

Analysing Studies for Managing Immunity through Yoga Healthcare Science during COVID-19 Lockdown Period

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Abstract:

Through this article, the literature review examination shows that human organs, such as the lungs in the respiratory system are initially damaged by COVID-19. Possible solutions to render certain organs healthy enough to counter and prevent COVID-19 to seek and combat its impact on the human body through Yoga are discussed based on literature available. It has been reported in ancient Indian literature that through performing yoga, the human body's respiratory system improves; also it has been observed that COVID-19 has less effect on the young generation, perhaps because the respiratory system is strong relative to old people. When people grow older, their respiratory ability becomes gradually slower relative to their breathing rate and power while they are young. So to maintain the respiratory system healthy enough, it is recommended to perform asana yoga, such as Kapalabhati pranayamas, which improves the human respiratory system. As a consequence, we can infer that by practicing yoga, one can battle COVID-19 with more energy and strength

Keywords: COVID-19, respiratory system, lungs, yoga.

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I. Introduction

In today's scenario COVID-19 which is a serious threat can be defeated only by the person having strong immunity. One of the oldest methods used in human history to combat global health diseases is using Indian indigenous medicine systems. Such conventional drugs are for the diagnosis of many diseases in Indian Yoga, Unani, Ayurveda, Siddha and homeopathy. Yoga is a practice of controlling breath which is mainly called pranayama. After asanas, the breathing exercise is performed by synchronizing the movement of the breath with the movement of asanas (Budilovsky and Adamson, 2001). It was mentioned in the ancient literature like Bhagavad Gita and the Yoga Sutras of Patanjali, and later in Hatha yoga texts that it is a complete

cessation of breathing (*Bhagavad-gītā* 4.29 — *ISKCON Press*). The whole body is connected with the respiratory system or we can say that the respiratory system is a vital part of the body that circulates oxygen to whole body cells through lungs, nose, and mouth (Wu et al., 2020). Anything which is the reason for lack of oxygen to the respiratory system is a serious threat to the body which weakens the respiratory system which ultimately leads to weakening the organs of the body. In today's scenario COVID-19 which is a serious threat can be defeated only by the person having strong immunity which is by the regular practicing of pranayama. It works on improving the respiratory system doing pranayama regularly can improve the intake of oxygen 5 times ('How Yoga Helps In The Respiratory System - The Yoga Mandala', 2019).

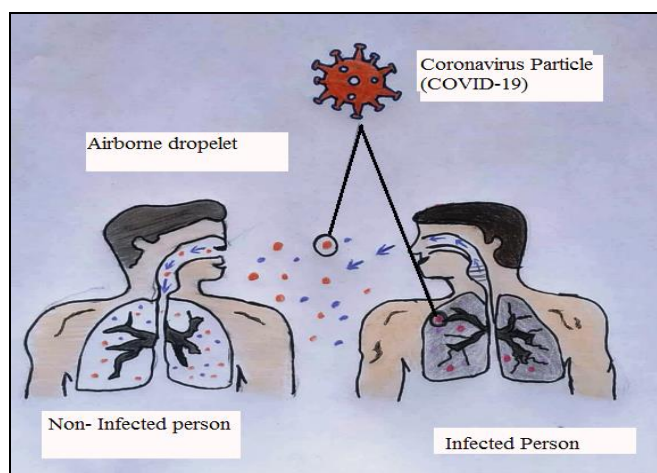


Figure 1: Transmission of COVID-19.

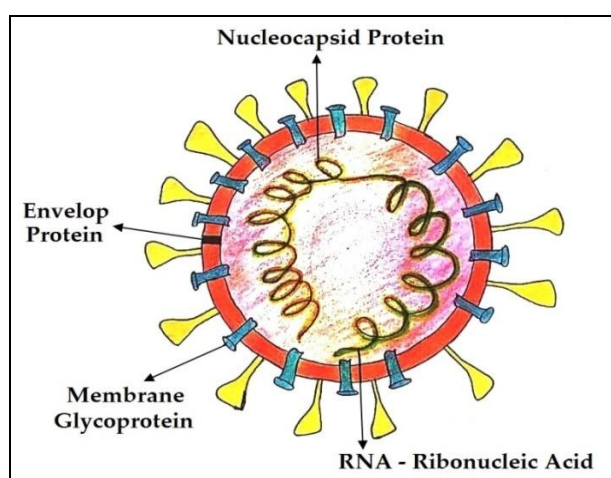


Figure 2: COVID-19 particle.

Besides that, many yoga asanas support the respiratory system by expanding the lungs due to which intake will be more so that oxygen can flow through the blood to the tip of the toes ('How Yoga Helps In The Respiratory System - The Yoga Mandala', 2019). COVID-19 is a disease that is caused by severe acute respiratory syndrome-related coronavirus (Pathological findings of COVID-19 associated with acute respiratory distress syndrome - The Lancet Respiratory Medicine). It is made up of some protein fats, and a few genetic materials. Which gets multiplied it only when it gets to enter in any living cell. It gets when an infected person sneezes, cough or touches any surface by leaving virus cells in the air or on the surface (Wu et al., 2020). When a non-infected person comes in contact the cell enters in that body through nose, mouth, and eye. It will impact is on the respiratory system by

entering the epithelial cells which are pours (OpenStax CNX, 2016). The cell of COVID-19 gets connected with the specific membrane (ACE2) and releases its genetic material (Xu et al., 2020). Then the function starts off copying and reassembling until it will damages the cell fully. Once it is done then the final step is self-destruction. It will spread the infected cell fully in the lung and slowly steadily (around 10 days) its count reaches in billions. It gets spread in the whole body through blood.

II. Literature Review

In various researches, it is found that yoga can play a crucial role in improving the immune system. Yoga is unique because we relate the motion of the body and the vibration of the mind to the rhythm of our breathing (Lee, 2014). The connection of mind, body, and breath helps us to turn our attention inward. So, It was found that regularly practicing yoga for at least 20-30 min per session will improve the working of body organs (Lee, 2014).

Table 1: Studies to improve immune by physical activities.

S.No	Title & Author	Findings	*Recommendations
1	Coronavirus disease (COVID-19): The need to maintain regular physical activity while taking precautions (Chen <i>et al.</i> , 2020)	Yoga, traditional Tai Ji Quan, Qigong exercises do not require any equipment for practicing.	People during the lockdown should practice pranayama for making strengthening respiratory system
2	Exercising in times of COVID-19: what do experts recommend doing within four walls? (Angel, 2020)	Physical activity plays a crucial role in diseases prevention and strengthens the immune system.	Regular practicing yoga will improve heart rate variability, blood glucose levels, sleep, etc
3	Coronavirus infections and	The hosts emphasize the	Regular practicing of Kapal Bhati and Anulom

	immune responses. (Li <i>et al.</i> , 2020a)	development and persistence of inflammation in the lungs, and hopefully, CoV may reduce the risk of pneumonia.	Vilom pranayama will strengthen the immune system
4	COVID-19: A Promising cure for the global panic (Vellingiri <i>et al.</i> , 2020)	Many countries continue countrywide lockdown, social distancing and self lockdown and practicing yoga for the better immune system.	Daily practicing pranayama can help in improving immunity

Table 2: Studies on the yoga to boosts immunity.

S.No.	Title & Author	Yoga pranayamas, its Health impact/Finding s	*Recommendation
1.	I. A REVIEW ON THE THERAPEUTIC EFFECTS OF NETI KRIYA WITH SPECIAL REFERENCE TO JALA NETI (Meera <i>et al.</i> , 2019).	Jal neti/Nasal cleansing (with pot) - Cleans the sinus cavities Anyone can do Under the guidance of a trained teacher.	2-3 times in a week can be clean the path of nostrils. COVID-19 virus can enter from the nose for that cleaning is essential
2.	Consolidate effect of vibhagha pranayama, nadishuddi pranayama, savithiri pranayama and kapalabhati pranayama on the pulmonary functional	Kapalabhati pranayamas - Most effective immunity booster. Good for the respiratory system. Extremely high blood pressure or heart diseases,	Daily practicing for at least 5-10 min will increase the immunity and can make your body strong enough to fight will COVID-19

	status of young healthy male subjects(K <i>et al.</i> , 2013).	Pregnant women.	
3.	II. CHANGES IN LUNG FUNCTION MEASURES FOLLOWING BHASTRIKA PRANAYAMA III. (BELLOWS BREATH) AND RUNNING IN HEALTHY INDIVIDUALS(BUDHI, PAYGHAN AND DEEPESHWAR, 2019)	Bhastrika Pranayama - Increase the capacity of the lungs.	At least 10 min of Bhastrika pranayama will increase lungs capacity so that amount of oxygen reaches to each part of the body is more
A. 4	IV. EFFECT OF PRANAYAMA AND SURYANAMAS KARON PULMONARY FUNCTIONS IN MEDICAL STUDENTS(SH YAM KARTHIK <i>ET AL.</i> , 2014) A.	B. Anulom Vilom Pranayama C. Improve the working of the lungs, improves the immune system and besides that cures general issues like cough & cold.	8-10 min of Anulom Vilom Pranayam will improve the lungs capacity due to intake more oxygen ultimately which leads to boost the immunity by traveling oxygen to each part of the body through blood
D. 5	Effects of yoga breathing practice on heart rate variability in healthy adolescents: a randomized controlled trial E. (Kuppusamy <i>et al.</i> , 2020)	For improving sympathovagal balance among the adolescents simple breathing technique in yoga is helpful moreover it helps improve the autonomic function of adolescent children	The practice of yoga should start from a young age itself which leads to working of organs in a better and efficient manner

* This pranayama should be done/practices under the guidance of a yoga teacher.

No specialized COVID-19 treatments drugs are available till now, still clinical trials are also being performed to check how existing medications can be

reused. While the numbers of new diagnoses have risen throughout the world, patients with quarantine results have undergone a complete recovery. Table 3 represents data obtained from articles related to the COVID-19.

Table 3: Number of humans deceased due to COVID-19 till April 2019.

Country	Number of humans deceased due to COVID-19 till April 2019(Fatality rate in %age)		Remarks		Reference
	Above the age of 60	Below the age of 60	Death (Worldometer, 2020)	Total population ('Population by Country (2020) - Worldometer', 2020)	
India	8.9	2.8	238	1,380,004,385	https://timesofindia.indiatimes.com/india/average-age-of-indias-covid-deaths-60-diabetes-bp-common-co-ailments/articleshow/75037820.cms
South Korea	31.86	0.99	214	51,269,185	https://www.statista.com/statistics/1105088/south-korea-coronavirus-mortality-rate-by-age/
Italy	89.8	3.9	19,468	60,461,826	https://www.statista.com/statistics/1106372/coronavirus-death-rate-by-age-group-italy/
Spain	25.31	1.85	16,972	46,754,778	https://twitter.com/AndyBioTech/status/1241741127205572609/photo/1

China	23.4	2.1	3,339	1,439,323,776	https://twitter.com/AndyBioTech/status/1241741127205572609/photo/1

Hence, it is observed that the ratio of an infected person which above 60 is more likely as there breathing rate is much lower as compared to below 60(CDC, 2020). It is mentioned in the WHO report that older who are suffering from the disease might be under higher risk as compared to others (Wang, Tang and Wei, 2020). It was found in the US 17% are belong to the age group of 65-more and since the elderly are under serious risk as off till now the majority of deaths reported are of them (Wang, Tang and Wei, 2020). The one-fifth belongs to the age group of 22-40 needs to be hospitalized only, in the intensive care unit only 2-4%(Wang, Tang and Wei, 2020).

III. Discussion & Conclusion

From above reviews following conclusions can be compared:

People practicing yoga = strong respiratory system.....(1)

People having good health = strong respiratory system.....(2)

People of young age = less effected by COVID-19.....(3)

If we assume that people practicing yoga have good health as in literature then left hand side ie. LHS of (1) = LHS of eq. (2). Similarly right hand side (RHS) of equation 2 is equal lo right hand side of equation 3. If equation 1 = equation 2 and equation 2 = equation 3. Hence equation 1 = equation 3. Therefore if we see LHS of equation 1 and equate with RHS of equation 2, we get relation that People practicing yoga = less effected by COVID-19. As

machine parts get old due to increased wear and tear leads to failure or fracture in the system. Same the case is happening with our body, as a person gets older wear and tear in body increase which leads to weakening the body parts (Lucas and Van Casteren, 2015). To reduce it and live a healthy life practicing yoga is essential. It is noticed that the people practicing yoga daily have a good immune system ('How Yoga Helps In The Respiratory System - The Yoga Mandala', 2019). Hence, the chances of getting infected from the pandemic COVID-19 are less. Many countries have taken a precautionary step by countrywide lockdown to ensure the safety of all the public places, public transports are closed only essential services a going on and social distancing is promoting on a large scale (Balachandar *et al.*, 2020). This action plays a vital role by breaking the transmission chain and arrival of the new COVID-19 cases in the provided period. During this lockdown period, people can thus practice yoga at their homes to make their immunity to battle COVID-19 with more energy and strength.

References

1. Angel, M. (2020) 'Jo ur of', *Revista. Sociedad Española de Cardiología*. doi: 10.1016/j.rec.2020.04.001.
2. Balachandar, V. *et al.* (2020) 'COVID-19: emerging protective measures.', *European review for medical and pharmacological sciences*, 24(6), pp. 3422–3425. doi: 10.26355/eurrev_202003_20713.
3. *Bhagavad-gītā 4.29* — ISKCON Press (no date). Available at: <http://www.iskconpress.com/books/bg/4/29> (Accessed: 11 April 2020).
4. Bowman, A. J. *et al.* (1997) 'Effects of aerobic exercise training and yoga on the baroreflex in healthy elderly persons', *European Journal of Clinical Investigation*. Blackwell Publishing Ltd, 27(5), pp. 443–449. doi: 10.1046/j.1365-2362.1997.1340681.x.
5. Budhi, R., Payghan, S. and Deepeshwar, S. (2019) 'Changes in lung function measures following Bhastrika Pranayama (bellows breath) and running in healthy individuals', *International Journal of Yoga*. Medknow, 12(3), p. 233. doi: 10.4103/ijoy.ijoy_43_18.
6. Budilovsky, J. and Adamson, E. (2001) *The complete idiot's guide to yoga*. Alpha Books.
7. CDC (2020) *Coronavirus Disease 2019 (COVID-19): People who are at higher risk for severe illness*, Centers for Disease Control and Prevention. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/groups-at-higher-risk.html> (Accessed: 12 April 2020).
8. Chen, P. *et al.* (2020) 'Wuhan coronavirus (2019-nCoV): The need to maintain regular physical activity while taking precautions', *Journal of Sport and Health Science*. Elsevier B.V., 9(2), pp. 103–104. doi: 10.1016/j.jshs.2020.02.001.
9. Guo, Y., Qiu, P. and Liu, T. (2014) 'Tai Ji Quan: An overview of its history, health benefits, and cultural value', *Journal of Sport and Health Science*. Elsevier, pp. 3–8. doi: 10.1016/j.jshs.2013.10.004.
10. 'How Yoga Helps In The Respiratory System - The Yoga Mandala' (2019). Available at: <https://theyogamandala.com.sg/how-yoga-helps-in-the-respiratory-system/> (Accessed: 11 April 2020).
11. K, S. K. *et al.* (2013) 'Consolidate effect of Vibhagha Pranayama, Nadishuddi Pranayama, Savithiri Pranayama and Kapalabhati Pranayama on the pulmonary functional status of young healthy male subjects', *International Journal of Medical Research & Health Sciences*. IJMRHS, 2(3), p. 350. doi: 10.5958/j.2319-5886.2.3.042.
12. Kuppasamy, M. *et al.* (2020) 'Effects of yoga breathing practice on heart rate variability in healthy adolescents: a randomized controlled trial', *Integrative Medicine Research*, 9(1), pp. 28–32. doi: 10.1016/j.imr.2020.01.006.
13. Lee, C. (2014) *10 Beginner Yoga FAQs Answered*, *Yoga Journal*. Available at: <https://www.yogajournal.com/meditation/yoga-questions-answered> (Accessed: 14 April 2020).
14. Li, G. *et al.* (2020a) 'Coronavirus infections and immune responses', *Journal of Medical Virology*. John Wiley and Sons Inc., pp. 424–432. doi: 10.1002/jmv.25685.
15. Li, G. *et al.* (2020b) 'Coronavirus infections and immune responses', *Journal of Medical Virology*. John Wiley and Sons Inc., pp. 424–432. doi: 10.1002/jmv.25685.
16. Lucas, P. W. and Van Casteren, A. (2015) 'The wear and tear of teeth', in *Medical Principles and Practice*, pp. 3–13. doi: 10.1159/000367976.
17. Meera, S. *et al.* (2019) 'A review on the therapeutic effects of Neti Kriya with special reference to Jala Neti', *Journal of Ayurveda and Integrative Medicine*. doi: 10.1016/j.jaim.2018.06.006.
18. OpenStax CNX (2016) *Anatomy & Physiology: Organs and Structures of the Respiratory System*. OpenStax. Available at: <http://cnx.org/content/col11496/1.8> (Accessed: 12 April 2020).

19. *Pathological findings of COVID-19 associated with acute respiratory distress syndrome - The Lancet Respiratory Medicine* (no date). Available at: [https://www.thelancet.com/journals/lancet/article/PIIS2213-2600\(20\)30076-X/fulltext?fbclid=IwAR21jCbXVPMFr_8seoV0rN5BTn0xROg3Ha1Lna0VOnKnwIzYG7QbhFMEwqM](https://www.thelancet.com/journals/lancet/article/PIIS2213-2600(20)30076-X/fulltext?fbclid=IwAR21jCbXVPMFr_8seoV0rN5BTn0xROg3Ha1Lna0VOnKnwIzYG7QbhFMEwqM) (Accessed: 11 April 2020).
20. 'Population by Country (2020) - Worldometer' (2020). Available at: <https://www.worldometers.info/world-population/population-by-country/> (Accessed: 12 April 2020).
21. Shyam Karthik, P. *et al.* (2014) 'Effect of pranayama and suryanamaskar on pulmonary functions in medical students', *Journal of Clinical and Diagnostic Research*. JCDR Research & Publications Private Limited, 8(12), pp. BC04–BC06. doi: 10.7860/JCDR/2014/10281.5344.
22. Vellingiri, B. *et al.* (2020) 'COVID-19: A promising cure for the global panic', *Science of the Total Environment*, 725. doi: 10.1016/j.scitotenv.2020.138277.
23. Wang, W., Tang, J. and Wei, F. (2020) 'Updated understanding of the outbreak of 2019 novel coronavirus (2019-nCoV) in Wuhan, China', *Journal of Medical Virology*. John Wiley and Sons Inc., 92(4), pp. 441–447. doi: 10.1002/jmv.25689.
24. Worldometer (2020) *Coronavirus Cases*, *Worldometer*. doi: 10.1101/2020.01.23.20018549V2.
25. Wu, F. *et al.* (2020) 'A new coronavirus associated with human respiratory disease in China', *Nature*. Nature Research, 579(7798), pp. 265–269. doi: 10.1038/s41586-020-2008-3.
26. Xu, X. *et al.* (2020) 'Evolution of the novel coronavirus from the ongoing Wuhan outbreak and modeling of its spike protein for risk of human transmission', *Science China Life Sciences*. Science in China Press, pp. 457–460. doi: 10.1007/s11427-020-1637-5.

Annexure

