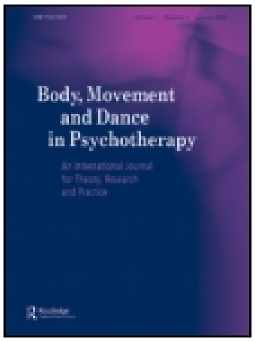

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THEORETICAL ARTICLE

Breathwork in body psychotherapy: Towards a more unified theory and practice

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The use of conscious breathing practices for the purpose of physical, psychological, emotional, and spiritual healing has a long and extremely varied history, yet little work has been done to see if these practices can be brought into a coherent and unified form that contributes to the field of body psychotherapy. This article attempts to meta-analyse the literature and research on breathwork in psychotherapy, with an emphasis on body psychotherapy, and to find common themes so that a general theory of breathwork and guidelines for practice might be developed. This paper provides an overview of the physiology of breathing, a review of the literature on breathwork.

Keywords: breath; breathwork; body psychotherapy; conscious breathing; breathing therapy

Introduction

Conscious breathing practices have likely been used as healing agents since before recorded history. Working with breath in body psychotherapy (BP) also enjoys a long and rich history (Lowen, 1975; Reich, 1949; Smith, 1985; Totton, 2002), with the assumption that breathwork can resolve psychological pain, soften character armour, release tension in the body, and create a sense of embodiment and equanimity (Benz & Weiss, 1989; Braddock, 1995; Christiansen, 1972; Keleman, 1985; Rosenberg, Rand, & Asay, 1985). Many BP clinicians use breathwork interventions in their approach, and these approaches vary widely, from using breath as a way to charge up the body for physical and emotional processing, to using breath to calm and centre a dangerously activated client. Conscious breathing practices have also been used to help couples connect somatically to one another (Hendricks & Hendricks, 1993), to assist in recovering from trauma (Ogden, Minton, & Pain, 2006), to promote sensory awareness (Fogel, 2009), and to access altered states of consciousness for healing purposes (Grof, 1985).

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In addition, breath has been used diagnostically to assess physical, emotional, psychological, cognitive, and spiritual disorders (Hanna, 1988; Lowen, 1975; Reich, 1949; Smith, 1985). In many BP traditions, specific breathing patterns are seen as indicative of character structure, general vitality, muscle tension and blockages, emotional state, capacity for mindfulness, and trauma (Keleman, 1985, 1987; Kurtz & Prestera, 1976; Levine, 1997).

Dysfunctional breathing patterns are seen as both a cause and a result of physical, psychological, and behavioural states and attitudes. Dysfunctional breathing tends to be defined broadly, as a general lessening of the volume of air exchange, to hyper-tonicity or hypo-tonicity of the breathing muscles, to inspiration being confined to the upper chest, to a lack of graceful flow from inhale to exhale, and to disturbances in the rate of breathing (Braddock, 1995; Chaitow, Bradley, & Gilbert, 2002; Christiansen, 1972; Fogel, 2009).

The specific clinical strategies of conscious breathing in BP tend to spread out along a continuum from a quiet and mindful awareness of breath to myriad reparative breathing practices taken from yogic, tantric, and bodywork traditions, the use of touch, and all the way to intense over-breathing as a means of accessing and working through body blockages (Caldwell, 1997; Grof, 1985; Johanson & Kurtz, 1991; Lowen, 1975; Smith, 1985). At times there are differing opinions among practitioners as to the efficacy and advisability of different breath practices in BP (Levine & Macnaughton, 2004), citing concerns about dissociation and re-traumatisation.

Given the variety of both the theories and practices espoused for using breath in body-centred psychotherapy, plus the maturation of the field as it navigates the neuro-scientific twenty-first century, a meta-analysis of the use of conscious breathing in BP may be called for. The three research questions that inform this meta-analysis are:

(1) What is the relationship between what we currently know about the physiology of breathing and the psychology of breathing?
(2) What exactly are the various claims for the healing effects of breathwork in BP, and how can we assess their accuracy?

A further rhetorical question the field of BP could ask is if we, as theoreticians and clinicians, have the courage to expose our assumptions and beliefs about breathwork to the rigors of critical thinking and current research, so that we might let go of outdated ideas we may have inherited from our mentors, as well as refine elements of practice that have been shown to be essentially sound.

This article, will attempt to answer the first two questions concerning physiology and psychology as well as current understandings of breath functionality and dysfunctionality. The third (rhetorical) question will be answered by the BP community. This meta-analysis will begin by reviewing current knowledge of the anatomy and physiology of breathing from several fields, as it can inform clinical theory building. It will then look at BP and related literature to assist in creating a thorough picture of what this field believes and does regarding the use of breathwork to ameliorate poor breathing habits.

For the purposes of this paper, breathwork will be defined as a clinical intervention that deliberately attends to and/or alters normal breathing for therapeutic purposes. Conscious breathing will be defined as the act of becoming aware of one's breathing, often for the purpose of altering it, which is often an essential component of breathwork.

The anatomy and physiology of breathing

Normally, we breathe around 18 times a minute, 1080 times an hour, and 25,840 times in a day, whether we are conscious of it or not (Middendorf & Roffler, 1995; Nakamura, 1981; White, 1997). When breathing is unconscious, it relies on imprinted patterns, and these patterns are both genetically inherited as well as learned in early development. Genetic imprints help breathing adapt to the ever-changing metabolic needs of the body. Learned breathing imprints begin in utero as the foetus swims in synch with its mother's audible and felt breath. These initial rhythms are strongly reinforced post-natally in interactions with caregivers: the caregivers being 'external psychobiological regulators' of the baby as he or she is held, nursed, and cuddled, with the baby's body directly picking up on and attuning to the parental breath that it feels along its whole length (Schore, 1994).

When breathing becomes conscious, it tends to alter: attention changes it (Gilbert, 2002). Clues to the importance of conscious breathing as a therapeutic practice abound in a basic review of the anatomy and physiology of respiration. It is generally understood that we breathe because we need oxygen from the air, oxygen being a basic fuel source for virtually all metabolism in the body. Without sufficient amounts of oxygen, we die within minutes. Less appreciated but of equal importance is the fact that we need to exhale in order to off-gas the waste products of metabolism, largely carbon dioxide (CO_2). If CO_2 builds up in our blood to critical levels our death is also assured, though this takes hours rather than minutes. However, stores of CO_2 in muscle and bone are maintained at a level much higher than the O_2 or nitrogen levels. If these CO_2 stores become depleted, the body is taking in more oxygen than our metabolism needs (Lowry, 1967).

Even less generally known is that the balance or ratio of oxygen to carbon dioxide in the blood also regulates (and is regulated by) critical functions in the body, functions such as pH balance, blood sugar levels, blood pressure, waste metabolism, and the autonomic nervous system's (ANS) balancing of its sympathetic and parasympathetic branches. The balance of sympathetic excitation and parasympathetic relaxation in turn influences such critical activities as Heart Rate Variability (HRV), stress hormone levels, muscle tension levels, panic attacks, and sleep apnoea. The relative functionality or dysfunctionality of these bodily activities predict many types of illness, from auto-immune disorders, to diabetes, heart disease, and even some cancers (Fokkema, 1999; Gilbert, 2002; Nakamura, 1981; Vassilakopoulos, Roussos, & Zakynthinos, 2004). Increasingly, it is becoming evident that how we breathe can strongly influence our physical health, both on a short and long term basis.

Anatomically, inhaling activates the diaphragm muscle, usually with help from the posterior intercostals. In times of greater metabolic need, such as exercise and mobilising towards perceived threat, we also tend to recruit muscles in the neck (scalenes, sternocleidomastoid). The diaphragm muscle, that beautiful dome just below the lungs, has characteristics of both smooth and skeletal muscle, thus giving it a somewhat unique capacity to operate both consciously and unconsciously. The smooth muscle features allow us to keep breathing while asleep, distracted, or unconscious. The skeletal muscle portions permit us to alter our breath at will (Mattsson & Mattsson, 2002). This feature may clue us in to one of the main reasons why breath can be so important in both psychotherapy and in spiritual traditions: it straddles conscious and unconscious processing, creating a bridge between them (Boerstler & Kornfeld, 1995; Chaitow et al., 2002; Farhi, 1996; Holmes, McCaul, & Solomon, 1978).

On the inhale, the lungs expand as a result of the contraction of the diaphragm. This lung expansion decreases internal air pressure in relationship to external air pressure, and that pulls outside air in to equalise the two. During exhalation the diaphragm and inter-costal muscles relax, and that compresses the thorax, increasing air pressure and allowing air out of the lungs.

This shows us that inhaling takes work: we have to contract the diaphragm and intercostals to bring in life-giving air. By contrast, a normal exhale requires the opposite: it requires us to let go of effort. The most efficient exhale recruits gravity to empty the lungs of much (but not all) of their air. Certainly when we are exercising or under stress, we tend to need to actively push out air (via lateral intercostals and abdominals, often aided by muscles in the neck). But under most conditions we have to learn to let go when we exhale. In normal breathing conditions, the inhale slightly activates the sympathetic nervous system, causing a slight increase in arousal, and exhaling activates the parasympathetic system, facilitating relaxation[1]. Breathing then, this simple life-giving act, oscillates between effort and the release of effort, arousal and rest, actions fraught with psychological significance.

To put breath physiology into more gaseous detail, if body activity stays the same, an increase in breathing will increase the rate of CO_2 diffusing from the blood into the lungs. This can cause the CO_2 concentration in the blood to fall, which will cause the acid level of the blood to drop, and its pH will become alkalotic (too alkaline). Alkalosis often leads to muscle spasm, tetany, anxiety, and panic (Fried, 1987; Lowry, 1967; Nakamura, 1981; Rhinewine & Williams, 2007), with Nakamura noting that when the pH exceeds 7.60, hyperventilation tetany takes place. If breathing is depressed, CO_2 concentrations in the blood will rise, causing the acid level to rise, and the pH of the blood will become more acidic. As was noted before, chronic alkalosis or acidosis can both cause long-term harm to physical well-being.

Farhi (1996) states that relaxed breathing enhances the immune system, assists in the absorption of nutrients and proteins, supports bone growth, and boosts overall cellular health in the body. In addition, it is believed that balanced breathing sustains circulation, maintains mental clarity, strengthens organ function, and provides pain relief (Boerstler & Kornfeld, 1995). Balanced breathing in this sense is defined as a relationship between the inhale and the exhale such that an appropriate blood pH is maintained. Farhi (1996) also emphasises that good breathing increases physical energy and mental concentration via the oxygenation of all our cells, and asserts that using specific breathing practices in conscious ways has been shown to ease migraines, lessen chronic pain, assuage panic attacks, and lower symptoms of asthma. Perri and Halford (2004) found that conscious breathing reduces chronic pain.

Unfortunately, very little research has been done on the psychological effects of acidosis and alkalosis, though it may be possible to make some inferences via research done on the stress response. In healthy individuals who are not under stress, the autonomic regulators of breathing will exquisitely modulate or balance O_2 and CO_2 levels so that optimal pH is maintained. Chemoreceptors in the main arteries monitor oxygen and carbon dioxide levels in the blood. If oxygen levels are decreased, these chemoreceptors alert the brain to increase inspiration. If carbon dioxide levels increase, the body releases carbonic acid into the lungs, creating hydrogen ions to circulate in the body, which alerts the brain to increase respiration (TeachPE.com, 2009).

Because breathing can be both voluntary and involuntary, it is influenced by both physiological and psychological states, both of which govern and are governed by stress responses. As Ronald Ley puts it (in Chaitow et al., 2002):

> Breathing is exquisitely sensitive to stress. Apneusis[2], apnea[3], and hyperventilation occur in different stages of the respiratory response to stress, depending on the quantitative and qualitative nature of the stress. While apneusis and apnea are limited to relatively brief periods by physiological barriers that cannot be overridden, hyperventilation is not. Additional complications result from the fact that breathing is the only vital function under voluntary as well as involuntary control. Although voluntary control is limited by physiological mechanisms, the breathing behavior within these limits can be modified by learning. The condition-ability of breathing behavior has a negative and a positive side. The negative side is that unhealthy dysfunctional habits of breathing can be acquired. The positive side is that bad habits can be extinguished and replaced with good habits (p. x).

The involuntary function of breathing is controlled through respiratory centres in the brain. According to Fried and Grimaldi (1993), there is a circuit organised by the vagus nerve yielding an inspiration phase and expiration phase which are considered two separate events controlled by two separate nervous system mechanisms. In normal breathing patterns, these two mechanisms in the brain work in concert with each other, yet in certain circumstances, such as high stress or high emotional arousal, these two brain areas work independently. Efferent nervous system signals, or the messages leaving the brain going to the body, create the inhale, and those signals must be inhibited to allow the exhale to happen. These nervous system signals are what control the diaphragm and other respiratory muscles.

We can say with assurance that humans have what we might call a physical unconscious (involuntary or autonomic processes). The activities of the ANS, all those rumblings of metabolism and homeostasis and even emotional processing that occur below conscious attention and will, structurally and functionally locate the physical unconscious (LeDoux, 1996). One of the most intriguing questions that studying the breath generates is a curiosity about the relationship between the physical and psychological unconscious, and how breathing might straddle and bi-directionally influence both.

'Good' and 'bad' breathing

Conger (1988) echoes our understanding of breath physiology when he asserts that good breathing establishes a rhythmic flow inside the body that, if allowed to move freely, will regulate the body's and the mind's health even in times of stress and pressure. Good breathing, however, looks different depending on the needs of the body in a particular situation. The body will demand different levels of respiration depending on its activity and arousal level. 'Optimal breathing, therefore, is what the body seeks continuously, with its various sensing systems and its ability quickly to adjust breathing depth and rate... What may be optimal for the organism at a given moment, at a certain level of exercise and arousal, may not be so optimal in the next few moments if action is demanded' (Gilbert, 2002, p. 112). The brain will adjust respiration according to the body's need for oxygen. For example, during pregnancy, a woman will breathe more shallowly but at a faster rate to compensate for her decreased lung capacity.

Physiologically, then, a good breather looks like one whose breathing rate, pattern, and tidal capacity are appropriate to the body's changing needs. When the breath does not match physiological needs, often for psychological reasons, BP tends to assert that the relationship between body, mind, and emotions becomes imbalanced. For instance, Levine and Macnaughton (2004) have placed breathing on a continuum from hypoventilators, those who habitually under-breathe, and the opposite pole hyperventilators, or those that habitually over-breathe. Chaitow, Bradley, and Gilbert (2002), noting that breathing principles cut across mind-body borders and that it is virtually impossible to separate psychological from physiological features in normal and unbalanced breathing, feel that hyperventilation occurs as compensation for blood acidity or for feelings of helplessness, or both. They also assert that emotion can alter, and be altered by, changes in the pH of the blood. It is likely that breathing is largely modulated by our experience of emotion, expectation, anticipation, social interaction, and physical exertion.

Gilbert (2002) mentions that the breath is commensurate with attention. Smooth and balanced breathing facilitates focused attention and allows the mind to attend to a situation, assisting in good decision-making. Gilbert (1999b) also asserts that emotion affects breathing and body regulation. He notes that unbalanced breathing can upset homeostasis because it often de-synchronises with the needs of the body, especially when strong emotion is present:

> Emotional input to the respiratory system is often at odds with the degree of muscle activity, thereby disrupting the matching of breathing to actual metabolic needs... Research on the consequences of this mismatch are described in connection with the occurrence of coronary vasospasms and angina, effort syndrome, respiratory sinus arrhythmia, cardiac rehabilitation and functional cardiac symptoms (p. 215).

Both researchers and clinicians seem to agree on the physiology of a 'good' breath, which tends to be called a balanced breath (Gilbert, 2002; Lowen, 1975; Middendorf & Roffler, 1995; White, 1997). Balanced breathing occurs as an inspiratory wave that travels through the length of torso but also moves from side to side and back to front (three-dimensionality). This wave involves a long, slow, deep inhale that starts from the belly. Exhaling involves the gentle art of letting go, resting all but the tiny postural muscles wrapped around the spine (when vertical). There is a natural pause at the end of the exhale before the next inhale is 'inspired' to begin.

In discussing breathing from the belly, Lowen and Lowen (1977) say:

> Here is where our deepest desires have their inception. If you are intent on suppressing your feelings, keep your belly tight. But then you must accept the fact that you will not be a vibrantly alive person. And if you complain of an inner emptiness, you should realise that you are blocking your own fullness of being (p. 26).

It is also thought that a good breath massages internal organs in a way that promotes health, and that deep breathing releases endorphins into the bloodstream (Mattsson & Mattsson, 2002; Nakamura, 1981). Middendorf and Roffler (1995) feel that to be a good breather we also want to get to a point where our breathing is conscious, yet independent of our will.

Alexander Lowen felt that releasing the diaphragm muscle and allowing more breath to flow into the body creates health, wellbeing, and a sense of pleasure and contentment. He felt that sleep contributed to this diaphragmatic release, noting that the quality of breathing during sleep:

> becomes deeper and more audible, its rhythm slower, more even. This change is the result of the release of the diaphragm from the state of tension in which it is held during daytime activities . . . The same diaphragmatic release occurs when we fall in love or have an orgasm . . . The key to this phenomenon is the release of the diaphragm, allowing a strong excitation to flow into the lower part of the body. This becomes clear to us when we realise that holding one's breath in these activities introduces anxiety and destroys the pleasure (Lowen, 1975, pp. 222–223).

Keleman (1985) has written extensively on breathing. He notes that breath is one of many pulsating rhythms that define and animate the tubes, spaces, and motility of the body:

> The whole organism is a pulsatory pump . . . the organism becomes a series of special layers that permit expansion and contraction at certain frequencies and amplitudes for the circulation of fluids, gases, ions. Just as brain pulsations maintain pressure to circulate cerebrospinal fluid, so does the diaphragm function to support internal pressure for the exchange of gases. Tubal motility establishes each person's ongoing form and provides his basic feeling of identity (pp. 2–3).

When breathing is disordered, anxiety or panic tends to occur and interferes with cognitive processes like decision-making. Disordered breathing might look like an increased variability of the breathing pattern from breath to breath. According to Gilbert (2002), respiratory patterns vary according to emotional state. Sighing and increased depth or rate of breath is found mostly in anxiety and sometimes during anger. Irregular respiratory patterns are associated with anger, guilt, or deep, weeping sadness. Hyperventilation associated with panic or anxiety creates lower levels of CO_2 in the blood, often leading to decreased attention and mental impediment. Loss of concentration, loss of memory, poor coordination, distraction, lower reaction time, and lower intellectual functioning are all associated with low CO_2 (Gilbert, 2002). It is clear that the physiology and psychology of breathing are inextricably intertwined when Chaitow, Bradley, and Gilbert (2002) also state that:

> Feeling anxious produces a distinctive pattern of upper-chest breathing, which modifies blood chemistry, leading to a chain reaction of effects, inducing anxiety, and so reinforcing the pattern which produced the dysfunctional pattern of breathing in the first place (p. 2).

Posture has also been cited as a factor in the efficiency and patterns of breathing. Body psychotherapy tends to operationalise posture as a function of personality or character structure, noting, for example, the inflated or collapsed chest as indicative of certain character strategies (Keleman, 1985; Kurtz & Prestera, 1976; Lowen & Lowen, 1977). Kuchera and Kuchera (1997) describe what they consider to be ideal posture for breathing efficiency as involving normal foot arches, vertical alignment of the ankles, and a horizontal orientation of the sacral base. This results in an optimal distribution of weight around ones centre of gravity, which in turn predicts ease of breathing.

According to Fokkema (1999), strained breathing is created from reduced airflow due to tension in the larynx and throat. It occurs naturally and is precipitated by concentrated attention, social factors, expectations, anxiety, or defensive behaviours.

'In stressful circumstances, muscle tension and laryngeal reflexes induce a strong reduction of airflow in the glottis, resulting in a prolonged Stage 1 of expiration and an elevated intrathoracic pressure' (Fokkema, 1999, p. 164). However, Vassilakopoulos, Roussos, and Zakynthinos (2004) find that strained breathing can result from asthma, chronic obstructive pulmonary disease, or intense exercise rather than social determinants and that it could create increased immune responses. Regardless of the cause, strained breathing and reduced airflow can take a toll on the immune system, lessening the body's ability to fight illness. Strained breathing may contribute to physical complications such as cardiovascular problems and sleep apnoea. Studies show that it induces blood pressure changes and sinus arrhythmia (Fokkema, 1999). Another study showed that children with relatively mild sleep-disordered breathing have a higher prevalence of problem behaviours, most notably externalising and hyperactive behaviours (Rosen, Storfer-Isser, Taylor, Kirchner, Emancipator, & Redline, 1994).

According to Levine and Macnaughton (2004), there are concerns and precautions that therapists need to be aware of when working with clients and breathing. In a sense we could say that there may also exist good and bad breathing practices initiated by a therapist with his or her client. For instance, in therapies that involve hyperventilation, the resulting over-breathing can create alkalosis and decreased carbon dioxide levels in the blood. The muscle spasms, dizziness, tingling, and numbness caused by hyperventilation alkalosis are often harmless, according to Rhinewine and Williams (2007), but are usually interpreted by individuals experiencing these symptoms as serious and alarming. Levine and Macnaughton (2004) disagree that symptoms of alkalosis are benign and state that hyperventilation could reactivate remitted symptoms in clients with autoimmune disorders and chronic illnesses. They also assert that in diabetic or hypoglycaemic clients, over-breathing can cause blood sugar to drop. It might also hasten a heart attack in those with heart conditions and could lead to an increased spreading rate of cancer (Levine & Macnaughton, 2004).

Understanding hyperventilation further, Fried (1987) has stated that most people that experience chronic hyperventilation are also suffering from emotional and psychophysiological disorders, such as anxiety, panic, and depression. Psychologists and physiologists have been studying 'overbreathing' and its symptoms as far back as 1908 (Fried, 1987). According to Lowry (1967), the physical appearance of breathing quickly does not signal hyperventilation. Hyperventilation happens when the cells lose their CO_2 stores and the lungs supply more oxygen than the body's metabolic rate requires. The resulting physical symptoms of hyperventilation include numbness, tingling, muscular twitching, weakness, tightness in the chest, tightness in the throat, stiff joints, loss of coordination, and vertigo, and are often mistaken for organic physical disorders. Emotional symptoms of hyperventilation are often cited as involving anxiety, decreased concentration, irritability, and emotional stress. 'For the most part, the chronic hypervenilator is a type prone to anxiety and any number or combination of extended arousal-related somatic and psychological disorders, including panic, phobia, depression and so forth' (Fried, 1987, pp. 71–72).

Fried (1987) also writes that hyperventilation syndrome often goes unnoticed or undetected by mental health professionals and is typically seen as secondary to a more serious mental condition. He even highlights that the Diagnostic and Statistic Manual of Mental Disorders, third edition (DSM III) symptoms list for panic disorder are an incomplete list of hyperventilation symptoms. Because of the prevalence of anxiety disorders, Fried (1987) suggests that clinicians consider breathing retraining for clients who are presenting with hyperventilation symptoms. Fried agrees with Lowry (1967) that patients who exhibit chronic hyperventilation may not show signs of exaggerated chest movement, but may exhibit quick shallow breathing and frequent sighing.

Fried (1987) maintains that people with hyperventilation syndrome form a feedback loop with their somatic symptoms and create more anxiety for themselves. He states, 'Thus, in the Pavlovian sense people who suffer from the hyperventilation syndrome are . . . a somato-autonomic type. And both their reaction to the world, stress, and hyperventilation and their reaction to the effects of that hyperventilation form a *closed loop*, where components of the system become indistinguishable once the cycle is set into motion' (p. 72).

Many patients with hyperventilation syndrome visit emergency rooms often for their many physical symptoms. Fried (1987) suggests teaching client's diaphragmatic breathing or control of respiration into the abdomen to reduce

O_2 consumption, CO_2 expulsion, and the rate of respiration. He also discusses the use of yogic techniques and transcendental meditation to reduce breathing rates, lower anxiety levels, and increase concentration in patients that present with hyperventilation. He emphasises breathing through the nostrils with a closed mouth in order to support a slower breath and states that, 'typically, one cannot hyperventilate easily when breathing through the nose' (Fried, 1987, p. 95).

Fried and Grimaldi (1993) also warn clinicians to take into account client's breathing patterns as signs of not only psychosomatic conditions such as hyperventilation syndrome, but also of very real physical conditions. 'It is exceptionally imprudent for the clinician to dismiss any physical symptom as psychological, or psychosomatic, because in the end, all physical symptoms have an organic basis irrespective of their aetiology, with consequences that cannot be ignored. Thus, while a client may hyperventilate, an underlying diabetic, thyroid, cardiac, or seizure disorder may be etiological' (Fried & Grimaldi, 1993, p. 106).

At the same time, Levine and Macnaughton (2004) describe the dangers of hypoventilation, and assert that over time under-breathing will cause acidosis and hypoxia (insufficient oxygen) in the bloodstream. Hypoxia most often occurs as a result of holding tension in the diaphragm, though this tension could be created by many different factors, and patterns of under-breathing might show up differently for different clients (Levine & Macnaughton, 2004).

The body seems to take on physical consequences of breathing patterns that are imbalanced and that do not support its needs. Dysfunctional breath patterns such as shallow breathing, hyperventilation, strained breathing, hypoventilation, and breath holding have been shown to affect one's levels of anxiety, depression, difficulty relating interpersonally, immune responses, and/or physical problems (Fried, 1987; Fried & Grimaldi, 1993; Gilbert, 1998, 2002; Levine & Macnaughton, 2004; Lowen, 1975; Lowry, 1967; Masaoka & Homma, 1997; Vassilakopoulos et al., 2004). 'Behavioural medicine, or behavioural psychology, whichever you prefer in describing the reciprocal relationship between psychological and physical health, requires this integration and synchronisation of physical and emotional factors. And many practitioners have come to realise that breathing may be the fulcrum for the balancing act that we call health' (Fried & Grimaldi, 1993, p. 304).

Conclusion

It seems important that a therapist have training that will allow him or her to accurately assess a client's breathing patterns, both at rest and under stress, so as to accurately design breath interventions that keep the client modulated and regulated, while also teaching more healthy breathing patterns. Because breathing patterns are at least partly socially learned, therapists must also be aware of the intersubjective field of the breath. In other words, the therapists breathing patterns can influence and be influenced by the client's breathing, as an effect of physiological co-regulation that occurs in the therapeutic relationship. Lastly, as clinicians we may be able to understand the intergenerational transmission of breathing patterns via infant body to body attunement with its caregivers as just as relevant as the intergenerational transmission of attitudes, biases, beliefs, and trauma. Because a client likely enters therapy with unexamined breath patterns that are literally creating physiological states that put the body on high alert and thereby create perceptions about how safe or unsafe, welcoming or unwelcoming, the world is, it may behove us as clinicians to first teach our clients balanced and conscious breathing practices. By doing so, we can help the client's physiology to balance, thereby decreasing distress signals that the physiology might send to the emotional and cognitive processing centres of the brain.

Notes

1. For an extremely detailed description of the anatomy of respiration, please consult Kapandji (1974).
2. A brief stopping of breath during inhalation *(footnote the author)*.
3. A brief cessation of breathing *(footnote the author)*.

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