

Hello all,

Welcome to *The Qi Gong Experience*, Volume 2, Issue 10 of *Alternativz*, an occasional journal of complementary solutions for health well-being, performance, and longevity.

Qi Gong and the experiential phenomenon of “qi” 氣 itself have been a topic of fascination for thousands of years. The notion has been referred to as “qi” in China, “prana” in India, “the breath of life” in the Middle East and Europe, and references to it go back about as far as written record. I’m sure it goes by many other names in other ancient cultures.

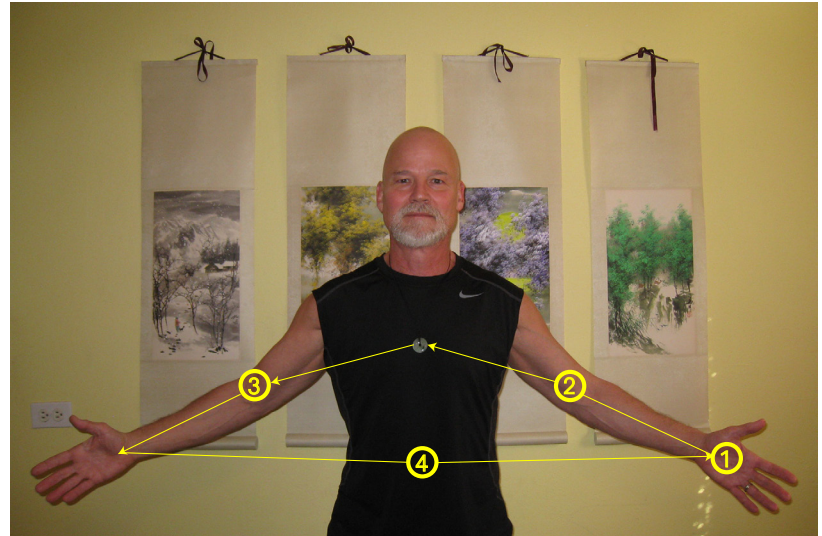


Figure 1: Me demonstrating breathing and shifting my mind from left hand, to chest, to right hand as I do in the experiment, but with hands on desktop.

The science and practice of Qi Gong can be a lifelong pursuit, as the more we practice, the greater the height of experience. To my knowledge, this increase in awareness and sensation with practice has no end and includes advanced practices of accumulating, directing, circulating, projecting, condensing, vibrating, etc, but what is it, the *sensation* we experience when we practice?

The ancient notion was that qi is “life force”, something we draw in from the environment, where if we stop drawing in from the environment, i.e. we stop breathing, we perish. Long before there was any knowledge of oxygen, this cause and effect could be demonstrated with fire, cut off the supply of air and the fire dies. There was clear empirical evidence that was easy for humankind to comprehend. Today we understand that this life force is oxygen and when we breathe we exchange carbon dioxide for oxygen. This exchange is necessary for respiration at the cellular level. But what is it that we feel?

Part of this mystery is explained by the Valsalva Wave that is produced when our breathing is Coherent. When viewed plethysmographically, the amplitude of the complex wave including the heartbeat is ~2 times that of the heartbeat alone. If we accept that the detection is linear (which it is), then breathing generates a pressure wave that is equal to the heartbeat. The average pressure generated by the heart (in combination with the arterial tree) is nominally 100 millimeters of mercury, this being 120mmHg (average cardiac systole) plus 80mmHg (average cardiac diastole) divided by 2, the typical pressure difference between cardiac systole and diastole being 40mmHg. As the heart synchronizes with the Valsalva Wave when breathing coherently, these pressures rise and fall together, creating a wave that is ~80mmHg (my estimate). It is to this wave that baroreceptors respond, thereby phaselocking the heartbeat to breathing. If we breathe this way while having our blood pressure assessed with a contemporary oscillometric meter, we may find that it is often relatively low, e.g. 100/60. This can be variable because many oscillometric instruments don’t know how to process large slow variations in pressure.

In any case, I assert that it is this large blood wave that we feel when we exhale, if we are paying attention, as we do when we practice Qi Gong. The reason we feel it is because it is *large*. (Again, my estimate is that the wave approximates 80mmHg. If this is close, then the wave approaches 80% of normal average blood pressure [(80mmHg/100mmHg) X100], implying a huge circulatory phenomenon.

When we inhale, blood accumulates in the lungs. As we exhale, the lungs shrink ejecting blood into the left heart and arterial tree. A job of the arterial tree is to propagate the wave to the extremities of the circulation, i.e. the capillary circulation of the brain, muscles, organs, and skin. It accomplishes this via rhythmic expansion and contraction that is also timed to breathing rhythm. On the venous side, when we inhale things feel very different, like a vacuum is generated throughout the body, which in fact it is. We're learning that a job of this alternating arterial and venous wave is to hydrate, nourish, and cleanse the cells of the body via both blood and lymph. The macro equivalent is the rising and falling of the ocean tide as it laps at the edge of the marsh, hydrating, washing, nourishing.



Figure 2: Valsalva Wave sensor on left thumb detecting blood volume.

But there's more, this being the sensation of the Yi (mind) as it senses the body including the blood, and of course the sensation of Qi (bioenergy) that is cultivated with practice. An axiom of Chinese Medicine says:

The Yi leads the Qi,
The Qi leads the Blood.

Consequently, as we go about the practice of Qi Gong, placing our mind on certain parts of the body, or stroking the body with the mind, both Qi and blood follow. Using [Valsalva Wave Pro](#), Figure 2 captures this in real time. The record opens with me sitting at my desk with both hands on the desktop in front of me, the [Valsalva Wave Pro](#) sensor is on my left thumb. I am breathing coherently. My attention is wholly on my left hand:

1. Valsalva Wave sensor is on left thumb. My mind is on my left hand.
2. About 15 seconds later, I shift my mind to my chest. We see blood volume begin dropping.
3. I move my mind to my right hand. Blood in the left thumb drops further.
4. I move my mind back to my left hand. Blood in the left thumb begins climbing sharply.

We can see from this that via Qi Gong we are able to use the mind to facilitate movement of blood. While we are unable to observe the movement of the Qi, we can feel it and the blood follows. I've measured this on myself and of course I breathe coherently at all times, circumstances permitting. I've not tried measuring it on a subject that isn't trained to breathe well. For this reason, I can't be sure what part breathing plays in the outcome, however I anticipate that it will be found to be a key factor, just as it is in the practice of Qi Gong.

Stephen Elliott, President, COHERENCE

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