

**Hello all,**

Welcome to the March *COHERENCE Newsletter*. This month I'm trying something a little different. In the last while, I've received a few requests for a *Coherent Breathing* "brochure", something that therapists and clinicians can provide to their clients. I've also had the pleasure of speaking with a few you who've been wondering how to get the most out of the practice, either for your clients or yourselves. So, with this newsletter I'm going to try to address both objectives: page 2 is optimized as a handout for clients, and page 3 as a "brief" for therapists and clinicians.

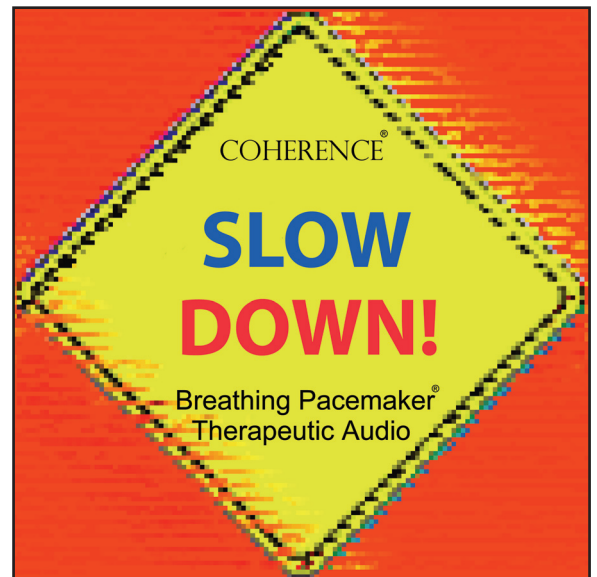
Before we begin, I'd like to entertain a couple of points arising from last month's letter, *The Tai Chi Diaphragm*. Thank you for your questions and comments.

1) "Your article, *The Tai Chi Diaphragm*, makes a nice argument for breathing playing a central role in *physiological* homeostasis. In *psychological* circles, we tend to think of homeostasis as the resolution of some mental or emotional energy. It seems that we are coming to understand that the two are inextricably linked." [Yes, I agree. There is so much more to understand about the relationship.]

2) "On page 3 of your March newsletter you state that "during inhalation both heart and enteric nervous systems "relax", allowing the diaphragm to do the work". Yet, its well established that during inhalation heart rate increases. Am I missing something?" [During inhalation, the heart's primary job is shuttling blood into the low pressure zone of the lungs. Here I'm referring to the fact that downward movement of the diaphragm results in a relatively negative thoracic pressure, on the order of 10cm/H<sub>2</sub>O below "normal", ushering venous blood flow through the right heart. Contrast this to the job the right heart has to do to fill the lungs under "normal pressure", i.e. that of very shallow breathing. This being said, clearly the heart's "power stroke" occurs on exhalation, where the left heart moves blood from the lungs into the high pressure arterial tree. In principle, the action is consistent with other mechanical actions of the body, for example raising and lowering a dumbbell, where power is exerted when raising and relaxation occurs when lowering. This being said, if we're not inhaling and exhaling deeply, more power must be exerted by both right and left heart on a continuous basis. Under these circumstances, heart rate variability amplitude is low.] Pages 2 and 3 follow....

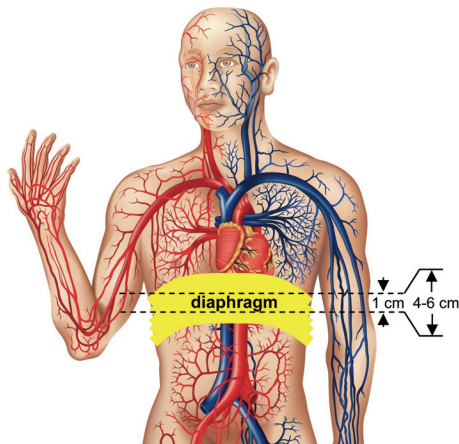
I hope you find them of value. Thank you for your interest and consideration.

Stephen Elliott, COHERENCE



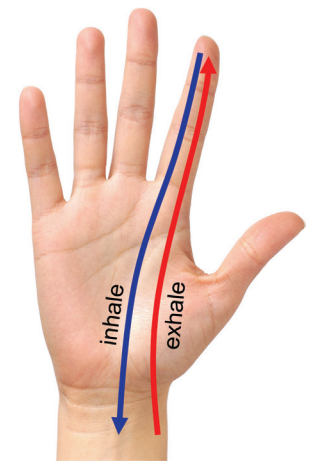
SLOW DOWN! A New CD  
By COHERENCE

It's been known for thousands of years that breathing is *key* to health, performance, and longevity. We're just beginning to understand why – breathing has much to do with “circulation”, *both quantity and quality*. Typically, when we're



at rest, blood in the body circulates once each minute; when we're exercising this can increase to six times per minute (Medical Physiology, Guyton & Hall, 2002). While we have yet to quantify it, blood flow during **Coherent Breathing**, even though we may be resting or semi-active, is somewhere in between. This increase in blood flow is principally a function of the “thoracic pump” which is powered by the “diaphragm”, the large sheath of muscle separating the lungs and heart from the digestive organs. The thoracic pump draws blood from the extremities on inhalation and sends blood throughout the body on exhalation. This wave like action, known as “the respiratory arterial pressure wave” is visible in the fingers, where (using the right instrument) we can see

the fingers filling with blood during exhalation and emptying of blood during inhalation. Possibly more importantly, the work performed by the diaphragm, a large strong muscle, off-loads the work performed by the heart and vascular system, moving more blood, and at the same time giving the heart much needed rest! Of course, over and above circulation, breathing is about “gas exchange”, the intake of oxygen and the output of carbon dioxide. Respiration and circulation are the mechanisms by which gas exchange occurs. Better breathing and better circulation result in better gas exchange. Ultimately circulation and blood flow are a function of the central nervous system which carefully monitors our biological status.



When we're breathing “coherently”, the nervous system “relaxes”, and when it does both body and mind follow. This can be observed using instruments that measure electrical activity in the brain, the muscles, and the skin. Central nervous system relaxation yields many psychological and physiological changes including mental and physical comfort, better communication, better performance, better sleep, etc. The typical adult breathes erratically, using about 10% of available diaphragm range. This breathing pattern yields enough gas exchange and blood flow for us to “survive” but not to *thrive*. Our goal is to learn to employ 40-60% of diaphragm range in a rhythmic fashion.

Fast, Shallow, Irregular	Breathing	Coherent Breathing
Decreased	Blood Flow	Increased
Tense	Muscles	Relaxed
Discomfort	Body	Comfort
Anxious	Mind	At Ease
Challenging	Learning	Natural
Troubled	Sleep	Restful

The practice is quite simple, but at the same time very specific. (This is one reason it's remained something of a mystery for thousands of years.) Here's is the key to the practice: **Breathe – then relax.**

Here's how to do it...

- 1) Using RESPIRE-1 or another Breathing Pacemaker® product, position yourself comfortably and begin breathing. Continue breathing for 8-12 minutes. There is no need to do anything else, just stay focused on your breathing.
- 2) After some time, your body will begin to “let go”. *This happens of its own accord.* Once you feel it, begin helping the process along by consciously relaxing certain body parts including the face, the hands, the pelvic floor, and the feet.
- 3) Do your best to practice this every day for 20 minutes.

In time, you'll begin to experience a new way of feeling, and with it enhanced health, well-being, and performance.

In the space of this page, I'd like to share with you what I presently see as the most essential understanding of the practice of *Coherent Breathing* and how to get the best results for your clients. I summarize it as, **"Breathe, then relax."** It sounds simple, and it is. At the same time, there are a few things to know. [I think its this subtlety that's kept the simple truth of it from plain sight for so long.] With heart rate variability (HRV) amplitude as the measure, I see that clients fall into two general categories: those that respond promptly and dramatically to breathing alone, and those that do not (where the goal is 20-30 beats of difference between peak and valley heart rates). Certainly there is a gray zone, but for purposes of keeping it simple lets think of clients as being in one of these two groups. Then the question is, "Why do some respond promptly and others not?" While there is clearly an age component to it, I've come to see the issue primarily as one of entrainment. In other words, the longer one has been breathing "short and shallow" and the longer one's been living with the autonomic consequence, i.e. sympathetic bias, the more likely it is to take time for them to "unwind" this pattern. I like the term "unwind" because I think its very descriptive of what happens, however, I do not yet understand the nervous system actions involved. [My present theory is that it results from simultaneously elevating bioenergy and relaxing.] You may have heard the term "unwinding" from the "myofascial release" school of therapy where a similar phenomenon has been observed (including by me). So, I've come to see the goal as facilitating a gentle unwinding process. I like to think of it as unwinding a spring that has been wound too tight and, as it unwinds, we see the needle on the gauge beginning to shift toward balance. As it does, we see HRV amplitude begin to increase from maybe 3 points, to 5, 10, 15, 20, etc. I believe this increase in amplitude is indicative of increased blood flow resulting from "unwinding" the tension in the nervous system that holds small muscle motor units flexed when they would otherwise relax. Specifically, this includes those of the vascular system, allowing arteries in particular to open and close in synchrony with exhalation and inhalation, respectively. The "formula" for success is **"Breathe, then relax."** "Relax, then breathe", is not as effective. Why not? Because the autonomic nervous system will not allow relaxation while our breathing is rapid and shallow. Try as you might, but without correcting breathing frequency and depth, little progress will be made. Instead, try having your clients simply breathe coherently for 8-12 minutes. Usually, depending on severity, the autonomic nervous system will begin to shift, and as it does small muscle motor units throughout the body will begin to relax. We can usually feel this in face first where all at once we become aware that the facial muscles are tense. Hand temperature is another simple low cost indicator that blood flow is increasing, however, I find that the face is the clearest initial indicator. At this point, we can begin progressive relaxation, first focusing on the face, then the hands, then the pelvic floor, then the feet. [In total there are 10 points that I refer to as "bridges", but they can be generalized to 6 and ultimately to these 4.] With this as the basic 20 minute practice, and the incorporation of Coherent Breathing into daily life, the autonomic nervous system begins to loosen its defensive posture. With this comes increased mental and physical comfort, increased flexibility, better communication, easier sleep, etc. Maybe most importantly, once we've retrained our breathing and "flushed" the tension from the system, we've increased our immunity to all forms of stress. [Comments welcomed.]

