Retraining—antiarousal breathing, plus specific relaxation methods, stress management, autogenics, visualization, meditation, counseling.

Sessions (weeks) five to twelve. Follow the protocol above, plus other body influences (ergonomics, posture).

Retraining—additional exercises as needed.

Sessions (weeks) thirteen to twenty-six. Review and treat residual dysfunctional patterns/tissues as indicated: nutrition, psychotherapy, plus adjunctive methods such as hydrotherapy, tai chi, yoga, Pilates, massage, acupuncture (in many instances, these elements are introduced earlier in the course of treatment—particularly tai chi). →

Starting the Process

There is probably no more important an issue for massage therapists to give attention to than breathing function and dysfunction. It impacts on almost all aspects of health and of the majority of symptoms for which people seek help—pain, fatigue, and general unwellness. Hopefully, this summary has offered useful insights as to what can be done and how to start that process. M&B

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