



# COMMUNITY BASED PHYSIOTHERAPY DURING THE COVID-19 PANDEMIC

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In the current pandemic, physiotherapists working in the home and community sector, including those who work as part of a team-based care team, are well positioned to address SARS-CoV-2 (COVID-19) and post-COVID-19 health care needs within the overall spectrum of rehabilitation services. Physiotherapists effectively treat pain, improve mobility, address respiratory impairments, promote health and physical activity, and prevent injury and disease for individuals, including those isolated at home. This in turn, reduces the burden of disease on individuals as well as health system utilization.

In addition, the physiotherapy profession plays a critical role in addressing chronic disease. A major consideration during this pandemic has been the added layer of complexity that comes with an aging population, where there is a high prevalence of chronic conditions and multi-morbidity. Concerns during the early stages of the pandemic were focused on the acute and subacute management of COVID-19. However, as affected individuals return to the community setting, they may experience sequelae of residual functional health issues over time. Access to physiotherapy will help meet the rehabilitation needs of individuals currently with, and recovering from COVID-19, and will address many of the long-term health needs of this population in the community<sup>1</sup>.

The purpose of this document is two-fold:

- To provide clinical guidance for physiotherapists in primary care with respect to the management of people recovering from COVID-19; and
- To ensure system planners and organizations understand the evolving role of physiotherapy to address the rehabilitation needs of patients who are experiencing residual health issues due to COVID-19.

This document is a “living” document that will be reviewed periodically to ensure up-to-date information and evidence related to the role of home and community-based physiotherapists in treating patients who present with a sequelae of residual health issues as a result of COVID-19.



## CLINICAL GUIDANCE FOR PHYSIOTHERAPISTS

### STAGES OF COVID-19

As we continue to learn more about the effects of COVID-19, there have been attempts to define and categorize the stages of COVID-19 based on patient recovery.

Specifically, the following terms are now starting to be identified in the literature:

- **Post Acute COVID-19 (also known as Long COVID):** extending beyond three weeks from the onset of first symptoms<sup>2</sup>.
- **Chronic COVID-19:** extending beyond twelve weeks from the onset of first symptoms<sup>2</sup>.

Anecdotal evidence demonstrates that there are a considerable number of individuals who have post-viral syndrome that incapacitates individuals for weeks following their recovery<sup>3</sup>. Furthermore, it will take 'months to a year or more' to know whether lingering COVID-19 symptoms in young people could be chronic illnesses<sup>4</sup>. The World Health Organization reported that data from the United Kingdom's Chartered Society of Physiotherapy shows that 62% of COVID-19 patients who were in intensive care will need rehabilitation once they return home<sup>5</sup>.

The following is a list of documented longer term or residual symptoms in people who have had COVID-19<sup>6</sup>:

- Brain fog, which results in difficulty with thinking;
- Shortness of breath, which results from residual scarring in the lungs and heart. Patients who become critically ill with COVID-19 sometimes are more likely to have residual shortness of breath, but individuals with mild cases are also at risk;
- Heart arrhythmia and hypertension, due to damage of the blood vessels and heart.
- Extreme fatigue;
- Nausea;
- Chest tightness;
- Severe headaches; and
- Limb pain.

These symptoms may be specific to COVID-19 or generally related to post ICU or post viral syndromes.



Individuals experiencing residual heart arrhythmia and hypertension as a result of COVID-19 have been termed the “long haulers”. The “long-haulers” and their symptoms persist long after the 14-day period that has been officially determined as the average length of the illness. Their symptoms resemble dysautonomia, which refers to disorders that disturb the autonomic nervous system, which controls bodily functions such as breathing, heart rate, blood pressure, and digestion<sup>6,7</sup>. Long-term studies have been initiated in the United Kingdom (i.e. UK Post-Hospitality COVID-19 Study) and the United States (i.e. USA Research and Innovation for post COVID-19 Rehabilitation) to examine rehabilitation needs post Covid-19.

### **POST-ACUTE COVID-19 PATIENT PROFILE**

As individuals with COVID-19 transition from inpatient acute care to the community, they may present with residual functional health issues, including:<sup>8,9,10,11</sup>

- Difficulty with general mobility and walking;
- Pain;
- Lack of exercise tolerance;
- Respiratory impairments;
- Cardiac morbidity;
- Deconditioning;
- Loss of strength; and,
- Neurological conditions that can take months, or longer to resolve<sup>12</sup>.

In addition, individuals may experience side effects related to the medication used to manage the disease that may have long-term repercussions. The extent of rehabilitation needed may be influenced by several factors, including pre-existing conditions and length of stay in hospital or the intensive care unit (ICU). Common long-term problems after an ICU stay, that are not disease specific, are referred to as Post-Intensive Care Syndrome (PICS), and can include:

- Malnutrition (loss of weight and muscle mass);
- Cognitive impairments (memory, planning, concentration); and,
- Post-traumatic stress syndrome, depression and anxiety<sup>8,13</sup>.



The residual impairments caused by COVID-19 and hospital or ICU stay highlight the importance of access to physiotherapists in the community. A high level of coordination among interdisciplinary providers will be required to optimize care, given the evolving knowledge on PICS<sup>14</sup>. The patient profile for individuals post-acute COVID-19 will likely continue to evolve as more people recover over time.

### **RISK FACTORS FOR COVID-19 AND RESIDUAL IMPAIRMENT**

There are some groups who are more predisposed to contract COVID-19 and more likely to have severe outcomes. The risk for severe illness increases with age, and people over 85 years are at greatest risk for severe illness. However, people of any age with the following illnesses are at greater risk for severe illness including:<sup>15</sup>

- Chronic kidney disease;
- COPD;
- Obesity;
- Immunocompromised;
- Serious heart conditions;
- Hypertension;
- Sickle cell anaemia; and
- Type II diabetes.

In addition, the most ethno-culturally diverse neighbourhoods in Ontario, primarily those concentrated in large urban areas, are experiencing disproportionately three times higher rates of COVID-19, and four times the rate of severe illness and deaths related to COVID-19, compared to neighbourhoods that are the less diverse<sup>16</sup>.

There is some evidence also that persons who are blood type A positive are 45% higher of acquiring COVID-19 compared to other blood types. Lower platelet count is also associated with severity and mortality; however, little is known about platelet function during COVID-19. Functionally, platelets are hyperactivated in persons with COVID-19. This data suggests that platelets could participate in the dissemination of COVID-19 and in the overwhelming thrombo-inflammation observed in COVID-19<sup>17,18</sup>.



## **POST-ACUTE PHYSIOTHERAPY INTERVENTIONS**

Physiotherapists in the community, including those working in team based care models (e.g. primary health care organizations) are well positioned to support the rehabilitation needs of patients post-COVID-19, as they have the diverse skill set to assess and manage multi-morbidities with interventions, such as:<sup>6,8-10,12,19</sup>

- Respiratory muscle retraining;
- Progressive muscle strengthening;
- Increasing exercise capacity;
- functional training;
- Supporting return to work planning; and,
- Supporting adaptation to new levels of function.

Physiotherapists are also able to screen for the need for referral to other health care professionals, which includes occupational therapy, social work, psychotherapy, and more. Due to the potential for prolonged recovery, and the ongoing loss of support networks when in isolation, multidisciplinary groups with a psychosocial approach may be required to optimize health and wellbeing<sup>1</sup>. Providers can ask questions that influence treatment planning and evaluate the risk of post ICU syndrome, including:<sup>13</sup>

- Have you ever been hospitalized?
- Did you require an ICU stay?
  - How many days were you in the ICU?
  - Were you on a breathing machine (i.e. mechanical ventilator)?

As Table 1 demonstrates, physiotherapists have the skill set to implement various rehabilitation assessments and interventions to support recovery from COVID-19. Access to virtual physiotherapy is one key strategy for ensuring rehabilitation is available to individuals with COVID-19 who may be contagious. Physiotherapy delivered through virtual platforms is recommended specifically in the first 6 to 8 weeks following hospital discharge, during which time low intensity interventions are recommended<sup>6</sup>.

Self-management should be included in the rehabilitation pathway. Patients should be educated to manage COVID-19 and any residual impairments based on the most recent evidence to effectively manage their own recovery. Physiotherapists should



consider the severity of illness, age, prior fitness levels, and pre-existing co-morbidities of patients to evaluate their ability to self-manage.

**TABLE 1 – REHABILITATION FOR RECOVERY FROM COVID-19**<sup>1,6,13,19,17</sup>

<b>IMPAIRMENT</b>	<b>ASSESSMENT</b>	<b>INTERVENTIONS</b>
Respiratory System	Spirometry Dyspnea Scale	Deep, slow breathing Thoracic expansion (with shoulder) Diaphragmatic breathing Mobilization of respiratory muscles Airway clearance techniques as needed) Positive expiratory pressure devices
Muscle Strength	Manual muscle testing (MRC score) Handheld Dynamometer	Progressive muscle strengthening (NMES as needed)
Exercise Capacity	6-minute walk test	Progressive aerobic conditioning (walking, cycling, arm ergometry, Nu-Step; consider interval training)
Gait Speed	4 metre walk test	
Balance	Berg Balance Scale Activities Specific Balance Confidence Scale Functional Gait Assessment	Static and Dynamic Balance Exercise
Pain	NPRS	Pain management, pain education
Neurological Impairment	Neuro Scan: Neuropsychological impairments are multidimensional and include memory,	Neuro rehab approaches



	attention, and higher-order executive functions	
ADLs/IADLs	Katz Index Lawton IADL questionnaire	Functional retraining
Screen for return to Driving	Screening question	Refer to OT as needed
Return to Work	RTW assessment	Task specific retraining Refer to OT as needed
Screen for Cognitive and Mental Health Impairments (depression, anxiety, PTSD)	Hospital Anxiety and Depression Scale PHQ-2, PHQ-9	Refer to OT/Social Work/Therapy
Fatigue	Fatigue Severity Scale	Energy conservation, graded activity, sleep hygiene Refer to OT as needed

Physiotherapists also play an important role in supporting the resumption of sport and recreational activity. In particular, the potential for myocardial impairment resulting from COVID-19 must be carefully considered<sup>9,10</sup>. Guidelines for return to sport have been developed by the American College of Cardiology's Sports and Exercise Cardiology Council.<sup>9,10</sup>

- If athletes are diagnosed with COVID-19, they should not exercise for two weeks, even if asymptomatic.
- If mildly or moderately symptomatic, they should be screened for markers of cardiac involvement.
- If there is no evidence of cardiac involvement, exercise can be resumed gradually two weeks after symptoms resolve.



- If the athlete has cardiac involvement, or was severely symptomatic with COVID-19, the return to exercise protocol for myocarditis should be followed, which includes stress testing, monitoring of inflammatory markers, and 3 to 6 months of exercise restrictions.

## **DELIVERY OF CARE**

Since the onset of COVID-19, physiotherapists in primary care teams have adapted physiotherapy service delivery to align with directives issued by the Ontario Chief Medical Officer of Health. On May 26, 2020, Ontario's Chief Medical Officer of Health released changes to Directive #2, which originally required all regulated health professionals to stop or reduce non-essential services<sup>20</sup>. These changes permitted physiotherapists and other regulated health professionals to, when all necessary precautions and protocols are in place to protect patients and themselves, gradually and carefully resume the provision of in-person services<sup>21</sup>.

The College of Physiotherapists of Ontario (CPO) provides general guidance on [return to work](#) for physiotherapists in all sectors. Physiotherapists have been encouraged to continue to implement a system for virtual and/or telephone consultations as a preferred option for care where and where possible<sup>22</sup>. When in person care is required, physiotherapists must screen all patients at multiple check points for any symptoms of COVID-19 based on the most current patient screening questionnaire from the [Ministry of Health](#). A checklist used for screening should be included as part of the patient record<sup>23</sup>.

## **MAINTAINING ACCESS THROUGH TELEREHABILITATION**

Telerehabilitation, otherwise known as providing care through virtual means, has been used primarily to deliver care to rural and remote regions prior to the pandemic. As long as there is community transmission of an infectious disease, public health authorities recommend care be delivered virtually where appropriate, for all conditions including COVID-19. This helps to optimize physical distancing and minimize the potential risk of infection especially for at risk populations. Access to virtual physiotherapy services for ongoing management of persisting conditions in the



community is essential to reduce the burden of disease in the general population during the pandemic.

Physiotherapy delivered through virtual means can be as clinically effective as in-person service delivery for the improvement of physical function and pain for some conditions/injuries when appropriate for a patient and their environment<sup>24,25</sup>. The delivery of services virtually is within the knowledge and skills of the physiotherapist and is supported by the standards of practice of the College of Physiotherapists of Ontario. Physiotherapy services that may be delivered virtually include<sup>26</sup>:

- Assessment of physical activity levels, recommendations for regular aerobic, strength and flexibility exercises at home;
- Assessment of pain conditions or mobility limitations, or monitoring existing conditions;
- Prescription of individualized exercise, with education and feedback on performance;
- Progression of exercise programs to promote continued improvement of conditions;
- Ergonomic assessment and recommendations to support staying well while working from home;
- Use of modalities like heat/cold applications, if appropriate;
- Self-release techniques for tight muscles, from prolonged positioning or lack of activity;
- Self-management, education, coaching for both patients and caregivers; and,
- Assessment of daily activities and recommendations for adaptations.

## **TABLE 2 – RESOURCES FOR VIRTUAL PHYSIOTHERAPY CARE**

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### **CANADIAN SOURCES**

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The Canadian Physiotherapy Association's Position [Statement on Tele-rehabilitation](#)

The [College of Physiotherapists of Ontario](#)

The Ontario Physiotherapy Association's [Patient Information Guide](#)

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## INTERNATIONAL SOURCES

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World Confederation for Physiotherapy. Report of the WCPT / INPTRA Digital Physical Therapy Practice Task Force: available [here](#).

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## CONCLUSION

As the number of people recovering from COVID-19 increases, the demand and need for rehabilitation, including physiotherapy will grow. Resources to support clinical practice will also evolve to respond to the changing profile of this patient population. This will include emerging evidence on impairments and treatment for people recovering over the long term from COVID-19. Health system planners and organizations will need to consider all factors, including health system capacity planning, needed health human resources, and access to care provided by physiotherapists to ensure adequate resources are available to meet the needs of this growing segment of our population.

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