

Improve Homeostasis to Prevent Covid-19's Severity

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Abstract

In today's scenario it has become an utmost urge of every citizen to be with the policy of Indian govt. and make this lockdown fruitful. Being a physical educationist it has become my moral duty to make people aware about physical activities and its benefit in improving Immune system. W.H.O. and I.C.M.R. has also suggested that improving one's body immune (resistance to fight against disease) can help in fighting against the spread of this Chinese virus. To avoid getting sick or contaminated with foreign virus, bacteria, etc. one must keep the body homeostasis in balance. So till the time we are in lockdown state and to avoid contamination from corona virus we must improve our immune system through exercise and physical activities.

Key words: Homeostasis, virus, immune system.

Introduction

As we all know the whole world is under a big pandemic named COVID-19 or we can say Corona Virus spread. Every medical organization that exists in our country and in this world has been doing their best to get rid of this pandemic. All govt. and private organizations, NGO's, research centers have exhausted themselves in bringing out the cure for this new virus. Every government of all the countries have taken their best step to stop the spread of this killing virus and this has given a bull fighting task for every government to bring down the spread of COVID-19. We all must be watching the mass death of peoples in European countries and super power America, being so advanced in medical facilities and resources their all efforts are going in vain. It's not that they are not committed to stop the spread of the virus and save their countrymen. But until and unless proper medicine or vaccine is developed the only way to stop the spread of virus is keeping distance and isolation.

In Nov.2019 a new corona virus SARS-COV-2 started spreading in China which was named COVID-19. The most important thing about this disease is that it spreads very quickly. The worldwide spread of this disease started in Jan. 2020 and till the end of March 2020 the whole world went into a lockdown state.¹

To fight against COVID-19, CSIR developed 5 steps of strategy. First step was to monitor the molecular changes and the G-Nome sequence of the virus. Second step was to diagnose the disease and to understand its various symptoms. Third step was about the selection of medicine to counter the effect. Fourth step was to take care of hospital staff by providing masks, gloves, sanitizations, P.P.E. kit etc. and many other things. And the fifth step was related to the supply chain.

While the pandemic was going on when there was neither any vaccine nor any prescribed medicine, Plasma therapy came into existence. A COVID-19 patient can be treated by giving the PLASMA of a cured patient from COVID -19. This was named Plasma Therapy. Whenever a COVID-19 patient gets cured his body develops antibodies to fight against the disease. These antibodies help in improving the immunity of the individual and also protects him from future infection. These antibodies were found in plasma so the theory developed that the plasma of a cured covid patient may be given to the people who got infected from the virus.²

Aim of The Study

Aim of the study is to overcome or reduce the chances of getting infected by the virus. Being a physical educationist if at all, I can contribute in making the society aware about the importance of keeping oneself fit and in a way also improve body's immunity.

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Review of Literature

One more theory developed during this pandemic was to improve self immunity to fight against virus. To support this theory of improving one's immunity a research has been successfully carried out at California University of America. Researchers came to a conclusion those who don't do Physical work or do very less amount of physical work are more prone to COVID-19 virus. It's not that people who are involved in physical activity are not affected by this virus but there is a difference in both the cases. People who were practicing some physical activity got recovered quickly and the virus doesn't have critical effect on the patient. Whereas people who doesn't participate in any kind of physical activity or live a sedentary lifestyle got admitted to hospitals when infected.

British Journals of Sports Medicine published a research which says people who are obese, diabetic, have high blood pressure, have cardiac disease, had cancer or smoke are prone to COVID-19 virus but people who doesn't do physical activity are more prone to the virus than the people having above mentioned diseases. Researchers found that sweat from our body weakens Corona virus. That's why people those who live in villages are least affected by Corona virus as compared to people living in urban areas. As people of the village have a lifestyle of doing physical activity day out. This is one of the reasons why America and European countries got badly affected by this virus.

The Indian government has opted for a lockdown to stop the spread of corona virus. This will result in many losses for the govt. mainly the economical growth. Government is doing its best to keep the citizens of this country in good health. In today's scenario it has become an utmost urge of every citizen to be with the policy of Indian govt. and make this lockdown fruitful. Being a physical educationist it has become my moral duty to make people aware about physical activities and its benefit in improving Immune system. W.H.O. and I.C.M.R. has also suggested that improving one's immune (resistance to fight against disease) can help in fighting against the spread of this Chinese virus. The theory of improving the immune system has come into existence because corona positive patients are being treated with blood serum of cured patients of corona virus. Persons with weak immunity are more prone to diseases, govt. of India has already generated an advisory that older peoples should be taken care of at priority because they have weakened immunity.

To avoid getting sick or contaminated with foreign virus, bacteria, etc. one must keep the body homeostasis in balance. We all know that our body has numerous control systems one of which is **biological control system** that works to help maintain homeostasis. The components of a biological control system are a receptor, integrating control unit and an effector mechanism. These three factors when working in the proper way homeostasis of an individual is maintained which results in improving the immune system of the body. So till the time we are in lockdown state and to avoid contamination from corona virus we must improve our immune system through exercise and physical activities.

What is Homeostasis?**Homeostasis**

In biology, homeostasis is the state of steady internal, physical, and chemical conditions maintained by living systems. This is the condition of optimal functioning for the organism and includes many variables, such as body temperature and fluid balance, being kept within certain pre-set limits.³

Exercise helps decrease your chances of developing heart disease. It also keeps your bones healthy and strong. Physical activity may help flush bacteria out of the lungs and airways. This may reduce your chance of getting a cold, flu, or other illness. Exercise causes change in antibodies and white blood cells (WBC). WBCs are the body's immune system cells that fight disease. These antibodies or WBCs circulate more rapidly, so they could detect illnesses earlier than they might have before. However, no one knows whether these changes help prevent infections. The brief rise in body temperature during and right after exercise may prevent bacteria from growing. This temperature rise may help the body fight infection better. (This is similar to what happens when you have a fever.) Exercise slows down the release of

stress hormones. Some stress increases the chance of illness. Lower stress hormones may protect against illness⁴

Being in isolation without access to gyms and sports clubs should not mean people stop exercising, according to a new study from researchers at the University of Bath. Keeping up regular, daily exercise at a time when much of the world is going into isolation will play an important role in helping to maintain a healthy immune system.

Author Dr James Turner from the Department for Health at the University of Bath explains: "Our work has concluded that there is very limited evidence for exercise directly increasing the risk of becoming infected with viruses. In the context of corona virus and the conditions we find ourselves in today, the most important consideration is reducing your exposure from other people who may be carrying the virus. But people should not overlook the importance of staying fit, active and healthy during this period. Provided it is carried out in isolation -- away from others -- then regular, daily exercise will help better maintain the way the immune system works -- not suppress it."

Co-author, Dr John Campbell added: "People should not fear that their immune system will be suppressed by exercise, placing them at increased risk of Corona virus. Provided exercise is carried out according to latest government guidance on social distancing, regular exercise will have a tremendously positive effect on our health and wellbeing, both today and for the future."

Regular moderate intensity aerobic exercise, such as walking, running or cycling is recommended, with the aim of achieving 150 minutes per week. Longer, more vigorous exercise would not be harmful, but if capacity to exercise is restricted due to a health condition or disability, the message is to 'move more' and that 'something is better than nothing'. Resistance exercise has clear benefits for maintaining muscles, which also helps movement. ⁵

Participation in physical activity and sports has been steadily rising in our society. And that's not surprising when you consider the importance these activities have with regard to our health: weight management, slowing the aging process, cardiorespiratory improvements, stress reduction, enhanced sleep quality, etc. But what about their impact on the immune system? Moderate to high intensity exercise stimulates the immune system by improving blood circulation, which enhances the circulation of various immune system substances in the body. This positive effect can be felt up to several days after the exercise. The result: it's relatively rare to see a physically active person with an upper respiratory tract infection (URTI), such as a sore throat, a cold or a sinus infection, due to this immune-enhancing effect.

Conversely, engaging in strenuous activities seems to temporarily alter our immune defences. Anyone whose workout is similar to the intense training required for a triathlon or marathon runs a greater risk of releasing stress hormones (cortisol, endorphins, etc.) into their body. This type of repeated stress leads to what scientists refer to as an "open window": a period of one to three days during which the defence system is vulnerable to URTIs.

It's clear that engaging in physical activities and sports benefits the immune system. The golden rule to avoid adversely affecting the immune system? By limiting yourself to 60 minutes of activity a day, you'll avoid increasing the stress that could harm your body's defence system. There's no miracle solution! The immune system's strength also depends on other factors, such as healthy eating. So why not combine both? It's a simple way to protect your immune system as germ season approaches. ⁶

Benefits of Physical Activity

There are many benefits of physical activity. These include:

1. Strengthening and maintaining your immune system strength - being less susceptible to infections
2. Reduces high blood pressure
3. Weight management
4. Reduces the risk of heart disease
5. Reduces the risk of diabetes
6. Reduces the risk of stroke

7. Reduces the risk of certain cancers
8. Improves bone and muscle strength
9. Improves balance
10. Improves flexibility
11. Improves fitness
12. Improves mental health
13. Reduces the risk of depression
14. Reduces the risk of cognitive decline
15. Delays the onset of dementia
16. Improves overall feeling of well-being

Any physical activity is better than none!!!

A study conducted in 2020 found a significant reduction in the likelihood of developing severe COVID-19 among infected patients who had consistently met the recommended physical activity guidelines in the preceding couple of years. Furthermore, COVID-19 patients who had engaged in less physical activity than recommended had lesser risks of developing severe disease outcomes or dying, than COVID-19 patients who were consistently inactive.

During the COVID-19 pandemic, being physically active will be a challenge for all of us but it is critical that we find and plan ways to be active and reduce our sedentary time. Although our movement around our neighbourhood, town, city, country and the world might be restricted, it remains critical that we all move more and sit less.

In light of the current situation worldwide, certain benefits of physical activity may be specifically pertinent to the COVID-19 Pandemic. These benefits are:

1. Physical activity enhances immune function and reduces inflammation therefore it could reduce the severity of infections.
2. Physical activity improves common chronic conditions that increase the risk for severe COVID-19 (i.e. Cardiovascular Disease, Diabetes).
3. Physical activity is a great stress management tool by reducing symptoms of anxiety and depression.
4. Physical activity helps bring cortisol levels in balance. Stress and distress (such as during a pandemic) creates an imbalance in cortisol levels and this negatively influences immune function and inflammation.(7)

Conclusion

Hence we can conclude that moderate amount of physical activity or exercise can surely help in improving immune system of our body and also it engages us for utilizing our leisure time in this period of isolation or lockdown. One of the adverse effect of lockdown has come as mantle stress among children as they were kept away from school. Involvement of children in some kind of physical activity can help them from getting out of these situation and can also help them from obesity. Being an active and responsible citizen of my country the only way I can contribute to the success of the lockdown policy to fight against the spread of covid-19 is by improving immunity and making society aware of the benefits of exercise through social media.

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