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Frontiers

### Role Of Yogic Methods To Prevent Covid-19 Pandemic

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#### ABSTRACT

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The pandemic of coronavirus disease 2019 (COVID-19), caused by a novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), it outbreaks in the city of wuhan, Hubei Province, Central China. According to researchers and doctors this COVID-19 is mainly attacks respiratory system then gradually destroys immunity system. There is no clinically ratified medicine for this COVID-19. So, every government of their states and countries using many platforms to bring awareness for every individual about this pandemic and taking particular measures like lockdown and social distancing to break this chain. But it is still spreading widely throughout the world, about 213 countries, there are fourteen million people were affected with this virus among them more than six lakhs people lost their lives to till date. In this review our aim to provide yogic methods like kriyas, pranayama. Asanas and meditation to improve immunity system and to be preparedness for this pandemic situation. In this yogic methods we focused on the techniques which regulates the lung vital function, increase of oxygen levels in the blood, elastic recoil of the lungs, prevent persistent infections like sinusitis, shortness of breath, bronchitis, nasal allergies, pneumonia, chronic obstructive pulmonary disease and ventilate the whole lungs and also to regulate the endocrine system which plays major role in harmonizing our body emotionally, which leads to proper functioning of every system in our body. This will guide every individual to practice yoga regularly to balance stress and to improve immunity against this COVID-19 pandemic.

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## **Introduction**

The World Health Organization declared the outbreak of COVID-19 as a Public Health Emergency of International Concern on 30 January 2020 and on 11 March 2020 acknowledged this COVID-19 outbreak as a pandemic and repeated the call for countries to take immediate action and scale up response to diagnose, therapeutic and reduce transmission to save people's lives. Global Research and Development stated that "coronaviruses are large group of viruses among them this Coronavirus disease 2019 is highly infectious disease caused by severe acute respiratory syndrome (SARS-CoV-2)". The transmission of this disease takes place through droplets of infected person, when an infected person releases those droplets through talking, coughing or sneezing and these infected droplets enters another body by eyes, nose and mouth. The common symptoms are fever, fatigue and respiratory symptoms like cough, sore throat and shortness of breath for some people loss of taste and smell, skin rashes and in severe cases could be pneumonia, organ failure and sometimes death. Among the infected persons 80% are recovering without any special treatment but there are some people risked at serious illness they include older people and having medical problems such as chronic respiratory disease, heart disease, diabetes, high blood pressure, cancer and obesity[1]. There is no particular vaccine or therapy for this disease, so many research institutes accelerated to find out the vaccine as much as they can, but it might take few months to find the ratified medicine till then clinical trials will be continued. Government of their concerned regions taking particular actions to prevent the spreading of this COVID-19 and

advising every citizen to stay at home and be healthy by improving immunity to face this pandemic through balanced diet and non-pharmacological intervention like yoga. In prerequisite of yoga to boost one's immunity one should practice, Kriyas like *jalaneti*, *sutra neti*, and *jaladhauti*, *Asanas*, *Pranayama* like *anuloma* and *viloma*, *bhastrika*, *kapalabhati*, and *OM* meditation. In this literature mainly stressed on the yogic techniques which improve proper functioning of upper and lower respiratory tract and also practitioner can remove any bacterial infections, phlegm or nasal blockages, so that he can maintain oxygen levels in the blood, on the other hand due to this pandemic every individual is upholding social and physical distance and finally they are isolated to home which leads to anxiety, depression and other emotional disturbances, so in order to get rid of all these ills one should practice these yogic techniques regularly. Therefore, the present study strongly emphasis that one can manage this COVID-19 by alleviating health conditions like chronic obstructive pulmonary disease, difficulty in breathing, sinusitis, bronchial asthma and a weakened immune system through regular practice of yoga.

## **Yogic management for Covid-19**

Yoga! We are all obligated to hear the word since ancient times. It literally derived from Sanskrit word 'yuj' which means 'to join'. It means joining of *jivaatma* with *paramatma* and its ultimate goal is to obtain *samadhi* state or *moksha*. It not only deals with spiritual aspects of life but also improves physical and mental health. In these 21<sup>st</sup> century yoga has prospered as an alternative form of therapy in the treatment of diseases and

disorders. With the help of yoga therapy most of the health conditions can be managed because it creates balance in the nervous and endocrine system which directly impacts all other systems and organs of the body by regulating hormones and it enhances immunity system.

In this pandemic situation yoga is obligatory for every individual to endure the novel coronavirus disease 2019. This disease is caused by a virus named SARS-CoV-2 which enters our nasal system and starts replicating. Then this virus starts to promulgate with limited innate immune response and reaches the respiratory tract. When our body encounters any viruses or foreign microorganisms for the first time, the immune system cannot function properly and we become sick. The same thing happening in the case of COVID-19. An efficient immune system must have the ability to adopt in strange environmental changes to fight against and neutralize the harmful infections by producing antibodies. When the cells of the immune system get educated in producing antibodies against this SARS-CoV-2, it attacks respiratory organs and other organs which are weak at immune. As there is no ratified medicine or vaccine against COVID-19, our immune system is the best to defend against COVID-19 and in blocking this virus from entering into the host cells to limit their spreading of infection and subsequent tissue damage in our body [23]. Hence every individual should make their immunity strong enough to fight against this virus and chances of winning over this virus attack, by taking well balanced diet and regular practice of yoga.

Yoga is one of the potential resources to boost up one's immunity. There are several reports of clinical trials that suggest most of the psychosomatic

ailments and respiratory diseases can be managed through yoga therapy and there is



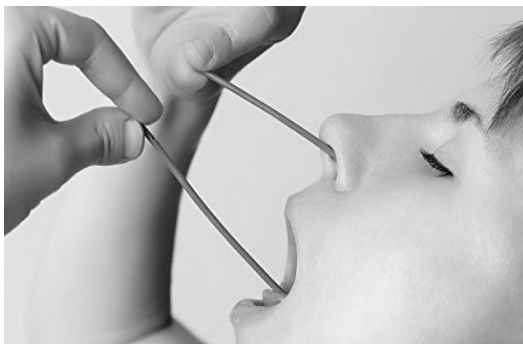
increase in natural killer cells activity during yoga practices pointing to the relationship between a calm mind and better cellular immunity. Yoga maintains balance between body and mind, then it removes stress which is one of the roots to lower the immunity. The yogic methods like Kriyas which includes Dhauti and Neti among shatkarmas play a major role in cleansing the upper and lower respiratory organs. Neti is generally classified into Jala Neti and Sutra Neti. Jala Neti is usually practiced with a Neti pot which is specially designed that the nozzle on the end of the spout should fit comfortably into the nostril then the water does not leak out. Fill the Neti pot with lukewarm saline water. This saline water is prepared in the ratio of, for every 500 ml of lukewarm water one table spoon of salt should be added. Stand squarely with legs apart and the body weight should evenly distribute between the feet then lean forward and tilt the head to one side and begin to breathe through the mouth. Gently insert the nozzle into the uppermost nostril and tilt the Neti pot then the water starts to pass out through the other nostrils as shown in the figure 1. If the water enters mouth or throat during this practice it means that the position of head needed to be adjusted. After completion of one side, tilt the head to the opposite side and repeat the same process.

Figure 1

For the practice of sutra neti a lubricated sutra is required. Sutra means a cotton thread lubricated with wax or rubber catheter tube with width of 4mm and length of 36 to 45 mm should be taken. Catheter tube is the better to prefer because one can be done this kriya very conveniently. One end of this tube is inserted through the nostril and it comes to the back of throat then gently insert middle and index fingers into the mouth and pull the catheter tube softly so that it comes out of the mouth as shown in the figure 2. Then hold the both ends of the tube and pull forward and backward for 10 to 15 times. After completion of one nostril repeat the same process through the opposite nostril.

Figure 2

Those suffering from chronic nasal bleeding, ear infections and nasal septum deviation should perform this jala neti and sutra neti under proper guidance. This neti kriya removes mucus and contagion from the nasal passages and sinuses, allowing air to flow without obstruction. It



helps to prevent and manage respiratory tract diseases such as asthma, pneumonia, bronchitis and pulmonary tuberculosis. It helps to relieve allergies, colds and sinusitis. It curtails anxiety and depression, removes drowsiness and makes the head feel frothy and fresh. A balance is created

between the left and right brain hemispheres, inducing a state of harmony



and balance throughout the body and the systems governing circulation and digestion. So, by practising these kriyas daily during this pandemic situation can uphold the proper functioning of upper respiratory organs.

Jaladhvati, it requires same proportion of mixture of the saline water which is used in neti kriya. Sit on the heels and start drinking saline water. After intake of at least six glasses of water, there will be a nauseating feeling. Keep on drinking, until forceful feeling to vomit. Stand with feet wide apart and bend forward and start vomiting. To intensify the feeling to vomit, prickle the back of the throat with the help of fingers. The water in the stomach will come out in gulps. Try to vomit, until entire quantity of water comes out and the queasiness, as shown in



the figure 3. Wash the mouth and relax.

Figure 3

Generally, this kriya is not endorsed to the persons who have health conditions like hernia, high blood pressure, heart disease, stroke, acute peptic ulcer. This kriya improves the functioning of the kidneys, liver and the intestines. It helps to reduce excess phlegm, bile and gastric juices. It also offers relief in case of obesity, gas and



flatulence and constipation by detoxifies the digestive system. It is clinically proved that it reduces fasting blood sugar FBS and postprandial blood sugar PPBS. It helps in the prevention and management of high serum glucose level and high serum cholesterol level. This kriya is ideally practiced in morning before taking breakfast and before practising asanas and pranayama. So, neti and dhauti are potentially aid to manage this COVID-19 by preventing and managing respiratory complications.

Asana makes the mind and body steadiness and it helps in harmonizing the body. Regular practice of asanas stimulates every organ in the body, which helps in hormonal balance so that it can prevent or manage both physical and mental ailments.



It has been considered as the most convenient, non-pharmacological and inexpensive method of achieving certain desired effects. There is a particular asana for stimulation of particular organs or glands. To stimulate the lungs and their functioning should practice Bhujangasana and Sethubandhasana.

**Bhujangasana:** Lay flat on stomach on a comfortable level surface. Make sure that feet are together with the tops of them against the floor. Spread hands on the floor under shoulders and hang elbows against your rib cage. Close eyes and inhale slowly and deeply. As inhaling, steadily straighten your arms and lift your chest from the floor. Straightening the elbows, use the back muscles to raise the trunk as high as possible instead of arm muscles and arch in your back and then tilt the head backward. Lift from the top of your sternum, but avoid pushing the front of your ribs forward. Do not fully straighten the arms if this feels uncomfortable. Feel the stability in the pelvis, thighs and tops of the feet. Imagine them rooted to the ground throughout this asana. Breathe calmly and hold here for 5 to 10 breaths. As you exhale, gently release your body back to the floor.

**Bhujangasana** Stretches muscles in the shoulders, chest and abdominal and also expands the lungs, then it allows for taking deep breathing, which improves circulation of blood and oxygen, especially throughout the spinal and pelvic regions. It alleviates stress, anxiety and even depression. Stimulates organs in the abdomen like liver and kidneys. Improves Digestion and strengthens the spine.

**Sethubandhasana:** Lie down flat on the floor on the back. Bend the knees and place the feet on the floor hip width apart, make sure that ankles and knees are in a straight line. Hold the ankles with the

hands. Inhale and lift your back off the floor, roll in your shoulders and make sure your chin touches your chest. Hold the position with normal breathing as comfortable as you can. Release the ankles, exhale and rest your back on the floor.

This asana stimulates lungs, thyroid glands and other abdominal organs. So, both bhujangasana and sethubandhasana expands the lungs and helps in deep breathing to enhance the functioning of lungs. Ailments like bronchial asthma, pneumonia, COPD, bronchitis and difficulty in breathing due to stress can be managed by practising these asanas. In order to improve or strengthen the functioning of lungs, to face the COVID-19 should practice these asanas.

Pranayama is one of the best yogic methods to improve vital function of lungs and makes the blood oxygenated which leads to improve the cellular immunity. Pranayama techniques like,

- ❖ Anuloma Viloma: which means by sitting in any meditative posture and take a long breath from the left nostril then release the breath from the right nostril slowly again take a long breath through the right nostril and release through the left nostril, this is one round and practice for 30 to 40 rounds.
- ❖ Kapalabhati Pranayama: Sit in vajrasana and forcefully expel all of the air from the lungs while pushing the abdominal diaphragm upwards. The expulsion is active but the inhalation is passive. Subjects rapidly breathe out actively and inhaled passively through both nostrils. It revitalises the muscles of respiratory system.
- ❖ Bhastrika Pranayama: In this, emphasis is given to thoracic breathing activity. Take a deep inhalation followed by

rapid expulsion of breath following one another in rapid succession. This is called as “bellow” type of breathing, the final expulsion is followed by the deepest possible inhalation and hold it as long as it can be done with comfort. Deepest possible exhalation is done very slowly.

- ❖ Bhramari pranayama: Sit in Sukhasana by keeping the spine, neck and head straight with relaxing shoulders. Close the eyes make sure that Now place your index on cartilages to block your ears and gently pressure to your cartilages with index finger to block ears and take a deep breath at the same time. Keep your mouth close all the time and exhale slowly through your nose with humming sound of male bee. Repeat this for 15 to 20 minutes.
- ❖ Pranava Pranayama: It is slow, deep and rhythmic breathing where emphasis is placed on making the sound AAA, UUU and MMM while breathing out for duration of 2 to 3 times the duration of the inhaled breath. It consisting of lower chest breathing with the sound of AAA, mid-chest breathing with the sound of UUU, upper chest breathing with the sound of MMM and then the union of the earlier three parts in a complete yogic breath with the sound of AAA, UUU and MMM.

A large portion of the reviewed studies analyzed the effects of pranayama with samples, irrespective of age, they concluded that by practising pranayama daily can manage both physiological and psychological disorders and diseases. Pranayama is a simple, cost-effective method with evidence indicating the presence of therapeutic benefits for respiratory diseases such as bronchial asthma, pneumonia and chronic obstructive pulmonary disease, it

predominates parasympathetic and controls heart rate and blood pressure, it also lowering triglycerides among people with higher cholesterol than those with a lower cholesterol level[12] and helped to reduces fatigue, anxiety, hypertension and other emotional responses in those with cancer and cardiovascular disease[8]. It maintains good oxygen levels in the blood to supply for each and every cell and tissue, helps in detoxification and it maintains balance between left and right hemispheres of the brain which governs the whole body. In this pandemic situation pranayama preferred to every individual including persons who have above mentioned health conditions because it removes all the respiratory disease and makes the lower and upper respiratory organs strong enough to fight against COVID-19, which uses respiratory organs as gateway to enter into our body. If one has strong intra cellular immunity in the respiratory organs then the virus can be wipe out with our natural immunity at the earlier stage.

Meditation means controlling the mind and senses and fixing the mind on one point. Sit in sukhasana and inhale deeply and then while exhaling should produce sound Om. While chanting Om should fix the mind on eye bro or can assume any object or image. There is a scientific evidence, that by chanting Om the exchange of gaseous and removal of toxins takes place well in the yellow tissue. Many studies have shown that meditation training reduces anxiety and increases positive affect, whereas others show that Om meditation prevents recurrence of depression. In 1985 study by Kabat-Zinn and colleagues, 24 patients with chronic pain showed a statistically significant reduction in various measures of pain symptoms when trained in MBSR [47]. Meditation practices have shown

beneficial effects in the treatment of tension headaches, blood pressure, serum cholesterol, smoking cessation, alcohol abuse, carotid atherosclerosis, Insulin Resistance and Metabolic Syndrome[48], Subclinical Atherosclerosis, Inducible Myocardial Ischemia, longevity and cognitive function in the elderly and psychological disorders, psoriasis [50]. it is clinically proved by various researchers that all these ailments can be prevent and manage through regular practice of meditation. Tooley reported significantly higher plasma melatonin levels in mediators practicing meditation and this melatonin regulates cellular as well as humoral immunity and stimulates the production of NK cells [37]. So, in this pandemic situation meditation plays a key role in balancing tensions and stresses to prevent immune suppression which leads to weakening the responses to the onslaught of infectious bacteria and viruses.

The research substantiated that, through the regular practice of yoga there is significant increase in immune-related cytokines, such as interleukin IL-12, and interferon IFN- $\gamma$ , in serum ( $p < 0.05$  or  $p = 0.01$ ) [28]. Interferon IFN-gamma acts as a central regulator of cell mediated immunity and functions as an antiviral, antitumor, and immune regulator [32]. In a randomized control trial study, cytokines such as IFN-gamma, known involved in cell mediated immunity, were also found to increase in the yoga group [28]. Practice of yoga might strengthen cell-mediated or mucosal immunity and could be used as a preventive measure against virus or other pathogen-mediated infections[30]. Kamei reported a significant correlation between the frontal alpha wave activation and the increase in NK activity during yoga exercises and these NK cells are innate lymphocytes that serve as the first line of

defense against invading viruses limiting their spread and subsequent tissue damage [36]. All these are helpful in improving immunity. So, yoga is a potential aid to manage coronavirus disease 2019.

## Conclusion

Yoga has the potential to prevent progression of the disease and if started early, maybe even possibly manifest a cure. Several evidences indicate that yoga might influence chronic inflammatory state and might enhance impaired immune

function in stress-induced conditions. Based on the above conferred several beneficial aspects of yoga on the respiratory and immune systems against varied clinical settings including that of infectious diseases, we hypothesise a therapeutic potential of yoga towards COVID-19 prevention and management. Yoga deserves as best non-pharmacological intervention to enhance the respiratory and immunity systems in this pandemic situation.

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