

## Yoga for COVID-19

Yoga is welcomed world over for its health promoting and wellness creating aspects. Research over three decades both at this university and elsewhere has shown the efficacy of yoga practices including meditation in establishing homeostasis in noncommunicable diseases by reducing stress levels and promoting healthy life style. Interconnectedness of the mind and body and correcting the imbalances have been intensively investigated to provide a holistic framework for the health of individuals.

The pandemic global spread of coronavirus disease-19 (COVID-19) infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has led to profound global health crisis with the recently analyzed estimate of the overall case fatality ratio in China of 1.38% (95% CI 1.23–1.53).<sup>[1]</sup>

The spread of COVID-19 and the tragedy we are all facing today makes us search for answers and course corrections urgently needed for the very survival of humans. This has raised many questions on our knowledge base along with the attendant social and individual ways of life.

Immunity of the host is an essential requisite to facilitate the eradication of infections. Disturbed immune systems seen as lymphopenia and elevated C-reactive protein levels are recognized to be the characteristic features in severely affected cases of COVID-19 infection.

While the corona viruses (0.06–0.14  $\mu$ ) are the biggest among viruses so far found (0.005–0.05  $\mu$ ), we have much bigger white blood cells (WBCs) (15  $\mu$ ) which constitute our defense system. Furthermore, the number of WBCs in one drop (one ml) of blood varies from 5000 to 7000/ml amounting to millions of WBCs in our body, while the number of COVID-19 viruses are much smaller in number. The WBCs serve as the first line of defense against the invading viruses limiting their spread and subsequent tissue damage. Hence, we have a very good chance of winning over the virus attack if our immune system is normal and strong. Thus, the outcome of this infection could be either a welcome result of an effective immune response that combats COVID-19 as observed in recovering patients with mild symptoms or a state of immune suppression that debilitates the system leading to progression to severe damage.

Extensive work, both at this university and elsewhere, has shown that systematic special tailor-made asana practices, dedicated pranayamas, meditation, and mantras could provide a broad-spectrum immune build up in the body so that viral infection could be averted and/or its virulence reduced. We published the efficacy of integrated yoga (IY) that included asanas, relaxation techniques, breathing

practices, and meditation in achieving earlier ( $P < 0.05$ ) sputum negativity in the yoga group as compared to control group as an add-on to antituberculosis treatment in sputum-positive cases of pulmonary tuberculosis in a sanatorium in Bangalore.<sup>[2]</sup> One month of IY in patients suffering from HIV-1 infection has reported a significant reduction in their viral load with an increase in the number of CD4 immune cells and improvement in their psychological states.<sup>[3]</sup> A study on healthy individuals doing transcendental meditation showed higher ( $P < 0.01$ ) blood levels of B-lymphocyte series as well as natural killer (NK) cells, as compared to nonmeditators.<sup>[4]</sup> Kamei *et al.*<sup>[5]</sup> reported a significant correlation between alpha brain wave activation in the frontal lobe as seen in electroencephalogram (indicating restful awareness) and an increase in NK activity during yoga practices pointing to the relationship between a calm mind and better cellular immunity.

The upper respiratory tract being the portal of entry for the SARS-CoV-2 virus infection, the health of the respiratory system is very important in preventing fatality. There are several reports of clinical trials that suggest an overall effect of yoga training toward improved pulmonary function in patients with chronic obstructive pulmonary disease.

A 4-min video of very simple breathing practices was sent for helping patients with acute respiratory distress hospitalized for COVID-19 infection in Milano, Italy, as a pilot study. This has been visited by 1000 people between March 17, 2020, and March, 20, 2020, with request for more such modules. An e-mail report by a renowned cardiac surgeon in Italy who was also affected, stayed in an intensive care unit with an oxygen mask, and practiced this very simple module while in the and has come out of the hospital after two negative tests says, “we have reached scientific evidence that this simplified protocol sent by you is effective and we intend to disseminate to the overall Scientific Community.” Considering the limitations posed by the highly contagious nature of COVID-19 that poses a great risk of nosocomial infections among health-care workers and caregivers, we planned to deliver tele-yoga-based intervention that would be administered through mobile yoga apps a noncontact and nonobtrusive mode of intervention.

Thus, apart from maintaining the new norms of social distancing, frequent handwashing, and isolation of infected persons and their contacts, we should build immunity both in the body and in minds of people. We have seen that there is some degree of evidence presently to say that yoga practices could provide much needed body immunity and could assure a disease-free homeostatic state for the body.

This is based on three basic concepts of yoga as highlighted in the traditional texts:

1. The total and the right understanding of five aspects of our human system and the entire creation in general: The physical as the grossest (annamaya) with the bioenergy (Pranamaya kosha), mind (Manomaya kosha), and the intellect (Vignanamaya kosha) as the subtle layers with the causal state of consciousness that constitutes the bliss layer called the Anandamaya kosha, a state of all pervasive silence at the base
2. The wrong and distorted knowledge (Viparyaya, e.g., a Jaundiced person thinking that the whole world has become yellow) at the mind and intellect level can percolate through the brain and hypothalamic–pituitary–adrenal axis down to bring distortions in our immune responses. The remedy is to correct this Viparyaya and reverse the downward process of damage to the tissues
3. Several yoga techniques are available to develop mastery over the mind by enhancing the willpower that keeps the immune system strong. These include asana, pranayama, meditation with or without using Mantras, and detoxification through kiyas. Along with these practices, a mental attitude known as Pratipaksha Bhavana (contrary attitude) is recommended in the yoga literature. Yoga recognizes the emotionally charged state of stress response, wherein the mind is in a state of violent spinning speed of thoughts and hence, becomes unmanageable. The techniques train the mind to let go of all violent reactions and replace them by positive thoughts of love and acceptance (prashamana). Such an attitude of love and trust sends signals between the brain and the heart which start working in unison, not letting the stress destabilize the person's biochemistry.

All yoga practices utilize deep relaxation which could release all tensions and stresses to prevent immune suppression that would otherwise have weakened the responses to the onslaught of infectious bacteria and viruses. We need to practice antidote for stress – at work or even at home – at the time of experiencing the stress, not 5 h later when we can cloister ourselves in a room for a short time!

Any holistic therapy should address the entire spectrum of body-mind-consciousness of an individual so that the totality of human personality is ready for the next evolution in human consciousness. The five sheaths of body, prana, mind and emotions, knowledge, and bliss are addressed in the modules developed here with the understanding that an imbalance in any one could bring disorder in all sheaths. The disorder is perceived only when it percolates to mind or body level and mending them in isolation will only bring

transitory relief. For a complete cure, all the above sheaths must be addressed and set right so that the person is not only symptoms free but also ready to explore the depths of consciousness moving beyond the frail human condition.

We await more publications to understand the precise role of yoga therapy in conditions like COVID-19. Till such times, the well understood underlying mechanisms for the use of yoga for stress reduction and immune modulation shall be considered as the basis for its complimentary role in the management of an infectious condition like COVID-19. This editorial is offered in all sincerity and love and dedication to all so that we can overcome this threat successfully and without much trauma.

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<b>Quick Response Code:</b> 	<b>Website:</b> <a href="http://www.ijoy.org.in">www.ijoy.org.in</a>
	<b>DOI:</b> 10.4103/ijoy.IJOY_27_20

**How to cite this article:** Nagendra HR. Yoga for COVID-19. *Int J Yoga* 2020;13:87-8.

**Submitted:** 04-Apr-2020  
**Accepted:** 07-Apr-2020

**Revised:** 07-Apr-2020  
**Published:** 01-May-2020.