

# How To Improve Immunity To Protect Us During This Pandemic

By

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# Before we talk of improving immunity

- ▶ **It is essential for us to prevent infection by following CDC guidelines**
- ▶ By social distancing
- ▶ Wash your hands if you come in contact with surfaces which may have viruses, bacteria, contaminated
- ▶ Use hand-sanitizers
- ▶ Quarantine if you have come in contact with anyone who may have been exposed to Corona Virus
- ▶ Get assessed immediately if you have any symptoms of Corona Virus infection

# Everyone and anyone can get this Corona Virus

- ▶ If Prince Charles, many congressmen, senators, Chris Cuomo and Tom Hanks gets it, you can get it.
- ▶ Everyone and anyone can get this Corona Virus. No one is immune to it. What one can do is to improve health and immunity to decrease severity of illnesses.
- ▶ What is important how do you get through it and increase your chances of decreasing severity of illness by improving your health and Immune System

# Our Immune system

- ▶ **Our immune system does a amazing job of defending us against disease-causing microorganisms.**
- ▶ Immune system protects us from bacteria, viruses and other pathogens.
- ▶ **But sometimes it fails: Microorganism/germ invade successfully and makes you sick.**
- ▶ **If our immune system is compromised it makes us more prone to infections.**
- ▶ Even in flu season many of your family members/friends may get sick, but you may not get sick if you have better immune system.

# Immune System

**The immune system is precisely that — a system, not a single entity.** To function well, it requires balance and harmony. There is still much that researchers don't know about the intricacies and interconnectedness of the immune response.

# First line of defense is to choose a healthy lifestyle

**Following general good-health guidelines is the single best step you can take toward naturally keeping your immune system strong and healthy.**

Every part of your body, including your immune system, functions better when protected from environmental assaults and bolstered by healthy-living strategies such as these:

# Ways to strengthen your immune system

- ▶ Eat a nutritious plant based diet high in fruits and vegetables
- ▶ Exercise regularly
- ▶ Maintain a healthy weight
- ▶ Minimize stress by learning better coping strategies to cope with life stress
- ▶ Get adequate sleep
- ▶ Don't smoke or vape which deteriorates lung function
- ▶ If you drink alcohol, minimize alcohol use
- ▶ Take steps to avoid infection, such as washing your hands frequently and cooking meats thoroughly.

# Ways to strengthen your immune system

- ▶ Our diet
- ▶ Certain vitamins
- ▶ Make lifestyle changes in the prospect of producing a flawless immune system
- ▶ Herbal preparations?

# Lifestyle Medicine focuses on 6 areas to improve health



LIFESTYLE MEDICINE FOCUSES ON 6 AREAS TO IMPROVE HEALTH



## LIFESTYLE MEDICINE

Lifestyle medicine is an evidence-based approach to preventing, treating and even reversing diseases by replacing unhealthy behaviors with positive ones — such as eating healthfully, being physically active, managing stress, avoiding risky substance abuse, adequate sleep and having a strong support system.

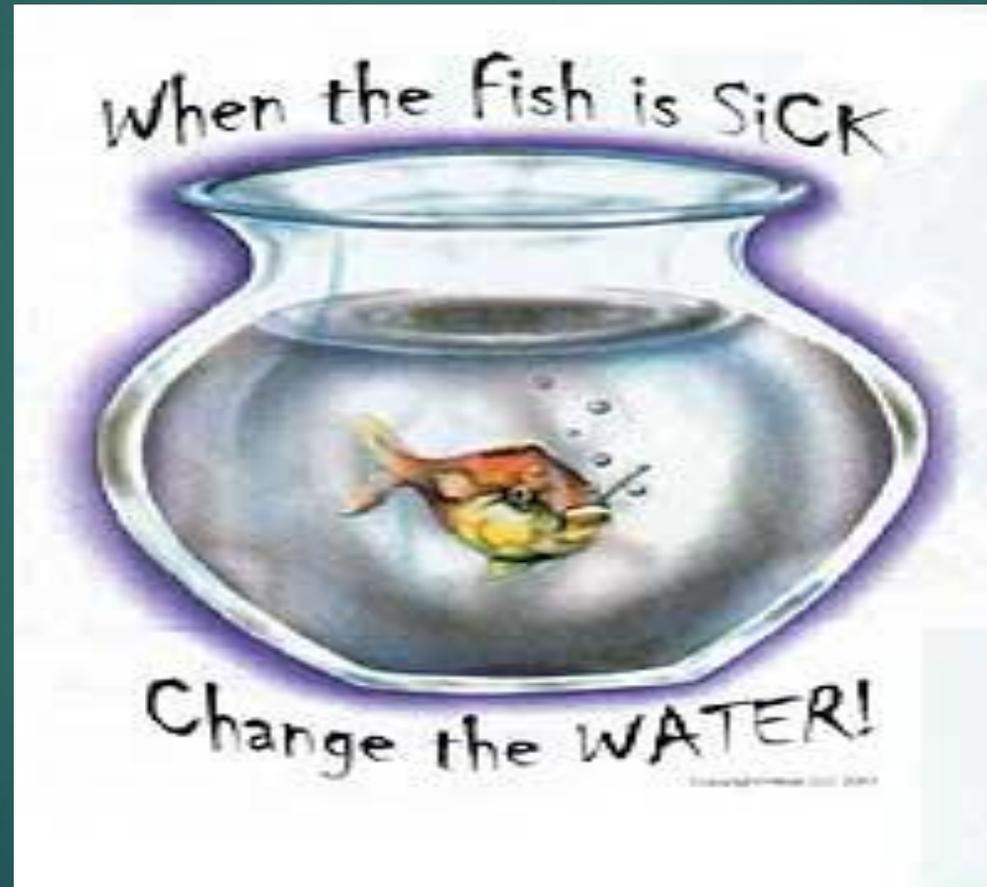
# Healthy plant based diet

- ▶ Avoid processed foods.
- ▶ Study published in Nutritional journal looked at impact of western diet and lifestyle has negative impact on health. It increases inflammation, impair immune system, increased rate of infection, cancer, increased allergic reaction and autoimmune disorders.
- ▶ Eat whole food plant based diet
- ▶ **Think of nourishing your body at cellular level to make each cell vibrant**
- ▶ **Alkalinize and energize your body through green foods and green drinks**

# Studies show that alkaline foods strengthen the immune system

- ▶ The goal of an alkaline diet is to balance your body's pH levels. These levels range from 0 to 14. A pH of 7 is neutral, but slightly elevated levels (around 7.30 to 7.45) are alkaline and ideal for good health. Levels below 7 are considered acidic.
- ▶ An alkaline pH range is helpful for decreasing inflammation and oxygenating the cells, which supports the immune system and overall health.
- ▶ Alkaline foods include most green vegetables, cucumbers, kale, spinach, wheat grass juice.
- ▶ Find recipe for Green drinks

Think as each cell is floating in body fluid medium from which it gets its nourishment



# pH Level Effects in Blood

- ▶ Notice the difference between the blood cells in the two pictures below. Blood cells are far apart from each other in the alkalize pH condition. As a result, your blood can move freely throughout your entire body, and get into all your small capillaries carrying oxygen you need. Hence, you feel energized.



# pH Level Effects in Blood

Blood cells have a negative charge on the outside and a positive charge inside. This is what keeps them healthy and far apart from each other. However, when the body is over-acidic, the acid strips the blood of its negative charge, losing the same repelling force, resulting in the clumping of cells. When the blood cells are clumped together, it no longer can get into the small capillaries. Less oxygen is being carried throughout your body and you no longer feel the energizing and rejuvenating effects.

# Green Super foods



# Dr. T's Green Drink

- ▶ Recipe for Green Drink
  - ▶ One celery stick cut in small pieces
  - ▶ 1 cup of chopped collards or similar greens
  - ▶ 1 cup of chopped spinach
  - ▶ 1/2 small cucumber
  - ▶ 4 prunes
  - ▶ ¼ cup of carrot juice or ½ carrot
  - ▶ ¼ cup of fresh wheat grass juice
  - ▶ ¼ cup of 100 percent pineapple juice

Put in a blender and add 12-16 oz. of water and blend

May add pieces of apple, or grapes. banana, avocado, mango to flavor it differently



# Our Immune System

- ▶ Our GI tract make large part of immune system. 70% immune cells lie along GI tract
- ▶ The lining of intestines secretes antibodies and contain cells which destroy harmful bacteria. The wall of GI tract provides barrier which prevents these bacteria entering our bodies. Gut protects us from many bacteria as they enter our body through GI tract. Our gut is home to about 1000 species of bacteria that normally live there. The gut microbiome provide essential health benefits. **Disruption in gut microbiome can cause immune dysregulation and can cause auto-immune disorders.**
- ▶ Your gut's microbiome, plays an important role in fighting diseases. Take daily probiotics, which are helpful bacteria. They help to maintain gut healthy.

# Moderate Regular Exercise

- ▶ Regular exercise is one of the pillars of healthy living. It improves cardiovascular health, lowers blood pressure, helps control body weight, and protects against a variety of diseases. It helps to boost your immune system naturally and keep it healthy. Just like a healthy diet, exercise can contribute to general good health and therefore to a healthy immune system.
- ▶ It may contribute even more directly by promoting good circulation, which allows the cells and substances of the immune system to move through the body freely and do their job efficiently.

# Moderate Regular Exercise

- ▶ Exercise has anti-inflammatory effect and circulate blood and lymphatic fluids. Lymphatic fluids removes dead cells, bacteria, toxins and cancer cell from your body. Regular exercise reduces c-reactive protein. **Deep diaphragmatic breathing helps to improve circulation of lymphatic fluid taking the dead sludge out of the system.**
- ▶ Moderate exercise improves circulation of blood which carries life energy Oxygen and nourishment to every cell in body.

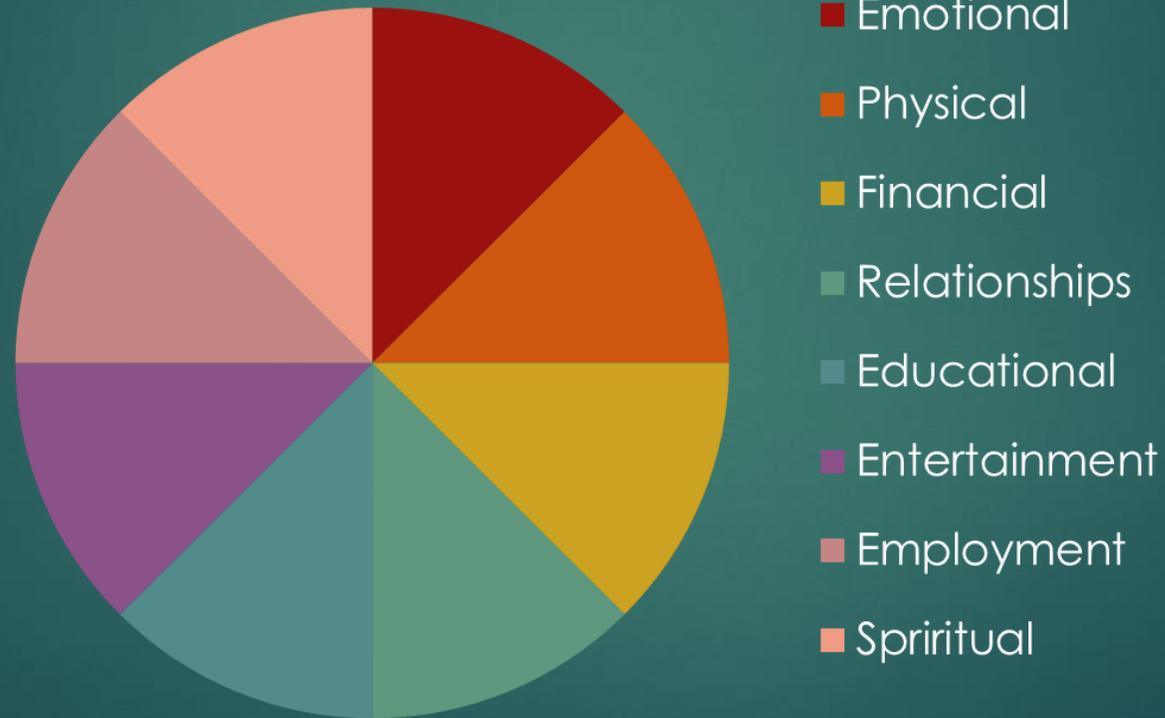
# Stress and immune function

- Modern medicine has come to appreciate the closely linked relationship of mind and body. A wide variety of maladies, including stomach upset, hives, and even heart disease, are linked to the effects of emotional stress. Despite the challenges, scientists are actively studying the relationship between stress and immune function.
- **Chronic stress suppresses immune response by releasing cortisol and it decreases your immune system.** Cortisol interferes with T cell specific type of white blood cells which receives signals from body. **T cells** are lymphocyte immune **cells** that protect the body from pathogens and cancer **cells**.

# Problems in any of following areas of life can cause stress

## Corona virus has certainly affected many areas of life

Various aspects of life



# Effects of stress on the body

- Psychoneuroimmunologists have been studying effects of stress on the immune system. The psychoneuroimmunology field suggests strong correlation between psychosocial factors and immune functioning. There has been evidence that a person's daily perceived stresses and current circumstances influence the central nervous system, which can adversely affect immune functioning
- **When faced with stress it may affect the body in the following ways**

# The Stress Response

## Day-to-Day Life

- ▶ Chronic stress
- ▶ Meet time deadlines
- ▶ Drive in traffic, visit crowded places, internal conflicts, moral injury issues
- ▶ Pay bills/make decisions

“Sensory Overload” relayed to brain



Brain interprets a threat to the body

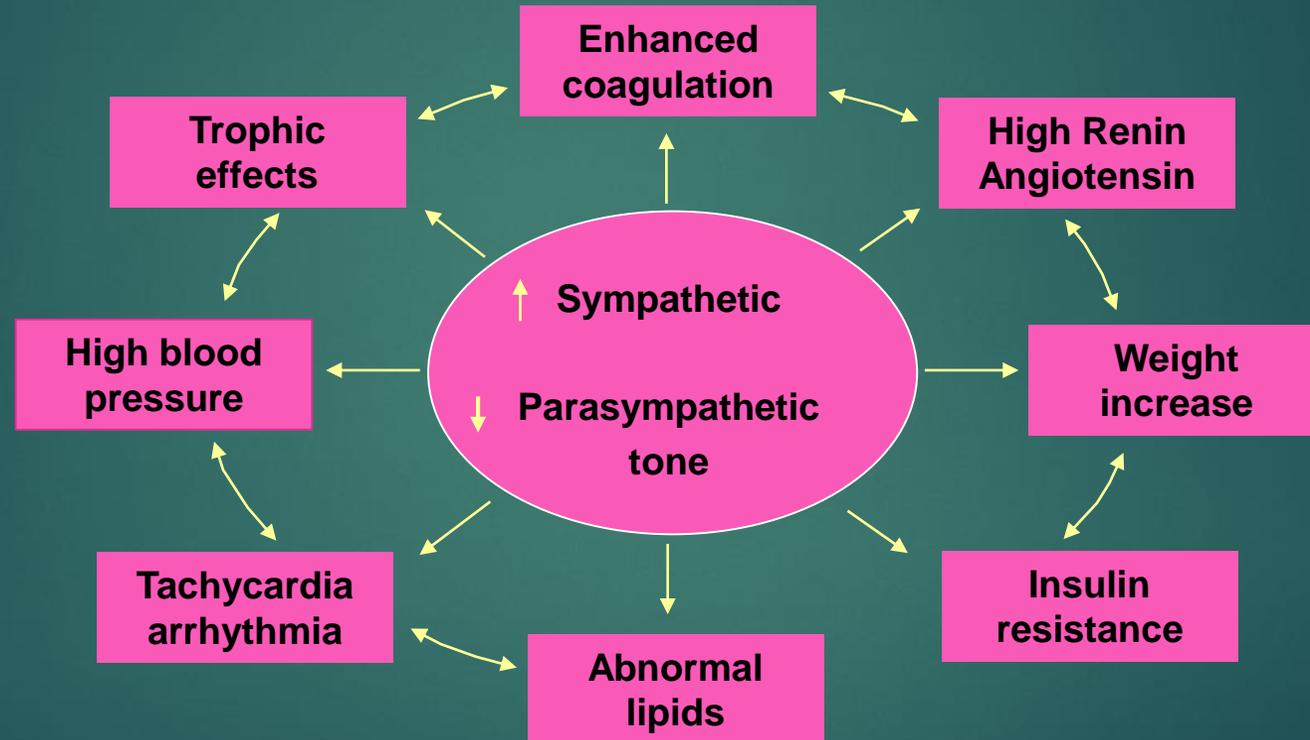


Hypothalamus stimulated



Sympathetic system discharged

# STRESS RESPONSE



# Sympathetic Nervous System

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- ▶ Increases blood pressure
- ▶ Increases heart rate and strength of contraction
- ▶ Increases blood clotting, stickiness of the blood
- ▶ Inhibits digestion - decreases motility and blood flow to the GI tract
- ▶ Increases oxygen demand, increasing workload for heart
- ▶ Increases rate of breathing
- ▶ Decreases lung capacity
- ▶ Decreases hemoglobin (ability of blood to carry oxygen)
- Increases alertness and awareness
- Increases blood sugar
- Increases sweating
- Decreases urine output
- Increases metabolism
- **Decreases antibody production, weakening the immune system**
- Dilates pupil
- Increases muscle strength
- Stimulates orgasm

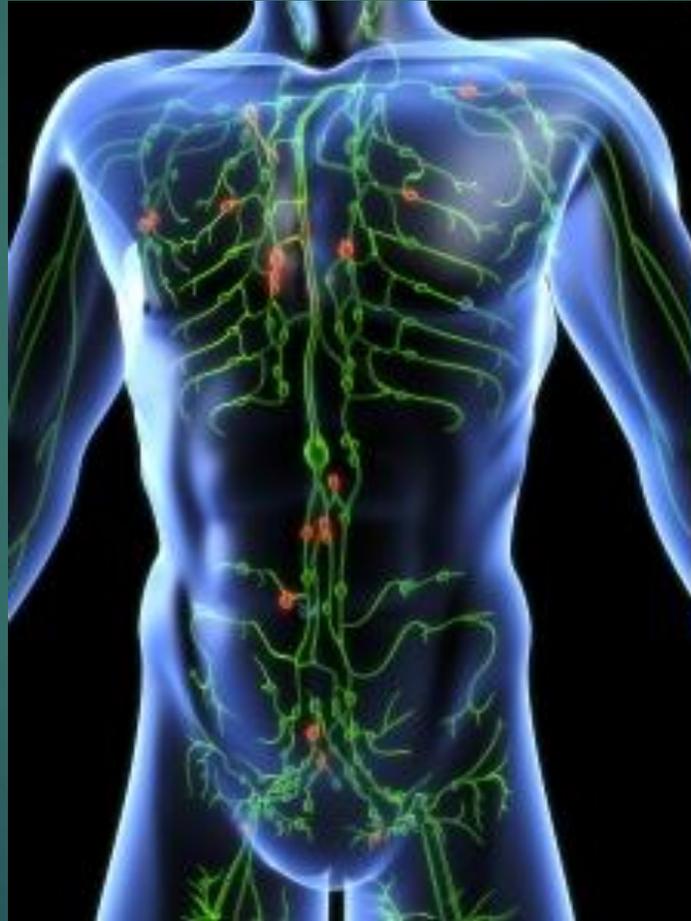
# Stress response suppresses the immune system

- ▶ The stress response also suppresses the immune system, increasing susceptibility to colds and other illnesses.
- ▶ Buildup of stress can contribute to anxiety and depression. We can't avoid all sources of stress in our lives. But we can develop healthier ways of responding to them.
- ▶ One way is to invoke the relaxation response, through a technique first developed in the 1970s at Harvard Medical School by cardiologist Dr. Herbert Benson. **The relaxation response is a state of profound rest that can be elicited in many ways, including meditation, yoga, and progressive muscle relaxation.**

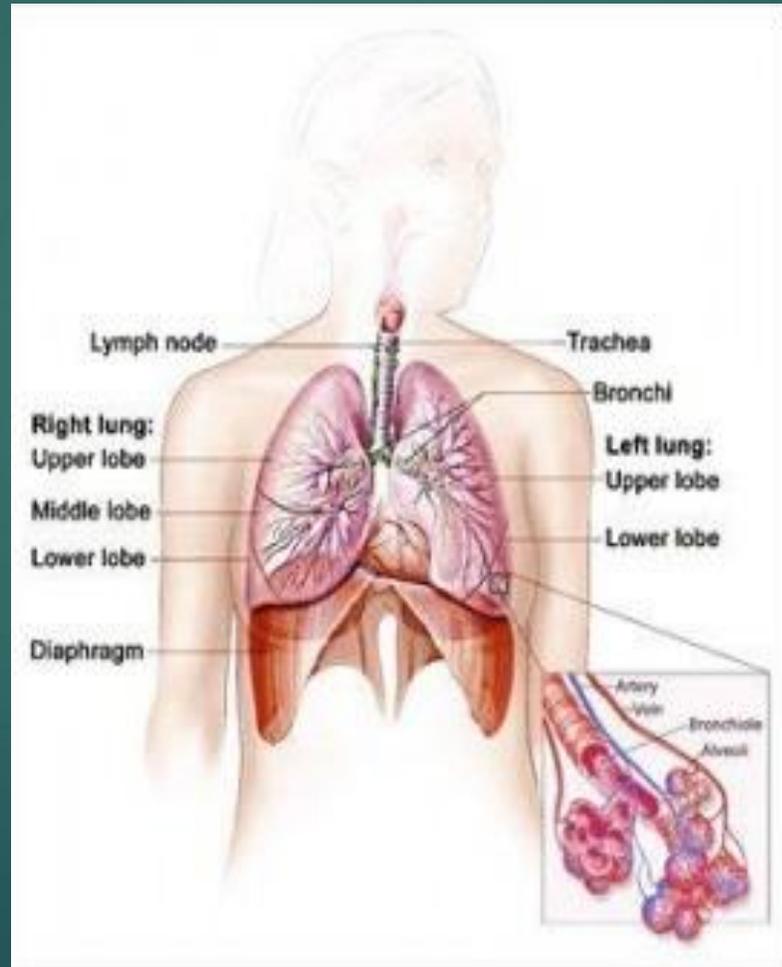
# Deep breathing

- ▶ Deep breathing also goes by the names of diaphragmatic breathing, abdominal breathing. When you breathe deeply, the air coming in through your nose fully fills your lungs, and the lower belly rises. The first step is learning to breathe deeply.
- ▶ Shallow breathing limits the diaphragm's range of motion. The lowest part of the lungs doesn't get a full share of oxygenated air.
- ▶ Deep abdominal breathing encourages full oxygen exchange — that is, the beneficial trade of incoming oxygen for outgoing carbon dioxide. It can slow the heartbeat and lower or stabilize blood pressure.
- ▶ Deep diaphragmatic breathing helps to improve circulation of lymphatic fluid taking the dead sludge out of the system.
- ▶ Take deep breath and hold breath few seconds and then breath out slowly through your nose or mouth over a longer period of time.

# The Lymphatic System



# Deep Diaphragmatic Breathing to Improve Lymphatic Circulation



# Lymphatic Vessels During Deep Diaphragmatic Inhalation

The lymphatic system doesn't have a pumping organ to keep the lymph flowing. It depends on movement to keep the fluid moving. Deep diaphragmatic breathing exercises lymphatic branches, because the main lymphatic vessel, the thoracic duct, runs through the diaphragm.

# Focusing on breath- Meditation

- ▶ Focusing on breath is a common feature of several techniques that evoke relaxation and meditative state.
- ▶ As you sit comfortably with your eyes closed, first start with deep diaphragmatic breathing. Then follow up with slow breathing focusing your attention on breathing life energy in your lungs and body and then slowly breathing out. It may be helpful to focus on certain sounds or imagery or a word or phrase that helps you relax.
- ▶ Meditation can also help to prevent breakdown of chromosomes which lead to cancer and ageing.
- ▶ Meditation reduces cortisol level.

# Ways to elicit the relaxation response

- ▶ Progressive muscle relaxation
- ▶ Mindfulness meditation
- ▶ Yoga, tai chi, and Qi Gong
- ▶ Repetitive prayer
- ▶ Guided imagery
- ▶ Choose a special place where you can sit (or lie down) comfortably and quietly.
  - Try to practice once or twice a day, always at the same time.
  - Try to practice at least 10–20 minutes each day.

# Unhealthy habits to deal with stress worsen immune system

When people are stressed they may use unhealthy means of dealing with stress like **using alcohol, drugs, smoking which can worsen immune system**

# Alcohol impairs your immune system

- ▶ Excessive drinking can damage your liver and cardiovascular system.
- ▶ It can also damage your digestive system, leading to malnutrition and even increasing your risk of cancer.
- ▶ Alcohol also damages your immune system, increasing your risk of potentially fatal illnesses such as pneumonia.
- ▶ **Number of ways alcohol impairs your immune system, making you more likely to get sick.**
- ▶ When you drink a lot of alcohol, it has many negative effects on your digestive system. It damages the epithelial cells in your intestines, making it harder to absorb many nutrients. **It also severely disturbs your gut's microbiome, significantly altering the balance of healthy and unhealthy bacteria. Alcohol affects the way health gut microbes interact with the immune system.**

# Alcohol impairs your immune system

- ▶ Alcohol also disrupts the gut barrier, allowing more bacteria to pass into the blood.
- ▶ Alcohol doesn't just affect the function of the digestive tract. It also affects the respiratory system.
- ▶ Excessive drinking may impair the function of immune cells in the lungs and upper respiratory system, leading to increased risk for pneumonia, and **acute respiratory distress syndrome, or ARDS**. Because the immunity of the mucus is impaired in both the lungs and digestive tract, any disease can become more severe.
- ▶ **ARDS is what is killing in pneumonia caused by Corona Virus.**

# Don't smoke or vape which deteriorates lung function

Smoking/vaping decreases supply of life energy Oxygen to every cell in body

Smoker's lung

Vaper's lung

From CDC



# Adequate sleep

- ▶ Without sufficient sleep, it decreases production of cytokines a type of protein
- ▶ Cytokines are type of protein which targets infection and inflammation. **Cytokines** are a group of proteins secreted by cells of the **immune system** that act as chemical messengers.
- ▶ Most adults need 7-8 hours of good sleep.

# Vitamins and essential nutrients

- ▶ Plenty of sunshine and get sufficient Vitamin D 2000 to 5000 International units a day.
- ▶ Vitamin essential for proper function of immune system.
- ▶ Get vitamins from natural sources.

# Pills and herbal preparations that claim to "support immunity"

- ▶ In stores, you will find bottles of pills, herbal preparations that claim to "support immunity" or boost the health of your immune system. Although some preparations have been found to alter some components of immune function, thus far there is no evidence that they actually bolster immunity to the point where you are better protected against infection and disease.
- ▶ Demonstrating whether an herb — or any substance, for that matter — can enhance immunity is, as yet, a highly complicated matter.

# As we age our immune response decreases

- ▶ While some people age healthily, the conclusion of many studies is that, compared with younger people, the elderly are more likely to contract infectious diseases and, even more importantly, more likely to die from them.
- ▶ Respiratory infections, influenza, and particularly pneumonia are a leading cause of death in people over 65 worldwide.
- ▶ No one knows for sure why this happens, but **some scientists observe that this increased risk correlates with a decrease in T cells, possibly from the thymus atrophying with age and producing fewer T cells to fight off infection.** Whether this decrease in thymus function explains the drop in T cells or whether other changes play a role is not fully understood.

# Nutrition and immunity in the elderly

- ▶ There appears to be a connection between nutrition and immunity in the elderly. A form of malnutrition that is surprisingly common even in affluent countries is known as "micronutrient malnutrition."
- ▶ Micronutrient malnutrition, in which a person is deficient in some essential vitamins and trace minerals that are obtained from or supplemented by diet, can be common in the elderly. Older people tend to eat less and often have less variety in their diets.

# Key points to improve immunity

- The immune system is precisely that — a system, not a single entity.
- **Following general good-health guidelines is the single best step you can take toward naturally keeping your immune system strong and healthy.**
- Eat a nutritious plant based diet high in fruits and vegetables. **Think of nourishing your body at cellular level to make each cell vibrant**
- **Alkalinize and energize your body through green foods and green drinks**
- Moderate aerobic exercise regularly with **deep diaphragmatic breathing several times a day**
- The stress response also suppresses the immune system, increasing susceptibility to colds and other infections. **Minimize stress by learning better coping strategies to cope with life stress**
- The relaxation response a state of profound rest can be elicited in many ways, including meditation, yoga, Tai Chi, progressive muscle relaxation.
- Adequate restful sleep, Most adults need 7-8 hours of good sleep.
- **Avoid unhealthy habits like excessive alcohol and smoking to deal with stress which worsen immune system**

# Questions

