

# Respiratory Considerations for Physical Therapy Practice during the COVID-19 Pandemic

The following information is intended for physical therapists and physical therapist assistants.

## Effect of COVID-19 on The Pulmonary System

While most patients with COVID-19 develop asymptomatic or mild illness, some patients may develop severe illness including respiratory tract infections that may require hospitalization and/or oxygen support.<sup>1,2</sup>



- COVID-19 can lead to deconditioning & hospital acquired weakness
- Alveoli damaged by the virus may lead to:
  - Decreased endurance
  - Fibrosis/scarring of the lungs
  - Impaired rib cage / trunk mobility
  - Potential change in shoulder ROM / mechanics
  - Overuse of accessory muscles of breathing
- Breathing prioritized over postural control
  - Diaphragm used to support effective breathing instead of postural control

## Secondary Effects<sup>3</sup>



### Musculoskeletal

- Neck pain, shoulder pain, and headaches due to overactive accessory muscles of breathing
- Lower back pain due to poor postural stabilization as a result of diaphragmic dysfunction



### Musculoskeletal Weakness

- Due to prolonged immobility
- Poor intra-abdominal/ intrathoracic pressure support for distal force production due to diaphragm & vocal fold inefficiencies



### Neuromotor Deficits

- Decreased balance due to prioritization of respiratory muscle used for breathing over postural control

## Reference:

1. Centers for Disease Control and Prevention. Clinical Presentation of People with SARS-CoV-2 Infection. 2020. Accessed December 7, 2020. <https://www.covid19treatmentguidelines.nih.gov/overview/clinical-presentation/>
2. Wiersinga WJ, Rhodes A, Cheng AC, Peacock SJ, Prescott HC. Pathophysiology, transmission, diagnosis, and treatment of Coronavirus Disease 2019 (COVID-19) A Review. JAMA. 2020;324(8):782-793. doi:10.1001/jama.2020.12839.
3. Massery M. Posture & Breathing: Linking Them Together Post-COVID-19." Post-Acute COVID-19 exercise & rehabilitation (pacer) project. Video. 21 Apr 2020. Accessed: December 7, 2020. <https://www.youtube.com/watch?v=3TxStSCeOpQ>

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