

Yoga Module to Improve Health and Wellbeing During COVID-19 Pandemic

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ABSTRACT

After the initial outbreak of coronavirus disease 2019 (COVID-19) in China, the disease spreads rapidly across the whole world. It is observed that there is a rampant rise in the rate of infection in spite of best possible precautionary measures taken into consideration against Corona. As there is no scientifically validated full proofed medicine against COVID-19 till date, the only possible way is prevention against this infection by improving self-immunity, mass immunisation and controlling non-communicable diseases, if suffered from. Another possible way from the prevention from this deadly virus is development of herd immunity, but the process takes time and can be fatal for people with higher age groups and with co-morbidities. Yoga, an Indian way of mind-body purification, has been reported to improve functionality of human physiological systems and to prevent diseases. It is also observed that yoga, being a low to moderate intensity physical activity, breathing maneuvers and meditation, can also be performed by any person irrespective of age, with maximum benefit and having less stress in the vital organs during the practice. Therefore, a yoga package for improving immunity and other physical and physiological capacities and mental function to prevent Corona like disease has been formulated on the basis of knowledge from traditional yogic literature and evidence from available research publications on yoga. The yoga package might be beneficial across all age groups for improving health and wellbeing in this pandemic situation.

Keywords: Yoga; COVID-19; Corona; Non-communicable disease; Health

1. INTRODUCTION

In the wake of the outbreak of novel corona virus disease 2019 (COVID-19), the whole world is reeling under a complex state of fear and anxiety. Person with poor immunity, hypertension, obesity, pre-existing cardiovascular & lung disease, and other related conditions reported worse outcome. Besides symptomatic management and supportive therapy, there is no specific antiviral drug for the treatment of COVID-19 till date¹. A number of precautionary measures have been advised to prevent the spread of the corona virus². One of the precautionary measurements is home stay, more specifically for children and aged individuals, as much as possible. But prolonged home stay and physical inactivity in long run can lead to development of many lifestyle related disorders, depression and anxiety. Home stay, social isolation and loneliness, more specifically for aged individuals, are risk factors for poor physical and mental health³. In this pandemic situation there is a decrease in the outdoor physical activities also due to the closure of parks, gyms, swimming pools, stadiums and exercise/ health clubs. This lack of physical activities and social isolation can lead to the development of new cases non-communicable diseases (NCDs) or aggravate the older cases of NCDs. It has already been observed that older adults with NCDs such as obesity, chronic lung disease,

diabetes, hypertension, heart disease and cancer are at increased risk to become severely ill and ultimately died due to COVID-19 infection⁴. It is reported that in India the prevalence of diabetes is 7.3 per cent and hypertension is 30.7 per cent already⁵⁻⁶. Therefore along with the slowing down the infection rate of SARS-CoV-2 by prescribed precautionary measures, prevention from development of new cases NCDs are also equally important. It is an utmost necessary in this situation that everyone should also consider preventing the development of new cases of NCDs, stress, anxiety and depression. Prolonged physical inactivity and sedentary behavior during lockdown condition can lead to the development of many pathological diseases and clinical disorders resulting in higher rates of morbidity, all-cause and cause-specific mortality and decreased life expectancy. In a study conducted during the present lockdown period it has been observed that 40 per cent of type 2 diabetes mellitus patients were reported to increase in their body weight and among them 17 per cent have reported to increase in their body weight from 2.1 to 5 kg⁷. In healthy population 48.6 per cent of total participants of a scientific trial reported increase in their body weight, might be due to change in their eating habit &/or exercise regimen⁸. Decrease in regular physical activity during this lockdown period has also been reported⁹. Along with physical health problem continuous home stay, social isolation, fearful situation and uncertainty can also lead to deterioration of mental health of common people in this period. Therefore, not only physical but

mental health of each and every citizen should be improved in this time of crisis. It is a well-established fact that prevention is better than cure. Thus, by improving functional capacity of all the physiological systems with special reference to improving the immunity, one can maintain optimum health both physical & mental, performance and prevent from diseases like COVID-19.

Yoga is an ancient Indian way of life, reported to improve functional capacity of all the physiological systems and psychological functions of those who practice it regularly. Yoga has different positive effects and also maintains a balance between all the body systems. The word 'Yoga' is derived from the Sanskrit word 'Yuj', means to join, bind, attach and yoke. Basically the word 'Yog' comes from the two metal "Ujir Yog" and 'Yoj Samadho'. According to first word yoga means to unite, connect, bring together etc. The essential purpose of yoga is the integration of all the layers of life—environmental, physical, emotional, psychological, and spiritual. With its sukshma vyama, suryanamaskara, suddhi kriyas, asanas and pranayamas yoga is a complete package for overall improvement of health – both physical and mental¹⁰. Practice of yoga has been reported to improve all the physiological systems in healthy as well as diseased person. It is also emphasised that yogic practice in a holistic way can improve functionality of mind, body and spirit without any undue effect on physiological systems¹¹.

2. EFFECT OF YOGIC PRACTICES ON DIFFERENT PHYSIOLOGICAL SYSTEMS:

2.1 Effect of Yogic Practices on Body Weight and Muscle Strength

Obesity is one of the major risk factors for the development of more severe form of COVID-19 infection. It has been reported that infected person with obesity are liable to develop more severe form of illness in later stage¹². According to WHO, 3.9 per cent of the Indian population are already obese¹³. In a review it has been noted that yogic training can reduce body weight from 1.5 per cent to 10.1 per cent in healthy adults and from 1.5 per cent to 13.6 per cent in adults with hypertension/cardiovascular disease or type 2 diabetes mellitus¹⁴. In our previous study we have also observed that body weight decreased (5.1 %) after 12 weeks of yoga intervention¹⁵. It has also been observed in the same study that body mass index (BMI) of the healthy male volunteers of the age group 30-39 years and 40-49 years were higher and classified as 'overweight'. After yoga training BMI of both the age groups were converted to within 'normal range' with a reduction of 7.4 per cent and 7.1 per cent in BMI, respectively. Fat percentage of the same volunteers was also decreased significantly (7.8 %) after yoga training. Therefore a yogic practice with controlled diet is a safe and effective intervention to reduce BMI in overweight or obese individuals¹⁶.

Moreover with the advancement of age there is a loss of skeletal muscle mass (sarcopenia) and also decrease in muscle strength. Restriction in outdoor movement, more specifically for older adults, during this lock down period also limits their physical activity. Yogic practice reported to have a definite

beneficial effect for the improvement of muscle strength and endurance for all age groups. We have also observed in healthy adults that those who practiced yoga for 12 weeks can significantly improve their hand grip (left hand: 7.7 %, right hand: 11 %) and back leg muscle strength (10.8 %)¹⁵. The improvement in muscle strength might be due to practice of different asanas (yogic postures) which are basically a controlled physical movement – a combination of stretching and isometric muscle contraction involves a coordinated action of synergists and antagonists muscles¹⁷. Stretching and muscle contraction can help in the hypertrophy of muscle fibers and ultimately increase in the muscle strength. Sivaramakrishnan et al (2019) reported that practicing yoga can improve muscle strength, balance and flexibility in older adults¹⁸. They also proposed to encourage yoga in daily routine of older adults to augment their physical and mental wellbeing.

2.2 Effect of Yogic Practices on Metabolism

Diabetes, more specifically type 2, is one of the chronic metabolic NCDs that spread worldwide with higher incidence observed in low and middle income countries. It has already been proven that persons with diabetes have a higher chance of incidence and severity of COVID-19 infection¹⁹. The possible mechanism of action by which an infected person with diabetes may increase the susceptibility for COVID-19 may be – (i) effective entry of virus and higher affinity of cellular binding, (ii) diminished viral clearance, (iii) decreased T cell function, (iv) augmented susceptibility to hyperinflammation and cytokine storm syndrome, and (v) presence of cardiovascular diseases²⁰. A decent number of studies have been conducted to observe the effect of yogic practices on patients of Type 2 diabetes and it is observed that yoga can help in the management and improvement in the quality of life of the persons with diabetes. In a study it has been reported that after practicing yoga for 6 months in patients with type 2 diabetes mellitus, there is a reduction in fasting blood sugar (FBS) level (8.2 %) and post prandial blood sugar (PPBS) level (10.3 %)²¹. Jayawardena *et al.* (2018) compared the effect of yoga and physical exercise in patients with diabetes²². They reported a significant higher reduction in FBS, PPBS, glycosylated hemoglobin and body mass index after yogic training in comparison to physical exercise. Yoga might control the other risk factors associated with the development of diabetes or lower the complications of diabetes by 4 possible mechanisms of action discussed below²³. The probable mechanisms as proposed are (i) directly by decreasing the activation or reactivity of sympathoadrenal system and hypothalmo-pituitary-adrenal axis; (ii) modulating autonomic balance towards more parasympathetic via vagal stimulation; (iii) selective activation (positive changes) of specific brain structures and neurochemical systems; and (iv) with specific practice of yogic asanas and pranayamas yoga can increase physical activity, enhance neuroendocrine function, improve body composition, and can also promote weight loss. All these pathways act either directly or in combination that ultimately might improve heart rate variability, sleep, mood and glucose tolerance but at the same time decrease heart rate, blood pressure, inflammation, perceived stress, insulin resistance, oxidative stress, dyslipidemia and obesity.

Practice of yoga is also reported to change the cholesterol level in healthy as well as among the metabolically compromised individuals. In a study with healthy volunteers it has been reported that after 41 days of yoga practice there is a decrease in FBS (4.84 %), cholesterol (4.22 %), triglycerides (5.09 %), low density lipoprotein cholesterol (LDL-C) (3.6 %), but increase in high density lipoprotein cholesterol (HDL-C) (1.4 %) ²⁴. Decrease in LDL-C and increase in HDL-C is known to have a beneficial effect on cardiovascular health. In a study with patients with diabetes mellitus it was observed that after yogic training along with FBS (20.62 %) and PPBS (14.52 %), LDL-C (10.64 %) also decreased but HDL-C (10.49 %) was increased ²⁵.

2.3 Effect of Yogic Practices on Hypertension

Hypertension or persistently high resting blood pressure is one of the major growing health burdens in the world. Geldsetzer *et al.* (2018) reported the prevalence of hypertension in India, based on a pooled data collected from District Level Household Survey-4 (DLHS-4) and Annual Health Survey (AHS) ²⁶. According to that study total percentage of hypertension in India is 25.3 with higher prevalence observed in men. Based on a meta-analysis of pooled data it has been reported that hypertension may be associated with a 2.5-fold increase in the risk from severe or fatal kind of COVID-19 infection, more specifically in older population ²⁷. It is already proven that yoga is a scientifically validated alternative treatment method for lowering blood pressure ²⁸. Selvamurthy *et al.* (1998) reported, after practicing selected yogic asanas for 3 weeks, patients with essential hypertension (EH) benefitted with the reduction in their systolic (17 %) and diastolic (15 %) blood pressure ²⁹. They also observed that this reduction in EH is due to the return of normal baroreflex sensitivity and reduction in sympathetic over activity. Other authors have also reported similar trends in blood pressure after yogic training. In a review after studying different scientific papers it has been reported that yogic training can lower blood pressure - for systolic from 2.6 per cent to 21.3 per cent and for diastolic from 4.6 per cent to 24.3 per cent ³⁰.

2.4 Effect of Yogic Practices on Cerebrovascular Diseases

Cerebrovascular disease or stroke is one of the NCDs and leading causes of global mortality. Major modifiable risk factor for the development of cerebrovascular disease is physical inactivity. It has been reported that people with stroke are generally observed physically inactive and sedentary ³¹. Practice of yoga as a physical posture and controlled breathing can prevent from the development of cerebrovascular disease. Patients already diagnosed with cerebrovascular disease are also at increased risk for the infection and highest severity with COVID-19 ³². Another risk factor of the cerebrovascular disease is hypertension. Practice of yoga has been reported to control blood pressure in both pre-hypertensive and hypertensive patients with mean reduction of systolic and diastolic blood pressure of 2.36 mmHg and 2.44 mmHg respectively ³³.

2.5 Effect of Yogic practices on Cardiovascular Diseases

Cardiovascular diseases (CVDs) are one of the major NCDs and number one reason of global death burden ³⁴. CVDs are cluster of ailments of the blood vessels and heart which includes-coronary heart disease, cerebrovascular disease, peripheral arterial disease, rheumatic heart disease, congenital heart disease, deep vein thrombosis and pulmonary embolism. Lack of physical activity is the major modifiable risk factors for the development of CVDs. CVDs are one of the comorbidities observed in more severe form of COVID-19 infected person. In a review paper it has been summarised that CVDs were present at a rate of 8 per cent-25 per cent among total patients infected with COVID-19 and even higher among who die from this virus ³⁵. Yoga is a safe and effective alternative way of treatment for patients who have already developed CVDs and also for the prevention from the development of new case of CVDs. By modulating the biological risk factors, associated with the development of CVDs, yoga can help in the treatment of CVDs. Regular practice of yoga can reduce blood pressure, heart rate, body fat%, total cholesterol, triglycerides and LDL in patients with coronary artery diseases ³⁶. But this type of effectiveness by yogic intervention from the prevention of CVDs is required a minimum of 12 weeks duration ³⁷. Manchanda and Madan (2014) reported that yogic practices can help in the prevention from coronary heart diseases & paroxysmal atrial fibrillation and regression from atherosclerosis ³⁸. They also proposed the possible mechanism behind the prevention from CVDs through yoga – (i) by preventing the hyperactivity of sympathoadrenal system and hypothalamic pituitary adrenal axis and (ii) by changing the autonomic balance towards more parasympathetic by directly modulating the vagus nerve. In a review it has been reported that along with changing the modifiable biological risk factors (blood pressure, heart rate, body weight, body mass index, lipid profile, blood glucose level, stress, inflammation and oxidative stress) yoga can also improve various CVDs (hypertension, heart failure, cardiac arrhythmia, and coronary artery disease with or without coronary artery bypass grafting surgery) ³⁹.

2.6 Yoga and Pulmonary Function

The human lung possesses immunological defense against inhaled pathogens utilizing both innate and acquired immune function. Therefore improvement & or maintenance of proper lung structure and optimum functional capacity is always an utmost necessitates. Chronic lung diseases are also major risk factors for the development of more severe form of COVID-19. It has been reported that yoga can improve lung function and quality of life among asthmatic patients might be by modulating their autonomic nervous system ⁴⁰. Chronic obstructive pulmonary diseases (COPD) is one of the 3 major NCDs of global mortality besides heart diseases and stroke that has already been proved to increase the risk of aggravation of COVID-19, might be by up-regulating angiotensin-converting enzyme II (ACE-2) expression in the lower respiratory tract ⁴¹. The risk of infection from the deadly virus in COPD patients is 5.9 fold higher than otherwise healthy population ⁴². A number of research article have been well established the

fact that yogic practice can improve overall pulmonary functions and capacities. Improvement in pulmonary function after yoga training is not only observed in healthy person but also in patients with chronic lung diseases like asthma, COPD, pulmonary fibrosis, asbestosis and other lung disease conditions. It has been reported that yogic practices can help in the symptom management and improving overall physical capacity including pulmonary function of COPD patients⁴³. It has been observed that all the scientific papers reporting effect of yogic practice on pulmonary function augment pulmonary function by improving-(i) respiratory muscle strength; (ii) ventilatory capacity; and (iii) overall pulmonary function⁴⁴. Respiratory muscle strength can be measured by measuring maximum inspiratory pressure and maximum expiratory pressure. By observing the beneficial effect of yogic practice on pulmonary function the authors suggested Hatha yoga should be included as part of a regular fitness programme. Several research articles are also reported improvement in maximum voluntary ventilation (MVV) after yoga training. MVV is a measure of strength and endurance of ventilatory muscles. In our study we also observed that along with other pulmonary function parameters yogic practice significantly improved MVV⁴⁵. Besides MVV yoga can improve overall pulmonary function by improving forced expiratory volume in the first second (FEV₁), forced vital capacity (FVC), peak expiratory flow rate (PEFR), vital capacity (VC) and breath holding time^{44,46-47}.

2.7 Yoga and the Immune System

Systematic practice of yoga can improve the humoral and cell-mediated immunity - at rest, in response to vaccinations and reduce the markers of inflammation⁴⁸. It has been reported that yogic practices increase the expression of human beta defensin 2 (HBD-2), an antimicrobial peptide in innate immunity that provide a biochemical barrier by initiating antimicrobial and immunomodulatory functions. By decreasing the cortisol level yoga might increase HBD-2 level⁴⁹. HBD-2 has been reported to have potent antimicrobial activity and low level of HBD-2 is also associated with higher incidence of upper respiratory tract infection⁵⁰⁻⁵¹. HBD-2-conjugated with Middle East respiratory syndrome-coronavirus (MERS-CoV) spike protein receptor-binding domain (S-RBD) is much more superior than unconjugated S-RBD in inducing the neutralizing antibody against MERS-CoV infection and also capable of promoting the protective immune response after viral infection⁵². It has been observed that yogic practices increase the concentration and secretion rate of secretory immunoglobulin A (SIgA) antibodies, a first line in the defense of mucosal epithelia that plays an important role in preventing the pathogen adhesion to host cells⁵³. In a study, after practicing Hatha yoga for 8 weeks it was observed that concentration of interleukin (IL)-2 increased along with reduction in the symptoms of rhinitis such as nasal congestion, itching, sneezing, rhinorrhea and total rhinitis symptoms⁵⁴. On the other hand it was reported that short term yogic intervention significantly decreased the IL-6 level, tumor necrosis factor [TNF]- α in overweight/ obese and chronic inflammatory diseases individuals⁵⁵. In another randomised controlled trial after 12 weeks of yoga practice it

has been observed that there was a decrease in IL-1 level but IL-10 level increased in healthy male⁵⁶. Yogic practices can also significantly increases immune-related cytokines, such as interleukin-12 and interferon- γ and can also augment the activity and number of natural killer cells, CD4+ and CD8+ T-cells, having important role in the cellular defense mechanism against pathogens⁵⁷.

2.8 Yoga and Antioxidant Status

Oxidative stress is an imbalance in the oxidant and antioxidant defense system leading to development of many diseases due to cellular changes in redox signaling and damages⁵⁸. It has been observed that oxidative stress and innate immunity have a very prominent role in the development of acute respiratory distress syndrome caused by the respiratory viruses⁵⁹. It has also been reported that even in the pathogenesis of COVID-19 viral infection oxidative stress might have an important role⁶⁰. Yogic practice is one of the best possible ways to improve or maintain antioxidant defense system under normal as well as stressful environmental conditions. It has been observed that the activity of glutathione peroxidase and oxidised glutathione significantly decreased, whereas activities of superoxide dismutase, glutathione S-transferase, glutathione reductase, reduced glutathione and total antioxidant status increased after yogic training compared with the control group⁶¹⁻⁶². Even for the development of NCDs it is observed that oxidative stress has a major role⁶³. Patients with metabolic syndrome such as diabetes can also be benefitted from the yogic training by improving antioxidant defense and reducing oxidative stress, along with other diabetic parameters⁶⁴.

2.9 Yoga and Mental Health

In this pandemic situation not only physical health but mental health also has been distressed. Fearful situation, social distancing and/or quarantine have a serious negative effect on the mental health in general, causing anxiety and depressive feelings⁶⁵. Stress, fear, anxiety, loneliness and depression, which may be generated at this present time of crisis, can also decrease the normal immunity and chances of not only COVID-19 but other viral or bacterial infection could be heightened. Scientific literature reported that yogic practices can calm down mind to decrease all kind emotions, depression, anxiety, stress and improved mental functions⁶⁶⁻⁶⁷. Practice of pranayama can improve immunity and helps to manage anxiety and stress⁶⁸. Regular yoga training can also modify autonomic balance towards more parasympathetic²⁹, which helps the practitioner to stay in a relaxed state of mind and helps in the process of regeneration. Parasympatho-dominance can also increase the resilience of those who practice yoga to face the challenges and mind becomes focused. By improving the psychological well-being yoga can improve the mental health of the practitioner⁶⁹. It has been reported that yogic practices help in the reduction of depressive symptoms by three different mechanisms – biological, psychological and behavioral⁷⁰. Yoga helps to reduce stress mainly via modulating hypothalamic-pituitary-adrenal (HPA) axis, the main stress response pathway⁷¹. Studies have also showed that regular yogic practice can increase the baroreflex sensitivity, decrease the release of

Table 1. Yoga package for improving health and wellbeing

Practice	Duration (min)	Benefit
Kapalbhati (slow pace)	2	Cleanses nasopharynx, increases excretion of carbon dioxide, improves respiration and digestion.
Bhastrika (medium pace)	2	Improves lung capacity. Increases gas exchange due to rapid air movement and thereby increases oxygen supply to the tissues. Can prevent COVID-19.
Warm-up Exercise	2	Activates cardiovascular system and increases blood flow to the muscles.
Ardha Chakrasana	1	Improves lung capacity and flexibility of back bone.
Kati Chalana	1	Increases strength and flexibility of intercostal muscles and therefore improves lung capacity.
Supta Tadasana	2	Releases tension, heaviness and stiffness from the spinal cord, ankles, knees and hip joints. Relieves from stress.
Setubandhasana	2	Expands chest cavity, activate thyroid & parathyroid glands. Strengthen thigh and lower back muscles.
Ardha Pawanmuktasana	1	Improves digestion by removing flatulence (gas) and constipation. Activates liver, kidney and pancreas.
Pawanmuktasana	1	
Naukasana	2	Improves digestion and lowers stress hormone, cortisol.
Markatasana	2	Stretches spinal cord, thigh, abdomen, back muscles and thereby releases tension from those regions.
Bhujangasana	1	Improves lung capacity, spinal cord flexibility and digestion.
Ardh Shalabhasana	1	Strengthens lower back, thigh and calf muscles. Improves digestion and increases breath hold time.
Shalabhasana	1	
Dhanurasana	2	Stretches throat, chest, abdomen and thigh muscles. Improves lung capacity thereby helpful in preventing corona like diseases.
Mandukasana	3	Stimulates pancreas, liver and spleen. Controls blood sugar level and also improves digestion.
Supta Vajrasana	2	Stretches chest and abdomen. Improves lung capacity.
Anulom Vilom	5	Balances in autonomic nervous system, decreases oxidative stress and release of stress hormone, cortisol.
Ujjayi Pranayama	2	Stimulates thyroid and parathyroid glands. Cleanses throat and thus prevents from viral diseases like Corona.
Bhramari Pranayama	3	Clams the mind and nervous system. Increases mental strength.
Guided Meditation	2	Relaxes whole body and mind. Decreases secretion of stress hormones and increases immunity.

- Practice should be done in empty/ light stomach with comfortable minimum clothing and in a relaxed state of mind
- Persons with cardiac problem/chronic diseases/ fracture/ pain should consult to physician/ yoga teacher
- Kapalbhathi and Bhastrika should be practiced cautiously and in slow pace only
- In any symptoms of COVID-19 it is not recommended to practice
- This Yoga package is meant only for practicing by a healthy individual as a preventive measure, not as a treatment measure for COVID-19 infection

stress hormones, cortisol and adrenocorticotrophic hormone (ACTH) and increase the release of serotonin, dopamine and brain-derived neurotrophic factor (BDNF)⁷². It has been reported that in persons with anxiety and depression there is a decrease in the activity of γ -aminobutyric acid (GABA) in those persons⁷³ and yogic practice for 12 weeks can increase GABA level in healthy individuals⁷⁴. By improving sleep efficiency, total sleep time, total wake time, sleep onset latency and wake time after sleep onset yogic practices help to prevent anxiety and depression⁷⁵. Even in older adults who practiced

yoga regularly has been reported improvement in depression, perceived mental health, sleep quality and vitality¹⁸.

3. YOGA MODULE FOR IMPROVING IMMUNITY DURING COVID-19 PANDEMIC

Home isolation in the outbreak of COVID-19 potentially decreases the level of physical activity in every person, which can seriously increase the global burden of NCDs. United Nations Department of Economic and Social Affairs (2020) recommended regular physical activity at home to keep

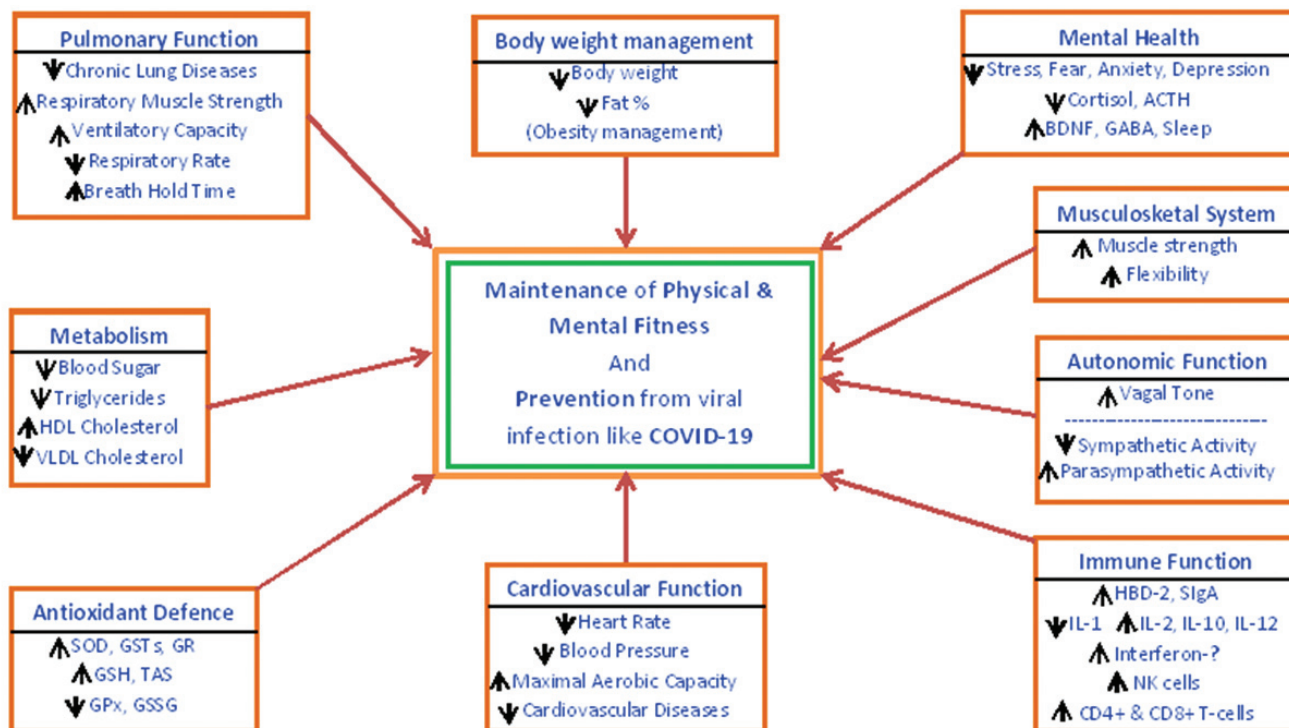


Figure 1. Role of yoga in maintenance of physical & mental fitness and prevention form viral infection like COVID-19.

everyone physically and mentally healthy⁷⁶. WHO (2020) also recommended becoming physically active, with social distance, for at least 30 min. every day to manage weight, improve physical and mental health and to reduce high blood pressure, risk of heart disease, stroke, type 2 diabetes, and various types of cancers that may increase the susceptibility of corona infection⁷⁷. Moreover, persons already suffering from any of the NCDs are required to do certain type of regular home based physical activity to control their disease burden and also prevention from this deadly virus. For otherwise healthy person also some kind of daily physical activity is required to keep them physically and mentally fit. Since there is a restriction in outdoor physical activity, home based exercises like treadmill running, cycling on a stationary bike, muscle strengthening exercises using dumbbells, barbells etc. and resistance exercise are recommended in this time. But home-based exercise equipment are costly, required enough pre-occupied space and moreover it is not possible to buy this type of equipment by everyone. Yoga is a safe and effective controlled physical activity for all age groups with certain physical postures, controlled breathing maneuverers and mediation for holistic health benefit. It requires only a very little space and no equipment. In a review after analyzing health benefits of yoga and exercise both, it has been concluded that for healthy as well as diseased person yoga is effective or even better than exercise for augmenting many of the physiological parameters⁷⁸. With this background by incorporating selected yogic suddhi kriyas (for cleansing), asanas, pranayamas and meditation, a yoga package has been formulated with the aim to increase the immunity, lung function and overall health of yoga practitioners (Table 1). Practices which can selectively improve NCDs like hypertension, diabetes are also taking into consideration. The total duration of the package is 40 min. The

possible mechanism of action by which this yoga package helps to maintain & or improve the physical and mental fitness and also prevent from viral infection like COVID-19 by improving immunity is depicted in Fig. 1. This yoga package might be helpful as a preventive measure to check respiratory distress as observed in Corona affected patients by improving immunity, antioxidant defense mechanism, lung capacities & volumes and health in a holistic manner. Along with practicing this yoga module, individual should also adhere to the recommended measures, as published by Ministry of AYUSH, as a preventive health measures and boosting immunity with special reference to respiratory health⁷⁹.

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