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YOGA BREATHING TECHNIQUES INCREASE OXYGEN LEVEL AND LUNG FUNCTION IN COVID-19 PATIENTS- A REVIEW ANALYSIS

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ABSTRACT

COVID-19 outbreak has created threatful situation for mankind and public health concern worldwide. According to WHO, total 166,346,635 COVID-19 positive cases were reported globally and the count is drastically increasing each day. Pneumonia, decreased oxygen level and respiratory failure are the common symptoms of COVID-19 and needs ICU care. Few cases also need lung transplantation which is very expensive for common man and rarely available option. So that cost-effective techniques like Yoga and breathing practices should be implemented to improve the lung capacity and oxygen level of COVID-19 patients. In this perspective, numerous studies have emphasized that Yoga breathing techniques help to improve lung function and oxygen level.

KEYWORDS: Yoga breathing technique, Oxygen level, Lung function, COVID19,

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INTRODUCTION

Outbreak of COVID-19 was started in December 2019 from Wuhan, at China and expanded worldwide (Wang et al., 2020). This created a threatful situation for all mankind by transmitting from one person to another (Chan et al., 2020) and become public health concern globally (Raoult, Zumla, Locatelli, Ippolito, & Kroemer, 2020). According to WHO around 166,346,635 confirmed COVID positive cases were reported worldwide till date (24th May, 2021) ("WHO Coronavirus (COVID-19) Dashboard | WHO Coronavirus (COVID-19) Dashboard With Vaccination Data," n.d.). COVID-19 patients have reported various symptoms such as cough, fever and fatigue along with nausea, vomiting, tightness in chest, headache etc. but most of the patient reported pneumonia (75.7%) and respiratory failure/ acute respiratory distress syndrome (9.5%) (Grasselli et al., 2020; Zhu et al., 2020).

Maintaining adequate oxygen level is one of the key factors for COVID-19 patient to maintain their survival. According to National Institutes of Health, the oxygen level should be maintained between 92-96% in COVID-19 patient (Shenoy, Luchtel, & Gulani, 2020) but oxygen level of COVID-19 patients often falls and need ICU care (Kotfis et al., 2020). Also it can be a risk factor for fibrotic disease ever after the recovery from COVID-19 (McDonald, 2021). Standard treatment modality is not available to treat the patient of respiratory failure and transplantation of the lung is the only option (Bharat et al., 2020).

In this current scenario, huge number of people is getting infected every day. It is very difficult to provide health facility by supplying adequate oxygen to the patient with lung problem and lung transplantation to the patient with lung failure which is very expensive and rarely available. Hence, cost-effective preventive medicine such as Yoga and breathing exercises should be bringing in fore front to prevent and deal with lungs health to improve oxygen level.

YOGA BREATHING TECHNIQUES AND RESPIRATORY HEALTH

Yoga is the ancient science of healthy living consisting different paths such as posture, pranayama, meditation etc. to physical, mental, vital, emotional and spiritual wellbeing of mankind (Saraswati, 2008). Yoga breathing technique is also called as pranayama.

According to *Hatha Yoga Pradipika* pranayama can destroy asthma, cough and play a vital role to regulate brain and central nervous system. Some specific

pranayama such as *Nadi Shodhana* (alternate nostril breathing) *Suryabhedha* (vitality stimulating breath), *Ujjayi* (psychic breath), *Bhastrika* (bellows breath) are beneficial practice for respiratory health (Muktibodhananda, 2012).

Yoga breathing technique or pranayama is a non-pharmacological treatment methods showed beneficial effects on respiratory system (Hakked, Balakrishnan, & Krishnamurthy, 2017; Santino, Chaves, Freitas, Fregonezi, & Mendonça, 2020; Saoji, Raghavendra, & Manjunath, 2019). A randomized controlled pilot study shown the significant improvement of lung function in healthy subjects after six weeks Yoga breathing techniques (Kupersmidt & Barnable, 2019). A review suggested that ten weeks yoga practice (*pranayama*) significantly improved different variables of lung function such as forced vital capacity, forced expiratory volume, maximum voluntary ventilation, maximum expiratory pressure, maximum inspiratory pressure, peak expiratory flow rate etc. (Abel, Lloyd, & Williams, 2013). Another study showed the reduction of respiratory rate and improved ventilatory function, breath holding time after six weeks of pranayama practice (Joshi, Joshi, & Gokhale, 1992).

Hyper ventilatory breathing practice such as *Kapalabhati* is an effective practice to cleansing the nasal passage and respiratory tract and helps to train the diaphragm and abdominal muscles for their proper function (Shyam Karthik, Chandrasekhar, Ambareesha, & Nikhil, 2014).

According to yogic text, *prana*/vitalenergy has the directly connection with the mind (Muktibodhananda, 2012). Scientific paper also evaluated the neuropsychological and neurophysiological effects of yoga and pranayama by reducing stress, anxiety, hypertension, heart rate variability and increasing parasympathetic tone (Campanelli, Lopes Tort, & Lobão-Soares, 2020; Rocha et al., 2012; Thanalakshmi et al., 2020).

CONCLUSION

Even though there no interventional study have been emerged to measure the effect of Yoga or pranayama on COVID 19 patients but few prospective paper suggested that Yoga can be a preventive treatment for COVID 19 (Nagarathna, Nagendra, & Majumdar, 2020) and few specific yogic techniques *Isha Kriya* and *Simha kriya* can be beneficial for reducing stress in COVID 19 patients (Rain, Subramaniam, Avti, Mahajan, & Anand, 2021).

Based on the published literature on breathing techniques or pranayama on respiratory function, it can be concluded that Yoga breathing technique can be a helpful practice to increase lung capacity, oxygen saturation and reduce stress, anxiety of the COVID-19 patient. Randomized controlled trials are needed to evaluate the effect of Yoga breathing technique on Lung health and oxygen level in COVID-19 patients.

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