Swan & Stone

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Hello all,

Welcome to ***Hawthorne and HRV***, Swan & Stone, Volume 2, Issue 9, by Taylor Elliott. The herb Hawthorne, Crateagus Oxycanthus, can be an important aid to Coherent Breathing and to Valsalva Wave Pro training where it increases blood flow and enhances heart beat synchrony. The quantitative advantages can be seen in increased Valsalva Wave amplitude, increased Heart Rate Variability amplitude, and Valsalva Wave/HRV synchrony, i.e. "coherence".

Figure 1: Hawthorne Berries

Hawthorne has a long history, its use dating back 2000 years in the West, and certainly much further back in the East, where its primary values have been recognized to be circulatory and digestive. In Chinese Medicine it is called Shan Zha where it is found in many patent formulas, for the improvement of digestion and circulation as well as many other conditions. Hawthorne is a potent source of phytonutrients, a general term referring to a plant's medicinal value. Andrew Weil notes that Hawthorne was included in the *US Pharmacopeia* until the 1930s when it was removed, for reasons that have apparently been lost to history at this point. At present the *US Pharmacopeia* makes no reference to it either presently or historically. Note that this was about the same period that the US pharmaceutical industry was taking shape.

The phytonutrients of interest are anthocyanadin and proanthocyanadins, a class of polyphenols – chemically they are oligomeric flavonoids. These nutrients, and Hawthorne in particular have been found to have significant effect on the circulatory system in a number of ways including strengthening of vascular walls, vasodilation, and heart beat regulation. When used in combination with Coherent Breathing they show rapid impact on Valsalva Wave amplitude, Heart Rate Variability amplitude, and Coherence (synchrony between the two). Ideal Coherent Breathing produces a perfectly sinusoidal Valsalva Wave due to sinusoidal control of the diaphragm via the phrenic nerve. Hawthorne also appears to enhance sinusoidality of the Valsalva Wave, and in turn, sinusoidality of the HRV cycle, as the former results in the latter.

In this article I demonstrate its value by presenting 2 and a half minutes of my Valsalva Wave and HRV before and after ingestion of a single dose of Hawthorne with 1 pint of water. Valsalva Wave Pro is in "Resonance Simul" mode so we can see both the Valsalva Wave and HRV. The specific Hawthorne used in this demonstration is "Gaia Hawthorne Supreme", a liquid capsule that contains a proprietary blend of berry, leaf, and flower, the equivalent of 750mg of the dry herb.

The first recording (Figure 1) is taken at 9:51 AM. Then 1 Hawthorne capsule was ingested along with 1 pint of water. The second recording (Figure 2) was taken at 10:27 AM, 36 minutes later. In Figure 1 we see that Valsalva Wave Variability is .3% (red bar graph). HRV is 12.3 beats (blue bar graph). The Resonance curve is dithering around +.4 and ends at +.5, indicating that the Valsalva Wave and HRV Cycle are more in-phase than out-of-phase, where 180 degree out of phase alignment is the theoretical definition of "coherence". Coherence is the correlation coefficient of the two. It is theorized that "Coherence" is an indication that arterial and venous circulation (blood flow and volume) are equal, blood is flowing freely in a circle with temporal balance.

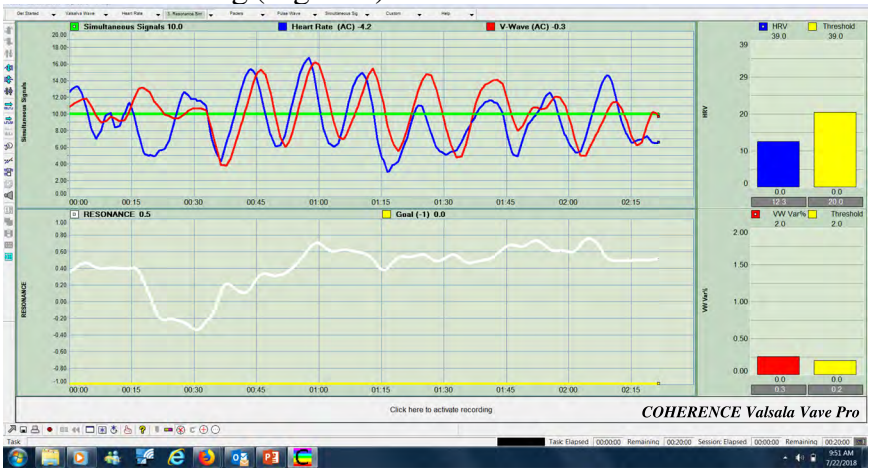

Figure 1: Before Ingestion Of Hawthorne And Water

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Many HRV practitioners may know that clients often demonstrate an initial HRV cycle <10 beats. The fundamental reason for this is their diaphragm range of motion is sub-optimal. Many only use 10-20% of available range, and for this reason, both Valsalva Wave amplitude and HRV are relatively low. Coherent Breathing protocol aims to train one to use 50% of their diaphragm range, as movement of the diaphragm pumps venous blood coincident with inhalation and arterial blood coincident with exhalation. The heart being "a pump within a pump", synchronizes with diaphragm motion given that it is significant. Diaphragm motion is the root impetus for breathing induced HRV. A goal as stated in the Coherent Breathing protocol is for HRV amplitude to achieve 20-30 beats, nominally 25, and coherence of -.6 or less, indicating synchrony of Valsalva Wave and the HRV cycle. This can be achieved within four 75 minute training sessions (assuming practice at home with RESPIRE-1). *The use of Hawthorne can be very instrumental in realizing this goal*. Let's review Figure 2.

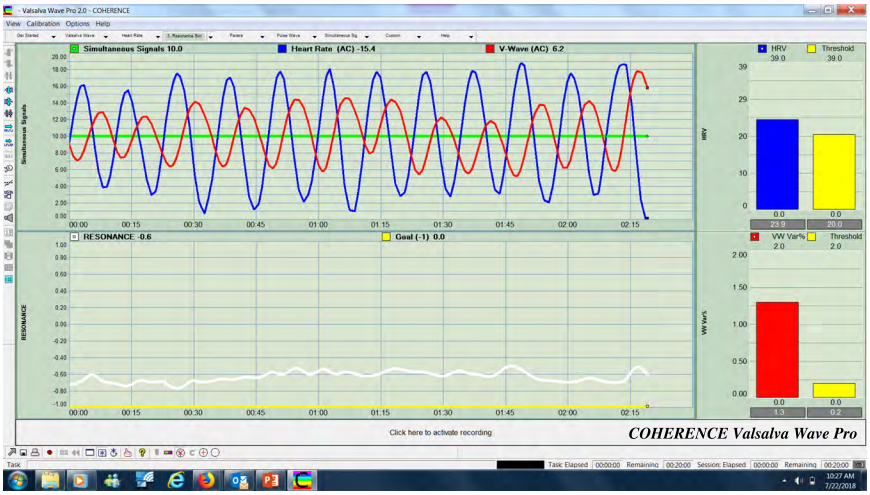

Figure 2: 36 Minutes After Ingestion Of Hawthorne And Water

Here Valsalva Wave variability is 1.3% (as opposed to .3%) and HRV is 24 beats (as opposed to 12). The Coherence Curve (Resonance on the instrument) is dithering around -.6, this being due to synchrony of the Valsalva Wave and HRV cycle approaching 180 degree alignment. By training ***Personal Resonance Protocol***, one can gradually lower this to -.9 or less, -1.0 being impossible to realize in theory. One can see these changes in HRV amplitude even with an HRV only instrument. However, one cannot assess either Valsalva Wave amplitude or resonance, as resonance cannot be known without simultaneous monitoring and correlation of both Valsalva Wave and HRV, this being the primary distinction between Valsalva Wave Pro and other HRV capable instruments, where a single ear clip is all that is required to capture and monitor both biomeasures.

I encourage HRV practicers and practitioners to repeat my experiment and assess the results for yourself. Please understand that Coherent Breathing protocol does not encourage the user to "maximize" their HRV and I am not proposing that one use Hawthorne for this purpose. Instead, the protocol encourages one to maximize "coherence" or Resonance where resonance approaching -1 is indicative of one's optimal breathing rate, depth, and HRV.

Where one has an HRV only instrument, an HRV between 20 and 30 beats is suggested where the nominal target is 25 beats. We find practicing in this zone to be "the middle way" relative to personal resonance.

Please check with your doctor before experimenting with Hawthorne, especially if you are using other pharmaceutical medications.

Thank you for your interest.

Taylor Elliott, Vice President, COHERENCE LLC

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