

# **BOOST IMMUNITY TO FIGHT OFF GERMS, INCLUDING COVID-19**

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## ***Why has the current COVID-19 Pandemic brought human attention to Immunity and Holistic Health?***

The Pandemic of COVID-19 Coronavirus disease has brought the world's attention to body immunity and Holistic Health. The immune system of the body is no different than a protective army that safeguards a country. It comprises of specialized cells, proteins, and organ systems that protect the body from germs, toxins, and abnormal cells such as cancer cells. Infections or diseases occur when the immune system fails to fight these harmful agents. Medical experience of treating COVID-19 patients around the world has shown that the virus causes more severe disease and death in individuals who have a weak immune system from the pre-existing food and lifestyle diseases such as:

- Overweight and Obesity
- High Blood Pressure
- Type 2 diabetes
- Heart Disease.
- Low Vitamin D levels
- Old age (over 65 years when the immune system of the body is weaker)
- Cancer

The medical science is exploring the effects of Diet, Sunshine and Vitamin D, Rejuvenating Sleep, Mental Stress, and Digestive Health on the Immune system. COVID-19 Coronavirus pandemic has focused the world's attention on building Immunity via principles of Holistic Health. To be able to build robust Immunity, one needs to have a working knowledge of:

- 1. What is Immunity?**
- 2. Sensible ways to protect against the spread of germs such as COVID-19 Coronavirus**
- 3. What is Holistic Health?**
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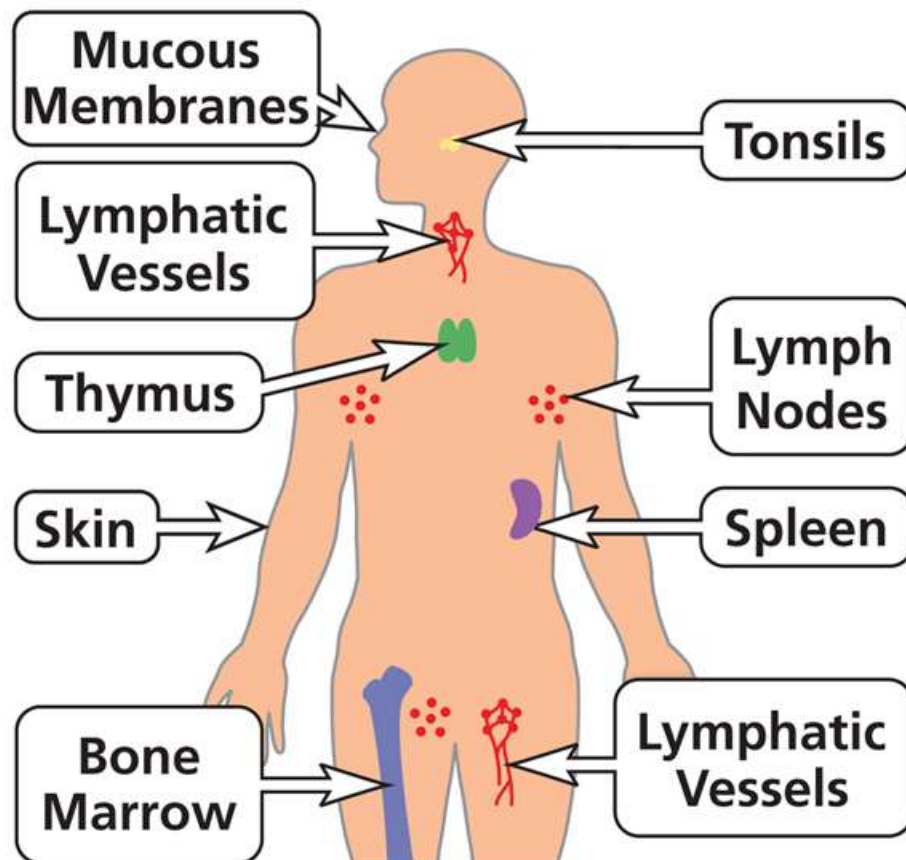
## Section 1- What Is Immunity

Immunity is the ability of the body to protect itself from the harmful agents such as:

- Germs - Bacteria, viruses, fungus, and parasites.
- The abnormal cells-- cancer cells, dead, and diseased cells
- Toxins of various kinds- Toxins enter the body from lungs—environmental pollutants, digestive tracts-food preservatives, bacterial toxins from unhygienically prepared foods, and chemicals used in agriculture.

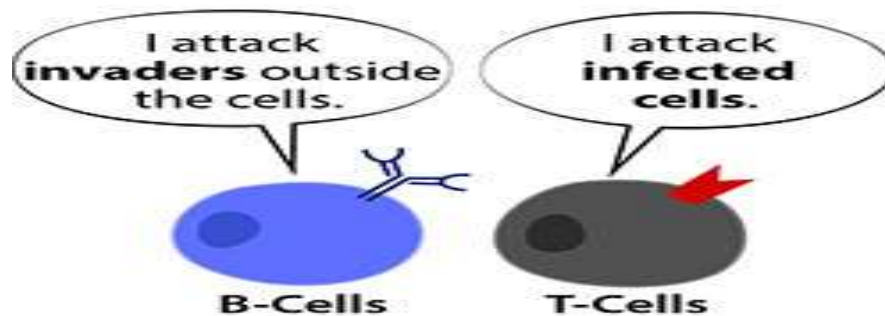
The human immune system consists of specialized cells, proteins, and specific organs. These work together as a well-organized army to safeguard the body from the harmful agents. The immune system includes:

# Immune System



- **Soldier cells** – The white blood cells that immediately attack and kill the germs as these enter the body.
- **Specialized units of cells that build a more sophisticated response to germs** – This includes T and B lymphocyte cells. These identify and kill the germs as well as the body cells that got infected and diseased. The lymphocyte cells also produce protective antibodies that work as a missile system. The antibodies take a few days to build and kill the germs by attaching to them. The antibodies also protect against future infections with

similar viruses and bacteria. The process of vaccination works via the same mechanism of stimulating the B lymphocytes to produce antibodies against the specific germs. The antibodies are vital to building Immunity to germ attack. However, to make protective antibodies the body has to be challenged by natural infection with a germ or the medical vaccination against that specific germ



- The unique molecules and proteins that assist the soldier and specialized cells (complement proteins and Cytokines).

There are two reasons why the germs win over and cause disease and death:

- A. When the germs are too destructive and get into the body in large numbers overwhelming the Immune system – The COVID- 19 is a highly contagious virus that multiplies and spreads fast.
- B. When the body's immune system is too weak to be able to fight off the germs

Keeping the Body-safe from COVID-19 requires two strategies:

- Take precautions against the community spread of the virus
- **Build up strong Immunity** via holistic foods, balanced lifestyle, rejuvenating Sleep, Sunshine and vitamin D, rest and activity balance, boosting digestive health, and herbal, vitamins, and minerals supplements

### ***Section 2-Sensible ways to protect against the spread of the COVID-19 Coronavirus***

A highly contagious virus such as COVID-19 requires public lockdown policy to minimize the spread. However, taking this policy too far and too long has created fear, panic, mass hysteria, and economic devastation. Also, keeping the humans in prolonged isolation in a sterile bubble fails to challenge the immune system for building natural Immunity against the germs.

***The medical science has declared that the COVID-19 will be with the world for a few months, and there will be no vaccination for many months to come. In the meantime, the population requires education regards sensible guidelines to protect against the spread of the virus:***

- a) Do not panic or have fears by watching fake news coming from social media. In most cases, the advice is coming from individuals with no medical knowledge.
- b) There is no need to disinfect surfaces with alcohol or chemicals unless you have COVID-19 patients at home.
- c) Wash and disinfect hands but only sensibly a few times a day when you have come in contact with the crowds of people. Frequent washing and disinfection with chemicals will damage the skin on the hands. The same is true when you wear latex or plastic gloves too long.
- d) Keep in mind that passing by a person on the road, packaged goods, vegetables, fruits, and food items are not going to transmit the virus in amounts significant enough to cause the disease. Observe cleanliness but live your life sensibly without the obsession of sanitization. To build the immunity body does need a germ challenge in small doses.
- e) There is no need to take a shower and change your clothes every time you enter the house. The virus is not in the air; it only gets transmitted with prolonged (20-30 minutes) close contact with respiratory secretions of an infected person.
- f) The chances that you will bring home COVID-19 on your shoes is almost negligible.
- g) Do not wear a mask all the time, wear it only in the crowds. A face mask interferes with breathing fresh air. The face masks from synthetic material can make you feel dizzy and faint, especially in hot weather. Wear a cotton cloth face mask.
- h) No need to wear the gloves- The dirty gloves are a source of infection if you touch the face and nose with gloves. It is better to wash and sanitize the hands instead if you come in contact with a dirty surface.
- i) Do not forget to take a walk in the park or outdoors where you can breathe fresh air and soak the immunity building sunlight.
- j) Finally, and most importantly bear in mind the scientific truth that the Immune system becomes weak if one stays locked in the home in a clean and sterile environment. So get outdoors, and connect with people. Your immune system needs an outdoor challenge, Sunshine, Fresh air, Natural food, and deep rejuvenating Sleep

***Indian migrant workers are an excellent example of natural Immunity at work. In desperation to save themselves from starvation, they are moving in masses, packed in trucks buses and trains shoulder to shoulder without proper nourishment and water. Surprisingly, most are dying of hunger, dehydration, heatstroke, and unfortunate accidents rather than COVID-19 infections.***

### **Section 3- What is Holistic Health?**

The dictionary meaning of the word Health is a state of being free from illness and injury. Unfortunately, that is an incomplete definition as it only talks about the physical body. World Health Organization (WHO) gave an accurate interpretation of Health as follows:

***"Health is a state of complete physical, Mental and Social wellbeing and the not mere absence of disease and infirmity."(Constitution of WHO, 1948)***

***In our Vedic literature, Health is called Swasthya. The word is a union of two words Swa and Sthiti, which is swayam Mein Sthiti. It means the state of being rooted in one's self (soul or spirit). Sage Charaka, the author of Ayurveda (Science of life), defined swasthya as "A system which uses inherent principles of nature to keep Body, Mind, and Spirit in equilibrium and harmony."***

Heterophile, physician to Alexander the Great in 300 BC, also presented the idea of Holistic Health sensibly, ***"When Health is absent, physical strength disappears, wisdom evaporates, power and titles become worthless."***

The ancient concept of Holistic Health is getting a renewed interest in the 21<sup>st</sup> century. Body, mind, and spirit are interconnected, and negative emotions such as fear, anxiety, and anger lead to many health issues such as Insomnia, acid reflux disease, constipation, diarrhea, indigestion, migraine/ headaches, high blood pressure, and heart attack.

#### ***Section 4- What is Holistic Food?***

Over the past century, the human race has seen through four major revolutions-Industrial, Agricultural, Economic, and Digital. Around the globe, these revolutions have uplifted the human from the clutches of poverty. However, slowly and stealthily, these revolutions have moved human away from the natural plant foods which grow under the powerful energy of the Sun. The food chain over the past 50 years has become commercialized. Synthetic factory-made foods, preprepared foods, fast foods, and packaged junk foods have flooded the global markets. All these foods are deficient in nutritional value, rich in chemicals, salt, fat, and sugars. These unnatural commercial foods are directly responsible for the epidemic of Food& lifestyle diseases such as Obesity, Type2 diabetes, high Blood Pressure, Heart disease, Fatty liver, cancer, and weak immune system with an increased risk of infections.

***COVID-19 Coronavirus pandemic is a wake-up call for the entire global population. It has proven beyond any doubt that the risk of infection is higher, the disease more severe, and death more likely in patients who suffer from food and lifestyle diseases.***

The ancient Eastern, as well as western healing traditions, have promoted the value of food in the preservation of health and prevention of disease:

***Hippocrates, the father of allopathic medicine in 400 BC, made the enduring statement, "Let Food Be Thy Medicine, and Medicine Be Thy Food."***

***Sage Charaka, in 600 BC, promoted the concept of "Ahar Sarv Aushdham."*** That means the food is the entire medicine.

It is the enduring wisdom on the healing power of food declared thousands of years ago that the current global population needs to embrace to preserve Health and prevent disease. The first step in the journey is to eliminate foods that increase the risk of illness and infection.

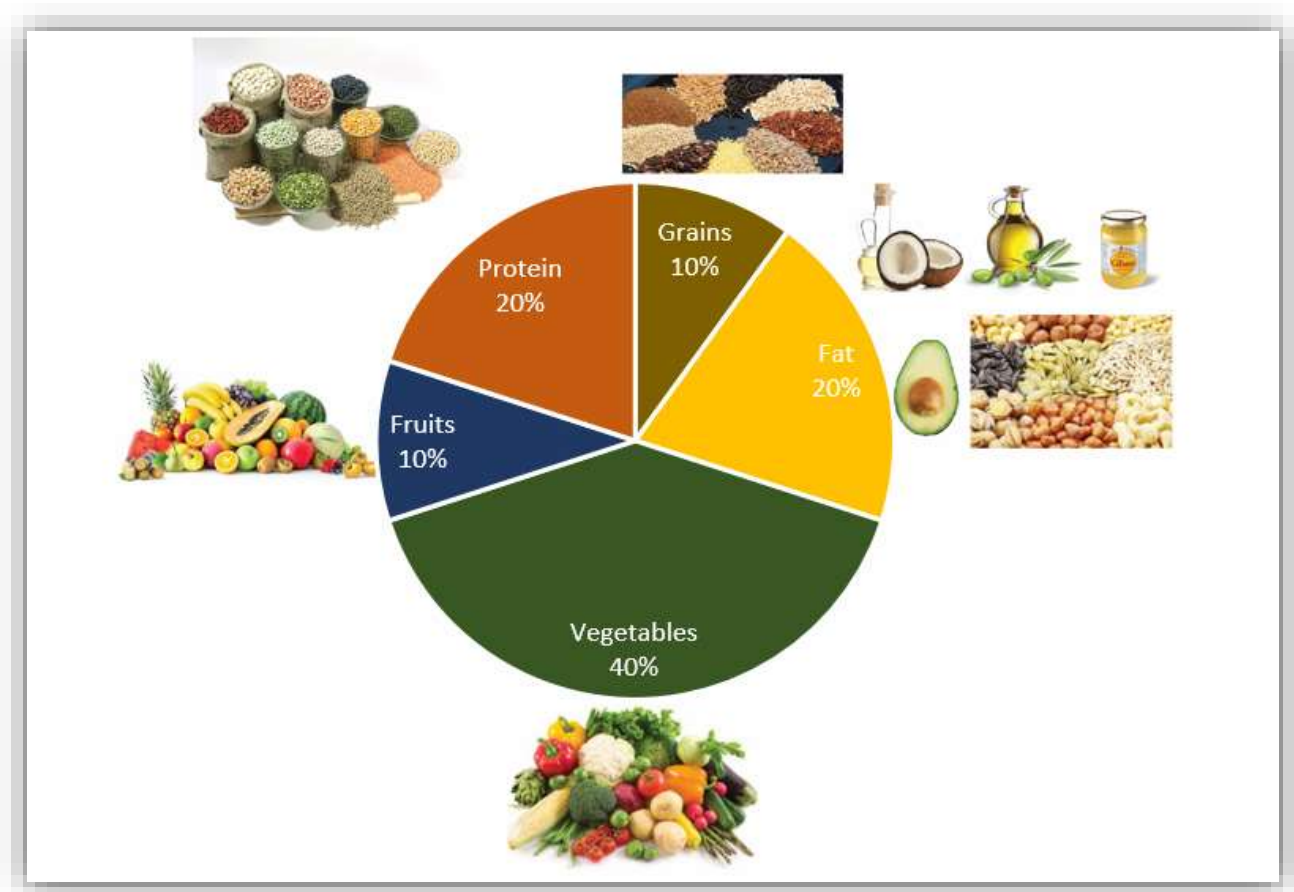
## Foods that increase the risk of disease and weaken Immunity

- Refined white sugar and its products- Sweets, baked goods, and sugary beverages
- Refined wheat flour- Milled wheat flour in packages, maida, and all its products- White bread, cakes, pastries, pasta, pizza, etc
- The refined factory-made seed oils.
- Preprepared fast and junk foods deficient in fiber and rich in salt, fats, and sugar
- Packaged snacks, fast foods, and preprepared junk foods
- Meat from animals that get raised in overcrowded unhygienic conditions indoors, see no Sunlight, feed on unnatural foods, and get large doses of antibiotics and hormones.

**Holistic Foods that strengthen Immunity and prevent diseases** --Natural plant foods that grow under the powerful energy of the Sun sustain Health and boost Immunity. When consumed in an appropriate amount, these foods provide an optimal balance of:

- **Healthy Macronutrients** – Low glycemic Carbohydrates, alkaline Proteins, and Fats that are free from unhealthy cholesterol
- **Micronutrients**—Minerals, vitamins, and disease-fighting antioxidants. Antioxidants are the elements that cleanse the body cells of waste products and are vital to the preservation of Health and Immunity. These elements are present only in natural plant foods. Animal foods, packaged, fast and junk foods are zero in these essential elements.

## *How to eat a proper balance of Plant foods*



**Fruits - Eat one to two cups of fruit daily. There are a few sensible rules on eating fruit:**

- Eat fruit, preferably in the morning and not after 5 PM. Never eat fruit as a dessert after dinner. Fruit sugar has to be used up by activity, or it will store as liver fat.
- Stay active for 2-3 hours after eating fruit to use up the fruit sugar.
- Do not consume fruit as juices because juices are concentrated sugar with no fiber. In the absence of natural fiber, the sugar gets rapidly absorbed from the digestive tract.

**Vegetables** — Vegetables are rich in fiber and low in calories. The carbohydrates in the vegetables are low glycemic; that means the blood sugars stay low after eating vegetables. The colored vegetables and fruits are a good source of disease-fighting antioxidants. Sensible rules about eating vegetables are:

- Green leafy vegetables are low in calories and rich in minerals such as iron and calcium. These are also a good source of disease-fighting antioxidants.
- Eat 30% (one third) of vegetables as raw salads or smoothies. Smoothies are superior to juices because these retain healthy fiber.
- Do not overcook or pressure cook the vegetables to preserve their nutritional value.
- A quick stir- fry of the finely chopped vegetables in Mustard or Sesame oil with desired condiments is the best way to consume vegetables.

**Lentils and Legumes ( Beans and Chickpeas) -** Lentils and legumes are a good source of protein and low glycemic carbohydrates. The sensible rules about eating lentils and legumes are:

- Eat lentils daily and legumes at least 2-3 times per week (note that Chickpeas- Chhole and Bengal gram – brown chana are legumes).
- To minimize flatulence (gas problem) with legumes, you can sprout these before cooking.
- Soak lentils overnight to minimize cooking time. Overcooking under pressure reduces the nutritional value of lentils and legumes.
- Moong dals are easily digestible and a great dinner option.

**Cooking Oils and Ghee** — Only eat cold compressed oils such as Mustard, Sesame, Coconut oil along with cow ghee. Sensible rules about cooking oils:

- **Never use refined oils of any kind** – The factory manufactured chemically treated refined cooking oils carry the commercial advantage of a prolonged shelf life. However, the process of refining destroys the nutritional value of cooking oils. These oils, although labeled cholesterol-free, are the biggest culprits in causing abnormal cholesterol, high blood pressure, heart disease, and fatty liver.
- The cold compressed cooking oils are superior to expeller compressed oils because electrically operated expellers raise the temperature of the oil, reducing its nutrient value.
- Thirty percent of total calories consumed daily must come from healthy fats. That amounts to 5-7 teaspoons of cooking oil and 1-3 teaspoons of ghee (lower amounts in overweight individuals and a higher amount in growing children).
- Mustard and Sesame oil are seed oils that will lower bad cholesterol.



- Sesame (Gingelly) oil is rich in healthy monounsaturated fatty acids and, in this respect, almost similar to virgin olive oil (touted for its heart-healthy properties). Note that the cooking variety of olive oil sold in India is over 90% contaminated with refined oils. Indians, therefore, should adopt Sesame oil over fake refined cooking olive oil sold in large containers.
- Healthy fat tames the appetite, prevent overeating, slows stomach emptying time, and keeps one satiated for a long time after a meal.
- Eat high carbohydrate foods like chapatis and rice with a healthy fat. It slows the absorption of sugars from the digestive tract.

**Whole grains** — In the past 50-60 years, refined wheat flour and polished white rice have become the staple grains of the Indian population. Both these are high glycemic grains because the blood sugar after their consumption rises high rapidly. These refined grains have contributed significantly to the high incidence of Type2 diabetes amongst the Indian population. Traditionally, the Indian population consumed many varieties of whole grains, such as millets, oats, and whole wheat. Simple rules about healthy low glycemic grains are:

- Use stone-ground flours for chapatis from any grain. The industrial milling process destroys the husk (grain covering) and endosperm (the germ part) in the grain. The milled flour sold in packages, therefore, is low on fiber, vitamin B, and healthy omega-three oil.
- Eat whole grains such as different varieties of millets, oats, buckwheat, quinoa. Millets use has been growing fast as it is a low glycemic grain and carries 15 times more fiber than the milled wheat flour and rice.
- Preferably eat an ancient variety of organic wheat and not the hybrid type, which is grown with the help of lots of chemical fertilizers and pesticides.
- Eliminate food products made out of refined wheat flour from your diet- baked goods, including white bread, pizza, pasta, etc.
- Eat Chapatis and rice with healthy fat  
(Review the file –Millets the Miracle Nutrigrain of the Past and Future on the website [www.foodlifestylebalance.com](http://www.foodlifestylebalance.com))

**Sprouts** — Several varieties of lentils and seeds can be sprouted – Moong, Matki, Chana, Beans, Wheat, and Methi (fenugreek) seeds. The process of sprouting increases the protein and vitamin B content of the seeds and grains. Sprouts are a rich source of vitamin B. In Ayurveda, sprouts are called Prana- Source of life foods.



**Seeds and Nuts** - There is a wide variety of seeds and nuts—Almonds, Cashews, Peanuts, Pistachio, walnuts, edible seeds –sunflower, melon, sesame, flax, and chia seeds. Each of these is unique in its mineral and vitamin content. Seeds and nuts are also a good source of healthy protein and omega-three fats. Sesame seeds are the most abundant source of calcium. Since sesame and flaxseeds are hard to chew, an excellent way to eat these is to coarsely grind these and use the powder in soups, salads, and chapatti dough. Sesame seeds laddoo with jaggery are good for bone health being a good source of calcium and phosphate.

**Curds and Yogurt**—Curds and yogurt are a healthy preparation of the milk that support good bacteria in the intestine (See the section below on Microbiome for Immunity and Digestive Health). Note that homemade curds have live bacteria while the grocery shelf yogurts and curds get pasteurized, which kills the good bacteria.

### **Vegetarian versus Nonvegetarian food**

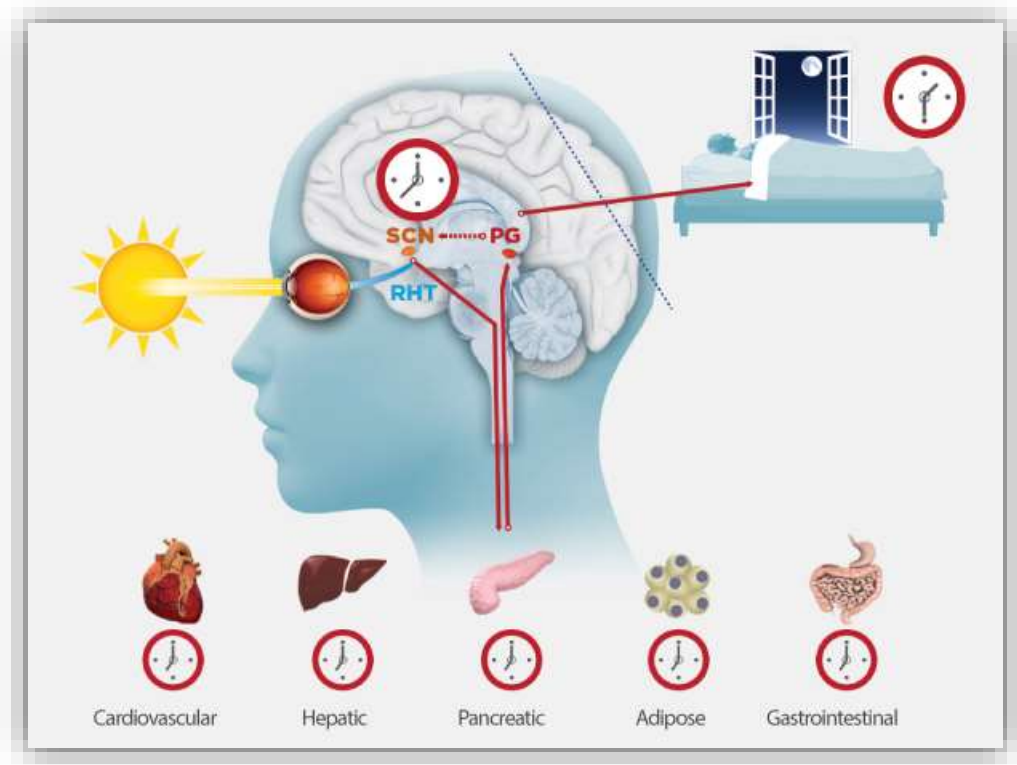
Plant-based foods that grow under the energy of the Sun have several advantages over commercial farm-raised animal products such as meat, poultry, and milk.

PLANT-BASED VEGETARIAN FOODS	NONVEGETARIAN
Naturally grown under Sun energy	Unnatural Factory Farming
Rich in disease-fighting Antioxidants	Zero in Antioxidants
Rich in healthy fiber	No fiber
Healthy alkaline Protein	Unhealthy acidic protein
Healthy unsaturated fat	High in unhealthy saturated fat
Carry glucose energy as low glycemic carbohydrates	Lack of glucose energy

### ***Section 5 –What is a Balanced Lifestyle?***

The natural lifestyle cycle in all living beings, including plants, is under the control of a 24-hour biological clock system. This clock is called the Circadian clock, and the lifestyle rhythms are called Circadian rhythms. The light and dark cycles of the Sunlight control the circadian clock in the brain. In humans, this biologic 24-hour circadian clock controls every biologic function:

- ***Digestion*** - When to eat and when not to eat (Fasting/ Feeding Cycle)
- ***Metabolism***—Energy cycle (daytime for using energy and night time for saving and storing energy)
- ***Hormonal balance***- The brain clock controls the release of all the body hormones
- ***Sleep/ Wake Cycle***—Day time for awake state and night time for sleep
- ***Rest/ Activity Cycle*** - Daytime for activity and night time for rest, repair and rejuvenate



A lean disease-free body requires holistic food, and a balanced lifestyle lived in harmony with the natural circadian cycle. The valuable research on Circadian rhythms and its influence on health and disease earned three medical physiologists- Drs Young, Hall, and Rosbash a Nobel prize in October 2017. The balanced lifestyle lived in harmony with the natural circadian cycle requires a disciplined approach to the following:

**When to eat** - Eating time influences digestion, glucose utilization, and sleep.

- **Digestion** - The digestion, absorption, and metabolism of the food are at its best during daylight hours. The digestive tract and enzymes slow down after 10 PM. The food consumed after 8 PM does not move along well in the gastrointestinal tract. Late eaters are more likely to have indigestion, acid reflux, gas, bloating, and constipation.
- **Glucose Utilization** - During the daytime, the body needs more energy for activity. Glucose absorbed from the digestive tract gets used up most efficiently during the day. After 8 PM, the physical activity goes down, and the absorbed glucose gets converted to reserve energy fat. Late-night eating after 8 PM invariably leads to obesity even if one eats a very healthy diet.
- **Sleep quality**—Late night eating is disruptive to deep rejuvenating Sleep. For 2-3 hours after a meal, the abdominal temperature goes up due to increased blood flow to the digestive tract. In Ayurveda, it is called Jathr- Agni. Deep Sleep requires the body temperature to be lower.

**How often to eat** - Before the 1970s, the traditional number of meals amongst the global population was 2-3 per day. The meals got consumed mostly in daylight hours. There was a time lag of 12-14 hours between the dinner and next morning meal and 6-7 hours between the day meals. Most populations abided by the natural Time Restricted Eating (TRE) schedule. No surprise that the incidence of obesity, diabetes, high blood pressure, heart disease was very low. In the past 50 years, urban societies are eating multiple meals a day, any time of the day and night, and more time gets spent eating and very little time in the fasting mode. There is no surprise that food and lifestyle diseases have taken an epidemic proportion in the past 50 years.

### ***Section 6—Deep Rejuvenating Sleep for Holistic Health***

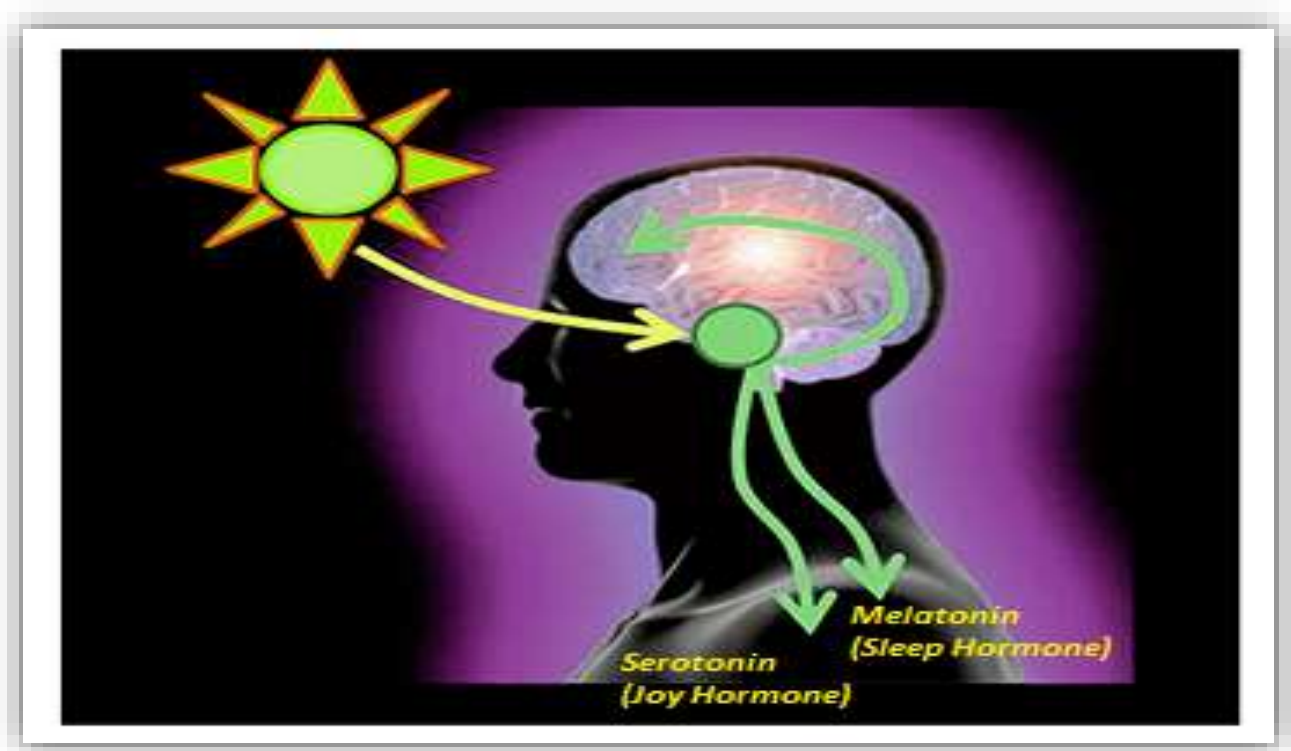
Deep uninterrupted Sleep is as vital to health as food and water. Sleep is that precious time when the body repairs and rejuvenates itself. The growth hormone gets secreted during deep Sleep; it restores, and rejuvenates body cells, promotes growth in young, and slows down the aging process in adults. Inadequate Sleep weakens the Immunity, causes mental stress, and premature aging. Sleep deprivation is the greatest epidemic of modern times. There are several health problems associated with lack of adequate deep Sleep:

- ***Overweight and Obesity***—Sleeping less than 6 hours, staying up past midnight, and poor quality Sleep leads to weight gain. Late sleepers have a high level of the appetite hormone ghrelin and low level of the satiating hormone leptin. Late sleepers, therefore, get into a vicious cycle of overeating. Since healthy food is unavailable at late hours, they end up eating junk and fast foods. A long term sleep deficit of as little as 1-2 hours a day can lead to 10-15 kg weight gain.
- ***Weak Immune system***—It is a common observation that poor sleep leads to frequent colds, other respiratory infections, and worsening of asthma and Rheumatoid arthritis. Poor sleep also slows down the recovery from an illness. Melatonin, the hormone of deep sleep produced in the brain in response to Sunlight or bright daylight, is known to have an anti-cancer effect.
- ***Memory, mood, and mental health***—Sleep plays a vital role in memory, creativity, learning, flow and concentration, and mood. Lack of Sleep causes anger, hostility, irritability, headaches, migraine, and depression.
- ***Type 2 diabetes, Heart disease, high blood pressure***- Lack of deep rejuvenating Sleep raises the level of the stress hormones cortisol, and adrenaline. These hormones interfere with glucose utilization increasing blood sugar, increase heart rate, and blood pressure.

### **A Healthy Sleep-Wake Cycle**

Melatonin is the hormone of the deep sleep, and its secretion is under the control of the circadian brain clock. The light signal from morning sunlight or bright morning light sends a message to the Pineal gland in the brain to produce sleep hormone melatonin and also mood-elevating hormone

serotonin. Sleep and mood hormones are intimately related to each other. That is why Insomnia leads to depression, and depression leads to Insomnia. The light and dark cycles of the Sunlight control the healthy Sleep-Wake cycle.



#### Sensible Rules of Rejuvenating Sleep-Wake cycle:

- a) **Wake up that follows a healthy deep sleep is spontaneous and does not require an alarm clock or human intervention.**
- b) **Getting out of bed is swift and speedy after deep rejuvenating Sleep** — The vitality of a well-rested body and mind does not allow for lingering in the bed.
- c) **The ideal time for sleeping is between 10 to 11 PM to 6–7 AM** - Deep rejuvenating Sleep occurs between the hours of midnight and 3 AM. To get there, one must sleep by 10 to 11 PM. Wake-up time in the morning controls the sleep time at night. If one wakes up by 6–7 AM, the sleep time naturally gets set at 10–11 PM.
- d) **Do not take afternoon naps of longer than 30 minutes** —Longer afternoon naps cause difficulty with initiating natural sleep at night.
- e) **Physical activity during the day is vital to sleep at night**—More tired the body faster the onset of sleep at night. The physically inactive individual has difficulty falling asleep and staying asleep.
- f) **Stay loyal to the wake-up time irrespective of the time you went to bed**-It is the wake-up time that controls the healthy sleep cycle.

- g) **Switch off all the blue light devices 1-2 hours before sleep time**—Television, computers, and smartphone screens emit blue light, which interferes with the release of the sleep hormone melatonin in the brain. Melatonin is vital for deep rejuvenating sleep.
- h) **Go to bed with a calm mind**—Reading a calming book and soft music is ideal.
- i) **Limit caffeine intake**--Avoid drinking tea, coffee, and caffeinated drinks after 5 PM.
- j) **Keep in mind that alcohol gets you to sleep faster but robs you off the deep rejuvenating Sleep** - Lack of rejuvenating sleep is the reason for hangover and headaches.
- k) **Do not indulge in Strenuous exercise after 7 PM**- The strenuous activity after 7 PM causes the release of excitatory hormones such as adrenaline, which interferes with sleep onset.
- l) **Keep dinner time before 8 PM**—Eating late causes indigestion and acid reflux. It also increases the body's core temperature, which interferes with deep sleep.
- m) **Ensure exposure to morning sunlight or bright natural light**—The morning natural light signal prompts the production of deep sleep hormone Melatonin, and mood-elevating happy hormone Serotonin in the brain.

### **Section 7—Sunlight and Vitamin D for Immunity and Health**

***There are all kinds of lights for sight,  
But for Health, there is only one light, and that is Sunlight***

Humans have an intimate connection to the bioenergy of the Sun for healthy foods, a balanced lifestyle, and other health benefits, as shown in the picture below:



An excellent example of a tremendous human partnership with the Sun is the production of natural vitamin D. The medical research in the past decade has shown that Vitamin D does much more for the body than bone health. Vitamin D is present in every cell of the body and plays a vital role in the preservation of health and prevention of disease. Individuals who have low levels of vitamin D are at a higher risk of respiratory infections and conditions such as Type1 diabetes, Hashimoto Thyroiditis, and Rheumatoid arthritis. Experience with COVID-19 infections has shown that patients who have low vitamin D levels carry a higher risk for severe disease and death.

### ***Normal Vitamin D levels***

The international Osteoporotic Foundation estimates that 80% of the urban Indian population suffers from Vitamin D deficiency because of a lack of sunlight exposure. The usual range of Vitamin D levels in the blood is 20- 40 ng/ ml, and less than 12 ng/ml are considered low levels.

### **There are two sources of Vitamin D:**

- **Dietary sources**—Most foods except for Cod liver oil and A 2 Gir cow ghee carry negligible amounts of vitamin D.
- **Sunlight exposure**—The ideal source of Vitamin D for the body is to get it from the Sunlight. Vitamin D gets synthesized in the skin on exposure to ultraviolet B spectrum of light from the morning Sun. There are two significant advantages of natural vitamin D from the Sunlight:
  - a) Vitamin D synthesis in the skin is a naturally controlled process and does not cause any overdose. In contrast, Vitamin D given by tablets and injections can cause overdose with nausea, dizziness, and abnormal calcium deposits in the body.
  - b) Naturally synthesized vitamin D in the skin is stored in the liver and can provide a backup reserve for up to six months. In contrast, Vitamin D from the pills and injection cannot store in the body long term.

### ***Medical Supplementation For Vitamin D***

The daily requirement of vitamin D is 400-600 International Units. For low vitamin D levels, a dose of 4-10,000 units daily gets prescribed. Such high doses should be prescribed for short periods only. It is safer to take vitamin D supplements orally than by injections. Close monitoring of the blood levels is required to prevent vitamin D overdose.

### ***How to Get Safe Dose of Sunlight For Vitamin D and Other Health Benefits?***

Sunlight is safe when sun exposure occurs at a specific time of the day. Even in light skin white populations, the incidence of skin cancer due to sun exposure is only 1 in 1000 individuals. In dark skin individuals, skin cancer from sun exposure is rare. The other health risk of sun exposure is early cataracts, easily prevented by sunglasses or good headcover that shades the eyes. Sensible rules on getting safe sunlight exposure for maximum health benefits are as follows:

- a) **Sungazing early morning**—Look at the red glow of the rising Sun early morning for 10-15 minutes. The morning sun stimulates the natural brain clock and boosts the



production of hormones such as Melatonin (Sleep), Serotonin (mood), and stimulating hormone to enhance secretion of Thyroid, Cortisol, and Insulin hormones.

- b) The ultraviolet rays of the Sunlight are in a safe B spectrum only for 1-2 hours of the morning after the red glow of the Sun disappears. Vitamin D gets synthesized in the skin on exposure to the UV- B spectrum of the Sunlight. Typically this time falls between 6–9 AM and 5–7 PM in the summers. In the winter, sunrise is an hour late and sunset an hour early.
- c) A safe rule about sunbathing is to look at your standing shadow in Sunlight. If the standing shadow is longer than your height, it is safe to sunbath. Shortest shadow is during the mid-day sun.
- d) If the skin gets heated and red under the sunlight, it is a sign that sunlight is too strong, and you should go into the shade.
- e) The safe duration of sun exposure depends on the color of the skin. The following simple rule works:

<b>Fair and light skin color</b>	<b>10-15 minutes</b>
<b>Brown or wheatish complexion</b>	<b>30-60 minutes</b>
<b>Dark Color Skin</b>	<b>60-90 minutes</b>

- f) For maximum benefit, expose 40% of the skin to the sunlight. The best sunlight absorption occurs through lighter skin areas such as the lighter area of arms, hands, and feet.
- g) Finally, multiple short exposures of 15-20 minutes are better than one long exposure. So during a morning walk, get under the shade in between.

### ***Section 8—Manage Stress To Boost Immunity***

It is common knowledge that the risk of common colds, flu, and respiratory illnesses is higher when one is going through a period of mental stress. Mental stress also slows the recovery from diseases such as cancer. Many illnesses have a psychosomatic connection; good examples are:

- Frequent colds, respiratory infections, asthmatic attacks
- Obesity and Type2 diabetes—Mental Stress increases the level of the stress hormone cortisol, which interferes with insulin effect, glucose utilization, and causes unwanted fat storage.
- Headaches and Migraine
- Insomnia- Eighty percent of cases of Insomnia are under the banner of adjustment insomnia, which means the inability to adjust to life situations.
- Cardiovascular diseases—Mental Stress raises the level of excitatory hormones that cause High blood pressure, heart attacks, and irregular heartbeat.

- Gastrointestinal disorders—Mental stress and anxiety lead to high acidity in the stomach, acid reflux, indigestion, constipation, and diarrhea.

***How to Know You Suffer from Stress?***—Medical evaluation and tests help in diagnosing physical illness, but medical science has no proper methodology to diagnose mental stress. The stress may present in many different ways:

- The feelings of loneliness, sadness, fear, and anxiety
- A feeling of powerlessness—The thoughts in mind that I am the victim, and others are responsible for my unhappiness.
- There is difficulty with relationships due to negative thoughts of anger, jealousy, and hatred.
- Dealing with a situation becomes an impulsive reaction ( thoughtless action) rather than a thoughtful action
- Finally, a consistent problem is adjustment insomnia with loss of deep rejuvenating sleep.

### ***Managing Stress***

The origin of most stress in humans is rooted in the feeling of fear of loss of three things near and dear to a human- Power/Position/Status, Relationship, and Money. Stress is not an external but an internal problem. Most stress gets built by the way one reacts or behaves towards life situations. Human actions/ reactions, behavior, character, and destiny are under the control of thoughts:

***As are thoughts so are the actions  
As are the actions so become the behavior  
As is the behavior so becomes the character  
As is the character, so becomes the destiny.***

The psychology experts postulate that humans think between 60 to 80,000 thoughts per day. That comes to approximately 2500 thoughts/ hour. Mental stress is nothing but thoughts multiplying at a fast speed, causing restlessness, anxiety, and exhaustion of the mind. Peace and deep sleep disappear from an overactive mind. The fast-running mind dwells typically in the wasted thoughts of regrets of the past and anxieties of the future. If one learns to tame wasted thoughts, the mind becomes calm and quiet. There are simple rules one can adopt to slow the speed of thoughts:

- ***An attitude of gratitude***—It is a powerful tool for calming the mind and building bridges in the relationships. It is a spiritual quality that generates tremendous positive energy.
- ***Being an optimist***—To be an optimist, one has to have faith that providence has a perfect plan, and every failure carries a hidden message of success.
- ***Acceptance***—This attribute humble an opponent. Resistance and rejection only prolong the struggle generating negative energy and exhaustion.
- ***Solitude***- It is a powerful tool for calming the mind. Few exercises that help build solitudes are:

***Speak Softly and slowly  
Speak only when necessary, and what is necessary  
Speak with kindness  
Meditation and Yoga Nidra***

***The Natural Herbal supplements for Mental Stress***

Two herbal supplements which may help with calming the mind are:

- A. ***Ashwagandha root*** - It is an Ayurveda herb that works as an anxiolytic and mood stabilizer. It brings down the level of the stress hormone cortisol.
- B. ***Hemp seeds and Oil***—Hemp seeds come from Cannabis plants but do not contain the psychoactive, addictive components THC (Tetrahydrocannabinol).

***Section 9—Healthy Intestinal Bacteria (Microbiome) and Immunity***

From mouth to anus, the digestive tract in an adult human is 9 meters long, with a total area of 300-400 square meters. Over a lifetime, 60 tons of food passes through it. Nature has placed a robust immune system in the intestines to protect against the ingested germs and toxins. For thousands of years, both Western and Eastern healing traditions have proposed that the root of most diseases lies in the large intestines (colon) where the waste residue of the food collects:

***Hippocrates (Father of Allopathic medicine in 350-400 BC)-The death sits in the bowels, and indigestion is the root of all disease.***

***Louis Kuhne (Naturopath late 19<sup>th</sup> century)- The excess food intake, eating wrong food produces intestinal toxicity and disease.***

***Metchnikoff (Allopathic medicine early 20<sup>th</sup> century, a Nobel prize winner)-The death begins in the colon. He believed that predominately vegetarian plant-based food, fermented milk products, support healthy bacteria in the intestine, and cure many diseases. Metchnikoff coined the term dysbiosis for unhealthy colon bacteria that cause disease.***

***What is Microbiome? What does it do for Health and Immunity?***

The collection of bacteria in the intestines is called Microbiome. It carries both helpful and harmful bacteria. Dysbiosis is a condition in which harmful bacteria take the upper hand and cause disease. Microbiome weighs about 1.5 kg and holds almost 30 trillion bacteria. Helpful intestinal bacteria perform several essential functions :

- ***Strengthen the Immune system***- Breakdown the toxic food compounds and destroy harmful bacteria that enter the digestive tract. Sixty percent of the body's immune system lies in the intestines.
- ***Synthesize B Vitamins and Vitamin K*** –Fermented foods such as curd rice, pickles, and beverages fermented with crushed mustard seeds increase Vitamin B12 levels.

- Produce unique short-chain fatty acids (SCFA) from the complex starches and fiber in the food. The SCFA protects the colon from harmful bacteria and diseases like cancer.

### **What can cause Dysbiosis**

- a) ***infection of the digestive tract by germs*** - Bacteria, viruses, parasites, and fungus
- b) ***Low fiber, sugar-rich foods***—Unnatural factory-made fast foods, junk foods, and animal foods such as meat and dairy that carry no fiber at all
- c) **Use of antibiotics**

### ***Diet and Healthy Microbiome***

The diet plays the most vital role in the quality of bacteria in Microbiome. The foods that support a healthy microbiome in the colon include:

- ***Diet rich in fiber***—All plant-based foods such as vegetables, fruits (not juices), Beans, lentils, and whole grains is rich in fiber. The whole grains, such as millets, carry 15 times more fiber than refined wheat flour, and white rice.
- ***Probiotic foods that carry healthy living bacteria***—An excellent example of these foods is homemade curds and its products. The store-bought curds and yogurt preparation get pasteurized that destroys healthy living bacteria.
- Note that commercial Probiotic tablets and capsules vary widely in their efficacy. An ideal way to get a right probiotic is to eat homemade curd that has not turned too sour.
- ***Prebiotic foods and spices***—Plant foods that are rich in fiber and fermented foods work as prebiotics to support the growth of helpful bacteria. Amongst spices, pounded mustard seeds are an excellent prebiotic source.

## ***Section 10- Herbal Supplements to Boost Immunity and Health***

Specific Vitamins, Minerals, and Herbal supplements work as antioxidants that boost Immunity. The body is unable to produce its antioxidants. These are present only in the natural plant-based food that grows under the bioenergy of the Sun. Some herbal supplements are rich sources of antioxidants. The animal foods-- meat and dairy, factory-made foods, and fast foods do not carry antioxidants. Lack of antioxidants in the body causes oxidative stress that leads to chronic diseases such as:

- ***Food and Lifestyle diseases***—Obesity, Type2 Diabetes, Heart Disease and cancer
- ***Diseases of weak Immune system*** —Frequent colds, Flu, upper respiratory illness, allergic rhinitis, and asthma
- ***Autoimmune diseases*** - These are the diseases where the body's immune system malfunctions and destroys its natural cells. The disorders in this category are Rheumatoid arthritis, Type1 diabetes in children and young adults, Hashimoto's thyroiditis with weak thyroid function, Psoriasis, and eczema.

- **Neurodegenerative disorders**- Parkinsonism and Dementia (loss of memory) because of premature destruction of nerve cells.

### **Vitamins, Herbs, Minerals, and Melatonin hormone**

Commercially sold supplements of Vitamins, Herbs, and minerals do not fix the antioxidant deficiency as effectively as natural food sources. Naturally grown whole fruits, vegetables, whole grains, seeds, nuts, herbs, and spices sustain health and strengthen Immunity.

**Vitamins** — Antioxidants vitamins and their natural sources are:

**Beta carotene** - called provitamin A, present in yellow-colored fruits, and vegetables

**Vitamin C** - present in citrus fruits such as Amla, Lemon, and Oranges

**Vitamin E** - present in green vegetables, Whole grains, Legumes seeds, and Nuts

Amongst all the beans, Rajma beans are the most abundant source of antioxidants.

**Minerals** - Zinc, Copper, and Selenium are essential minerals of which zinc is considered a super mineral. Good sources of these minerals are whole grains with germ and husk intact, nuts, and seeds. Stoneground grain flours are superior to milled flours. The high heat of the milling process destroys the germ and husk, which carry vitamin B, healthy oils, and minerals.

**Herbs and Spices**— Indian herbs that are known to have a high antioxidant activity include:

- Cloves and Cinnamon
- Amla ( high in vitamin C)
- Ginger and Turmeric -Active ingredient in turmeric is curcumin. Both turmeric and ginger have an established reputation for their anti-inflammatory properties
- Walnuts and Almond
- Saffron
- Triphala
- Arjun Ki Chaal (Used as an ayurvedic remedy for cardiac diseases)

It can get cumbersome to consume various herbal supplements separately. The right way is to prepare a grounded mixture of several supplements and store the mixture in a glass jar. Use this super herbal powder mix in hot water as a herbal tea, sprinkle it over salads, soups, and vegetables. Keep in mind that excessive heat destroys the nutritional benefit of the herbs.

## **Herb- Spice Mix For Immunity & Health**

***The Herbs and spices that have potent antioxidant properties Include:***

- Cinnamon(दाल-चीनी)
- Turmeric (हल्दी)
- Ginger (अदरक)
- Black Pepper (काली मिर्च)

- Fenugreek seeds (मैथी दाना)
- Cloves (लॉग) - use it in winter, it is a powerful antioxidant
- Flaxseeds (अल्सी)

#### Preparation of Herb- spice Mix

INGREDIENTS	AMOUNT
Cinnamon	100 gm
Fenugreek seeds	100 gm
Turmeric	100 gm
Dry Ginger	100 gm
Flaxseeds	100 gm
Black Pepper	50gm
Flaxseeds	50gm
Cloves (use in winter)	10-15 pieces

(Grind all of the above ingredients and strain through a fine sieve)

**Sleep Hormone Melatonin** – Recent medical research supports that sleep hormone Melatonin, secreted in the brain in response to morning sunlight or bright light, is a powerful antioxidant. People who do shift work and get deprived of sunlight have a higher risk of developing Type 2 diabetes, Heart disease, and cancer. Melatonin is considered a full-service anticancer agent that inhibits the initiation, growth, and spread of cancer.

#### Conclusion

The new medical research is beginning to look at the role of Diet, Lifestyle, Sleep, Sunlight, Microbiome, Mental stress in the preservation of health and prevention of disease. History is the witness that many more humans die of the pandemics of bacterial and viral infections than the great world wars or the famines.

To prevent future epidemics, humans have to live in harmony with nature. If humans continue to eat meat at the rate they are doing now, they will need three planet earth, and there is only one. That one planet earth is being depleted of the precious land and water resources fast. While it takes 15,000 liters of water to produce one kg of beef, it takes only 200 liters of water to grow one kg of Millets. The animals are the natural host/home of the viruses, and when humans kill these animals, viruses such as COVID and other Corona types jump to humans to find a new host/home. That is the story of Coronavirus origin and its outbreak to a pandemic. So humans must learn to live in harmony with nature, protect its precious resources, its wildlife, which hosts the bacteria and viruses. Humans must cooperate to save planet earth for sustaining their own life as well as that of the other living being that inhabits it.

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