

# Rehabilitation Interventions on Covid 19 Patients

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## INTRODUCTION

Rehabilitation refers to a multidisciplinary team having expert knowledge and skills. COVID-19's impact arose from its rapid emergence, the number of people needing intensive care, and presented many clinical problems, including respiratory failure, excessive immunological response and clotting disorders, renal failure and myocarditis. Knowledge of the disease process and which tissues are likely to have been damaged is important in the rehabilitation process. Medical services responded by drawing on evidence, not specifically derived from patients with COVID-19 but directly applicable to their problems. After COVID-19, a patient may develop persisting dysfunction of almost any organ system and experience the well-established direct (physical) and indirect (psychological) effects associated with severe illness and a long stay in an intensive care unit.

## PULMONARY REHABILITATION

It is likely that, after COVID-19, the majority of patients will need pulmonary rehabilitation which is usually a separate service attached to a respiratory medicine department. For patients with ventilator dependence, diaphragmatic dysfunction are very common, often causing difficult weaning, and may result in secondary infections and extended hospital stays [1]. Its pathogenesis is complex and could be related to mitochondrial dysfunction due to the primary disease and muscle disuse [2]. In the rehabilitation of diaphragm dysfunction, a diaphragm pacemaker is more commonly used. Diaphragm pacemakers are classified as either extracorporeal, temporary, or permanent. Clinical trials have shown that the use of an external diaphragm pacemaker can effectively increase diaphragm muscle strength and endurance in ICU patients. SWs (shock waves) can also improve ischemia-related tissue fibrosis or damage and organ dysfunction. Histopathology observations indicate that SWs can greatly reduce pulmonary fibrosis and ARDS-associated collagen aggregation deposition, and mitochondrial treatment can enhance these beneficial effects [3].

## CATEGORIES OF INTERVENTIONS

Effective rehabilitation interventions fall into five categories [4]. Exercise that uses muscles and increases demand upon the cardio-respiratory system will be important. It is a core component of all cardiac and pulmonary rehabilitation and should be encouraged from the outset. In rehabilitation, the maxim 'practice makes perfect' holds true and is referred to as 'task-specific training'. The principle will be particularly relevant to COVID-19 patients with neurological and musculoskeletal damage. Psycho-social support refers most commonly to management of emotional disturbance, changes in self-esteem and self-confidence, and similar constructs. It involves techniques such as cognitive behavioral therapy and motivational interviewing, re-establishing social contacts and social networks. Education covers many specific areas such as patient self-management; careers (family and professional) being taught how to support self-management; facilitate practice and encourage social integration. Teaching patients and families as how to manage the uncertainty on the prognosis and setting expectations will be difficult, a particularly important aspect of rehabilitation after COVID-19. Personalisation, a characteristic of effective rehabilitation to the individual patient's needs, wishes, values and circumstances starts with making the interventions relevant to the individual patient. Personalisation also refers to identifying and using other specific interventions and concern assistive technology and adaptation of the environment, such as providing a wheelchair for one patient who cannot walk, and a prosthetic leg to another. Palliative symptom control to specific problems such as difficulty in reading due to a right visual field loss (after stroke) can read by turning the book upside down, reading into the intact visual field.

## EARLY REHABILITATION

Should be carried out within the patient's tolerance [5].

a) Level I- passive limb movements of unconscious patients

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- b) Level II- conscious patients who can interact with a therapist and perform
- c) active limb movements
- d) Level III- patients able to perform activities using rehabilitation equipment
- e) Level IV- patients able to perform activities such as transfer [6].

When conditions permit, these activities can be combined with virtual reality technology to better assess the patient's condition and develop a rehabilitation plan [7]. In addition to early rehabilitation interventions, nutritional support for patients with COVID-19 also influences disease progression. Malnutrition can prolong infection healing times and increase the length of hospital stay. Therefore, prevention, diagnosis, and treatment of malnutrition among patients with COVID-19 are particularly important [8].

### COGNITIVE REHABILITATION

Helps to optimize thinking abilities prior to discharge, can aid in teaching the patient strategies for optimizing cognitive functioning at home and, importantly, is a time to train family and caregivers on the patient's needs. Distraction methods (such as reading, engaging in dialogue, and listening to music) have been found to improve patients' pain symptoms. Similarly, hypnotic interventions can effectively relieve pain and reduce the use of analgesics. One study showed that acupuncture, massage, and other TCM treatments can also reduce patient stress. Music therapy is a widely used non-pharmaceutical intervention, which has been reported to reduce stress, anxiety, pain, depression, and feelings of isolation for patients [9]. After music therapy, respiration rates, heart rates, self-pain assessments, and anxiety levels were found to have significantly improved [10]. The last stage in the reiterative rehabilitation process is evaluation as how these goals been met or can some alternative intervention be tried and is it appropriate for discharge.

### LONG-TERM COMPLEX REHABILITATION

COVID-19 is predicted to challenge rehabilitation with many more patients needing longer-term complex rehabilitation input

and will continue to do so for at least a few years. Large numbers of people are surviving COVID-19 after quite severe illness and will present with a mixture of cardio-respiratory, mental health, and neuromuscular problems, will need local, community-based rehabilitation services. This greatly enlarged rehabilitation service will need internal organization, warrant a team within the rehabilitation service who would develop specific expertise in the rehabilitation of people who have had COVID-19.

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