COVID, INFLUENZA, EBOLA, AND OTHER PANDEMICS: IS YOUR IMMUNE SYSTEM PREPARED?

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Do your hands become clammy when you think about COVID? Are you afraid of losing your life because of COVID? When watching news and stories about COVID on social media, do you become nervous or anxious? These and other questions come from the newly developed Fear of COVID-19 Scale (FCV-19S) created just for this ominous pandemic and its aftermath.[1]

With cases and deaths increasing every day, and an unprecedented worldwide media coverage, the COVID pandemic will always have a place in the annals of history.[2] And why shouldn't it? With all the other disasters threatening humanity, maybe we need to recognize the real nature of these events that seem to be competing for our attention. What are they trying to tell us? Luke tells us, "Then said he unto them, Nation shall rise against nation, and kingdom against kingdom: And great earthquakes shall be in divers places, and famines, and pestilences; and fearful sights and great signs shall there be from heaven. …And then shall they see the Son of man coming in a cloud with power and great glory."[3] Pestilence comes as a sign of the times, that Jesus is soon to return.

Of those seeking medical care for COVID-19: 98% complain of fever, 75% pneumonia, 70% fatigue, 70% are found to have lymphopenia (insufficient white cells to fight an infection), 60% dry cough, others have muscle and joint pain and even abdominal pain. Some people end up in the ICU, usually from Adult Respiratory Distress Syndrome (60%), cardiac arrhythmias (45%), circulatory failure and shock (30%), acute Cardiac injury, and/or acute kidney injury. The mean incubation period has been five days, but the range has been reported from 0–24 days.[4,5]

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How it is Coronavirus spread? Airborne droplets that reach the eyes, nose or mouth are its primarily mode of spread. It can also spread by touching contaminated surfaces and then touching one's face. The more viruses you are exposed to the higher is your risk of contracting the disease. Environmental precautions and personal protective equipment are designed to reduce the number of viruses to which you are exposed.[6]

Will a mask protect me? For health care workers exposed to infected patients, N95 respirators are recommended. For infected patients, surgical masks are recommended to help reduce viral spread.[7] That said, masks do reduce blood oxygen levels, raise blood carbon dioxide levels, and can suppress the immune system.[8]

Once a pandemic has begun quarantine is not likely to be effective, efforts may focus on "social distancing." Social distancing includes measures to increase distance between individuals (6ft), staying home when ill unless seeking medical care, avoiding large gatherings, telecommuting, and closing schools.[9]

Once a pandemic virus has been identified, it will likely take 4-6 months to develop, test, and begin producing a vaccine. The supply of pandemic vaccine will be limited, particularly in the early stages of a pandemic. And while vaccines may or may not be helpful, vaccines are not a substitute for a good immune system.[10] For example receiving measles, mumps and rubella (MMR) vaccination significantly increases the odds of acquiring chronic inflammatory arthritis.[11] Compared to receiving the common tetanus vaccine: receiving a hepatitis B vaccine increases the odds of acquiring multiple sclerosis by 420%, systemic lupus erythematosus by 810%, and rheumatoid arthritis by 1700%![12] And if, peradventure you were vaccinated with a yearly flu vaccination recently, your odds of acquiring COVID are 36% higher.[13]

How does one prepare their immune system for exposure to COVID? (This information applies to many infectious diseases including influenza, smallpox, Ebola, etc.)

"When Lord Palmerston, Premier of England, was petitioned by the Scottish clergy to appoint a day of fasting and prayer to avert the cholera, he replied, in effect, "Cleanse and disinfect your streets and houses, promote cleanliness and health among the poor, and see that they are plentifully supplied with good food and raiment, and employ right sanitary measures generally, and you will have no occasion to fast and pray. Nor will the Lord hear your prayers, while these, his preventives, remain unheeded."[14]

Rupert Blue, MD, surgeon general during 1918 flu suggested: avoid needless crowding; smother your coughs and sneezes; your nose not your mouth was made to breathe through; remember the three Cs, clean mouth, clean skin, and clean clothes; food will win the war, help by choosing and chewing your food well, wash your hands before eating, don't let the waste products of digestion accumulate; avoid tight clothing, tight shoes, tight gloves; seek to make nature your ally not your prisoner, and when the air is pure, breathe all of it you can—breathe deeply.[15]

Let me tell you about the best preventative measures, "Pure air, sunlight, abstemiousness, rest, exercise, proper diet, the use of water, trust in divine power—these are the true remedies."[16] It is in practicing these health virtues that a strong immune system is developed, and disease is averted.

Let us start by looking at how the body fights off a virus attack. When the virus reaches the lungs there is an initial exponential growth in the number of viruses. The first line of defense is your Natural Killer cells. When they go to war, as evidenced by a rise in interferon, the viral numbers drop off exponentially, but not to extinction. Before the infection is completely licked and the patient is out of the woods, B-cells must act their part, which is to produce viral specific IgA. If the immune system is strong and all the parts of it are working as they should be, the infection can be overcome. It should be our study then to determine what lifestyle factors influence the immune system.[17]

FRESH AIR

The negative air ions found in fresh air activate natural killer cells and significantly reduce the number of disease-causing microbes in the air.[18]

In 1918, when the hospitals were full, overflow tents were set up on the lawns for extra patients. Guess who survived the 1918 flu the best: You guessed it, the people sleeping outdoors.[19]

"The H1N1 'Spanish flu' outbreak of 1918–1919 was the most devastating pandemic on record, killing between 50 million and 100 million people. Should the next influenza pandemic prove equally virulent, there could be more than 300 million deaths globally. The conventional view is that little could have been done to prevent the H1N1 virus from spreading or to treat those infected; however, there is evidence to the contrary. Records from an

"open-air" hospital in Boston, Massachusetts, suggest that some patients and staff were spared the worst of the outbreak. A combination of fresh air, sunlight, scrupulous standards of hygiene, and reusable face masks appears to have substantially reduced deaths among some patients and infections among medical staff.[20]

It has been said "…there is health in the fragrance of the pine, the cedar, and the fir. And there are several other kinds of trees that have medicinal properties that are health-promoting."[21] It is of interest to note that pinecone extracts have been shown to suppress the growth of viruses in cells.[22] Some people even use pine as essence oil for this reason.

Sage[23] and Juniper[24] essence oils have been shown to inhibit coronaviruses. Citrus has been shown to inhibit viruses.[25] Citrus essence oil has been recommended by some to reduce viruses in the air. Air quality can have an effect on your susceptibility to disease. Respiratory virus infection and pneumonia are significantly increased in people who live in cities with high levels of ozone or sulphur dioxide pollution.[26] In one study, office workers showed significant declines in number and function of natural killer cells after their office was remodeled exposing them to formaldehyde, phenol and organic chlorohydrocarbons.[27] What's more, mold exposure in water-damaged buildings reduces natural killer cells and initiates lung damaging inflammatory processes. Living in a home with mold problems increases the risk of respiratory symptoms and infections.[28]

SUNLIGHT

In one study, exposure to natural sunlight one hour a day for 12 days, significantly increased circulating immune cells. The effect lasted for up to two weeks after the end of the experiment.[29]

It has been found that viruses can suppress the body's ability to produce its antiviral interferon. Sunlight helps disable the viruses' ability to suppress the production of interferon.[30]

If you feel the warmth of the sun, you are boosting your intra-mitochondrial melatonin, decreasing your risk of COVID, by reducing cellular inflammation and cytokine storm.[31]

Sunlight's ultraviolet light is known to kill pathogens and it also kills viruses.[32]

Vitamin D is a natural product of sunlight's effect on cholesterol in the skin. This vitamin boosts the immune system for fighting the viruses. High vitamin D levels are associated with two thirds fewer COVID-19 infections, one half as many cases that progress to become severe, and one third the death rate.[33]

ABSTEMIOUSNESS

Abstemiousness or temperance involves the avoidance of things harmful and the moderate use of things that are considered good. Smokers are at 1-1/2 times higher risk of catching a respiratory tract infection and are 70% more likely to miss work because of the illness.[34] Chronic alcohol consumption has been shown to suppress the activity of natural killer cells.[35] What is more, alcohol and tobacco, when combined even in small amounts, even more significantly suppress natural killer cell activity.[36]

Intemperance can involve both the amount and quality of food we eat. Obesity and overeating impair natural killer cells activity. Caloric restriction—eating less—has been shown to restore immune responsiveness in overweight individuals.[37] Dietary restriction to 60% of usual increases natural killer numbers fourfold and their activity twofold.[38] Increasing age is also associated with a predictable decline in immune function. Caloric restriction, while still maintaining nutrition, restores natural killer activity to that found in younger individuals.[39]

Even judicious fasting can have a positive effect on the immune system for fighting infection.[40]

Electromagnetic fields promote certain viruses to start growing and increase inflammation in your body making you more likely for you to catch COVID, and more likely that you will have a more severe case.[41,42]

REST

Studies reveal that people who sleep well have significantly better immune function than people with insomnia.[43] To illustrate the effects of missing your sleep, one study showed mice who got the flu vaccine but were sleep deprived contracted the flu as though they had never been immunized.[44] With the practice of good lifestyle habits your immune system is better prepared to protect you from disease.

Rest and relaxation also encompass mental and spiritual rejuvenation. According to researchers at the University of Wisconsin, meditation improves the immune response to Influenza vaccination.[45] Among those who observe the weekly rest according to the Bible, Seventh-day Adventists had higher plasma levels of the immune stimulating antioxidants. Among Seventh-day Adventists, consumption of a vegetarian diet was associated with an even higher increase in immune stimulating antioxidants.[46]

EXERCISE

Recent studies reveal that patients who consistently meet the physical activity guidelines are 2-1/2 times less likely to die of COVID-19.[47]

As individuals age, their immune systems decline. Being physically fit helps attenuate this decline. Natural killer cells respond positively to moderate exercise in both number and function. Over-fatigue increases the risk of upper respiratory tract infection, while regular moderate physical activity reduces the risk.[48] In one study moderate exercise was associated with a significant reduction in the risk of upper respiratory tract infection.[49]

If one is to exercise in cold weather, proper clothing is essential. Sufficiently protecting the arms and legs from cold helps prevent inflammation and congestion of lungs and brain thus helping prevent viral illness.[50,51,52] The clothing should fit comfortably without obstructing the circulation of the blood or natural respiration of the lungs. Clad in this way, we can take exercise in the open air, even in the dew of morning or evening, or after a fall of rain or snow, without fear of taking cold.[53,54]

PROPER DIET

God gave us wonderful immune systems; one of our first considerations will be to avoid any food that could compromise this first line of defense.

In a study of dietary fat, eating the fat of a typical American diet caused a 50% reduction in natural killer cell activity. A high fat diet reduces natural killer activity by 79%, while a low-fat diet causes no reduction in natural killer cell activity.[55] Not all fats were created equal. For instance, a high cholesterol diet depresses natural killer cells to ¼ their usual activity.[56] Fish oil has been observed to impair immune function and it also delays the clearance of viruses from the lungs.[57]

Milk, the baby food of cows, has drawbacks for the prevention of viral illness. Increased milk drinking results in decreased natural killer cell activity. What is more, tripling your milk protein intake can triple your risk of contracting cancer.[58]

Many people complain of a “sweet tooth”. This may not be the trait of a viral illness survivor. Mice fed a diet containing sucrose (table sugar) had significantly lower immune cell responsiveness.[59] Sugar consumption weakens the ability of immune system to destroy pathogens. If a person eats no refined sugar or carbohydrate for 12 hours, each white blood cell can destroy 14 bacteria. When 24 teaspoons of

sugar are consumed in a day, the white blood cells are so compromised that they can only destroy one bacterium each.[60]

A high salt diet suppresses the white cell's infection fighting ability and leaves you more susceptible to a COVID attack.[61]

Observers of the Biblical weekly rest were found to have higher plasma levels of the immune stimulating antioxidants. Those who also consumed a vegetarian diet had even higher antioxidant levels.

High protein diets have also been shown to compromise the immune system. A diet comprised of 25% protein hampers natural killer cell function whereas a diet with only 5% of the calories coming from protein enhances natural killer activity.[62] Soybeans are an excellent source of protein. Soy has strong antioxidant properties and is a potent immune stimulant that has shown benefits not only for respiratory tract infections, but also for cancer.[63]

I had a friend in high school that put himself on a fresh fruit and vegetable diet. I talked to him not long ago and asked him about his diet. He said that in the last 25 years since being on this diet he has not had a cold, flu, or other respiratory tract infection even once. Science has born this out; fresh fruit and vegetables have been shown to be antibiotic, antiallergic, tumor-protective, anti-inflammatory and stimulating to the immune system.[64] What's more, people on plant-based diets have been shown to have significantly higher intakes of antioxidants than omnivores: 305% higher vitamin C, 247% higher vitamin A, 313% higher vitamin E, 120% more copper.[65] Compared with omnivores, people on a plant-based diet have significantly higher blood concentrations of: Beta-carotene, vitamin C, and vitamin E and vegetarian's natural killer cell activity has been found to be twice that of omnivores.[66]

Remember the old saying, "An apple a day keeps the doctor away?" Five or more apples per week actually improves lung function.[67] Apples contain phytochemicals which inhibit viruses.[68] One of these phytochemicals is quercetin. Quercetin has been shown to protect the lungs from damage by respiratory-tract infections. Quercetin is also found in, onions, green leafy vegetables, and beans.[69]

"An apple a day keeps the doctor away?" Five or more apples per week actually improves lung function

Garlic has long been recognized as a potent immune stimulator. In one study garlic reduced respiratory tract infections by 63%.[70] It is reported that during the 1918 flu epidemic, 20 people in one area ate raw garlic daily with their meals; none of the 20 contracted the flu.[71] It has been suggested that 3 to 5 cloves be eaten per day.

Grapes possess a phytochemical (resveratrol) that strongly inhibits the replication of viruses within cells and significantly improved survival of virus-infected mice.[72]

A deficient diet with only 50% of the USRDA of vitamins has been shown to significantly depress natural killer activity.[73]

Vitamin A deficiency reduces natural killer cell number and function especially in older adults.[74] Vitamin A deficiency also results in a loss of IgA producing cells.[75] Remember that IgA is critical for the eradication of viruses from the lungs. Vitamin A pills have not proven as helpful as just eating good food. Foods high in vitamin A are paprika, cayenne, sweet potato, carrots, kale, spinach, winter squash, cantaloupe, and broccoli.

Vitamin E is effective in helping the body reduce the number of viruses in the lungs. It also helps prevent the loss of appetite and weight loss associated with being sick with a virus. What's more, vitamin E helps lower the damaging inflammation in the lungs caused by tumor necrosis factor alpha.[76] It is usually the

inflammation that starts the downward spiral that ends in death for some respiratory virus sufferers. Vitamin E pills have not proven as helpful as just eating good food. Foods high in vitamin E include sunflower seeds, almonds, flaxseed oil, wheat germ, olive oil, pine nuts, peanut butter, and ground cloves, just to name a few.

Vitamin C, popularized by Linus Pauline, is also helpful in prevention. Vitamin C actually increases lung macrophage function and helps reduce the number of viruses running around in the lungs.[77] Taken before or after the appearance of respiratory tract infection symptoms it can relieve or even prevent them.[78] Vitamin C is also a potent antioxidant that helps reduce damage in infected lungs preserving vital lung tissue.[79] Vitamin C is also best taken in the form of food. Foods high in vitamin C include strawberries, bell peppers, chives, red cabbage, broccoli, pineapple, oranges, lemons, kale, cauliflower, and peas. I like to juice half a lemon into my first morning glass of water.

Severe folate deficiency is associated with a 60% reduction in lymphocyte counts and significantly impaired natural killer cell function in one study.[80] Dietary changes or supplementation, but not both could reverse this effect.[81] If a person was already on a Folate sufficient diet, taking folate pills only decreased their immune systems function. Foods high in Folate include arrowroot, wheat germ, peanuts, sunflower seeds, spinach, lentils, pinto beans, and parsley.

Selenium increases natural killer activity by 70% while protecting the lung tissues from inflammation.[82] A diet high in selenium reduces covid-19 cases by 10 times![83] Higher selenium levels improve COVID-19 survival rate.[84] Lower selenium levels increase the COVID-19 death rate.[85]

Selenium is very important for recovery from a respiratory tract infection—infected lung tissues recover more quickly if you aren't deficient in this element.[86] Foods high in selenium include brazil nuts, mixed nuts, sesame seeds, wheat, sunflower seeds, and wheat germ.

Another nutrient necessary for both natural killer cell numbers and function is zinc.[87] High zinc levels reduce COVID-19 recovery time by 2/3. Patients low in zinc took, on average, 25 days to recover, whereas patients with sufficient zinc took only 8 days to recover.[88] Zinc balances immune responses, and has a proven direct antiviral action against some viruses. Foods high in zinc include wheat germ, pumpkin seeds, sesame seeds, wheat bran, pine nuts, wild rice, and cashews.

Does anyone have a penny? Antibody titers and natural killer-cell cytotoxicity were markedly suppressed in animals fed a copper deficient diet.[89] Copper is best obtained from Spirulina, seaweed, sesame seeds, soybeans, cashews, sunflower seeds, and mixed nuts; but not peanuts.

Magnesium-deficient animals exhibit dramatic elevations of inflammatory mediators that are responsible for the cytokine storm and hemorrhagic pneumonia from which people with pandemic viruses die.[90] You can obtain your magnesium from rice bran, wheat bran, pumpkin seeds, soybeans, flaxseed, Brazil nuts, sesame seeds and cashews.

Turmeric is widely used in India for the treatment of inflammation. It inhibits several cytokines responsible for lung damage in viral pneumonia.[91] It is also an antioxidant through modulation of glutathione levels in alveolar lung cells and it is a potent oxygen radical scavenger.[92] It is also a good source of vitamin C.

Elderberry extract has been shown to have antiviral action.[93] When coronaviruses were treated with Elderberry, it reduced their numbers by 10^{-4}.[94]

Astragalus[95] and Licorice[96] exhibit anti-coronaviral activity. Astragalus stimulates the Natural Killer cells.[97] Chameleon plant—Houttuynia cordata—stimulates lymphocytes to fight Coronaviruses.[98] Chinese cedar—Toona sinensis Roem—has activity against viruses.[99]

Echinacea purpurea, a plant originally used by Native Americans to treat respiratory infections, has been shown to increase natural killer cytotoxicity by nearly 100%.[100]

Let's summarize the foods you may want to eat in preparation for the COVID pandemic. Important vegetables to eat would include garlic, onions, carrots, kale, spinach, and Broccoli. Fruits I would concentrate on are apples, strawberries, grapes, and citrus. Mixed nuts are very valuable; also make sure you get some Brazil and pine nuts. Seeds are also indispensable, have on hand some sunflower, sesame, and pumpkin seeds. Nuts and seeds are best eaten raw rather than roasted and salted. Other foods to concentrate on include soybeans, wheat germ and even turmeric.

Now just think, what have we been describing? The Bible diet! "Then God said, "I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food." "and you will eat the plants of the field."[101] God has said, "If thou wilt diligently hearken to the voice of the Lord thy God, and wilt do that which is right in his sight, and wilt give ear to his commandments, and keep all his statutes, I will put none of these diseases upon thee, which I have brought upon the Egyptians: for I am the Lord that healeth thee."[102]

THE USE OF WATER

You cannot underestimate the value of proper hydration. Consequences of dehydration include constipation, urinary tract and respiratory infections, delirium, renal failure, electrolyte imbalance, hyperthermia, and longer time for wound healing just to name a few.[103]

Other uses of water include bathing as well as hot and cold treatments. "Most persons would receive benefit from a cool or tepid bath every day; morning or evening. Instead of increasing the liability to take cold, a bath, properly taken, fortifies against cold."[104] Taking a cool bath (64°F) before going out in cold weather stimulates the immune system. It augments white blood cell response to cold exposure and increases natural killer cell activity.[105] The way I practice this particular bit of scientific information is to do alternating hot and cold treatments. If I feel the onset of a cold, flu, or other respiratory tract infection I head for the shower. I set the faucet as hot as I can stand and shower until I feel my internal temperature rise. I learned to detect this rise by actually testing my temperature a couple of times till I could correlate the temperature with what I was feeling. When the desired small rise in body temperature is achieved, I then switch to cold, as cold as possible, for one minute. I then repeat the process one or two more times and then jump in bed for about one-half hour. This is usually sufficient to stop dead in its tracks any intruder from the virus family. Ending every bath or shower with cold is an excellent preventative measure and is stimulating to the immune system.

Turmeric is widely used in India for the treatment of inflammation. It inhibits several cytokines responsible for lung damage in viral pneumonia.

Just an aside, another good measure at the very onset of a cold is the use of charcoal. Charcoal binds viruses.[106] It also reduces inflammation by adsorbing excess inflammatory mediators.[107] Drink one to two teaspoons of activated charcoal powder in one glass of water. Sip it slowly and let it coat you throat. This can be repeated every two to four hours as symptoms persist.

TRUST IN DIVINE POWER

The relation between health and spirituality has only recently come to light. Religiosity or spirituality has been shown to increase the function of the immune system.[108]

Trusting in Divine power leads to better mental health that helps boost the immune system. Depression is reliably associated with reduction of natural killer activity and a suppression of lymphocyte proliferation[109] both of which could spell trouble in a pandemic. Loneliness is also associated with poorer immune responses. People with high levels of loneliness and a small social network have the lowest immune activity. Loneliness is also associated with elevations in cortisol, an immunosuppressant hormone.[110] Depression is a bad enough suppressor of the immune system by itself, add to that alcoholism and the two suppress natural killer function even further.[111]

Charcoal binds viruses. It also reduces inflammation by absorbing excess inflammatory mediators.

One of the benefits of trusting God is that the problems of living that usually are the source of stress are now His problems. Increases in stress hormones result in decreased natural killer cell activity and IgA levels,[112] consequently the number of respiratory infections increases with increasing psychological stress.[113] Stress that we hang on to ourselves usually drives us to exasperation and anger. A single five-minute experience of anger can significantly reduce IgA levels for up to five hours.[114] A lack of a sense of humor, worrying about daily problems and experience negative emotions can also significantly decrease IgA levels.[115]

Trusting in Divine power will lead one to a life of service to others. In a study of individuals who serve others, mortality was significantly reduced for those who provided support to friends, relatives, neighbors, and their spouse. Receiving support had no effect on mortality.[116] In one study, people who volunteered more had 63% less mortality than those who volunteered the least. Any amount of volunteering reduced mortality by 60% even among weekly attendees at religious services.[117] We've always known that "It is more blessed to give than to receive." Acts 20:35

SUMMARY

- Use sanitary precautions to reduce exposure to the COVID virus.
- Be prepared in case of national shortages of essential supplies and services.
- Vaccines and antivirals may be of limited supply and of limited efficacy. Do all you can to boost your immune system.
- Eat a nutritious balanced diet. Be sure to eat a variety of nutritious foods, including plenty of vegetables, fruits, beans, nuts, seeds and whole grain products.
- Go easy on salt, sugar, alcohol, cholesterol, and saturated fat.
- Drink lots of water.
- Exercise on a regular basis in the open air and sunshine.
- Get plenty of rest.
- And, by all means, keep the communication open with your heavenly Father.

For further ideas on how to incorporate what you have just learned into your daily life, see the article entitled, "How Can I Apply Healthy Principles in My Daily Life". Or Lifestyle Choices.

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