



Preventive Measures to Conquest COVID-19: A Mini-review

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Ayurveda is the bunch of blooms having multiple spectrums to prevent health and immune to fight with present and future trends of viruses. The principles of Ayurveda make life span extensive and healthy. COVID-19 is the today's crisis situation, world wide people are in dread to respiratory disease symptoms as primary indicators of corona virus. So, Ayurveda literature have the various remedies to strengthening respiratory system with preventive measures like *Pranayama*, *Yoga*, *Meditation*, *Good sleep*, *Diet*, *Lifestyle* and *Medication*. Prevention is the need of the time to fight with COVID-19 because there is no treatment and vaccines till date.

Keywords: COVID-19; pranayama; yoga; meditation; lifestyle.

1. INTRODUCTION

The prevention is the better that cure is the today's principle followed by worldwide, which is even now mentioned in Indian ancient medicine. There are innumerable slants to think for COVID-19 pandemic. One of the preventive aspects is to make immune respiratory system for cope up the crisis period. As per WHO, Chronic respiratory disease is more likely to develop serious illness [1] and prone to COVID-19 virus. So, it is need to protect respiratory system organs from virus and to robust immune system with short term efforts as there are no specific vaccines or treatments for COVID-19.

2. OUTLINE FOR PREVENTIVE MEASURES

Ayurveda comprising of effective principle to overcome today's pandemic issue. The foremost principle is prolonging life and promote perfect health to human being. The Health is greatly influenced by Life-Style which includes *Dinacharya*, *Ratricharya* and *Rutucharya*. In lockdown period everyone has to modify lifestyle as per guidelines prescribed by the government. But it is very tangential situation for the health workers to work in this situation. The common man as well as people exposing towards pandemic red zone or orange zone areas should take precautionary initiative with prescribed government guidelines. The remedies used for immune respiratory system in short term period are *Pranayam*, *Yogasana*, Meditation, Medication, Diet & lifestyle and Sound sleep.

3. Pranayama and Yogasana

Pranayama improves respiratory functions by regularizing respiratory rate, increases in the forced vital capacity, forced expiratory volume, maximum voluntary ventilation, peak expiratory flow rate, and as well prolongation of breath holding time [2].

Within a period of four weeks patients of chronic bronchitis benefited with *Yoga* and *Pranayam* therapy [3].

Same results were found in the pilot study of patients of chronic obstructive pulmonary disease (COPD) that pranayama was associated with improved exercise tolerance. Hence Kaminsky suggested Pranayama for symptomatic patients with COPD to get result in twelve weeks [4].

Pranayama and Yoga has a prime role in physical factors like mechanical stimulation and stretching; enable delays in senescence and improves the physiological functions of lung and makes the body elastic [5].

Thus, as finding stated by Abel et.al. that minimum 10 weeks of regular Yoga practice improved pulmonary function. So, less fit individuals suggested to engage them with regular Pranayama [6].

4. MEDITATION

Meditation is very helpful in reducing apparent stress immediately and useful as a short-term mechanism for stressful condition, correspondingly Paudyal et.al said that meditation is beneficial in improving quality life of asthma patients [7]. Similarly, Harinath et.al. suggested three-month *Hatha Yoga* and *Omkar* meditation on disturbed cardiorespiratory performance, psychologic profile and for melatonin secretion. There were not significant results observed in systolic blood pressure, diastolic blood pressure, mean arterial pressure, and orthostatic tolerance, but it can be useful in psychophysiology stimuli to increase endogenous secretion of melatonin, which ultimately responsible for improved sense of well-being [8].

In case of COPD population, complex relation was observed in between breathing parameters, emotion, and mindfulness. Meditation is very useful intervention as it has good feasibility and acceptability [9]. Although the physiological and biochemical fluctuations occur during the acute stress response have been well-characterized, there was relaxation response induced with the help of meditation intervention, that may help to tackle the stressful crisis situation like COVID-19 [10].

5. MEDICATION

The curcumin is the very potential component effective in pulmonary diseases and lung disorders, evidence received through in vitro and in vivo studies [11,12]. The Ashwagandha is described as *Rasayana* (rejuvenator) in Ayurveda and research studies also labelled the same [13].

Ethanol extract of *Boswellia serrata* found significant effective as anti-inflammatory activity, supporting the treatment in lung disorders with

allergy as well as asthma [14]. Most famous immune modulatory drug in Ayurveda, Chyawanprasha, facilitate current biomarkers of immunity pre and post consumption as well observed beneficial as an adjuvant therapy [15].

In vitro anticancer activity of *Abhrak Bhasma* on cell line of LungHOP62 shows positive effect at Tata Memorial Centre, Research Education in Cancer, Navi Mumbai [16]. Allergen induced Asthma can be preventatively treated by *Kanakasava* as traditionally people using since long time [17].

Aqueous extract of *Terminalia arjuna* prevented pulmonary hypertension as it may work as antioxidant and effective on pulmonary arteriolar wall thickening [18]. *E. sonchifolia* has properties like anti-tumour, anti-inflammatory and antioxidant activities and significantly effective on pulmonary metastasis which is also justifying conventional use in the traditional medicine [19]. *Tinospora cordifolia* extract proved its activity as anti-inflammatory and antioxidant activities in asthma, reduces asthmatic inflammation and other lung inflammatory conditions [20]. As per Dybey et.al. *Ashtangavaleha* and *Vyaghreehareetakee Avaleha* both are significantly effective with some difference on *Tamaka Shwasa* (Bronchial Asthma) in children [21].

6. DIET AND LIFESTYLE

The presented data suggest that some food and nutrients, having properties like antioxidant and anti-inflammatory consumed with balanced diet for better pulmonary function, improve lung functioning and reduction of COPD risk [22].

State of malnutrition and weight loss in the crisis of COVID-19 are more prevalent for respiratory disorders due to lack of nourishment. People should be provided with required food material and focused on more energy or protein rich food to overcome the problem that improve the nutritional status [23].

The Mediterranean diet is suggested to improve lung function parameters, which may protect the lung from respiratory dysfunction [24].

7. SOUND SLEEP

Sleep is the restart of human system that helps to improve body functioning and recharging of terminal cells. Disturbed sleep leads to negative health impact on quality of life; which may

mediate in between respiratory disorder and quality of life [25].

Similar finding was observed in the study by Wentz et.al. that sleeping less than six hours per night Military recruits more diagnosed with upper respiratory tract infection. So, proper sleep is very most important thing in between the services of COVID-19 [26].

8. RECOMMENDATION FOR AYUSH INITIATIVES

The Ayurveda research in India is at fundamental stage, there is need to develop research attitude in the budding doctors, practitioner to change the reserved culture, and alteration of the leadership to develop Ayurveda globally and to get leadership role in the future healthcare system to defeat crisis like COVID-19 [27].

There are number of areas to be identified for research, education pattern, development of new ideas and collaboration through integrative approach to develop Ayurveda to fight with upcoming crisis situation [28].

Ayurveda is the science of life promotes the concept of biological aging. The panchakarma procedures and other proposed activities are suggested for successful health span like diet and conscious eating, sleep, regular routine, mindfulness activities, *Sadvritta* [29].

A number of studies were reported from different healthcare disciplines regarding prevention of COVID-19 [30-34].

9. CONCLUSION

COVID-19 is the pandemic situation, whole world is in various crises. The respiratory system related sign and symptoms are the indicative for corona virus. Ayurveda offers number of remedies which are useful for prevention of respiratory diseases and immune the system as well. So, with the help of AYUSH initiatives, all the Ayurveda scholars have the look towards preventive aspect of Ayurveda as life saver mechanism for COVID-19.

CONSENT

It's not applicable.

ETHICAL APPROVAL

It's not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

- Available: https://www.who.int/health-topics/coronavirus#tab=tab_1, 29.04.2020, 14.00 IST,
- Joshi LN, Joshi VD, Gokhale LV. Effect of short term 'Pranayam' practice on breathing rate and ventilatory functions of lung. *Indian J Physiol Pharmacol.* 1992; 36(2):105–108.
- Behera D. Yoga therapy in chronic bronchitis. *J Assoc Physicians India.* 1998;46(2):207–208.
- Kaminsky DA, Guntupalli KK, Lippmann J, et al. Effect of Yoga Breathing (Pranayama) on Exercise Tolerance in Patients with Chronic Obstructive Pulmonary Disease: A Randomized, Controlled Trial. *J Altern Complement Med.* 2017;23(9):696–704. DOI: 10.1089/acm.2017.0102
- Shree N, Bhonde RR. Can yoga therapy stimulate stem cell trafficking from bone marrow?. *J Ayurveda Integr Med.* 2016; 7(3):181–184. DOI: 10.1016/j.jaim.2016.07.003
- Abel AN, Lloyd LK, Williams JS. The effects of regular yoga practice on pulmonary function in healthy individuals: A literature review. *J Altern Complement Med.* 2013;19(3):185–190. DOI: 10.1089/acm.2011.0516
- Paudyal P, Jones C, Grindey C, Dawood R, Smith H. Meditation for asthma: Systematic review and meta-analysis. *J Asthma.* 2018;55(7):771–778. DOI: 10.1080/02770903.2017.1365887
- Harinath K, Malhotra AS, Pal K, et al. Effects of Hatha yoga and Omkar meditation on cardiorespiratory performance, psychologic profile, and melatonin secretion. *J Altern Complement Med.* 2004;10(2):261–268. DOI: 10.1089/107555304323062257
- Chan RR, Giardino N, Larson JL. A pilot study: Mindfulness meditation intervention in COPD. *Int J Chron Obstruct Pulmon Dis.* 2015;10:445–454. Published 2015 Mar 2. DOI: 10.2147/COPD.S73864
- Dusek JA, Benson H. Mind-body medicine: A model of the comparative clinical impact of the acute stress and relaxation responses. *Minn Med.* 2009;92(5):47–50.
- Lelli D, Sahebkar A, Johnston TP, Pedone C. Curcumin use in pulmonary diseases: State of the art and future perspectives. *Pharmacol Res.* 2017;115:133–148. DOI: 10.1016/j.phrs.2016.11.017
- Mehta HJ, Patel V, Sadikot RT. Curcumin and lung cancer--a review. *Target Oncol.* 2014;9(4):295–310. DOI: 10.1007/s11523-014-0321-1
- Singh N, Bhalla M, de Jager P, Gilca M. An overview on ashwagandha: a Rasayana (rejuvenator) of Ayurveda. *Afr J Tradit Complement Altern Med.* 2011;8(5 Suppl):208–213. DOI: 10.4314/ajtcam.v8i5S.9
- Soni KK, Meshram D, Lawal TO, Patel U, Mahady GB. Fractions of *Boswellia serrata* suppress LTA4, LTC4, Cyclooxygenase-2 activities and mRNA in HL-60 Cells and reduce lung inflammation in BALB/c mice [published online ahead of print, 2020 Jan 26]. *Curr Drug Discov Technol.* 2020;10.2174/1570163817666200127112928. DOI: 10.2174/1570163817666200127112928
- Narayana DB, Durg S, Manohar PR, Mahapatra A, Aramya AR. Chyawanprash: A review of therapeutic benefits as in authoritative texts and documented clinical literature. *J Ethnopharmacol.* 2017;197:52–60. DOI: 10.1016/j.jep.2016.07.078
- Tamhankar YL, Gharote AP. Effect of Puta on in vitro anticancer activity of Shataputi AbhrakBhasma on lung, leukemia and prostate cancer cell lines [published online ahead of print, 2018 Oct 31]. *J Ayurveda Integr Med.* 2018;S0975-9476(17)30102-X. DOI: 10.1016/j.jaim.2017.07.007
- Arora P, Ansari SH, Anjum V, Mathur R, Ahmad S. Investigation of anti-asthmatic potential of Kanakasava in ovalbumin-induced bronchial asthma and airway inflammation in rats. *J Ethnopharmacol.* 2017;197:242–249. DOI: 10.1016/j.jep.2016.07.082
- Meghwani H, Prabhakar P, Mohammed SA, et al. Beneficial effects of aqueous extract of stem bark of *Terminalia arjuna* (Roxb.), An ayurvedic drug in experimental pulmonary hypertension. *J Ethnopharmacol.* 2017;197:184–194. DOI: 10.1016/j.jep.2016.07.029

19. George GK, Kuttan G. Inhibition of pulmonary metastasis by Emilia sonchifolia (L.) DC: An in vivo experimental study. *Phytomedicine*. 2016;23(2):123–130.
DOI: 10.1016/j.phymed.2015.11.017
20. Tiwari M, Dwivedi UN, Kakkar P. Tinospora cordifolia extract modulates COX-2, iNOS, ICAM-1, pro-inflammatory cytokines and redox status in murine model of asthma. *J Ethnopharmacol*. 2014;153(2):326–337.
DOI: 10.1016/j.jep.2014.01.031
21. Dubey AK, Rajagopala S, Patel KS. Comparative clinical efficacy of Ashtangavaleha and Vyaghreehareetakee Avaleha on Tamaka Shwasa (bronchial asthma) in children. *Ayu*. 2014;35(4):384–390.
DOI: 10.4103/0974-8520.158995
22. Scoditti E, Massaro M, Garbarino S, Toraldo DM. Role of Diet in Chronic Obstructive Pulmonary Disease Prevention and Treatment. *Nutrients*. 2019;11(6):1357.
Published 2019 Jun 16.
DOI: 10.3390/nu11061357
23. Nguyen HT, Collins PF, Pavey TG, Nguyen NV, Pham TD, Gallegos DL. Nutritional status, dietary intake, and health-related quality of life in outpatients with COPD. *Int J Chron Obstruct Pulmon Dis*. 2019;14:215–226.
Published 2019 Jan 14.
DOI: 10.2147/COPD.S181322
24. Sorlí-Aguilar M, Martín-Luján F, Santigosa-Ayala A, et al. Effects of mediterranean diet on lung function in smokers: A randomised, parallel and controlled protocol. *BMC Public Health*. 2015;15:74.
Published 2015 Jan 31.
DOI: 10.1186/s12889-015-1450-x
25. Lou VW, Chen EJ, Jian H, et al. Respiratory Symptoms, Sleep, and Quality of Life in Patients With Advanced Lung Cancer. *J Pain Symptom Manage*. 2017;53(2):250–256.e1.
DOI: 10.1016/j.jpainsymman.2016.09.006
26. Wentz LM, Ward MD, Potter C, et al. Increased Risk of Upper Respiratory Infection in Military Recruits Who Report Sleeping Less Than 6 h per night. *Mil Med*. 2018;183(11-12):e699–e704.
DOI: 10.1093/milmed/usy090
27. Ramaswamy S. Reflections on current Ayurveda research. *J Ayurveda Integr Med*. 2018;9(4):250-251.
DOI: 10.1016/j.jaim.2018.11.001
28. Payyappalli U. Broadening perspectives of global health - Prospects for AYUSH and integrative medicine. *J Ayurveda Integr Med*. 2018;9(2):87-89.
DOI: 10.1016/j.jaim.2018.05.003
29. Rao RV. Ayurveda and the science of aging. *J Ayurveda Integr Med*. 2018;9(3):225-232.
DOI: 10.1016/j.jaim.2017.10.002
30. Kute, V., S. Guleria, J. Prakash, S. Shroff, N. Prasad, S. Agarwal, S. Varughese, et al. NOTTO Transplant Specific Guidelines with Reference to COVID-19. *Indian Journal of Nephrology* 30, no. 4 (2020): 215–20.
Available: https://doi.org/10.4103/ijn.IJN_29_9_20.
31. Pasari Amit S, Amol Bhawane, Manish R Balwani, Priyanka Tolani, Vishal Ramteke, Nishant Deshpande. Knowledge about COVID-19 and Practices among Hemodialysis Technicians in the COVID-19 Pandemic Era. *International Journal of Nephrology*; 2020.
Available: <https://doi.org/10.1155/2020/6710503>
32. Prasad N, Bhatt M, Agarwal SK, Kohli HS, Gopalakrishnan N, Fernando E, Sahay M, et al. "The Adverse Effect of COVID Pandemic on the Care of Patients with Kidney Diseases in India." *Kidney International Reports*. 2020;5(9):1545–50.
Available: <https://doi.org/10.1016/j.ekir.2020.06.034>
33. Singh KT, Mishra G, Shukla AK, Behera S, Tiwari AK, Panigrahi S, Chhabra KG. Preparedness among Dental Professionals towards COVID-19 in India. *Pan African Medical Journal*. 2020;36:1–7.
Available: <https://doi.org/10.11604/pamj.2020.36.108.23694>.

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