



Hello all,

Welcome to Coherent Breathing, Volume 2, Issue 2, May 2020: *A Couple Of Things About This Disease...*

Based on study from afar, I've been doing my best to comprehend the riddle of Novel Corona Virus regarding how it operates as it attacks the human body. I say "from afar" in that I don't know anyone personally that has experienced it. I'm doing what I'm able to keep up with medical and scientific discoveries to which I have on-line access. There are two medical determinations in the April timeframe that take priority in my mind. I'd like to point out the articles and share my perspective on them with the understanding that it is *novel*.

Potentially, a most important discovery of late is that Corona Virus, in attacking the lungs, affects a rapid but often *unnoticed* reduction in blood oxygen level – the reason for it going unnoticed being due to *blood oxygen being low*, and with this an impairment in both conscious and subconscious nervous function. In other words, it has the ability to launch a "stealth attack", where the affected person doesn't know it is happening until the disease (COVID-19) has gotten a firm hold and one's life is in jeopardy. The article referenced below posits that this is a reason why there are many asymptomatic cases, people simply don't know they have it because their body is not showing signs or symptoms of having it, i.e. there isn't a normal immune system reaction. (Refer to CNN article: [Silent Hypoxia: COVID-19 Patients Who Should Be Gasping For Air But Aren't.](#))

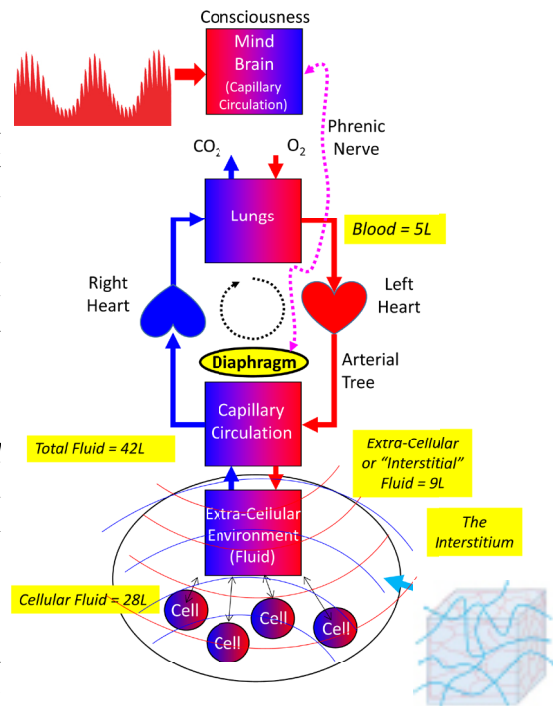


Figure 1: Simplified Model Of Human Circulatory System. Blood And Fluids Should Flow Freely In A Circle

Now, if this is so – where more time and data are certainly necessary – it tells us a few things: 1) As is recommended in the article by Dr. Richard Levitan of Littleton Regional Healthcare of New Hampshire, screening for the disease should include blood oxygen level assessment as can be done rapidly using a pulse oximeter, where a healthful oxygen level (SpO<sub>2</sub>) is 95% and above. 90% and below is considered abnormally low and indicative of a lung disorder, e.g. COPD, etc. So we are learning that low blood oxygen is also an indicator of lung dysfunction due to COVID-19 infection. Of course, this makes complete sense as COVID-19 is known to attack the lungs. Based on research that I have had access to, blood oxygen level is the only non-invasive indicator of infection short of body temperature, where body temperature alone is not picking up asymptomatic cases that go on to spread the disease.

In medicine the use of pulse oximetry has been a critical measure of patient health since its invention. In my line of work I've always had one but it is becoming clear that for the foreseeable future a pulse oximeter is as important as a home thermometer. Manufacture of pulse oximeters in the US used to require FDA certification and for this reason they used to be expensive, but with global manufacture this is no longer the case. Here I recommend making oxygen assessment an integral part of one's day, morning and evening.

2) We should learn to breathe to sustain blood oxygen at 95% and above, all the time circumstances permitting. *This is no different than learning to breathe with depth and rhythmicity all the time, circumstances permitting.* If one's blood oxygen level is below 90% and one cannot breathe to increase it to 95% or above then there is reason for concern about internal status, for one reason or another. What we don't know is the relationship between quiescent blood oxygen levels and immunity. It seems apparent that for the infected, the lower the blood oxygen the more serious the infection, and of course the more critical the disease, as every cell of every organ depends on viable oxygen supply. We need to know the relationship between blood oxygen level and susceptibility. *Is low SpO<sub>2</sub> a critical underlying health condition?* Does sub-optimal breathing (and resultant sub-optimal blood flow) lower immunity? Hypertension is an indication of sub-optimal blood flow and hypertension *is* known to be a crucial underlying condition. A reason that exercise, including diaphragm exercise, is so important is that it elevates blood oxygen level, where without exercise the body won't elevate oxygen levels unless demand is there. I have argued for many



years that sub-optimal breathing is the root cause of *essential hypertension*, “high blood pressure with no known cause” (NIH), i.e. high blood pressure for no known reason, in this day and age? The lungs perform two vital functions relative to land dwelling mammalian life: 1) gas exchange – everyone understands this, and 2) the lungs act as an auxiliary pump, pumping blood to the brain upon exhalation and from the extremities to the chest upon inhalation. If this were not true, it would be impossible to exercise or perform work that requires energy expenditure. The medical establishment, in general, does not recognize this anatomical function of the lungs and of diaphragm movement. (Humans are “a column of fluid” when we are erect.)

I posit that it is the job of the diaphragm and the lungs to bring venous blood back to the chest, that the role of the right heart is to shuttle and check venous return due to the vacuum generated in the lungs when we inhale. When we fail to inhale with depth, blood in the venous tree languishes and the burden of venous return falls to the right heart. Arterial pressure inevitably rises because when venous blood flow slows, arterial blood has nowhere to go. The autonomic nervous system knows about flow and steps up pressure to realize viable flow. *I submit that these are the mechanics of essential hypertension.* (It is not the job of the right heart to vacuum venous blood back to the lungs. Shallow inhalation just contributes to right heart wear over time.)

This brings me to the 2nd medical determination of late, this being that for those hospitalized with COVID-19, blood clotting is dramatically higher than what doctors are used to seeing in normal times. ([Please see this article originally published in The New York Times.](#)) The venous circulation is where blood clotting is of high risk. Hence, the well known phenomenon of venous thrombosis, clotting in a vein. Clotting of blood in veins is a risk because the pressure associated with venous return is extremely low. Average venous pressure in the vicinity of the chest is on the order of -2mmHg or thereabouts. (Compare this to average arterial pressure of 100mmHg.)

Very low pressure(s) compel venous blood to return to the chest, this along with movement, gravity (above the chest), and the vacuum generated by the right heart as it shuttles blood from the vena cava, through the right heart, and into the lungs. However, as asserted above, it is not the job of the right heart to vacuum venous blood back to the lungs. Inhalation generates a vacuum in the chest and consequently in the lungs. This vacuum is critical to venous flow and keeping the venous tree free of blood clots. In hospitals it is common post-surgery practice to have patients utilize a Spirometer to make sure that venous blood keeps flowing freely and to minimize risk of blood lost during surgery pooling and ending up in the circulation, in particular the very low pressure venous tree. Clots that do form in the venous tree ultimately make their way back to the right heart and lungs where they can result in a pulmonary embolism, i.e. the blockage of an artery in the lung.

As reported in the referenced article, doctors treating COVID patients are seeing a very unusual increase in “large vessel clots” in the arteries, and with this a large increase in strokes, even among younger patients, a cohort for which large vessel strokes are rare. Dr. Hooman Poor, a lung specialist (also at Mount Sinai) comments that it seemed that all COVID patients he had seen had blood clots in their lungs, that blood was not flowing freely through the lungs as it should. Specialists in other areas were also noting an unusual frequency of clots in other organs, a condition they reference as “blood thickening”. [My commentary: When blood does not flow freely through the lungs, then blood does not flow freely anywhere in the body, resulting in blood and fluid stagnation everywhere in the body. When blood doesn’t move it congeals.]

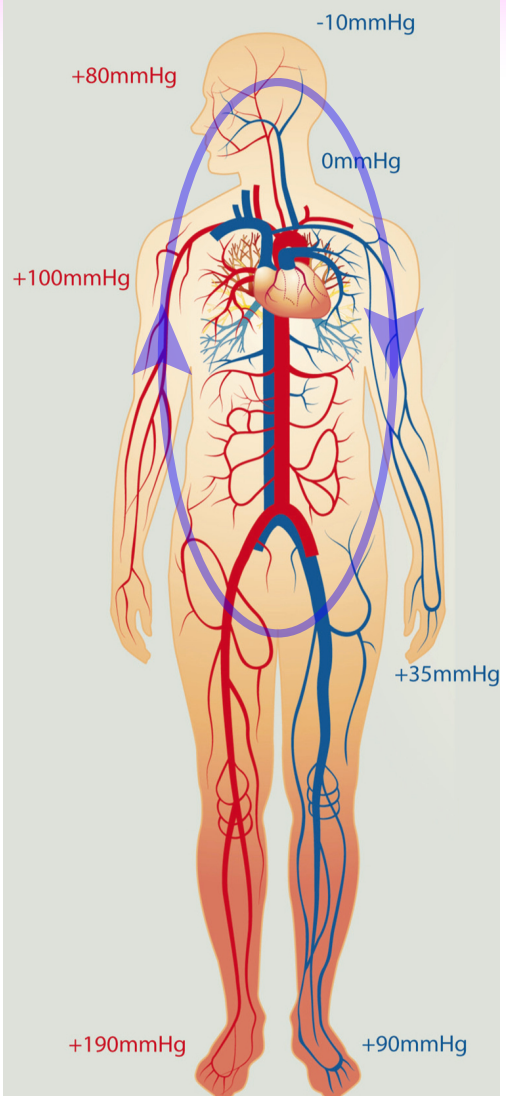


Figure 2: Blood Should Flow Freely In A Circle

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