

Pulmonary rehabilitation in COVID-19

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Pulmonary rehabilitation is the individualised rehabilitation treatment of patients with pulmonary diseases. American Thoracic Society noted that pulmonary rehabilitation is a program of education and exercise that helps patients to manage their breathing problems, increase lung or cardiovascular stamina and decrease breathlessness or difficulties in breathing. The goal of pulmonary rehabilitation is to not only improve the patient's physical and mental conditions but also help the patient return to family and society more promptly.

The short-term goal of pulmonary rehabilitation is to alleviate breathing difficulties or dyspnoea and relieve anxiety and depression, while the long-term goal is to preserve the patient's function to the maximum extent, improve his/her quality of life, and facilitate his/her return to society.

Clinical pathways of pulmonary rehabilitation for COVID-19 patients are as follows.

Respiratory training: If the patient has symptoms, such as shortness of breath, wheezing, and difficulty in expectoration after discharge, respiratory mode training, such as body position management, adjustment of respiratory rhythm, traction of respiratory muscle group breathing exercise, and expectoration training and critical evaluation of each method should be considered.



Aerobic exercises: walking, fast walking, jogging, swimming, etc., starting from low intensity and gradually improving the intensity and duration, 3–5 times a week, 20–30 minutes each time.

Strength training: progressive resistance training is recommended. The training load of each target muscle group is 8–12 repetition maximum (RM), 1–3 groups/time. The training interval of each group is 2 minutes, 2–3 times/week, and the training load are increased by 5%–10% every week.

Balance training: Patients with balance dysfunction should be involved in balance training, including unarmed balance

training and balance training instrument.

Recovery process of pulmonary rehabilitation with COVID 19 patients:

- Starting rehabilitation as early as possible is important for the recovery process. Exercise, building and maintaining muscle strength are important pillars for recovery, independence and ultimately the quality of life.

- The World Health Organisation (WHO) directed the early rehabilitation for COVID-19 patients, the initial respiratory physiotherapy priority is to keep the airway clear and unobstructed of sputum to enable sufficient oxygen to the lungs, along with general rehabilitation

services have been re-prioritised to reduce COVID-19 complications in future.

- Building patient's strength and stamina, the rehabilitation program helps individuals regain their confidence and stamina. Rehabilitation delivered by the physiotherapist is tailored to patient needs and depends on the conscious state, psychological status and physical strength of the patient. It incorporates any active and passive therapy that promotes movement and includes mobilisation.

- Even once home, people recovering from COVID-19 can suffer from extreme weakness, tiredness and breathlessness, and experience issues with mood, attention and memory that require further rehabilitation.

Currently, evidence on the prognosis of patients with COVID-19 is insufficient, especially for the elderly. Along with, the physical dysfunction patients with COVID-19 may demonstrate different degrees of psychological disorders, such as anger, fear, anxiety, depression, insomnia, and loneliness, as well as a lack of cooperation and abandonment of treatment due to fear of the disease. Even when discharged, the patients may experience post-traumatic stress syndrome. Therefore, prompt introduction and continuous availability of pulmonary rehabilitation services are critical for patients with COVID-19.

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COVID & SKIN TONE

COVID-19 may rule over dark-skinned people

DR MUHAMMAD TOREQUL ISLAM

Approximately 80% of people in the world are pigmented. Melanin, one of the major skin colour contributors which protect our skin from the harmful effects of ultraviolet (UV) radiation is evident to absorb the UVB photons, thereby, competes with the vitamin D precursor 7-dehydrocholesterol in our epidermis. Therefore, the dark-skinned people require 2-10 fold more time to synthesise adequate amount of vitamin D than the white-skinned people. Infants and people in high latitude and those who spend more time indoors are the deficient groups for vitamin D.

The facultative skin colour also depends on the complex interplay of UV radiation and hormones upon the genetic interference on the melanogenesis process of the individual. The necessity of repeated UV radiation exposure to ensure sufficient biologically active vitamin D in our body has been demonstrated.

It should be noted that vitamin D deficiency is globally prevalent, particularly in elders. The flu or flu-like transmissions are often coming out in cold and/or dry air when a low UV index has been recorded. Studies suggest that vitamin D levels increase in summer and decrease in winter. This high prevalence probably contributes to the first outbreak of COVID-19 during winter and the high mortality rate in older adults. Thus, the people having dark or pigmented skins should take an adequate exposure of sunlight along with vitamin D enriched food and supplements to fight against the COVID-19 pandemic.

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HEALTH bulletin



Too much or too little sleep and increased death rates in patients with or without diabetes

New research published in Diabetologia (the journal of the European Association for the Study of Diabetes [EASD]) reveals that too much or too little sleep in people with type 2 diabetes (T2D) is linked to sharply increased death rates, with the effect much larger than that found in the non-diabetic population.

The authors used data from 273,029 adults including 248,817 without diabetes and 24,212 with T2DM who participated in the US National Health Interview Survey from 2004 to 2013, and had linked mortality data up to the end of 2015. Sleep duration was measured using self-reporting, with participants asked "on average how long do you sleep each day" (5 hours or less, 6, 7, 8, 9, and 10 or more hours/day).

The relationship between sleep duration and mortality were investigated using computer modelling with adjustments for demographics, body mass index, lifestyle behaviours and clinical variables.

As expected, regardless of the amount of sleep compared, death rates were higher in people with T2D than those without (see table 2, full paper). The mortality rate for people with T2D with the 'ideal' level of 7 hours sleep was 138 per 10,000 person years, compared to 215 for less than 5 hours sleep and 364 for those with 10 hours of sleep or more.

Changed youth lifestyle in the time of COVID-19

TAHSIN BINTE MAKSUD

Do you want to be a zombie when you can always find something exciting in your life? Certainly, you do not. Unfortunately, most of the students staying at home are getting exhausted since they cannot find anything exciting to do. However, this tiring time can completely be transformed into productivity to keep sound physical and mental health.

"Health is wealth" is the most celebrated adage. Therefore, it is an absolute necessity to put some effort into keeping oneself fit. You can start your day by measuring the vital signs of your elders e.g. blood pressure, blood sugar, or body temperature at home. A cup of tea in the morning with your parents can give you a fresh start. You may follow recipes and make yourself a cup of tea using turmeric, ginger, cardamom, honey, lemon juice, and fresh mint leaves etc. Turmeric has both antioxidant and anti-inflammatory properties that will help you to fight against viruses by enhancing your immunity. Ginger, high in gingerol, helps you to fight against flu and reduces the risks for infection.

After taking your morning tea you can practice some yoga, eat a healthy breakfast rich in nutrients, and have some seasonal fruits. Then you may go to study since you are truly stressed over your tests getting started. It is alright, do not get overemphasised. Later, you can go back to your hobbies that you have put aside for a while. Maybe, once you used to do a lot of sketches,

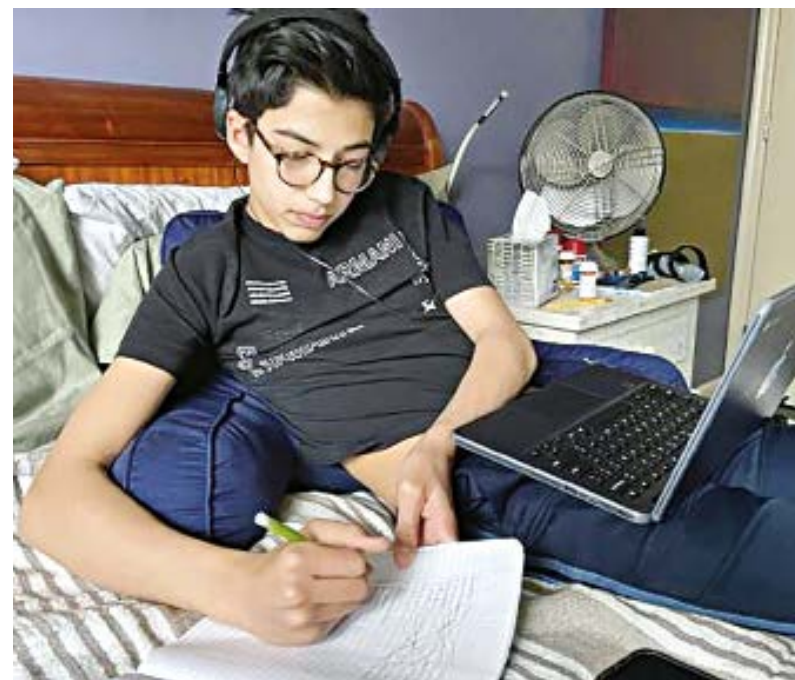
cooking up your favorite recipes, pot planting or gardening, read books or compose journals etc. You can again begin doing the things from which you infer pleasure. These activities will improve your psychological wellness and remove boredom.

Moreover, chitchatting with family, spending time with siblings, playing indoor games and watching movies with your family members can also give you alleviation from stress, as well as make your time at home enjoyable. However, do not forget your friends during this quarantine. They play an important role in your life as well. Attend your

online classes and have video chats with your friends regularly, but do not waste your sleep at night by using excessive social media or the internet.

A sound and complete night's sleep helps to relax, strengthen muscles, drop blood pressure and body temperature. Therefore, maintain a healthy sleep schedule for your well-being. You can add all these tasks and ensure a healthy routine adding diversities in your life during your stay-at-home life.

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Gut microbiota in the time of COVID-19

DR. SABBIR RAHMAN SHUVO

The presence of microorganisms in the gut are known as gut microflora/microbiota. The gut microbiota consists of bacteria, viruses and fungi. Several factors modify gut microflora like food habits, age, genetics and the use of antibiotics. Long-term use of antibiotics lower the good gut microorganisms and increase the transfer of antibiotic-resistant genes among various species of bacteria in the gut.

Healthy gut microbiota is an indication of a healthy body and vice-versa. Recently, several studies have shown interactions between gut microbiota and lungs and known as "gut-lung axis." These interactions are two-ways, implicating that microbial metabolites can travel to the lung through blood; alternatively, the inflammation in the lung can affect the gut microbiota. The interactions create an exciting possibility that gut microflora might be disrupted because of COVID-19. Besides, about 10% of the time, COVID-19 patients showed abnormal gastrointestinal symptoms, like diarrhoea. Furthermore, SARS-CoV-2 viruses also isolated from the faeces of the patients. Researchers have found that COVID-19 patients have less diversified gut microbiota compared to a healthy person.

The number of beneficial microbiota in the gut can be increased by taking probiotics. Probiotics are made of good living microorganisms that are commonly present in our body. Yogurt is the most available source of probiotics. In case of COVID-19, good microbes in the gut become fewer and pathogenic microorganisms become more in number. Therefore, in any infection like COVID-19, in addition to medications, probiotics will help us to eliminate excessive harmful bacteria and will help us to maintain the balance of the body.

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Rumors and misconceptions unveiled

Can people wear mask while exercising ?

- People should **NOT** wear masks when exercising as masks may reduce the ability to breathe comfortably.
- Sweat can make the mask become wet more quickly which makes it difficult to breathe and promotes the growth of microorganisms.
- The important preventive measure during exercise is to maintain physical distance of at least one meter from others.



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