

SURVIVING AND THRIVING IN A WORLD FULL OF VIRUSES

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The current COVID-19 pandemic has precipitated a lot of fear and anxiety. Although it could be a lot worse if we were dealing with a more deadly illness, it does necessitate a significant level of precaution and concern. Unless we take this very seriously and start thinking long-term, global pandemics could become more common in the 21st century. Factors such as global warming, habitat destruction, human overpopulation, extensive global trade and travel, and poor diet and lifestyle practices among much of our population—due to poverty in some regions and affluence and over-consumption in others—make the possibility of global pandemics more likely in the coming decades.

As with most things, awareness is what is most important. Potential pandemics have always been a reality of life. We've been living in a bubble for the last century thinking that we have everything under control. Neither living in denial nor living in fear is useful. There's no point fearing what we can't control. Fear will not only reduce our quality of life, it is guaranteed to weaken our immune system and thereby make us more susceptible to viral and other types of infections. This can not be overstated. Fully living, loving and embracing each moment of our lives will do more to protect us from viruses than taking any number of herbs and supplements!

Unfortunately, we modern Western humans tend to be obsessed with control. We live our lives in an illusion of control and fear anything that threatens that illusion. The antidote is living each moment to the fullest and embracing the Mystery! This is a recipe for a happier, healthier, more fulfilling life. We need to acknowledge that there are Natural Laws. We can manipulate them to a degree—sometimes to our benefit and often to our detriment—but what we really need to do is learn how to dance with Nature in a good way. Although we have convinced ourselves otherwise, life is not a free-for-all where we can do whatever we want whenever we want.

The current pandemic also shines a light on our relationship with death. We're all going to die. It is the only thing that we can count on with certainty. What we don't know is where, when and how. Traditional cultures get this. They grieve and mourn death, but they also accept it as a fact of life and see it as the next stage in our sacred journey. They also understand that death is part of the natural regenerative cycle that allows life to continue. In modern Western culture we do not have a good relationship with death. We see it as something evil and tend to pretend that it's not going to happen. We want life at all cost—even if there is no quality to life and we are kept alive by drugs and machines; and even if it is at the expense of other people and future generations. Accepting our mortality is an important part of living well. This awareness allows us to live our life to the fullest right here and now. Whether we die tomorrow, next year, or in 50 years, what a waste it will have been if we have lived our life in fear of some hypothetical future rather than fully embracing each precious moment that we have.

When it comes to microbes, we need to stop seeing them as our enemies and realize that for the most part they are our friends. Life would not be possible without them and most of them are directly or indirectly beneficial to us. Even potentially pathogenic organisms are mostly good for us. We are exposed to millions of them every day and many of them live in and on our body all of the time. Mostly, they just provide 'exercise' for our body defenses—which is necessary for proper immune function.

Once we realize that worrying about things we can't control isn't good medicine, we can address the things that we can affect to some degree in our day-to-day lives. During the current pandemic, aside from the important recommendations of various public health agencies—hand washing, minimizing travel, social distancing, self-quarantining if we have symptoms or have been exposed to confirmed cases—to help slow down the spread of the virus, there are principles and practices that we can implement on a personal level that will increase our resistance to viruses and other pathogens. The more of these that we put into practice, the greater the benefits. It doesn't mean that we won't get sick, but it does mean that we can potentially reduce the frequency, severity and duration of illness—and if some new disease like COVID-19 for which we have no immunity does come around, we can minimize the risks. That being said, it is best if we follow these guidelines as a means of living well rather than out of fear of illness.

Here are my recommendations:

1. Diet

Eat a healthy diet focusing on whole, natural, certified organic foods including lots of vegetables and fruits. Eat

grains and grain-like seeds whole as much as possible, not as flour products. Reduce consumption of processed foods, greasy foods, animal products (especially red meat and dairy products) and refined carbohydrates (sugar and white flour). If you eat dairy and/or animal protein, purchase them from good quality organic sources and consume small serving sizes of these foods. If you have any food sensitivities, avoid those foods as much as possible—preferably completely.

2. Exercise

Get lots of exercise. Walk a lot and include at least 30 minutes of moderate to strenuous aerobic exercise a minimum of 3-4 times per week. Also, minimize the amount of time you spend doing sedentary activities such as sitting at a computer or with a cell phone, watching TV, reading or driving for long periods of time. When these are unavoidable, stop, get up, move around and stretch for a couple of minutes every 20-30 minutes.

3. Rest and Relaxation

Many people in our society are sleep deprived and many further exacerbate the situation by using caffeine to stay alert. Ideally, for most adults 7-9 hours is what is required depending on the person and their lifestyle. Children, adolescents and people who are sick need more. Anyone who claims that they can get by on less sleep is fooling themselves. The goal is not to "get by" it is to optimize our health. When you start getting more sleep you will feel the difference. Sufficient sleep is absolutely essential for proper immune function. Most of our healing takes place when we are sleeping as well.

We also need down time. Watching action or violent TV shows and movies, playing video games, or text messaging are not down time! Taking long walks—especially in Nature or more natural settings—or just sitting quietly in a park or our backyard is. The key is to do something we enjoy that is calming and doesn't involve a lot of excitement or mental chatter.

4. De-stressing

Most people are way too stressed. Being calm about microbes, exercising and getting sufficient sleep and down time is a great start. We also need to learn to be fully present in our life. We don't need to be accessible 24/7, nor do we need to be constantly updated about everything our friends and family are doing. This is not real relationship. It is just a distraction which keeps us from being fully present in our real life, which is what is happening right here and now! As a result, one of the best ways many people can reduce stress in their life these days is to keep their cell phone turned off most of the time. When used in moderation with clear boundaries, these technologies are very useful tools that allow us to communicate with family and friends who we might not otherwise be able to see in person. For many of us they are also essential for our work. However, for many people the tool has become the master. Devices and social media have become an addiction.

When dealing with stress it all boils down to priorities. Having clear priorities and boundaries is very important. For example, we don't need to work constantly so that we can accumulate lots of stuff. Beyond taking care of our basic needs, happiness doesn't come from "owning" (I should say "being owned by") lots of stuff. That's a capitalist/corporate story that most of us have bought into—regardless of what party we voted for!

We also need to realize that we create most of the stress in our lives through automatic maladaptive stress-response patterns that we have repeated for decades. Most stress isn't inherent in situations. We create it through the stories that we tell ourselves about those situations. When our mind spins out our emotions spin out as well. These patterns are learned and they can be unlearned by becoming more mindful and/or replacing them with better response patterns. This is not about blame, it is about awareness!

Disciplines such as meditation, prayer, yoga and tai chi can be helpful, as well as counseling, if necessary.

5. Connecting With Nature

Although the modern paradigm tries to convince us otherwise, we are natural beings and we need to nourish our connection with Nature. It is a human need just like air, water, food, shelter, exercise and love. Being in and with Nature both fulfills this need and is one of the best ways to reduce stress. However, racing around in Nature on ATVs, snowmobiles and motorboats doesn't really count—and leave the cell phone behind!

6. Probiotics

It is absolutely essential that we have a healthy population of friendly microorganisms living in and on our body. One of the illusions perpetuated by the modern world view is that we are individuals. In reality, we are intimately connected to the world that we live in, physically, emotionally, mentally and spiritually. Our body functions more like an ecosystem than as an individual entity. The microorganisms that normally live in and on us work together

with our body cells to help create an environment that is mutually beneficial for both. They also work with our immune cells. In some ways they act like an extension of our immune system.

There are many things that disturb our internal ecology. Antibiotics are the worst and should only be used when absolutely necessary—which is very rarely, possibly never for many people. Excessive use of natural antimicrobials can have a similar effect, especially when they are very concentrated such as essential oils. The current over-marketing and over-use of very potent herbs and herbal products—such as oregano oil—can disturb our microbiome.

We also need to eat lots of fiber—which is the main food of the friendly microorganisms in our respiratory and digestive tracts—and have a strong, healthy digestive system. When our digestive system isn't functioning well it will lead to unhealthy changes in our gut microbiome. The most important contributors to poor digestion are eating a poor diet and overloading our digestive system by eating too much, too often, or too close to bedtime. This system needs regular rest. The other major cause of poor digestion is too much stress.

A good probiotic supplement should contain at least 5-6 strains of bacteria, but 10-15 is much better. It should include *Lactobacillus plantarum*, *L. rhamnosus* and *L. salivarius*, and the potency should be at least 10 billion active cells. Probiotics must be refrigerated and they keep better in capsule form because the capsule helps to protect the culture from moisture and oxygen. However, it is essential that we open up the capsule and mix it with water when we take it because it is necessary to get the culture into our mouth and throat. From there it can also spread deeper into our respiratory system. Getting the culture into our mouth, throat and respiratory system is the most important factor in terms of preventing viral infections as most viruses enter our body via this route. Friendly microorganisms improve our immune function and compete with unfriendly microorganisms. Swishing the water with probiotic culture around in our mouth before swallowing it will facilitate the culture getting established in our mouth and throat.

Probiotics should be taken on an empty stomach at least 3 hours after eating, 1 hour after drinking anything other than water, and 30 minutes before eating or drinking anything other than water. Empty the capsule into 175-250 ml (6-8 oz) of water that doesn't contain chlorine. What works even better is to add it to warm water with a tablespoon of organic psyllium husks, whole flax seeds or whole chia seeds (or a combination of 2 or 3 of them) as mucilaginous fiber helps the culture to adhere to our mucus membranes and supports its growth. This type of fiber is prebiotic. The best time to take probiotics is first thing in the morning.

Even if we eat well and have healthy digestive function, there are lots of things that can throw off the balance of our internal microbiome. For that reason it's a good idea to take a good probiotic supplement for 3-4 weeks, 2-3 times per year as a prophylactic. We should also take it any time we feel like we are getting sick for the duration of the illness and at least one week afterwards. In some ways this is just important as taking herbs—but taking both is best! Probiotics are also recommended any time we travel a significant distance from home—starting a week before we leave and ending a week after we return—and, of course, any time that it is necessary to take antibiotics and for about a month afterwards.

It is important to keep in mind that probiotics are not an antidote for poor diet and lifestyle practices. A healthy gut microbiome includes hundreds or even thousands of different species of microorganisms. Probiotics can help to restore balance, but supplementing a few species is not going to be able to compensate for the lack of microbial diversity that results from ongoing poor lifestyle practices.

Eating fermented foods like yogurt, kefir, sauerkraut and kimchi are also beneficial for the support of a healthy microbiome and an excellent addition to a healthy diet. However, they are not sufficient for therapeutic purposes. When dealing with infections probiotic supplements are necessary.

7. Hygiene

Connected to the probiotic issue is the health of the microbiome of our skin. One of the biggest challenges in this regard is our current microbe phobia. Yes, it is important to wash our hands whenever they are "dirty", however, the over-use of antimicrobial soaps, hand sanitizers and similar products—even if they are "natural"—is detrimental to the health of our skin, the organisms that live on it, and ultimately to our health. Soap alone is antimicrobial enough, and even too much soap is not recommended. We tend to use too much of it, too often, and often on parts of our body that don't require it. In reality, unless areas of our body have been exposed to some oily or fat-soluble substance, water alone is all that is necessary to wash most of the surface of our body. Water will remove sweat and urine, and toweling dry will remove excessive sebum (skin oil) without drying out our skin too much. The only parts of our body that regularly require some kind of soap are our hands, armpits, anus, feet and hair.

Hand washing is important—but not in excess. Water alone is good enough after urinating or getting anything that is water soluble on our hands. Washing our hands with soap before we eat, after a bowel movement and after

touching anything that could be contaminated—such as raw meat—is always a good idea. If we are concerned about microbes on our hands, periodically washing our hands with plain yogurt will help to keep our population of skin microbes healthy, which is an important natural way of preventing infection. Yogurt is also good for our skin! Unless there is good reason to believe that we can potentially be exposed to a serious illness, the general paranoia about touching money, doorknobs and shopping cart handles is unnecessary. Living in fear of microbes while in public places has a greater potential to increase our susceptibility to infection than touching doorknobs, and excessive use of soap and especially hand sanitizers compromises the microbiome and health of our skin, which is our body's first line of defense against infection. That being said, the current COVID-19 pandemic is one of those situations when we need to be more vigilant. This virus has demonstrated the ability to remain viable on some surfaces for hours or even days. This is one of those times when washing our hands more often and the occasional use of (natural) hand sanitizers is a good idea, but I only recommend using hand sanitizers when we do not have access to soap and water. During times when it is necessary to wash our hands more it is also necessary to regularly apply some kind of natural oil or moisturizing cream to our hands to keep our skin from becoming too dry.

A special note here to parents: these guidelines also apply to our children. Not only will our paranoia about their cleanliness encourage them to grow up to be anxious, fearful adults, there is a growing body of evidence (officially called the "hygiene hypothesis") that infants and young children need to be exposed to microorganisms from their environment—especially soil—in order for their immune system to develop normally. Excessive hygiene at an early age is correlated with an increase in autoimmune conditions later in life. As parents we have a double responsibility to learn how to be more chill about these kinds of things. This will not only improve our personal health and well-being, but kids notice if we get anxious in certain situations and the response is contagious. We are teaching them to be over-sensitive, anxious people, which will be detrimental to them through their lives.

8. Supplements

The issue of supplements is too complex to cover in detail, but there are many supplements that can help boost immune function. At the very least I recommend a good quality low potency multivitamin with minerals (iron-free unless you know for sure that you need it); non-acidic vitamin C (mineral ascorbates as opposed to ascorbic acid); vitamin D; polyphenols such as flavonoids, anthocyanins and catechins; zinc; selenium; and omega-3 fatty acids. Minerals need to be taken in a form that is easily assimilated, such as citrates and amino acid chelates. Cheaper forms such as gluconates, carbonates and oxides are not well assimilated and oxides, in particular, are potentially harmful. N-acetylcysteine (NAC) is another antioxidant that has a particular affinity for the lungs. It helps to reduce lung inflammation and break up thick mucus secretions. It could be helpful for anyone infected by the COVID-19 virus.

Melatonin is also important for the health of our immune system, but it is better to support our body in producing a sufficient level of its own melatonin rather than taking it as a supplement. This means plenty of exposure to outdoor light during the day (without sunglasses some of the time) and sleeping in an environment that is completely dark at night. Looking at devices during the last couple of hours before we go to bed is particularly detrimental. This is because they emit light with a lot of the blue/violet spectrum and the light is shining directly into our eyes. During that time if we want to engage with something like that it is best to read a book or magazine in soft light (low blue/violet spectrum) that is shining from behind us.

It is best if people who usually need to get up at night learn to navigate their way to the bathroom in the dark rather than turning on lights. If that isn't possible, use a red nightlight that isn't very bright. The red light spectrum doesn't shut off our melatonin production as readily as other wavelengths. It is likely that one of the many reasons that immune dysfunction is so prevalent today is because our melatonin production atrophies with age largely due to stress, lack of sunlight, over-use of devices at night, and sleeping in environments that aren't completely dark.

Lack of sleep, however, is one of the major factors that reduces immune function. If we are going through a period when we are having difficulty falling or staying asleep it is very important that we do what we can to improve our sleep habits. Meditation and other disciplines that help us learn how to calm down our mind can be helpful if part of the issue is too much mental chatter. It is better that we improve our sleep habits through our own efforts than relying on taking something. However, in the short-term taking something is better than not getting enough sleep. Taking melatonin periodically can therefore sometimes be helpful. It is best to take it in the form of a sublingual tablet. Start with a very low dose like 0.5-1 mg and slowly build up the dose, if necessary, until you find the minimum level that works for you. Taking too much is not good and sometimes less effective than taking a lower dose. In addition to getting more sleep, it is possible that the melatonin will have some additional immune-boosting benefits.

9. Reduce Exposure to Toxicity

Environmental toxins tend to accumulate in our body tissues leading to an increase in inflammation and disturbances of immune function. They include pollutants in our environment, work place and home such as chemical solvents, air pollution and household cleaning products, as well as agricultural and food processing chemicals—but they aren't part the diet that I recommend! We also shouldn't be drinking, breathing or bathing in chlorine. That doesn't mean we need to buy bottled water and fill up the world with plastic bottles. A simple carbon filter for our drinking water and shower will do.

It is also best to reduce our use of social and pharmaceutical drugs. This includes cigarettes, marijuana, "hard" drugs and pharmaceuticals (especially antibiotics). I know that it isn't going to go down well among the large number of people who are over-enthusiastic about marijuana these days, but inhaling burning resin on a regular basis is not a good thing. I am also fairly certain that the chemicals that people are inhaling from vaping products are unhealthy. If you consume caffeine, alcohol and/or marijuana, it should be in moderation. For coffee, once per day is acceptable. Two cups of tea in a day is OK as that contains roughly the same amount of caffeine as one cup of coffee. It's also better to drink dark roasted coffee because it contains less caffeine. Caffeine containing "energy drinks" are never recommended.

10. Air quality

Related to toxicity is air quality. There are two primary factors relating to air quality that have a significant impact on the transmission of airborne viruses and our susceptibility to them. The first is pollution. Anyone who lives in areas where the air is significantly polluted is going to have some degree of compromised respiratory function and increased susceptibility to airborne pathogens. This means those of us who live in urban areas, industrial areas and regions where the landscape impedes air flow allowing localized accumulation of airborne pollutants. The good news is that the significant reduction in ground and air traffic during the current pandemic has resulted in significant improvements in outdoor air quality in many areas. This should help to reduce the susceptibility and severity of infections of the people who live in those areas.

Indoor air quality is another matter. It is also well documented that indoor air quality can often be poorer than outdoor air quality even in urban environments, both in the workplace and at home. Some of the major sources of indoor pollution include: mold spores; other particulate matter; tobacco and marijuana smoke; incense; toxic cleaning products such as bleach; chlorine from chlorinated tap water, hot tubs and swimming pools (bromine is just as bad); chemical solvents; off-gassing from building materials, paints, varnishes, furniture, fixtures and textiles; synthetic perfumes and deodorizing products.

In the home and workplace poor air circulation and filtration is often a factor. It is very important that we purchase the best quality air filters for furnaces and air conditioning units and change them in accordance with the guidelines of the manufacturer. If indoor air quality is compromised for any reason, we can also benefit from using a good quality HEPA filter in areas where we spend a lot of time working or sleeping. Many vacuum cleaners now have HEPA filters as well. This is important to ensure that we aren't spewing unwanted pollutants into the air when we are vacuuming floors and carpets. Unfortunately, we have less control of air pollution in our workplace. Employees can do their best to discuss this with their employers. Although more challenging, we also have the option of changing where we work.

At home is another matter. Here we have a lot more control of our environment and can choose to avoid many of the sources of indoor pollution. It may not be possible to avoid all of them, but the more that we address the better it will be for our health in the long run, and for our susceptibility to COVID-19 and other airborne pathogens. The other major air quality factor is humidity. It is well-established that increasing humidity reduces the transmission of airborne viruses. It is likely that the increase in both outdoor and indoor humidity during the warmer months of the year is one of the factors that results in a significant reduction of airborne illnesses during that time of year. That being said, in recent years I have seen an increase in the number of people suffering from respiratory infections during the summer months. I suspect that this is partly due to the increasing use of air conditioning which, among other things, significantly decreases indoor air humidity.

When the humidity reaches or exceeds 40% the transmission of airborne viruses is reduced. It also improves respiratory function. Wet saunas can help to reduce the duration and severity of respiratory infections as well. Although they share some of the health benefits of wet saunas, dry saunas and infrared saunas do not have significant benefits for respiratory infections and the dry air could actually have a negative consequences.

Dry air doesn't just increase airborne virus transmission. It also compromises our respiratory function and increases our susceptibility to airborne infections. Employers would benefit from less lost work time due to illness if they

were to ensure an adequate level of humidity in the workplace during the months when indoor heating is required. Similarly, we would all benefit from more humid air at home. This is particularly an issue at night. Even though our immune system is most active when we are sleeping, it is very common for people who are suffering from respiratory infections to experience a worsening of their symptoms over night. This is because our respiratory system is less active at night and respiratory secretions and the capacity for this system to cleanse itself are reduced. In dry air environments this results in dryness of the respiratory mucus membranes in our sinuses, throat and upper bronchial passages, compromising the health of these membranes and the capacity of our immune cells to deal with infectious organisms. The end result is that the severity of respiratory infections often worsens over night if we are sleeping in a low humidity environment. Even if it is not possible to significantly increase the humidity of the air in our entire home, there are significant benefits to using a humidifier in our bedroom at night—both in terms of prevention and reducing the severity of respiratory infections.

The one concern in relation to humidity is mold, particularly for people who live in regions with very cold winters and who live in homes that aren't well insulated. Increasing humidity under these circumstances can lead to moisture condensation which promotes the growth of mold. Better insulated walls, attics and windows is the best solution but not always an option. Therefore it is necessary to be vigilant about mold. There are also other creative solutions. For instance, we can sleep with a humidifier in our bedroom at night and then turn it off and allow the moisture in the room to dry out during the day.

11. Cleaning Products

Cleaning and disinfecting surfaces during a pandemic can also be important to help reduce the spread of the virus. However, as I mentioned with respect to hand sanitizers, we don't need to go overboard with disinfectants—especially the chemical kind. I use a very simple home made all purpose cleaning product that can be used for almost anything and is antimicrobial as well. In a typical size spray bottle (750 ml to 1l) mix 10% white vinegar with 90% water. Add 2-3 drops of natural dish detergent and 2-3 drops each of a couple of antimicrobial essential oils. It's good to use essential oils that you like the aroma of, and in this case we don't need to be concerned about respiratory properties. In addition to the essential oils that I already mentioned, lemon also works well for this purpose. If you want to make this more antiseptic during the current pandemic, use 50% vodka that is 40% alcohol, 10% vinegar and 40% water. This will make the solution 20% alcohol. This is sufficient in combination with the vinegar, dish soap and essential oils.

12. Breathing

Our nasal passages are designed to filter and condition the air that we breathe. When we breathe through our nose, particulate matter and potential pathogens get trapped in the hairs and mucus. This helps to prevent them from getting deeper into our respiratory system where they are more harmful. They can then be eliminated when we blow our nose.

Many people have a tendency to breathe through their mouth. This increases their susceptibility to infections and chronic respiratory conditions. In the long-term it is important to practice nose breathing as much as possible. It is particularly important if we need to be in public during a pandemic. Breathing through our nose will not only reduce the likelihood that we contract an airborne infection, it will also reduce the potential for us to spread an infection to others if we are carrying it ourselves and don't realize it.

Some people recommend that we breathe in through our nose and out through our mouth. This can be useful during aerobic exercise when our oxygen demands are higher than normal, but we don't want to be only drawing air inwards through our sinuses. This will increase the likelihood that anything trapped there will penetrate deeper into our respiratory system. It's best to breathe in and out through our nose and blow our nose when mucus accumulates.

13. Immune Stimulating Herbs

These herbal recommendations are primarily based on North American and European herbs as these are what I use in my practice. Although many of them are readily available globally, if you live in other parts of the world it is important to familiarize yourself with effective herbs that are available in your region.

Immune stimulants are short-term immunomodulators that stimulate an immediate response of our immune system. To give our immune system a boost, it is best to combine 3-5 of them and take them for short periods of time followed by a break. Their effectiveness drops off if they are used for more than a week or two. An immune stimulant formula is taken 3-4 times per day. In general, herbs are best taken on an empty stomach for optimum assimilation. So, we take the immune stimulants 3-4 times per day on an empty stomach for 1-2 weeks and then stop taking them for at least another week. For the average person that might mean taking them one week per

month during the time of year when they are most susceptible to infections, probably September to April for most people in the temperate regions of the Northern Hemisphere. In tropical areas and the Southern Hemisphere it can be different. For a stronger boost, an immune stimulant formula can be taken for 1-2 week periods followed by a 1-2 week break for several cycles. This is called pulsing. Taking them continuously for a longer period doesn't increase their effectiveness, but pulsing them longer does. During a period of time when we are at a greater risk of getting sick such as during the current COVID-19 pandemic—or whenever there seems to be a lot of viruses going around—it's a good idea to pulse an immune stimulant formula one week on, one week off for the duration of the pandemic. If we do get sick it's necessary to shift from preventative to acute protocols.

When using immune stimulants according to acute protocols to treat an infection in progress, the sooner we start using them the more effective the results. We begin by taking the formula every couple of hours or maybe even every hour if the symptoms are very intense. Then we gradually decrease the frequency of the dose while the symptoms are resolving. Sometimes people who use immune stimulant herbs obtain poor results. It's usually because they weren't taking enough and/or they started too late or discontinued them too soon. Also, for acute infections it is more effective if we combine immune stimulant herbs with herbs that treat the specific kind of infection that we are suffering from.

Some effective immune stimulants that are versatile and easy to use include purple coneflower herb and root (*Echinacea* spp.), elecampane root (*Inula helenium*) [maximum 30%], plantain herb (*Plantago* spp.), pot marigold flower (*Calendula officinalis*) [maximum 15%], boneset herb (*Eupatorium perfoliatum*) [maximum 20%], yarrow herb (*Achillea millefolium*) [maximum 20%], black elder flower (*Sambucus nigra*) and stinging nettle herb (*Urtica dioica*). The proportion limits are due to their level of bitterness, astringency and/or pungency (heat).

14. Immune Tonic Herbs

Immune tonics work more slowly and deeply than immune stimulants. They must be taken continuously, 3-4 times per day for at least 2 months.

Immune tonics are not recommended for acute infections, but they are very good for chronic auto-immune conditions and as long-term tonics to boost our overall immune function when we aren't sick. They work best when following a period of time pulsing a good immune stimulant formulation.

Some of the immune tonics that I often use are North American ginseng (*Panax quinquefolius*), Siberian ginseng (*Eleutherococcus senticosus*), Chinese milkvetch (*Astragalus membranaceus*), turmeric rhizome (*Curcuma longa*) [maximum 30%], and a number of fungi including lacquered polypore or reishi (*Ganoderma lucidum*), artist's conk (*G. applanatum*) hemlock varnish shelf (*G. tsugae*), birch polypore (*Piptoporus betulinus*), tinder fungus (*Fomes fomentarius*) and turkey tail (*Trametes versicolor*).

15. Antiviral Herbs

There are many herbs that have antiviral properties. They weaken viruses and/or increase our resistance to them. They are important to include—along with immune stimulants—in formulations for the treatment of active viral infections such as colds and flu. During an outbreak of a particularly nasty viral infection they can be pulsed along with immune stimulants to boost our resistance, but immune stimulants are more important for prevention. The action of antivirals doesn't wear off in the same way as immune stimulants, but if they are used continuously there is a risk that viruses could develop a resistance to the herbs that we are using. Therefore taking them continuously is not recommended and it's best not to use the same herbs all the time. When treating an active acute infection antivirals are combined with immune stimulants and taken more frequently according to acute protocols (see 'Immune Stimulants' above).

Some common and effective antiviral herbs include all of the immune stimulants that I mentioned above with the exception of plantain and elecampane, as well as lemon balm herb (*Melissa officinalis*), hyssop herb (*Hyssopus officinalis*), heal-all herb (*Prunella vulgaris*), mad-dog skullcap herb (*Scutellaria lateriflora*), peppermint herb (*Mentha x piperita*), St. Johnswort herb (*Hypericum perforatum*), blue vervain herb (*Verbena hastata*) [maximum 30%], oregano herb (*Origanum vulgare*) [maximum 30%], marjoram herb (*O. majorana*) [maximum 50%], thyme herb (*Thymus vulgaris*), wild bergamot herb (*Monarda fistulosa*) [maximum 30%], sage herb (*Salvia officinalis*) [maximum 20%] and cinnamon bark (*Cinnamomum verum*) [maximum 15%].

When using antivirals for very serious conditions it is necessary to add a potentizing antiviral herb to the formulation. These are herbs that are less tonic and more intense and, as a result, tend to have some side-effects and potential toxicity associated with them if they are over-used or misused. We usually only include one of these herbs in a formulation at a proportion of about 10%, supported by some of the more tonic antivirals listed above. There are medium and high potency potentizers. I am only going to mention a few of the medium potency herbs

because the high potency herbs are associated with a much greater potential for toxicity and should only be used under the guidance of a qualified herbalist or other practitioner who is experienced with the use of these herbs.

Some of the medium potency antiviral herbs that I recommend for this purpose include black walnut leaf or fruit husk (*Juglans nigra*), tansy herb (*Tanacetum vulgare*), creosote-bush or chaparral leaf (*Larrea tridentata*) and wild indigo root (*Baptisia* spp.) [all maximum 10%].

Another way to potentize a formula for an acute viral infection is using essential oils. These are very concentrated and the way some of them are being recommended these days is inappropriate. However, they can be added to tincture formulations to boost their antiviral properties. The best essential oils for this purpose are common thyme (*Thymus vulgaris*), marjoram (*Origanum majorana*), oregano (*Origanum vulgare*) and frankincense (*Boswellia* spp.). The dose is one drop of essential oil for each 50-100 ml of a tincture formula. Most of these products will indicate on the label that they are 'For external use only.' Under normal circumstances this is true as they are too concentrated for internal use. However, diluted in a tincture formula is safe as long as you don't exceed the dose that I recommended.

'Oregano Oil' products are a bit more complicated as these are usually diluted in some kind of oil base. They are still too concentrated for use as they are being recommended. People who want to use oregano for infections should be using the tincture, not the oil. The recommendations above for using essential oils to potentize a tincture formula are based on using the pure essential oil. If you are adding one of these 'Oregano Oil' products to a tincture formulation it is necessary to know the dilution of the product. For example, if it is 25% oregano essential oil, to potentize 50-100 ml of a tincture formula you would need to use four times as much (4 drops instead of 1). The unsupervised use of all of these potentizing protocols is not recommended for children under three and the dose of potentizers should be half for children from 3-7.

All of the immune tonic herbs that I mentioned are antiviral as well. We don't use them in immune stimulant formulations or for acute infections, but we do get additional antiviral benefits from taking immune tonic formulations when we are healthy.

16. External Treatment

Although the herbal protocols for prevention are strictly systemic (internal) and the primary treatment for this kind of infection in progress is systemic as well, if we have a respiratory infection the treatment of the symptoms can be further enhanced by using herbal essential oils externally in addition to taking herbs internally. There are many essential oils that are both antiviral and can also help reduce respiratory symptoms. These include all of the ones that I have already mentioned (thyme, oregano, marjoram and frankincense) as well as anise (*Pimpinella anisum*), English lavender (*Lavandula angustifolia*), eucalyptus, (*Eucalyptus globulus*) peppermint (*Mentha x piperita*) and rosemary (*Rosmarinus officinalis*). The essential oils are added to a stable oil base (olive oil works well) and gently massaged over the surface of our chest, upper back and throat 2-3 times per day depending on the severity of our symptoms. It's best to combine two or more. The dilution is one drop of all of the essential oils combined for each ml of base oil (not one drop of each essential oil per ml). So if you add three essential oils in equal proportion to 30 ml of base oil the amount would be 10 drops of each essential oil. Keep in mind that if you do this before bed, peppermint, eucalyptus and rosemary could be too stimulating for some people and make it more difficult to fall asleep. For children under three years old use half the amount of essential oil per ml of base oil.

17. Inhalations

For anyone with an active respiratory infection, inhalations can also help to reduce the severity of the symptoms and speed up recovery. This involves filling a bowl with an aromatic herbal infusion, or hot water and adding a couple of drops of essential oil (or both). We need to breathe the steam deeply for a few minutes. The best way is to place our face over the bowl (not too close) and put a towel over our head to create a contained space to breathe in the steam and herb vapours. All of the essential oils that I mentioned above are effective or we can use the herbs that they are derived from as infusions.

18. Essential Oil Diffusers

There are many kinds of diffusers that disperse essential oils in the air. There is some evidence that using antiviral essential oils in this way can help to reduce the spread of viruses in indoor environments. Any of the essential oils that I recommended can be used this way. It is better to combine at least two of them. In particular, I recommend combining either lavender and thyme, or lavender and marjoram. These combinations work well, smell great, can help reduce respiratory symptoms, and are calming—which can help to reduce the stress that many of us are feeling right now. The other essential oils that I mentioned also work, but many of them are less calming and aren't necessarily the best aromas that we might want to use in our home or work space.

Some diffusers use candles such as tea lights to warm the essential oils. When using this type of diffuser it is best to use natural wax candles such as beeswax as it is not good to be inhaling paraffin (a component of commercial waxes) when dealing with respiratory issues. This is also a source of indoor pollution that is best avoided in general. Some kinds of incense can also help to some degree as this is another way of dispersing essential oils in the air. However, I don't recommend incense for this purpose because it also disperses particulate matter which is not good for our lungs.

Another common practice is smudging. This involves burning plants that are traditionally used for this purpose to physically and energetically clear a space. Some herbs are used more for clearing and others for bringing good energy into the space. All of them are useful but the clearing herbs are the most important under these circumstances. For that purpose I have found cedar, juniper and frankincense to be particularly useful. Keep in mind that doing this periodically can be helpful, but—like incense—smudging puts particulate matter into the air which can be detrimental to some people if used too often in a confined space.

To summarize the herbal recommendations, pulsing an immune stimulant formula for a period of time possibly followed by an immune tonic taken for 2-3 months is an excellent way to improve our immune function and prevent illness. If we are sick with a respiratory viral infection, combining immune stimulant herbs with antiviral herbs and taking the formula according to acute protocols—which means larger doses more often—a little bit longer than the duration of the illness is far more effective. It also might be a good idea to take a break for a week and then pulse with an immune stimulant formula a couple of times to give our immune system an extra boost after being sick.

There are many immune, cold/flu and antiviral formulations available over-the-counter. They vary from region to region. For convenience it is possible to purchase these products rather than attempt to make your own formula. Although some of them might be effective, unfortunately, most of the formulations that I have seen out there aren't that great. Many of them include chronic immune tonic herbs in acute formulations. They also commonly contain goldenseal, which is an excellent herb for bacterial, fungal and parasitic infections, but is a poor immune stimulant and antiviral and therefore not appropriate in these kinds of formulas. It is also a medium potency herb and not suitable for small children. Some over-the-counter formulas also include higher potency herbs that are not recommended for unsupervised use. Some are just poorly formulated. If you follow the basic principles that I have provided, you are likely to end up with a formula that is better than most of the products that you can purchase—and learn something in the process!

In general, I prefer to use tinctures that are made from fresh herbs. Although other forms will work, in my experience these get the best results. Nevertheless, dried herb tinctures and infusions (teas) can be used as well. The individual dose depends on the potency. Use the guidelines on the label of any products that you purchase. Keep in mind that they will usually be guidelines for chronic use. For acute use the dose and frequency of the dose needs to be higher. Also, when making a herbal infusion for therapeutic purposes the herbs need to be infused (steeped) longer than when making a tea for beverage purposes, typically 15-20 minutes.

Anyone who is pregnant, nursing, has a serious health condition, or is taking pharmaceuticals should consult with a qualified herbalist or other natural health care practitioner who is trained in the use of herbs before using any of these protocols. Similarly, if you try any of these herbs and have an unusual reaction or don't get sufficient results, your condition may be too complicated for self-treatment and it's best to consult with a practitioner. If you are giving herbs to children the doses are lower, roughly corresponding to body weight. Potentizing herbs should not be used for children except under the guidance of a qualified practitioner.

During the current COVID-19 pandemic we also need to follow the guidelines being provided by government health agencies to help to control the spread of this illness. Anyone with moderate to severe symptoms should not rely exclusively on self-treatment. They should consult with a doctor for regular health care, and with a qualified herbalist or other natural health practitioner for natural health care.

The issue of viruses and infectious disease is very complex. I have tried my best to provide as complete a picture as possible. The most important thing to remember is that there are a lot of positive things that we can do if we choose to. To live a healthy life means living in balance and that comes from the quality of our relationships—with our body, our food, our family and community, and with Nature. So, live well, be aware, and most importantly, do your best not to live in fear!