

Strengthening the immune system as the key factor in addressing COVID-19

Harold Jiho Hall

Immunity is the balanced state of organisms having adequate biological defenses to fight infection, disease or other invasion by pathogens while having adequate tolerance to allergy and autoimmune diseases. A robust immune system explains why many who contact COVID-19 do not die or have mild symptoms. The focus of this article is on 60+ seniors as they represent a high risk group for severe symptoms and death, although the recommendations may help other age groups.

The research-based field of psychoneuroimmunology (PSI) has determined that emotional states such as anger, fear or grief may compromise the immune system. This brief article discusses the interaction between PSI processes as well as Buddhist practices such as meditation, mindfulness and loving-kindness that booster the immune system in order to eliminate or reduce the effects of COVID-19 and many other conditions.

First, do no harm: Before embarking on a program to enhance immunity, you should check with your primary physician. Most of these findings are empirically supported but remember that a strong association does not imply a cause and effect relationship. Be aware that purported treatments for COVID are fast being commercialized as we speak. Keep in mind that boosting your immunity is always the result of multiple factors and methods—the “magic pill”, vitamin, herb, or even prescribed medication does not exist as of the date of this article. The reverse is not true—cumulative stress or unmitigated sorrow can easily compromise the immune system. For example, there is a spike in the death of spouses whose mates died from cancer within the previous 6 months. Another bereavement study that followed 95,647 widowers found that “*during the first week after bereavement, mortality was twice the expected rate*”. (Newman, 2016, *Medical News Today*). Elevated stress and diminished social support hugely impact many types of disease and wound healing.

COVID-19 isolation strategies, in the opinion of many health professionals, can do enormous harm if followed without built in supports for interactions characterized by activities designed to build up immunity and an abundance of interpersonal activities done with loving-kindness. Isolation strategies for suspected or actual COVID-19 people, particularly for seniors, need to be augmented with safe opportunities for continued social connection and

continuation of warm, bonded relationships. These may include use of IT methods ranging from email to Facebook, and virtual “face-to-face” meetings such as provided by Skype or Zoom. Caution however: Research has shown that that actual face-to-face interaction is superior to virtual methods, and avoids the problems uncovered in relying primarily on smart phones and other means to communicate.

“Social distancing” of 4-6 feet away from others when out of the home, in my opinion, when rigorously followed such as participation in a spread out group format, or a spaced individual meeting, should be included in your life to reduce the documented and sometimes devastating effects of total isolation.

Another strategy to maintain interaction is to share your isolation with a (non-infected) significant other.

Calling others on the phone is a great way to communicate.

Isolation strategies do not preclude interaction with your pet(s). Here are some findings mostly on dogs based on meta-analysis of 70 years of global research (LaMotte, 2019):

Owning a dog lowers risk of dying early from any cause by 24%.

Owning a dog yields a better cholesterol profile and lower blood pressure.

Owning a dog reduced risk of dying from cardiovascular disease—heart attacks and strokes -- in particular by 31%. The benefit was greatest for dog owners who lived alone. Stroke survivors living alone had a 27% reduced risk of death (This one study alone was based on 336,000 Swedish men and women).

Petting a dog in one study reduced blood pressure as much as medication.

Many studies show that owning a dog or other pet with whom one is bonded results in reduced depression, anxiety and feelings of isolation.

Robotic companion pets—dogs and cats--improve the quality of life for older adults, reduces depression and feelings of social isolation. Robotic companion cats have been shown through naturalistic observation to enhance satisfaction and quality of life of individuals with dementia.

Beware of full retirement. A 30-year university study in the UK tracked 3,400 retired civil servants and found that short-term memory declines by nearly 40%

once employees became pensioners, making dementia more likely to set in earlier (Knapton, 2018). Even high-ranking civil servants with mentally challenging jobs were compromised in their brain functions when they gave up their jobs. The research team concluded that the lack of regular stimulation compromises cognitive functions and speeds up memory loss and dementia. Previous research was supported to “Use it or lose it”; and “The most important thing is to interact with people” and “Be both physically and mentally active”. In a separate study, it was found that older age at retirement is associated with decreased risk of dementia.

Alone time, deep sleep and dreaming. Notwithstanding the advice to “Use it or lose it”, it is essential to have time alone with yourself, silence your only companion. Studies have shown that positive benefits come with silence in that the brain tends to become restored and neural functioning is improved. This is especially true in the white matter which is concerned with conductivity and traffic between neural networks. Seniors have much to gain with their alone time with no distractions, especially when combined with meditation and gentle movement exercise.

Get 6-8 hours of quality sleep. Delta waves are associated with deep sleep and are the slowest recorded brain waves in humans (0.5 Hz to 4 Hz). Too much delta activity is associated with brain injuries, learning problems, and inability to think; too little blocks the ability to rejuvenate the body and revitalize the brain. Optimally, delta is restorative, associated with natural healing, and helps the immune system. They are involved with unconscious somatic functions such as heart and GI tract functions, keeping us in balance, and deep breathing, sometimes with snoring if there is sleep apnea or obstructions. The essential need for delta sleep suggests you should not wake your bed partner when they are snoring as they may wake up irritable and tired for the whole day. Go in the other room or put on earplugs or ear muffs. Dreaming, associated with REM (rapid eye movements), is also vital. A caution is commonly prescribed sleep medications may interfere with REM and cause a “rebound effect”, resulting in insomnia or sleeping without deep sleep.

Concerning napping, the research indicates that naps of about 20 minutes or less may not affect the length of

nighttime sleep, while longer naps may result in insomnia (the short naps are not long enough to cycle into delta).

Stress. Two meta-analyses of 113 empirical studies clearly show that both short-term and long-term moderate to high stressors decrease helper T cells, suppressor T cells, and cytotoxic T cells, B cells, and natural killer (NK) cells. The century-old cross-validated Yerkes-Dodson Law states, however, that some mild arousal or stress is necessary to perform competently. Over 300 studies show that acute stressors (lasting minutes) may have either positive or negative effects on the immune system, but chronic stressors are almost always associated with continually reduced resistance and increased susceptibility to disease (Segerstrom & Miller, 2004). The same research showed that people are generally poor judges of the level of stress they experience, and that vulnerability to immune change during stress increases with age and underlying conditions.

The top 3 sources of stress sources for Americans have been the perceived precarious future of our nation (63% overall; Democrats 73%), money problems, including increasing difficulty in making ends meet (62%), and work including job security and problem, (61%), according to the APA State of Our Nation report released on November 1, 2017 which surveyed over 4000 American adults. Ominously, almost 60%, regardless of age, see the present period as the “lowest point in our nation’s history”. Neuropsychological research has shown, as only one of the harmful effects of continual stress, the degradation of both gray and white matter in the brain along with compromising other cerebral and somatic functions. The COVID-19 pandemic is very likely to exacerbate these trends.

On an individual basis, you first determine your current level of stress.

Measure your stress level to determine your susceptibility to a breakdown in your health. You may wish to download the now famous Holmes-Rahe Stress Inventory, based on examination of the medical records of 5000 medical patients, and mark down the point value of life events that occurred to you within the previous year. A low amount of life change (150 points or less) means a low susceptibility to stress-induced health breakdown. A 50% chance of health breakdown is associated 150 to 300 points, and 300 points or more represents an

80% chance of health breakdown with the next 2 years. A modified scale point system has been developed for non-adults (see Wikipedia).

High scorers can lower stress by delaying, preventing or reducing the effects of many of the life events (e.g., divorce, marital reconciliation, delaying retirement, business readjustment, taking care of indebtedness, eliminating arguments with others which doesn't work anyway). A good strategy is to keep change to a minimum. Keep in mind that some events normally perceived as positive—promotion at work, outstanding personal achievement, vacation, revision of personal habits, making out a will and a springing power of attorney—may actually be stressful and contribute to the overall level of cumulative stress.

Intermittent fasting (IF). Beneficial effects on the immune system have been established by various forms of intermittent fasting, a safe method shown by many studies on experimental animals and humans. Research has shown that IF reduces insulin resistance, increases autophagy (process that destroys foreign invaders such as viruses, bacteria, and other pathogens), increases detoxification, resets circadian rhythms, reboots your digestive system and gut flora, and has other benefits such as losing weight and body fat. The immune system is controlled by the health of your digestive system. Moods and mental health are codependent with our gut microbiome. IF tends to subdue GI tract problems—colitis, ulcers, constipation, irritable bowel syndrome—when combined with other methods such as meditation and loving-kindness with others.

A gentle form of IF, excellent for seniors, follows as an example: Here you take a break from eating for 14 to 16 hours daily, for example eating only from 8am to 6pm or from 9am to 5pm, but staying active throughout the day with no snacking afterwards.

Regular physical exercise. Three types of physical exercise—endurance training, resistance training, and isometric exercise—lead to improvement in the immunity system and a variety of other physical and mental conditions, especially when used in combination. A meta-analysis containing data on greater than 5000 participants found that these 3 exercises significantly reduce diastolic BP and all but resistance training reduced systolic BP (Cornelissen & Smart, 2013). **The most improvement from endurance training was at moderate or high intensity and about 210 minutes of weekly exercise.**

Isometric exercise using the simple handgrip, small rubber ball, can lower both systolic (15 points) and diastolic BP (5 points) by about 10 percent. Benefits are seen in 8-12 weeks by, for example gripping and releasing 2 minutes at a time, for up to 15 minutes, 3 days a week.

It is highly recommended that people walk, power walk, walk their pets (if possible), swim, or do some other form of endurance training at least 3-4 days a week for that total of 210 minutes, in keeping with research findings.

Regular mental exercise. It is now established that brain injury compromises the immune system. In reverse fashion, cognitive exercises enhance brain functioning and the immune system. A list of these exercises to rehabilitate or improve cognitive function has been the focus of several recent workshops is available upon request (pisca88@icloud.com).

Your program should definitely include regular meditation and mindfulness: Controlled studies show Tai Chi, Qi Gong, yoga, and meditation of various traditions improve immunity, reduce inflammation and influence virus-specific immune responses, and have psychological and health-restorative benefits. Other empirical studies demonstrate that structural changes in the brain occur in as few as 6-8 weeks of regular meditation practice, and remain so as long as regular practice continues. From a Soto Zen perspective, consider regular zazen, kinhin (walking meditation) and shakyo. All 3 are empirically supported as great for all kinds of physical and mental conditions, and in many cases have been shown to stave off dementia. Workshop materials containing a variety of meditation and mindfulness methods is available on request..

Positive social relationships in group or organizational settings. Research uncovered a “Golden Ratio” where a ratio of 4/1 to 10/1 positive to negative experiences on a daily basis in a social or work environment define a thriving environment. Anything less or more frequent doesn’t help (i.e., less than 4 positive to 1 negative event leads to a perception of a languishing environment or person. More than 10 positive to 1 negative is perceived as phony or uncomfortable by most people).

Gratitude, appreciation, kindness and generosity. A reciprocal brain-behavior feedback loop has been demonstrated by neuroimaging (MRI, PET, SPECT) and

other brain measures (EEG, QEEG, DEEG). Gratitude, appreciation and generosity activates certain brain sites and systems (e.g., the posterior insula) in the receiver, also has a positive experience, which in turn produces a positive experience for the sender. Structural changes in the brain occur with these practices in as little as 8 weeks.

Inspiration. Research shows that inspired persons reported more purpose in life, more gratitude toward others, a high degree of optimism, and more loving-kindness, all 4 of which alone and in combination strengthen immunity and lead to a longer life. Inspired people have a strong drive to master their work, are persistent, hopefully losing the need to compete and compare their performance and achievement to others as they are intrinsically motivated towards excellence and subjectivity enjoy what they do. Interestingly, studies show that work mastery comes before inspiration, suggesting that the prepared, organized and industrious person with average creativity and general intelligence can nevertheless be extremely inspirational. Importantly, goal progress predicted goal inspiration. These findings of course apply to non-work situations or even if confined to a bed or wheelchair.

Think about this: What was to you the most inspirational thing someone said or did in your lifetime? Sometimes it was the whisper of a mother to a daughter or son faced with an incredible challenge from their perspective. It may have been without words the support or even the presence of a trusted friend when facing a crisis. It may have been the galvanizing and powerful effect words of a long dead person such as Dogen Zenji when he proclaimed that the practice of zazen equals enlightenment and that there are no enlightened persons, only enlightened activities. In each case there is transcendence beyond self and setting into motion a new idea, vision or creative impulse, and experiences that bring us into the present motion and start the cycles of reciprocity that makes life more satisfying.