



**RAMAIAH**  
International Centre for  
Public Health Innovations

# POST COVID-19 SEQUELAE AND REHABILITATION



Ramaiah International Centre for Public Health Innovations (RICPHI)  
Bengaluru, Karnataka

## **Symptoms that might persist even after recovery from COVID-19 (weeks to months)**

Severe Fatigue

Continued  
Breathlessness

Muscle Weakness

Post Viral Cough

Difficulties with  
Memory/  
Confusion or  
“brain fog”

## **Post COVID-19 management**

Follow home isolation for  
7 days

Look for early warning signs  
like high grade fever,  
breathlessness, SpO2 < 95%,  
unexplained chest pain,  
confusion, weakness of  
parts of the body

Hand hygiene and  
Sanitization of  
surroundings

Mild or moderate  
exercise can be done,  
preferably at home &  
Nutritious Diet.

First follow-up visit  
should be within 7 days  
after discharge

Subsequent follow-up visits  
can be arranged with the  
nearest qualified medical  
practitioner/medical  
facilities



## After effects of COVID-19 on the body



### Respiratory (Lung)

- Difficulty breathing
- Need for oxygen therapy
- Changes in CT scans of the chest



### Blood-Related

- Clot formation in lungs, heart and brain (stroke)



### Heart and Blood Vessel

- Chest pain
- Racing of heart
- Abnormal functioning of heart



### Brain and nerves

- Migraine-like headaches
- Difficulty concentrating
- Poor language and processing function
- Loss of taste and smell
- Muscle and nerve abnormalities



### Psychiatric

- Depression
- Anxiety
- Difficulty sleeping or insomnia
- Obsessive Compulsive symptoms



### Kidney and Skin-Related

- Kidney injury requiring dialysis
- Hair loss
- Rash



### Endocrine

- Diabetes complications
- Thyroid inflammation
- Low levels of thyroid hormone
- High levels of thyroid hormone



### Stomach and Gut

- Irritable Bowel Syndrome (Long term diarrhea or constipation)
- Indigestion and heartburn
- Decreased beneficial good bacteria in the gut

## **Physiotherapy and rehabilitation of hospitalized patients**

Ways of early mobilisation include:

- Frequent posture changes
- Bed mobility
- Sit to stand
- Simple bed exercises
- Activities of Daily Living

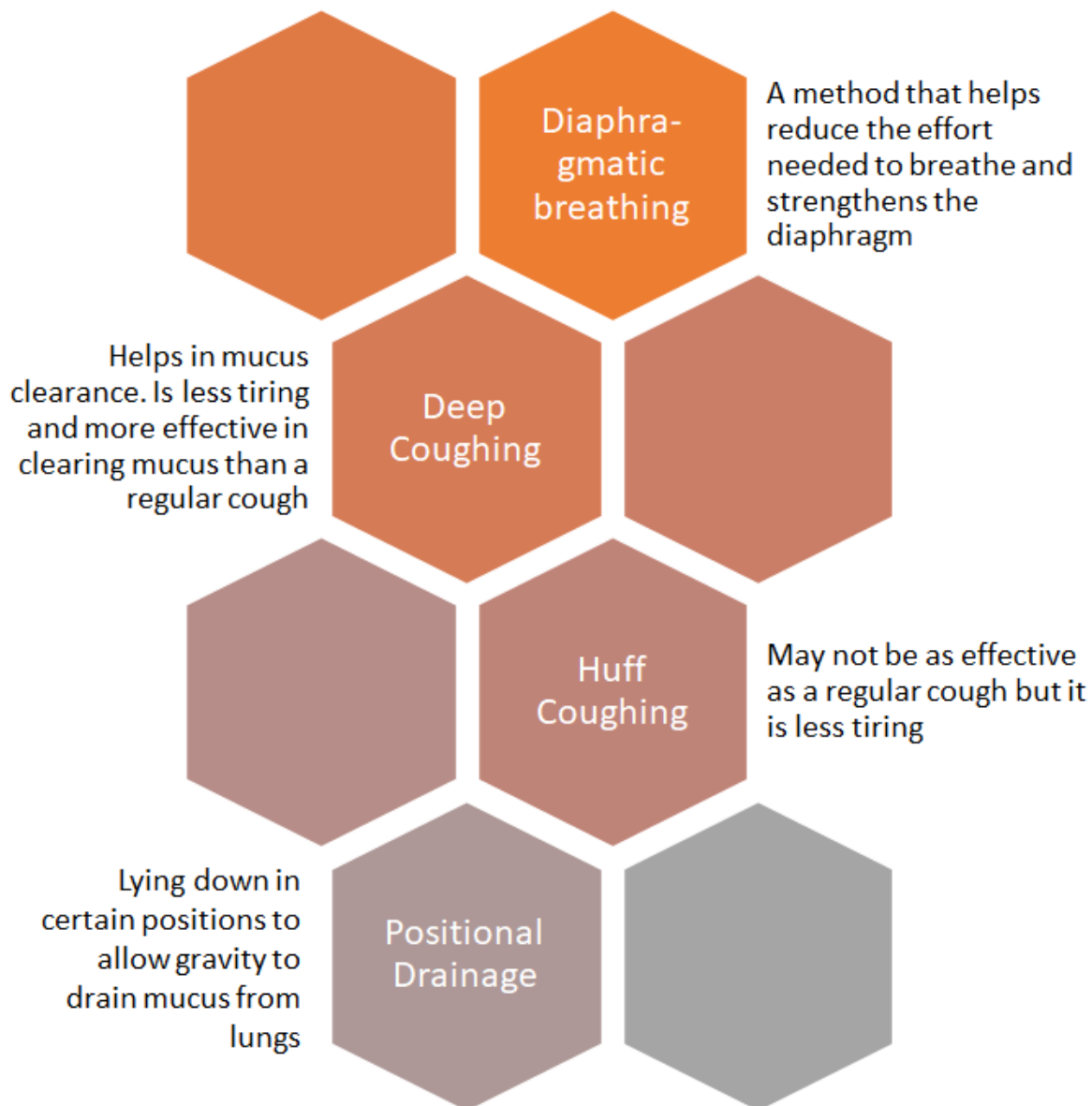
It is important to monitor the patient's breathing and blood pressure state during rehabilitation.

### **Steps towards rehabilitation**





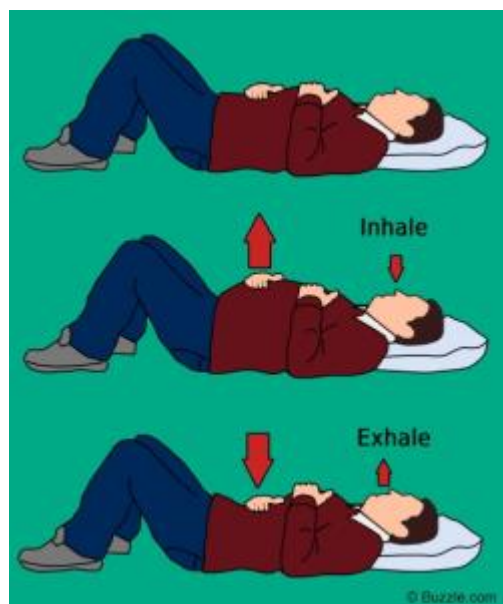
## Managing breathlessness





## DIAPHRAGMATIC BREATHING

- Lie on your back on a flat surface (or in bed) with your knees bent. You can use a pillow under your head and your knees for support, if that's more comfortable.
- Place one hand on your upper chest and the other on your belly, just below your rib cage.
- Breathe in slowly through your nose, letting the air in deeply, towards your lower belly. The hand on your chest should remain still, while the one on your belly should rise.
- Tighten your abdominal muscles and let them fall inward as you exhale through pursed lips. The hand on your belly should move down to its original position.



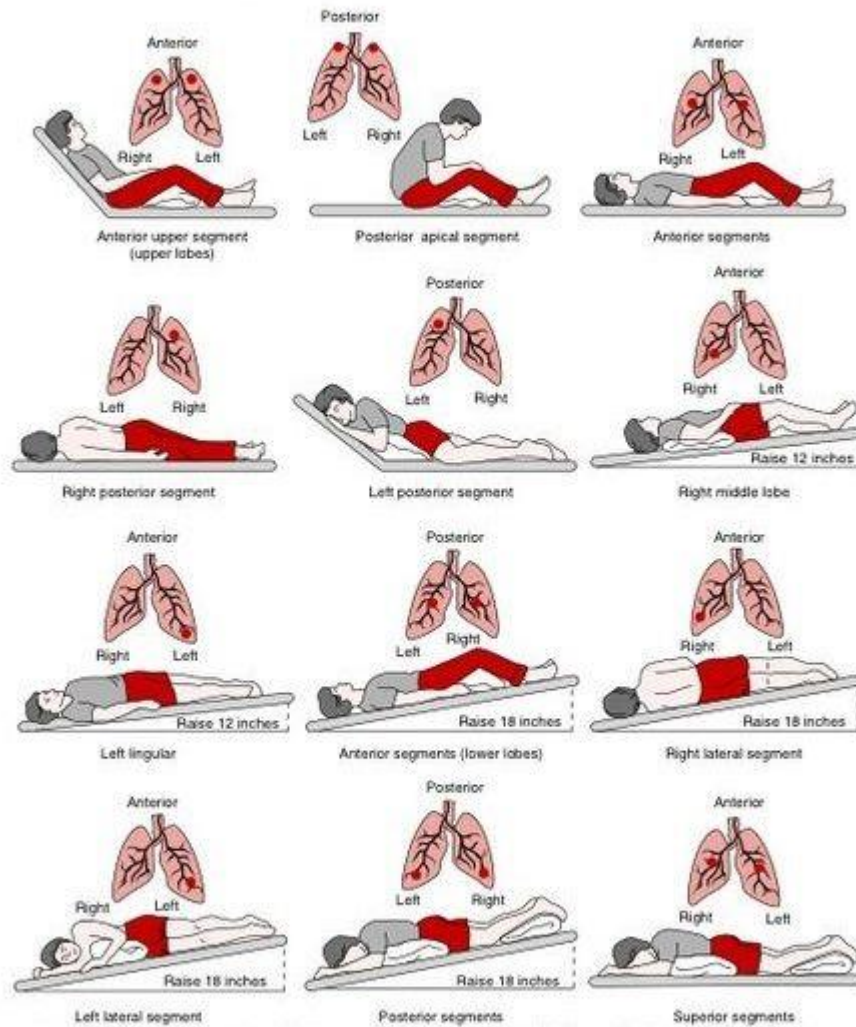
Source: [emhphysicaltherapy.com](http://emhphysicaltherapy.com)





## Patient Positions for Postural Drainage

Cardiopulmonary Assessment and Intervention



Patient positions for postural drainage. (Modified from Potter PA, Perry AG: Fundamentals of nursing: concepts, process and practice, ed 4, St Louis, 1997, Mosby; In Wilkins RL. Egan's Fundamentals of Respiratory Care, ed 9. St. Louis, 2009, Mosby).

[www.study.pk.com](http://www.study.pk.com)

At home, pillows can be used to raise the head or leg end of the patient to help drainage of mucus.





## Managing cough

### Dry Cough

Drink plenty of fluids

Warm honey or lemon may be added to water or tea to soothe the throat

Steam Inhalation

Repeated Swallowing may also help lubricate the throat and reduce dryness

### Wet Cough (with phlegm)

Drink plenty of fluids

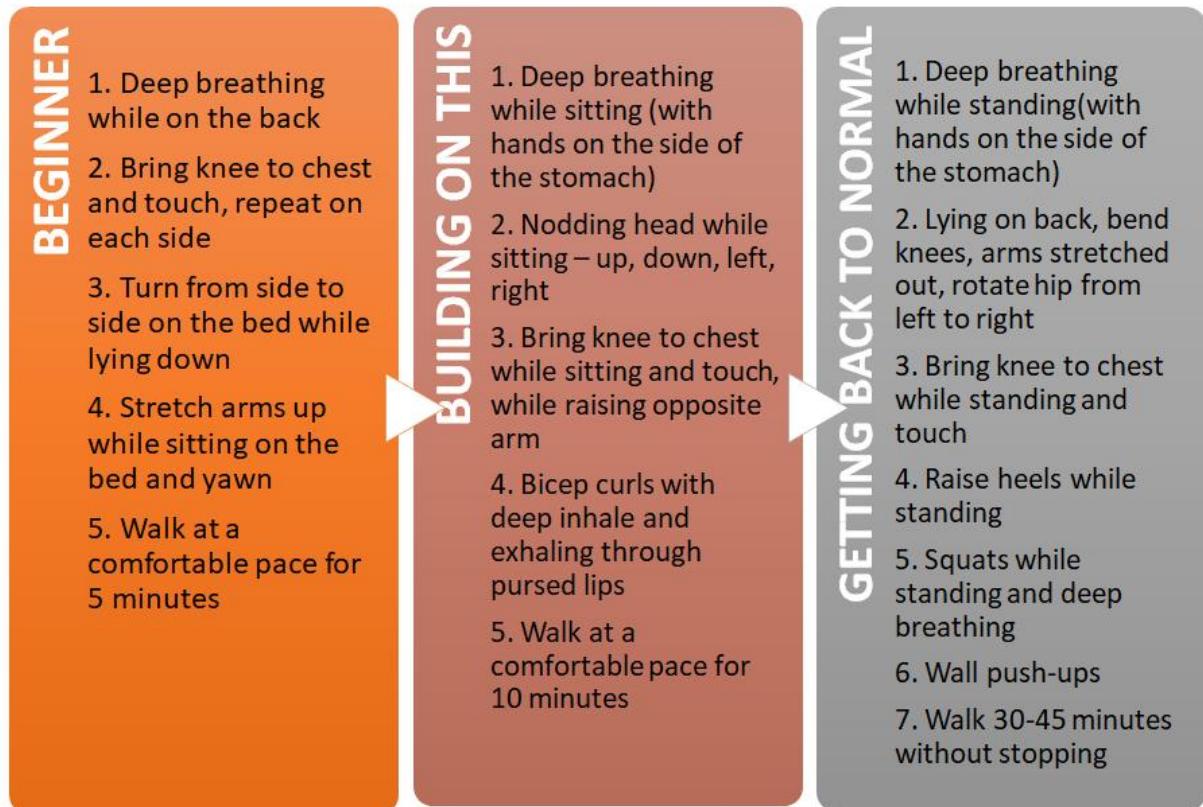
Steam Inhalation

Changing positions to drain phlegm

Moving around at a comfortable pace will also help



## Building strength and endurance



*(Images below)*



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## **Beginner exercises**

*(All images below sourced from Bouncing Back from COVID-19, a Johns Hopkins Publication)*



**Deep breathing while on the back**



**Bring knee to chest and touch**



**Turn from side to side on the bed while lying down**



**Stretch arms up while sitting  
on the bed and yawn**

## **Building on this**

*(All images below sourced from [Bouncing Back from COVID-19](#), a Johns Hopkins Publication)*



**Deep breathing while sitting**



**Nodding head while sitting**



**Bring knee to chest  
while sitting**



**Bicep curls**

## Getting back to normal

*(All images below sourced from Bouncing Back from COVID-19, a Johns Hopkins Publication)*



**Rotate hip from left to right**



**Knee to chest while standing**



**Standing Heel Raise**



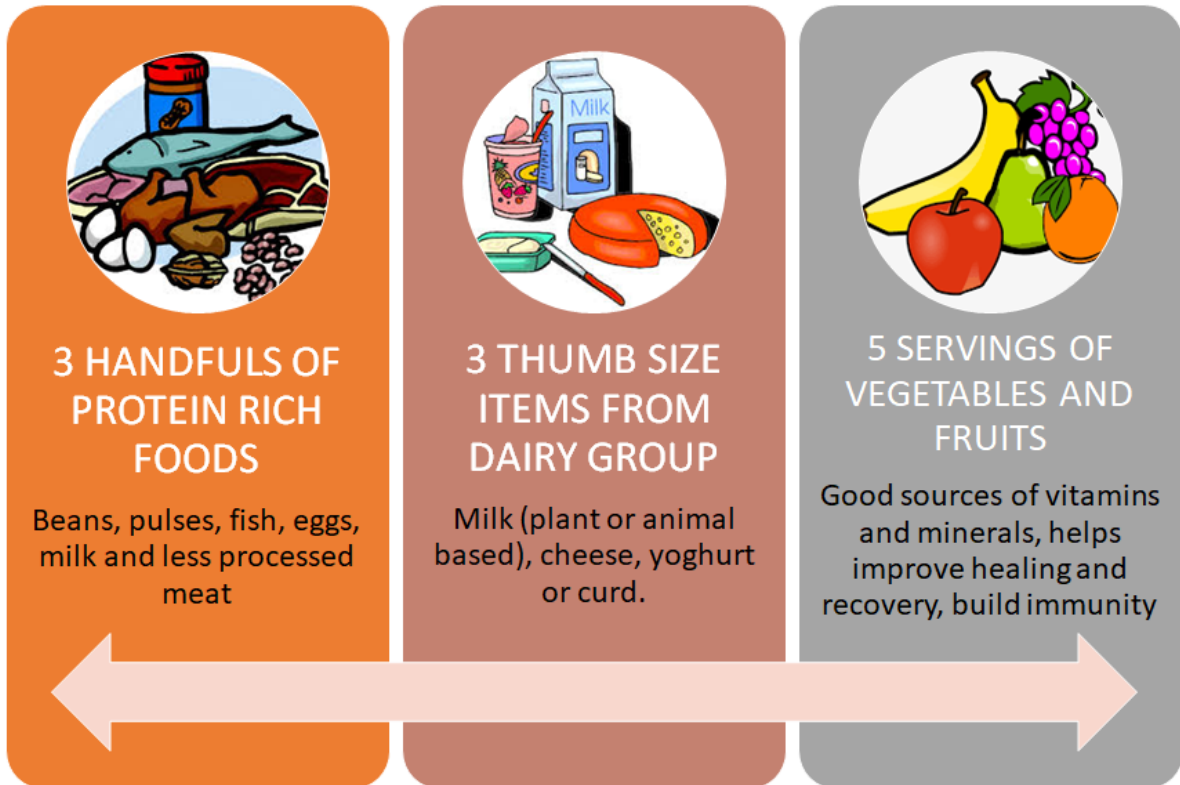
**Squats with deep breathing**



**Wall Push-ups**



## Managing diet



## Managing stress and anxiety Grounding technique to use when stressed





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## **References**

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- [Airway Clearance Techniques](#)
- <https://www.health.harvard.edu/lung-health-and-disease/learning-diaphragmatic-breathing>
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