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Review Article

Green Vegetables and Physical Exercise: Importance during (COVID-19) Pandemic to Boost Immunity

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ABSTRACT

Background: *The sole aim of this review is to check the use of food that is based on the plants for the people of different kinds of age groups and how this plant based food aids in the fight against the COVID-19. In the human body, SARS or the sever acute respiratory syndrome is caused along with the common cold and cough by the novel corona virus which are present and found in the viruses spectrum. One of the major crises towards the health of the public across the globe is the emergence if disease that are infectious as much as the SARS. Foods that are mostly plant based are seen to be improving those bacteria in the human intestine that are generally favorable and make up as high as 85% of the immune system of the human body. With the use of water in high quantity, one is able to gain minerals such as vitamins C; D and E along with magnesium and zinc can aid in improving the life style of humans and even build up improving health system that might aid in reducing infection risks. Conclusion: To conclude it might be said, that the foods that are made from plant based have a major role to play in order to improve the immunity of the people for the prevention and of the control in the COVID-19.*

Keywords: *Coronavirus disease, Immunity booster foods, Vitamins rich foods and Physical exercise.*

INTRODUCTION

Those people who have lower immune system, especially those who are under age and over age are generally attacked by the COVID-19. The human body is protected by various diseases with the help of those beneficial bacteria that lives in the gut of the human body and those bacteria make up the immune system. Infections such as the corona virus, heart diseases, cancer etc become actively infectious in instances when the immunes system of a human body is damaged, is weak or gets low. It is believed that 85% of the human immune system is made up of beneficial bacteria of the intestine and regular consumption of foods based on plant aids in the improvement of this health of these gut micro biome.

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On the contrary, there are various diseases such as the underlying cause of diabetes, chronic kidney diseases, cardiovascular diseases, hepatitis B and obstructive pulmonary disease can result from eating animals excessively and they promote inflation and deplete the good bacteria. For lowering the chances of getting flu and cold, the patients of corona virus are suggested to drink plenty of water. In the situation where the patients do not feel thirsty or sense the need to drink water, there are ways such as dinking coconut water, homemade juices or any liquid beverages that is of that kind and it might turn out to be helpful and healthy. Currently, it has been noticed that the rate of survival of the corona virus in drinking a water or sewage is zero at all and there is no evidence that supports other ways. It is even found that the chemical composition of the COVID-19 and its morphological characteristics are as same as the corona viruses that are surrogated by the humans and hence there is availability of data relating towards the measure of coagulation that is efficient and towards their sustainability in the environment (WHO, 2020).

It was even some days ago that a myth broke into the news headlines of the world that a potable water was able t keep the virus of COVID-19 away if the water is in-took every 15 minutes. Even though there is no evidence that proves that one might not be contracted by the COVID-19 virus by drinking water constantly, it is still wise to say that keeping drinking water keeps the body to remain hydrated. This can help in enhancing the immunity power and aid in improving the health and might defeat the virus if enters your body. The water one drinks regularly aid in the process of oxygenating the cells. Cells are often able to fight against the agents of infections that enter the human body if they are provided with enough oxygen to fight against the agents of infections. It is even agreed that in the process of moderating the body temperature, hydration is a very significant factor and it been agreed by the Centre of Disease Control and Prevention in India. Hence, it is quite significant to keep drinking plenty of water in situations if one is contracted with fever, which might be from the side effect of the COVID-19, other disorders or even in case of infections. It is also shown in the report of the Harvard Health department that it is quite essential to drink plenty of water as it reduces the risk of disease in the human body. If the human body is well hydrated, it is able in the process of transmitting the various kinds of nutrients that is required in the human body to maintain the numerous functions in the body and of the organs and this potentially enhances the ability of the body to fight against the infection. On cases of infection such as cold and flu, the drugs we in take might even lead our body to become dry. Again, a lot of body water is removed when we are sick in the form of mucus, which is the way of removing infection-causing pathogens from our body naturally, makes the body dry. Hence it is suggested to drink more water during infections s they a hydrated body helps in removing mucus from the body and removes germs.

It is quite crucial for all of us to maintain our bodies healthy and safe and take all the measures of prevention until we are able to get a cure and a vaccine for the novel corona virus. Even though there is no guarantee that drinking good amounts of water will not contract the novel corona virus, but it can effectively help in decreasing the risk of infection to a great extent and it might also aid in fast recovery

VITAMINS C & E RICH FOODS

One of the most significant expressions for boosting the immunity among the elderly, the kids and the adult people is the intake of Vitamin C. Fruits such as the guava, kiwi, oranges and papaya, play vital role in providing Vitamin C and they should be a part of the regular diet for the humans. Apart from the fruits, there are numerous vegetables such as the cauliflower, spinach, beetroots, peppers and eggplants are considered immunity boosters as they have rich amounts of Vitamin C. It is also suggested that vegetables that are green such as those of kale, broccoli and even mushrooms should be eaten for improving the

immunity. These green vegetables aids in improving elderly people's immunity at a higher rates. The diet of human should also include berries that are enriched with the fatty acids omega-3 and it should be taken with nuts. It is also suggested to those people who are of age to eat Curcumin and Spirulina for the reasons that they are heavily enriched with minerals and of vitamin C. Huge levels of immunity is built up by the consumption of these super foods. Quite often there are pathogenic organism that are life threatening and even causes inflammation which seldom leads to shocks of septic and of sepsis. It is seen that the instances of these cases can be reduced by the consumption of water-soluble vitamins and minerals.

The vitamin C aids the human body in numerous ways such as by providing the immune cells with pro-oxidants, providing the epithelial cells with anti-oxidants and by creating immunosuppressive effect (Erol, 2020). The elderly aged people significantly require the vital vitamin E in their body for the maintenance of overall health and for their proper immunity. One of the most enhanced antioxidant is the vitamin E, which provides us protection from the enormous types of virus, bacteria and from infections. We can also get our daily dose of vitamin E from sources such as hazelnuts, sunflower seeds, and peanut butter and even from the soaked almonds. The specific function, which the vitamin E performs in our body, is through the antioxidants that are chain breaking and they eventually diminished the increase of the lipid per oxidations. The vitamin E is generally a kind of peroxyl scrounger and it radically aids in the protection of the polyunsaturated fats that are present inside of the lipoproteins and of the plasma membranes (Liang et al., 2003). One of the most significant and adequate index for the production and for the process of oxidative destruction of the lipid in vivo is the F2-isoprostan quantification (Lin et al., 2002). The emissions of the enhanced F2-isopostans can also be decreased by the intake of the supplements that are enriched with vitamin E. There in quite an important role, that is played by the vitamin E for the improvement of the cell-mediated immunity in the elderly aged people and their humoral by preserving the response of immunity of higher rates (Mastaloudis, Leonard, & Traber, 2001).

Hence, these kinds of studies have ignited interests to understand if or if not the supplementations of vitamin E in the instances of heavy stress is able to attenuate the oxidative stress and of the immunosuppressant. It is even shown in various works, that taking supplementation for 1-5 months (200–1200 IU dl –Tocopherol) of the vitamin E increases the level of plasma in the tocopherol. On the contrary, there is no effect on the competence level, athletically over the damages of the muscles and the indices regarding to the contractions and the differencing in the oxidative streets effect that the exercise can be able to cause. The findings and its existence is equivocal and is related with the design problems studies which is similar to the timing and types of the subject's exercise, the levels of age or of the fitness, the level of the vitamin E and its volumes and the oxidative methods for the assessment of the stress (Itoh et al., 2000). Towards those exercise that is sustained, have inflammatory, and immune responses, the significance of the vitamin E and its supplementation is quite not studied adequately. There is a presently a description available about the ROS-immunity and there is suggestion of link due to the growing evidences (Haidari, Javadi, Kadkhodaee, & Sanati, 2001). In the effort of the human athletics, the interaction of the ROS generation and the positions of its antioxidants are related, but not explored, to difference in immunity and the process of disease healing. Even numerous early studies that were made by the researchers showed the fact that the vitamin C supplementation had negligible influence during the course of the ultra marathon on the oxidative stress and the abnormalities in the immunity that the physical activity induces in the body (Hartmann, Nieβ, Grünert -Fuchs, Poch, & Speit, 1995). The usual role of the vitamin C in vivo is to act as scavengers of the peroxyl and oxygen radically

and provide protection as antioxidant in the aqueous phase.

Even though it is debatable that the presence of vitamin C in our body helps in the reduction of the lipid per oxidation spread, it is the higher potential in the measures of defenses in the immunity changes and in the per oxidation of the lipid that is injected by the vitamin C activities. It was after the Triathlon World Championships in Kona, Hawaii, that it was focused on the assessment of the vitamin E significance in the ingestion and its reaction on changes in immunity and on the oxidative stress. For a period of two months there were randomized 38 dual blind tri-athletes who were receiving doses of the placebo capsules and of the vitamin E (800 IU dl D — tocopherol) until the racing events. It was also concluded the the supplements of the vitamin E would lift up the alternations in the immune systems that are induced by the physical activity and there were severe senses of inflammatory cytokines, stress in oxidative and huge discomfort (Haddad & Fahlman, 2002).

VITAMIN D RICH FOODS

The mechanisms that are present in our body, for decreasing f the infections from the microbes need vitamin D. The need of vitamin D to enhance the activities of the general metabolism is also well recognized (Pike & Christakos, 2017). The formation of the D3 vitamin within the skin of human is formulated by the synergy of the radiation from the UVB and from the dehydro cholesterol of seven all over the skin that is companied by the reaction of thermal. There are various ways in which the vitamin D is used in our body for example the in the liver, the vitamin D or D3 turns to 25 (OH) D and later it even turns into the 1.25(OH) 2D (calcitriol) in those organs that desire the hormonal metabolite.

The entry of calcitriol derives the impact into the receptors of vitamin D. The protein, which is the binding component of the DNA in regulating sequences often directly, communicates with genes that are specific and that complex chromatin that is active and participates in the process of production of transcriptional modification both epigenetically and genetically. One of the major roles to administer the concentrations of serum calcium is done by the calcitriol and even though it is done inside the loop of feedback of the PTH (parathyroid hormone) that itself has important organism roles. Numerous studies show the effectiveness of vitamin D in the reduction of viral diseases. There are numerous pathways of the vitamin D, which enables in the reductions of the infection from virus and the rate of mortality. There are three categories in which the significance of the vitamin D is categorized namely; the immunity in the natural cellular level, adaptive immunity and physical barrier. The promotion of junctions of adherents and those junctions of gap and tight is helped by the vitamin D (e.g., by E- cadherine). There are several demonstrations, which report the process about the damages, which are caused by the virus on the junction's integrity, which results in the growth of microorganism and the contamination of the virus. The immunity of the cellular innate is improved by the vitamin D, which is done in parts by the involvement of 1, 25-dihdroxyvitamin D into antimicrobial peptides, like human cathelicidin, LL-37, and defensives (Beard, Bearden, & Striker, 2011). An activity that is strong and antimicrobial is demonstrated in cathelicidins where numerous microbe such as those of bacteria that are Gram-positive and Gram-positive and are present in the fungus and viruses that are un-enveloped. These compounds helps in disabling the membranes of the pathogens that are foreign hence destroying the pathogens as well suppressing the biological activities of the end toxins and are known as host –derived.

There are various other functions as well. While testing a mouse, in the model it was even found that the LL-37 was able to reduce the duplication of the A virus of the influenza. In a different lab demonstration both in vivo and in vitro, it was found that 1.25 (OH) 2D was able to reduce the duplication of the rotary virus by various means. Another study that was made in clinic was able to reveal that the supplementations of vitamin D

aided in reducing the dengue virus infection. Vitamin D helps in rising in the innate immune system the cytokine storms and it leads to improved resistance in the cell. It is even discovered that the patients of the COVID-19, in response to their viral and bacterial infections are able to develop both pro-inflammatory and inflammatory cytokines in their innate immune system. The Th1 cytokines that are pro-inflammatory and are even known as factor α and interferon ÿ of the tumor necrosis factors are decreased by the vitamin D (Hewison, 2012). Under the administration of the vitamin D those cytokines, which are pro–inflammatory, and their production is reduced and those cytokine, which are anti-inflammatory, and their production are enhanced by the references of the macrophages. By the process of trying to suppress the production of the cytokine which are inflammatory IL-2 and the interferon gamma (INFπ), the vitamin D effectively modulates the immune system 1.25 (OH) 2D3 and the responses are stimulated by the primarily t-helper type of cell (Th1). Additionally, the cytokines which are made by the t-helper type 2 (Th2) cell and their development is influenced by the 1.25 (OH) 2D3, which by supplementing the inhibition of the Th1 that is indirectly influenced and improved by the actions of variety of other cells (Wei & Christakos, 2015). Furthermore, the T regulatory cell are activated by the facilitation of the 1.25(OH) 2D3 and helps in the process of inhibiting the inflammations.

It is seen that with people getting older, the serum concentration of 25(OH) D decreases, which might become important for the corona virus as the death counts of this virus increases with the increase in age. The reason for the reduce serum concentration is due to less amount of time spent in the sunlight and the reduction the production of vitamin D as the skin levels of 7-dehydrocholesterol are lowered. Moreover, there is also the regulation of some medication that is prescribed which stimulates the pregnane-x receptors, which reduces the 25 (OH) D serums and its level of concentration. This includes numerous herbal medication along with endocrine medicines, anti-hypertensive, anti-retroviral, antibiotics, anti-inflammatory agents, anti-epileptics and anti-neoplastic. With the increase of age, there is also increase in the consumption of the pharmaceutical drug. The production of the genes that are anti-oxidant related is also enhanced by the vitamin D supplementation (glutathione reductase and subunit controller glutamate–cysteine ligase). The enhanced production of glutathione has been suggested for the treatment, prevention of the COVID-19 as the use of vitamin C ascorbic acid is spared, and this acid has properties of anti microbial (Holick, 2007).

ZINC AND MAGNESIUM

One of the most needed nutrients in micro is the zinc and the magnesium as these are required for the synthesis of DNA and for the proliferation of the cell (Fuhrman, 2020). Zinc is also a major component that is required in the adaptive responses of immune system and the regulations of the innate, in the cell productions that are involved in the immune system and in the signaling of the cell (Wessels, Maywald, & Rink, 2017). Foods such as shellfish and the red meats have zinc contents (West, 2018). Apart from zinc, one of the most important mineral that is needed by our body for the process of electrolysis in the human body and in order to make our immune system stronger and to disable the lymphocytes and the cell killers is magnesium. One of the cells that are present in the human body that is known as the adenosine triphosphate (ATP) has magnesium as its energy source and this cell is crucial in the human body because in the absence of this ATP, the cells in our body will not function properly. The hemoglobin that is present in the blood of human needs has magnesium as one of the significant component as the hemoglobin has the responsibility to deliver the most vital oxygen to the entirety of the human body from the lungs. This aids in the cases of infection of the COVID-19 as this SARS virus is acclaimed to be targeting the human respiratory system (Sanderson, 2020). Whole grains, avocados, black beans and dark

chocolates are some of the foods that are enriched in magnesium (Spritzler, 2018).

ANTIOXIDANTS

One of the most powerful antioxidant that is present in our body whose objective is scavenging of the free radicals and is generally engaged in the process of repairing the tissues and building the needed chemicals are the glutathione. It is also involved in the process of making proteins that is required by the immune system. NAC, which is also known as the N-Acetylcysteine, advocates in the process of the production of glutathione. Glutathione is another substitute and is used as the supplements.

It has been found by various studies and models in animals that the NAC is capable of decreasing in the duration and severity of the different kind of infection from virus by the process of increasing the repair mechanism and defense at the cellular level. Generally, around 500-600 mg of NAC is taken as a dose. On the other hand only 500 mg of Glutathione can be consumed orally only as per the advice of the doctor (Center & fees, 2020). One of the common found bioflavonoid that is usually present in numerous vegetables and fruits is the Quercetin. This bioflavonoid has been tested immensely in the laboratory of animals and these demonstration shows that that Quercetin is quite effective in the process of inhibiting huge number of infection causing viruses that even includes the SARS CoV, which is related to the present pandemic causing COVID-19 corona virus. This bioflavonoid is supposedly aids in the protection of the lung tissues and supports the capacity of the antioxidants. Bromelain is another compound, which is either sold in the combination of the vitamin C or as an individual supplement. Around 1000 mg of bromelain is usually recommended daily (Center & fees, 2020). Some of the sources that are significant are the black tea, green tea, chilli pepper, oregano, red onion, fennel leaf, grapes, apples, peppers, dill and the various green vegetables.

HERBS

Herbs such as the liquorices, black cumin and garlic should be added in the diet of the old aged people either in food or in tea as these herbs helps in boosting the immunity. These herbs even aids in improving the immunity in the gut as well.

Under the TCM (Traditional Chinese Medicine), treatment with herbs is a well-known aspect. TCM has been essential for treatment in various other outbreak diseases and has a huge past. During the epidemic of SARS in the year 2003, also the intervention of the TCM achieved therapeutic effect, which was quite impressive. In the province of Hubei, around 3100 TCM personnel related to medicine were assigned in the recovery period of COVID-19 and several programs relating to that of the TCM was introduced into the guidelines of the testing and treatment of COVID-19 along with numerous specialist of TCM being involved in the entire process of rescue (Wu et al., 2020). Based on the various types of syndromes, there were extensive treatments, which were characteristically used such as one of the TCM decoction, and the Chinese acupuncture, which is a trademark medicine, was used. Numerous clinics of TCM were also arranged with establishments in the hospitals and the TCM was a part in the treatment that was collectively involved. There were around more than 60,000 cases that were handled by the TCM. In around 102 cases, there were signs from the TCM that the symptom was decreased by 2 days and the recovery of the temperature of the body and its time was reduced by 1.7 days. The stay in hospital was also in an average was also reduced by 27% and the rate of survival was enhanced by 33% and among these patients, the increase in the count of lymphocytes was around 70%. It was even showed in the reports that the harmful transmission of the nucleic acid was also reduced and the length of the stay in the hospital of the patients was decreased by 2 days of the serious patients who were under TCM administration.

The major focus of the TCM medication was on the cause of the COVID-19 over all over the patients of pneumonia and might have prescriptions that are beneficial and consisted sheganmahuang decoction,

qingfeitouxiefuzhengrecette, qingfeipaidu decoction (QPD) and gancaoganjiang decoction. The composition of the qingfeipaidu decoction consists of *Citri Reticulatae Pericarpium, Pogostemonis Herba, Dioscoreae Rhizoma, Asari Radix et Rhizoma, Belamcandae, Aurantii Fructus Immaturus, Rhizoma, Pinelliae Rhizoma Praepratum cum Zingibere et Alumine Farfarae Flos, Asteris Radix et Rhizoma, Zingiberis Rhizoma Recens, Bupleuri Radix, Scutellariae Radix, Glycyrrhizae Radix et Rhizoma Praeprata cum Melle, Alismatis Rhizoma, Poria, Atractylodis Macrocephalae Rhizoma, Cinnamomi Ramulus, Armeniacae Semen Amarum and Polyporus Gypsum Fibrosum.* It was introduced in the treatment and for the diagnostic of the COVID-19 and was generally prescribed in China. The QPD medication team were handling around 701 cases as per the reports and out of them 130 patients were released after successful treatment from the COVID-19 specialized hospitals, the symptom of 51 patients faded clinically, in 268 cases the treatments helped to improve the patients, another 212 patients were found to become stable from any kinds of symptoms. The use of QPD saw survival rates, which were exceeding at the rate of 90% against the COVID-19. The core target of the QPD is generally the lung areas as per the theories of the TCM and pathologically it is of "humid and toxin plague" characteristics. QPD as demonstrated by the analysis of the networks of pharmacology is stated to be having collective impacts of the administration over multi-component and over multi-targets.

Supposedly, the lung are the primary pharmacological site , as there are as much as 16 herbs of lung meridian and the indication shows towards the decoction that is specifically towards lung diseases (Xu et al., 2020). It also helps in the exhibiting the protection of the organs such as heart and kidneys and enhances the roles of Dehumidification by rising and falling throughout the stomach and spleen. By the process of acting upon various proteins of ribosome, the molecules of COVID-19 are able in the process of inhibiting the replication of the COVID-19 through prospective specified screens by the non-expressed ACE-2 receptors. The inflammation that is increased nominally and the trigger of the immune system are caused by the COVID-19. It was even shows that the QPD was able to mitigate and inhibit the improper responses of the immune system and result in the removing of infection, which was demonstrated in the analysis of the functional enrichment. The QPD does this by regulating the cytokine-associated pathways along with those pathways that are related to immunity. Additionally, it was also found that by the prediction that there were some anti-COVID-19 components that had good influence on the formulas and were able to result into compounds that were able to assist in the newer drug developments. These few components were ergo sterol, shionne, molecular docking and patchouli alcohol. In order to prove how much the TCM is effective, we will take an example of a patient who was contracted with COVID-19 and was handled by the TCM. The male patient was in Wuhan for a work tour, before the infection even began to spread out (Xu et al., 2020). During the time span for these male patients, he had repeated cough, fever, and his respiratory rales for both his lungs were not even found evident.

In the beginning, several antibiotics such as oseltamivir phosphate capsule orally, ganciclovir intravenous infusion and even aerosol a1b interferon were given to the male patients. Nevertheless, the acid of the nucleic did show negative results, other test reports such as that of the CT discovered that there were huge lung glass fusions, the two lungs were having increased darkness, and even the density was more and severely complex that the time the patient was admitted. The moist and heat syndrome of the patients was associated with the high level of fever of the patients and even the body temperature become severe than the normal accepted humidity, later the was QPD applied for the diagnosis. A Chinese traditional medicine

similar to the therapy of differentiation has huge features of its own. It is similar as the balance of the Yin and Yang and the differentiation disorder which is a kind of a concept that is holistic and it helps I making the body strengthen and resistant towards the elimination factors of the microbial. It was also though that the TCM had immense experienced due to the fact that it has been monitoring bodies for over a decade for the resistance against pandemics and already has enough experiences in the perspectives for the prevention and for the treatments (Wu et al., 2020). Early intervention of the TCM medication might help in preventing the sickness and from converting into extremely crucial and severe illness even for those patients who at the beginning show very mild symptoms. Even in those cases where the patients get serious, TCM medication were able from time to time to rescue them. The rehabilitation programs showed reports that in that case, during the COVID-19 outbreak, where the TCM were implemented, it showed fundamental increase in the cure rates and the course of the disease was shortened. The progression in the spread of the disease was also delayed and the death rates were reduced.

Additionally, the use of TCM was more specific as it not only prevented the infection, but it also was able in the prevention of the disease and was able to successfully legislate in the enhancing of the immune system for the promotion of the repair in the body and for the discontinuing the storms of the inflammations. Furthermore, it was seen that the ideology that reflected in the control and prevention measure of the COVID-19 showed "preventive treatment of the disease". The history of the pandemic disease that has been caused over the period in the Han Dynasty, it was the measures of TCM that helped in prevention and included sports, diet, psychology and medication (Xu et al., 2020). Moreover, the research, which is scientific on the medication of the TCM and clarity about its efficiency in healing of the COVID-19, is required to pass out in its full evaluation of the mechanism and the in depth understanding of the actions of the COVID-19 (Zhu et al., 2020).

LIFE STYLE

The response of the immune system inside the body is often altered negatively due to exerting stress (Salleh, 2008). In order to get one's mind away from the world for a bit one of the most common methods of getting distressed is by not watching the TV and other media instrument. To catch up if there is any significant changes; just limit yourself to the TV for an hour both in the morning and during the nighttime. During the times of critical illness, sleep is quite a crucial thing as it enhances hugely on the immune system and provides the body of the human with opportunities to take rest and to heal (Kamdar, Needham, & Collop, 2012).

Moreover, during the time of the Spanish Flu, the doctors claimed that one of the most considered recovery method of the patients was through the process of sleeping (Abascal & Yarnell, 2006). To fight against the infections our body needs antibodies and white blood cells, the levels of which can be increased by exercising (Join & Calendar, 2020). For the improvement in the mass of the muscle, resiliency and for the strength, after critical illness, exercise is very significantly needed (Heyland et al., 2016). Some people even had blood clots as the COVID-19 symptom, this clotting of blood can also be prevented by regularly exercising (Clerkin et al., 2020). In order to support the immune system of our body, it is important to eat a healthy and well balanced diet and to not be indulged in the processed junk food, as it also helps in improving the quality of the overall health. One should try to eat produce that is fresh as much as possible and in situations when there is no season for fresh produce, one should opt for the frozen or fermentation methods. The green vegetables and foods are straight away frozen or fermented on the peak of the season when these items are generally picked (Join & Calendar, 2020).

EXERCISE – ESSENTIAL DURING COVID-19 FOR WELL BEING

The significance of engaging in any type or form of physical activity is quite beneficial both mentally and physically and a lot of adults understand the same. With the world coping with the new virus, namely the COVID-19, the WHO declared it as a global pandemic. This has led to the businesses being closed, there are several changes in the everyday lives of the common people and people maintaining distance in the society are hugely disrupting the all around aspects of the normal and ordinary lives and to this exercise is not an exception as well.

During this crisis and challenging times, one might even get tempted to skip the fitness and workout regimes, however, the heath experts and the officials stated that even though the physical work out is important in the normal circumstances, it is even more crucial during this COVID-19 pandemic that people took care of their physical and mental health. Below are the reason provided why one should be exercising in order to stay active and how once can exercise safely during these pandemic times.

COVID-19 Lockdown – Effects on the exercise routines.

The lockdowns due to the COVID-19 has shut almost all gyms, parks, public places and studios resulting in reducing the opportunity to do some physical exercise or even any other activity especially among those people who are not able to exercise in their house. Additionally, the orders for social distancing is moreover stirring the ability of people towards exercising even more since there is no allowed options to do physical activities outdoor as the government has issues stay indoors orders.

Those who are working from home end up extended hours sitting on a chair. Furthermore, it is more challenging with the changes that are occurring in the everyday lives of people across globe to find time and escapes to exercise.

COVID-19 – Physical and Mental Concerns

The concerns related to the COVID-19 leads to the effect the habits of eating of the people. Stress full eating leads to the consumption of higher calorie and might even lead to obesity. People during the pandemic situation are more like to get bent towards less expensive, non – perishable and calorie dense ultra processed food mostly due to the difficulties in the financial situations. Additionally, the stay indoors orders limits the trips to the grocery stores disabling people to get fresh vegetables and fruits. It is even viewed that staying in home for long hours makes people more willing to snack, bake out of stress, or even make comfort food, which has high calories.

Apart from the dietary changes, numerous people are currently dealing with issues such as isolation, boredom, sadness, and concerns relating to finances, anxiety and stress. All of this leads to have a negative and degrading effect on the eating habits. This might affect the mental and physical well-being of individuals.

COVID-19 – Importance of Exercise

Even during the normal situations, it is quite essential for any individual to exercise regularly. Furthermore, during this current pandemic caused by the COVID-19, it is more essential to exercise, the reasons for so are given below.

- **Helps in enhancing the immune system**: It has been found by various studies that exercising regularly even in moderate intensities may lead to the benefits of boosting the immune system, which might aid in the fight against the infection of the COVID-19.
- **Helps in maintaining body weight**: Regular exercise during the pandemic situations might help to burn those calories, which resulted due to the changes in the eating habits and it reduces the effects of the sedentary activities.
- **Helps in decreasing anxiety and stress**: The effects of exercising regularly can be felt as building resilience in the adult's mood, decreasing in the levels of stress and it even helps in improving the mood by boosting it.
- **It helps to get better sleep**: It is quite evident that doing moderate exercises

leads to certain level of exhaustion and it might help in sleeping better improving the quality of sleep. It is found by the researchers that sleeping well during the night aids in boosting the immune systems.

It is found to be more beneficial for older people who have chronic diseases such as cardiac issues, diabetes and arthritis from exercising. Improved cardiovascular health, increased mobility and strength with enhanced balance and flexibility are some benefits that can be achieved by exercising regularly. Additionally it even boosts the overall energy and the general well-being.

COVID-19 Lockdown – Ways to stay physically active

Even though there is stay indoors order and with the gyms, being closed and people maintain social distances, one can stay active through various ways.

Either the American Heart Association in their reports even suggested that any adults should do physical activity, which is vigorously intense for at least 75 minutes per week, or 150 minutes of physical activity, that is moderately intense per week.

Before starting any program of exercise at home, if one is elderly and already faces any chronic diseases, they should check with the doctor and only after consultation should start these exercise programs. The doctors might be able to help in order to suggest those exercises that the elderly people might avoid and those, which might be beneficial for the old aged people.

Suggestions to get moving

- **Family exercise**: For a family to have some fun time, it is a very super opportunity to exercise together. Few examples on how a family and the household members can both have some fun time along with doing some physical activities are by going on dance parties, yoga sessions in their living room, football games in backyard, etc.
- **Getting outdoors**: While staying away safely from others, it is much required by people to get some fresh air. To do this people should go out for a walk, for jogging, cycling or even for hiking. Even if you don't have lots of time at a time, one can easily break out the workout regime throughout the day in like 10-minutes session. The results might even be surprising.
- **Watch and learn from exercise videos online**: Regardless of whatever types or kinds of physical activity such as dance, strength training, Pilates, kickboxing, cardio or yoga 1 likes, chances are currently, one can find online video services for all of these.

Additionally, there are numerous studious and organization in the community which is currently providing contents and classes that are accessible virtually.

- **Enroll into virtual classes**: If it is in one's financial ability, it is quite considerate to join virtual classes in order to support the fitness studios that are available locally or can even hire local personal trainer and sign up into their online training and fitness sessions. In some instances, it is even possible to find trainers who are available as per your preferences and schedule requirements. Sometimes interacting with people and having some fun out of the calendar, during this pandemic and crisis situation might just be the right motivation one is looking for.
- **Keep challenging yourself**: Keep making new targets for yourself and keep trying to beat your previous records or timings and along with that make plans to move forward in order to achieve the goals.
- **Doing household chores that burn calories**: There are a lot many household chores that are effective in providing chances to burn some calories and to build some muscles such as cleaning the garage, washing the car or even working in a garden. Completing household chores along with the calories that you will burn will yield more benefits that will make you feel good along with achieving the sense of accomplishment.

Even though one might face some difficulties and has to put extra effort in order to adjust into any kinds of daily physical activity or to get into any fitness routines, it will definitely enable you to become healthier and the well-being will be boosted in the crisis of the COVID-19 pandemic.

FUTURE PERSPECTIVE AND CONCLUSION

Those old age people and adults who have lower level of immunity have higher possibility of contracting the corona virus in the current pandemic. The food that is present and is plant based plays a significant role to boost the immunity in our body by aiding the production of those bacteria, which are beneficial for the immunity. There are several aspects of improving the immunity that has been investigated such as the consumption of the vitamins C, D and E. Some of the fruits and vegetables that are enriched with vitamin C are guava, kiwi, papaya and oranges, cauliflower, spinach, beetroot, peppers, eggplant, and they are very good for enhancing the immunity. One of the most important micronutrient that helps in the synthesis of the DNA and for the proliferation of the cell is Vitamin D. It also provides assistance in the regulation of the innate and the responses and even improves the resistance of the cells by raising the cytokine in the immune system causes. Some of the foods such as kale, mushroom and broccoli even helps in the improving the elderly people's immune system. Furthermore, there are several combinations of herbs of TCM that is known to have a major role in the COVID-19 prevention. The aspects of the future and its research on the account is much more needed significantly and thus to understand their role which is related to the issues of immunity that might help in preventing the COVID-19. The role of food and its aids in prevention of the corona virus is yet to be researched more. The foods that are being tested for the boosting of the immunity should be studied in combination. In a gist, the corona virus plays a significant role for the fight against the COVID-19 virus and improves the system of immunity in all the aged groups.

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