



Covid-19 Management through Simple Healthy Lifestyle and Yoga a Narrative Review

Athira MS*

Thiruvalla Kuttappuzha Pathanamthitta, Believers Church Medical College Hospital, India

***Corresponding author:** Athira MS, Thiruvalla Kuttappuzha Pathanamthitta, Believers Church Medical College Hospital, India, Tel: 09562343556; Email: athiramullayil@gmail.com

Review Article

Volume 5 Issue 3

Received Date: July 20, 2021

Published Date: August 30, 2021

DOI: 10.23880/jonam-16000320

Abstract

The COVID-19 pandemic was a great shock to the entire world in January 2020 last year and is still posing a major threat to the entire humanity. Coronavirus 2 (SARS-CoV-2) infection around the globe has become a crucial health menace mainly because of its high transmission potential and the unpredictability of disease progression. A lot of studies have been conducted studying the method of diagnosis and therapeutic management of the disease. Appropriate lifestyle changes regarding diet, yoga, sleep, and steam inhalation may help shift the population distribution of infection risk and aid in preventing severe COVID-19 disease. A balanced diet containing enough macronutrients and diverse micronutrients is a prerequisite of an optimally functioning immune system. Considering the high requirement of Prevention and Management of COVID-19, this study is planned to compose the various Breathing techniques (Pranayama), Yoga postures, diet for immunity building, steam inhalation technique and other methods which can help for the prevention and management of COVID-19.

Keywords: Covid-19; Yoga; pranayama; Diet; Vitamins; Steam inhalation; Immune system

Introduction

In the year 2020 onwards, the whole world is battling with COVID-19 pandemic with unavoidable changes in all areas of life [1]. The coronavirus disease 2019 (COVID-19) is an infection which is evoked by severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2). Which have person to person transmissibility [2]. The SARS-CoV-2 can cause a respiratory viral infection which represents the most predominant and pathogenic fashion of communicable infectious diseases [3]. Now COVID-19 entered its new stage with rapid spread [4]. So there is an urgent need of understanding the Prevention and Management of COVID-19. Studies show that strong immune system can manage COVID-19. Immune boosting methods include healthy diet, moderate exercises, stress management, steam inhalation etc [5]. A proper immune system can help to ensure that the body is in the strongest possible state to battle the virus

[6,7]. How can Corona virus affect immune system?

Immune Boosting is a popular topic during this pandemic. Corona Virus can easily attack people with low immunity, because immune deficiency is an attractive point for COVID-19 [8]. Corona viruses have a lipid bilayer covering contains different proteins with a positive sense RNA genome. The S glycoprotein (SP) present in the corona virus responsible for the entry in to human cells. SP have two domains, they are S1 and S2. The S1 have receptor-binding domain (RBD), it helps to link with angiotensin-converting enzyme 2 (ACE2) present on the human host cell surface. The S2 domain helps for virus-cell membrane fusion and viral entry [9].

The ACE2 expressed body parts like type II pneumocytes epithelial cells in the lungs, heart cells, kidneys, Gastro intestinal tract, liver and bladder are the target for this

viruses [10]. When the SARS-CoV-2 enters within the cell, the viral RNA genome is moves out of the envelope in to the cytoplasm and the onset of translation occurs. New viral particles are formed after the RNA replication [11]. The Interleukin IL-8 is produced from the infected part of lung epithelial cells. Neutrophils and T lymphocytes will moves towards the Interleukin IL-8 by chemotaxic movement [12]. At the initial stage, innate immune response activates by lung epithelial cells, alveolar macrophages and neutrophils and at the later stage, Acquired immune response activates By T lymphocytes and B lymphocytes [13].

Review Findings

Importance Immune boosting During COVID 19 Pandemic: Only an effective immune system can effectively respond to the changes in the environment. Immune system have the ability to fight against pathogens. Immune system have the capacity to nullify the pathogens by producing antibodies [14].

Immune booster diet: Some dietary supplements with certain Vitamins and minerals have beneficial effect on building immunity [15]. Balance diet will provide strong immune system. Especially Vitamin C will guarantee a powerful immune system. In this pandemic, it is necessary to know about types of food that can improve immunity [16]. Micronutrients, such as vitamins and trace elements, are known to play essential roles in both innate and acquired immune responses, Deficiencies in micronutrients can decrease immunity like deficiency of vitamin C & D can be associated with impaired immune responses and can increase the risk of systemic infections.

Following Foods are Essential to Withstand COVID-19

- Eat Vitamin C rich foods like oranges, papaya, kiwi, guava, beetroots, spinach, and cauliflower, broccoli , Berries.
- Curcumin, Ginger
- Vitamin E containing foods like Soaked almonds, peanut butter, sunflower seeds. Vitamin E is a strong anti-oxidant, which can protect against various infections [17].
- Vitamin D rich foods like mushroom. Vitamin D helps to boost immune system [18].
- Whole grains and nuts.
- Zinc, iron, and vitamins A, B 12, B6, C, and E are important for the maintenance of healthy immune function
- Drink 8-10 glass water per day [19].
- Following food practices help to minimize contamination.
- Vegetables and fruits should wash before eating.
- Disinfect the objects before use.
- Cooked and raw foods should keep separately. It helps to

avoid the spread of harmful microbes from raw food to cooked food [20].

Immune Boosting Exercises

Physical activity is one of the main component of healthy living [21]. Studies shows that immune modulation response related to exercise will be depends on certain factors such as regularity, intensity, duration and type of effort applied [22]. Yoga techniques are one of the most helpful methods to strengthen respiratory system as well as immune system. If it is performed in rational and scientific pattern, then only gets its all benefits [23]. Different Yoga practices which helps for the effective management of COVID -19 listed following Pranayama. The word “prana” means “vital energy” (Breath) and “Ayama” means “to control”. Pranayama is an important breathing exercise. It gives a lots of health benefits like strengthening of respiratory system, lymphatic system, stress relaxation [23]. Diaphragmatic breathing can stimulate the immune system associated with Digestive system. Adding pranayama in your lifestyle can manage COVID-19 associates symptoms and improve immunity [24]. Some pranayama exercises which gives beneficial effect on COVID-19 management includes Sahaj pranayama, Bhastrika pranayama and Bramari Pranayama.

Sahaj pranayama

Lie down on back and keep your heels together. Keep the hands straight beside the body. With inhalation raise the hands over the head to place them on the ground. Then with exhalation bring down the hands beside the body.

Benefits:

- Makes heart and lungs strong.
- Prevents Cold and cough
- Soothes Immune system [25].

Bhastrika pranayama

Sit in a comfortable position and Inhale deeply then slowly exhale. Both inhalation and exhalation should have same length. Should not try this incase of BP and other cardiac disorders [26].

Benefits:

- Improves efficiency of respiratory and digestive system.
- Drains excess phlegm from the lungs.
- Enhances immunity.
- Increases rate of oxygen diffusion to the blood
- Strengthens and tones the abdominal region.
- Calms the mind.
- Energizes the entire body and mind.

Bramari Pranayama

The word Bhramaram means Black Indian Bee. Sit in a comfortable position with straight spine. Then close your ears with thumb other fingers place on the crown. Then inhale. While exhale make a sound “MMMM” like a Bee [27,28].

Benefits:

- Relief from stress and anxiety.
- Improves the activity of central nervous system.
- Improves immunity.

Contraindications and cautions: Practice with an empty stomach (at least four or five hours after meal). It should not be practiced by pregnant and menstruating women, Individuals with extremely high blood pressure variation, epilepsy, chest pain, or an active ear infection.

Yoga postures

Bhujangasana

It is called cobra pose. This posture helps to stretch heart and lungs and improves pulmonary and circulation as well as ventilation. It is a nice stretch to chest, shoulders and abdomen [29].

Steps to do:

Lie down on your stomach (prone position) and place your palms beside chest. slowly inhale and lift your head and trunk by support of your palms. stomach should be pressed on the floor. Hold the asana as much as you can. Then exhale and release [30].

Benefits:

- Strengthens the vertebral column.
- Stretches thoracic cage and lungs, shoulders, and abdomen.
- Tones the buttocks.
- Stimulates abdominal organs.
- Helps relieve stress and mental strain
- Improves respiratory system and immune system.
- Cures asthma.
- Cures male and female reproductive disorders.

Contraindications and Cautions: This yoga pose contraindicated for individual with Back injury, Carpal tunnel syndrome, Headache and Pregnancy [30-32].

Matsyasana

Matsyasana also called fish pose. It helps to boost immunity and energy level. Helps to remove nasal congestion

and opens respiratory passage [32].

Steps to do: Lie down in supine position. Feet should be together. Stretch your palms and place under the body. Inhale and lift your head and chest with the help of elbows and while exhale bring your crown of the head to the floor [33].

Benefits:

Expansion of thorax, and respiratory system.
Reduces menstrual cramps.
Removes stress and anxiety.
Prevents Asthma.
Improves digestive system health and prevents constipation.

Contraindications and Cautions: People suffering from insomnia and BP variation should not do [34].

Adho mukha svanasana

Also called downward facing dog pose. It helps to increase blood circulation. And it is an excellent way to increase immunity [35].

Steps to do: First come to your fours. Take in this position. While exhale, lift your hip upward and straight your elbows and knees. Bring your feet to the floor as much as you can [36].

Benefits:

- Strengthens hamstring muscles, shoulders and legs.
- Improves digestion and strengthens abdominal muscles.
- Get rid of stress, mental strain, anxiety and depression.
- Maintain position of uterus.

Cautions and Contraindications: People who have wrist or shoulder injury, hypertension, or headache should not try this [37]. The COVID-19 disease adversely affects the respiratory system and immune system. Improvement of the general physical immunity and strengthening of the respiratory system is important in this pandemic. Daily holistic practices of Yoga helps to enhance the efficiency of different body systems. It strengthens the body's natural defense mechanism to prevent the development of diseases and improve health [38,39].

Steam Inhalation for COVID-19 management

Steam inhalation is traditional home remedy used for several respiratory problems like common colds, croup and bronchitis [40]. Steam inhalation is based on the temperature and humidity of warm and moist air. Steam inhalation is used for the treatment of Influenza virus. SARS-CoV-2 have structural similarities with influenza virus. Studies indicates the influenza virus and coronavirus show strong support

towards the effect of the steam inhalation [41]. The symptoms associated with COVID-19 are reduced by the administration of steam inhalation. Steam inhalation can be used as an associated method along with the use of face masks, social distancing and usage of sanitizers for the prevention and management of the COVID-19 infection. Steam inhalation is an easy, non-invasive, and less expensive method for the COVID-19 infection management. It can reduce the severity and transmission of the SARS-CoV-2 [42].

Conclusion

The present study found that various Breathing techniques (Pranayama), Yoga postures, Macro and micronutrients (diet) for immunity building and steam inhalation technique has immunomodulatory role in COVID 19. Yoga therapy and pranayama with steam inhalation can be applied for the prevention and cure of Covid-19. This review concludes saying that people should be aware of this simple life style modifications and yoga techniques to prevent and manage Covid-19 outbreak and try to build a covid free nation.

Acknowledgement

We thank Mr. Aravind (Yoga instructor, Yoga with aravind, Angamaly, Kerala, India), Pytric School of Yoga, Thiruvalla, Kerala, India and Ms. Supriya Rajan, (Yoga instructor, Sattva Cultural Space, Angamaly, Kerala, India) and Kerala, India for providing Valuable datas.

References

- Roubini N (2020) Coronavirus pandemic has delivered the fastest, deepest economic shock in history. *The Guardian* 46(4): 477-485.
- Bedford J, Enria D, Giesecke J, Heymann DL, Ihekweazu C, et al. (2020) COVID-19: Towards controlling of a pandemic. *Lancet* 395(10229): 1015-1018.
- Adhikari SP, Meng S, Wu YJ, Mao YP, Ye RX, et al. (2020) Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: A scoping review. *Infect Dis Poverty* 9(1): 29.
- Bedford J, Enria D, Giesecke J, Heymann DL, Ihekweazu C, et al. (2020) WHO Strategic and Technical Advisory Group for Infectious Hazards. *Lancet*. 395(10229): 1015-1018.
- Cross ML, Gill HS (2000) Immunomodulatory properties of milk. *Br J Nutr* 84: S81-S89.
- Tang NL, Chan PK, Wong CK, To KF, Wu AKL, et al. (2005) Early enhanced expression of interferon-inducible protein-10 (CXCL-10) and other chemokines predicts adverse outcome in severe acute respiratory syndrome. *Clin Chem* 51(12): 2333-2340.
- Hancock AS, Stairiker CJ, Boesteanu AC, Casanova EM, Lukasiak S, et al. (2018) Transcriptome analysis of infected and bystander type 2 alveolar epithelial cells during influenza A virus infection reveals in vivo Wnt pathway downregulation. *J Virol* 92(21): e01325-e01418.
- Wagner DN, Marcon AR, Caulfield T (2020) "Immune Boosting" in the time of COVID: selling immunity on Instagram. *Allergy Asthma Clin Immunol* 16(76): 1-5.
- Infantino M, Damiani A, Gobbi FL, Grossi V, Lari B, et al. (2020) Serological assays for SARS-CoV-2 infectious disease: benefits, limitations and perspectives. *Isr Med Assoc J* 22(4): 203-210.
- Hamming I, Timens W, Bulthuis ML, Lely AT, Navis G, et al. (2004) Tissue distribution of ACE2 protein, the functional receptor for SARS coronavirus. A first step in understanding SARS pathogenesis. *J Pathol* 203(2): 631-637.
- Li X, Geng M, Peng Y, Meng L, Lu S, et al. (2020) Molecular immune pathogenesis and diagnosis of COVID-19. *J Pharm Anal* 10(2): 102-108.
- Groeneveld ABJ (2002) Vascular pharmacology of acute lung injury and acute respiratory distress syndrome. *Vasc Pharmacol* 39(4): 247-256.
- Rokni M, Ghasemi V, Tavakoli Z (2020) Immune responses and pathogenesis of SARS-CoV-2 during an outbreak in Iran: Comparison with SARS and MERS. *Rev Med Virol* 30(3): 1-5.
- Field CJ, Johnson IR, Schley PD (2002) Nutrients and their role in host resistance to infection. *J Leukoc Biol* 71(1): 16-32.
- Yousafzai AK, Rasheed MA, Bhutta ZA (2013) Annual research review: improved nutrition—a pathway to resilience. *J Child Psychol Psychiatry* 54: 367-377.
- Haug A, Brand Miller JC, Christophersen OA, McArthur J, Fayet F, et al. (2007) A food "lifeboat": food and nutrition considerations in the event of a pandemic or other catastrophe. *Med J Aust* 187(11-12): 674-680.
- Liang Y, Wei P, Duke RW, Reaven PD, Harman MS, et al. (2003) Quantification of 8-isoprostaglandin-F2 and 2-3-dinor-8-iso-prostaglandin-F2 in human urine using liquid chromatography-tandem mass spectrometry. *Free*

- Radical Biology and Medicine 34(4): 409-418.
18. Hewison, M (2012) An update on vitamin D and human immunity. *Clinical Endocrinology* 76(3): 315-325.
 19. Mastaloudis A, Leonard SW, Traber MG (2001) Oxidative stress in athletes during extreme endurance exercise. *Free Radical Biology and Medicine* 31(7): 911-922.
 20. Khayyatzadeh SS (2020) Nutrition and Infection with COVID-19. *J Nutr Food Security* 5(2): 93-96.
 21. Laddu DR, Lavie CJ, Phillips SA, Arena R (2020) Physical activity for immunity protection: inoculating populations with healthy living medicine in preparation for the next pandemic. *Prog Cardiovasc Dis* 10(5): 1-5.
 22. Simpson RJ, Katsanis E (2020) The immunological case for staying active during the COVID-19 pandemic. *Brain Behav Immunity* 10(5): 1-5.
 23. Karthik PS, Chandrasekhar M, Ambareesha K, Nikhil C (2014) Effect of Pranayama and Suryanamaskar on Pulmonary Functions in Medical Students. *J clin diagn* 8(12): 4-6.
 24. Brown RP, Gerbarg PL (2005) Sudarshan Kriya yogic breathing in the treatment of stress, anxiety, and depression: part I—neurophysiologic model. *J. Altern. Complement. Med* 11(1): 189-201.
 25. Swami Shivananda Yogic (1969) Therapy or yogic way to cure Diseases. *Brahmachari Yegeswar Umachal Yogashram* 1(1): 430-435.
 26. Budhi RB, Payghan S, Deepeshwar S (2019) Changes in lung function measures following Bhastrika Pranayama (bellows breath) and running in healthy individuals. *Int J Yoga* 12(3): 233-235.
 27. Taneja MK (2020) Modified Bhramari Pranayama in Covid 19 Infection. *Indian J Otolaryngol Head Neck Surg* Sep 72(3): 395-397.
 28. Taneja MK (2016) Nitric oxide BhramariPranayam, and deafness. *Indian J Otol* 22(1): 1-3.
 29. Kamalanathan A, Babu M, Senthil J (2020) Effects of Yoga Exercise on Respiratory Disorders 10(5): 1-5.
 30. Gangwal J, Kholiya S, Bhatnagar V, Sandeep ML (2019) Importance of Bhujangasana in Daily Life. *International Journal of Trend in Scientific Research and Development* 4(1): 646-651.
 31. Colgrove Y, Gravino Dunn N, Dinyer S, Sis E, Heier A, et al. (2019) Physical and physiological effects of yoga for an underserved population with chronic low back pain. *International Journal of Yoga* 12(3): 252-255.
 32. Rakhshae Z (2011) Effect of Three Yoga Poses (Cobra, Cat and Fish Poses) in Women with Primary Dysmenorrhea: A Randomized Clinical Trial. *J Pediatr Adolesc Gynecol* 24(4): 192-196.
 33. Khanam AA, Sachdeva U, Gularia R, Deepak KK (1996) Study of pulmonary and autonomic functions of asthma patients after yogic training. *Indian J Physiol Pharmacol* 40(4): 318-324.
 34. Bhavanani AB, Ramanathan M, Balaji R, Pushpa D (2014) Comparative immediate effect of different yoga asanas on heart rate and blood pressure in healthy young volunteers. *Int J Yoga* 7(2): 89-95.
 35. Yuki K, Fujiogi M, Koutsogiannaki S (2020) COVID-19 pathophysiology: A review. *Clin Immunol* 215: 108427.
 36. Swanson Ann (2019) Science of yoga: understand the anatomy and physiology to perfect your practice. DK Publishing, New York, USA, pp: 7935-7938.
 37. Sinclair M (2011) The use of abdominal massage to treat chronic constipation. *J Bodyw Mov Ther* 15(4): 436-445.
 38. Sharma Y, Sharma S, Sharma E (2018) Scientific benefits of yoga: A review. *International Journal of Multidisciplinary Research Review* 3(8): 144-148.
 39. Gopal A, Mondal S, Gandhi A, Arora S, Bhattacharjee J, et al. (2011) Effect of integrated yoga practices on immune responses in examination stress-A preliminary study. *Int J Yoga* 4(1): 26-32.
 40. Vathanophas V, Pattamakajonpong P, Assanasen P, Suwanwech T (2019) The effect of steam inhalation on nasal obstruction in patients with allergic rhinitis. *Asian Pac J Allergy Immunol* 10(5): 090818-0393.
 41. Sahin O, Gulen F (2015) Approach to the common cold in children. *J Ped Res* 2(1): 1-6.
 42. Swain SK, Ansuman S (2021) Steam inhalation as an adjuvant treatment in Covid-19 positive health care professionals. *Int J Cur Res Rev* 13(5): 121-125.

