Inpatient and ICU Care

Physical Therapy Role

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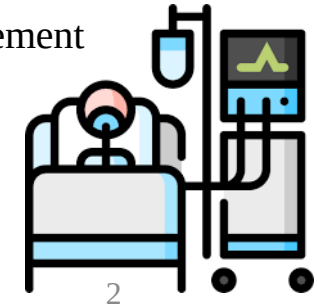
ICU

- Critical care (usually in intensive care units: ICUs): the specialized care of patients who
  - Their conditions are life-threatening
  - Require comprehensive care and constant monitoring.

- Critically ill patients:
  - Frequent long-term physical and psychological complications
  - Long-term mechanical ventilation: significant muscle weakness (25% of cases),
    - ongoing muscle weakness in approximately 90% of long-term ICU survivors

- Prolonged stays in the intensive care unit
  - Impaired quality of life,
  - Functional decline
  - Increased morbidity, mortality, cost of care and length of hospital

- A multidisciplinary team in critical care: uniquely qualified with skills and expertise to work with the assessment and management of respiratory complications, physical deconditioning, and neuromuscular and musculoskeletal conditions.
  - Physiotherapy treatment: part of a multi-disciplinary approach to care



Why PT Is Needed (ICU Care and Inpatient Care)

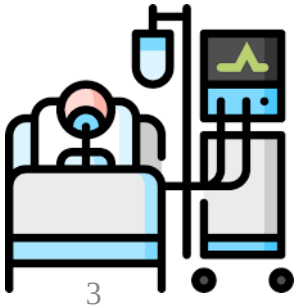
- Physiotherapy in ICU includes
  - Measures to prevent avoidable physical and non-physical morbidity
  - Nutrition support
  - An individualised, structured rehabilitation program with frequent follow-up reviews.

The details of the structured rehabilitation program and the reviews should be collated and documented in the patient's clinical records.

- Physiotherapy in ICU is integral in
  - Promoting lung function,
  - Reducing the incidence of ventilator-associated pneumonia,
  - Facilitating weaning,
  - Promoting safe and early discharge from the ICU.

- Inpatient PT
  - Each and every inpatient hospitalized at least for 1 night
  - A wide spectrum of interventions for
    - Prophylaxy (bedsores, deconditioning, deep vain thrombosis, pulmonary complications, mental well-being)
    - Respiratory rehabilitation
    - Musculoskeletal retraining
    - Oedema management
    - Wound care
    - Vascular rehabilitation
    - Safe ambulation
    - Patient education

- Early PT intervention in the ICU
  - Shorter patient's stay in the ICU and overall hospital stay.
  - Prevent ICU related complications
  - Improve function and quality of life in the long term



How PT Works

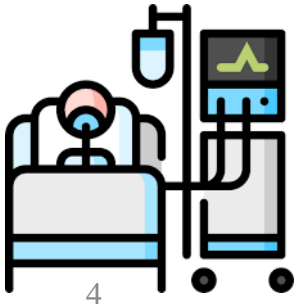
- Preventing and mitigating the adverse effects of prolonged bed rest and mechanical ventilation during critical illness.

- Tailored to patient needs=> depends on the patient'
  - Conscious state,
  - Psychological status,
  - Physical strength

1. Minimizing bedrest induced complication
2. Early discharge
3. Maximizing independence at discharge
4. Minimizing direct and indirect mortality rated
5. Preventing re-admission

- Incorporates any active and passive therapy
  - Promotes movement
  - Includes mobilization.

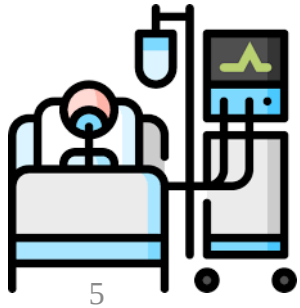
- Early progressive physiotherapy, with a focus on mobility and walking whilst ventilated, is essential in minimizing functional decline.
  - Especial concern for pediatric clients: therapists are not consistently consulted for mobilization (Iran vs developed countries)



Adverse effects of ICU stay:

- Physical Inactivity leading to muscular atrophy and generalized weakness
- Diaphragmatic weakness due to prolonged mechanical ventilation
- Pressure ulcers
- Compromised cardiac and respiratory function
- Deep vein thrombosis
- Infections

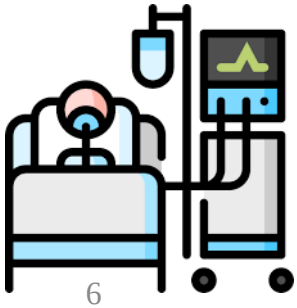
Physiotherapist works to maintain and improve respiration and cardiac functions and later on aid in rehabilitation.



Short-term Goals:

- Early activity (both passive and active): To maintain integrity of musculoskeletal system
- Positioning: To allow gravity to help sputum drain from the lungs.
- Manual techniques:
  - shaking and vibrations (to name a few but not limited to)
  - May be applied to the ribs to try to loosen and clear the sputum.
- Suction: By placing a small tube into the lungs to suck out the excess sputum.

A vital role in weaning a patient off ventilation.

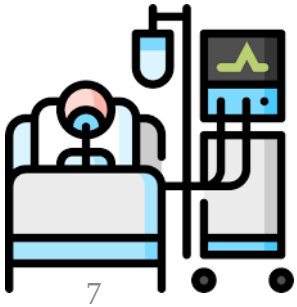


Long-term Goals:

- Plan an extensive rehabilitation program to integrate and re-initiate the patient into society.

- Set goals in conjunction with the medical team to rehabilitate the patient.

- Rehabilitation goals:
  - Set in communication with the patient, patient's family and the medical team
  - Are short, medium or long term
  - Change throughout the patient's recovery from critical illness.
  - May be physical as well as psychological
    - Concerned with the functional needs of the patient.
  - Need to be achievable
  - MUST be based on a regular patient assessment of physical and non-physical consequences of the critical illness throughout their recovery and change according to the progress.



Physiotherapy Techniques in ICU

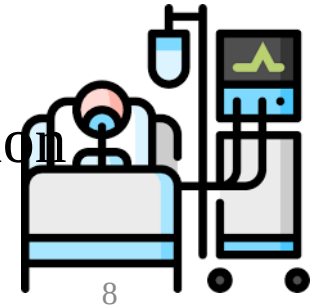
1. Respiratory Physiotherapy

Goals

- Assist in clearing the airways
- Maintaining and improving the integrity of the respiratory system

Techniques

- Positioning,
- Education,
- Manual and ventilator hyperinflation,
- Weaning from mechanical ventilation,
- Non-invasive ventilation,
- Percussion, vibration, suctioning,
- Respiratory muscle strengthening,
- Breathing exercises and mobilization

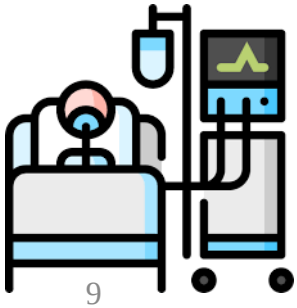


Physiotherapy Techniques in ICU

2. Rehabilitation

- Early mobilization with a focus on returning to functional activities
  - Shorter hospital stay
  - Minimum functional decline.
    - A pilot RCT: early in-bed cycling with mechanically ventilated (MV) patients has positive outcomes.
    - A systematic review and meta-analysis suggest early rehabilitation in the ICU reduces the incidence of developing Intensive Care Unit Acquired weakness (ICUAW)[7].

- The goals
  - Mapped out based on patient's physical, psychological status.
  - A short clinical assessment by physiotherapists during critical care unit stay=> determine the patient's risk of developing physical and non-physical morbidity.
  - Identify patient' current rehabilitation needs
    - For patients at risk, start rehabilitation as early as clinically possible



Studies have shown that

- Physiotherapy intervention in critical care:
  - ↓ mortality rate: 25%.[10]

- No effect of visits to ICU before admission on anxiety or depression
  - A negative effect on the patient's satisfaction level

- Association of the ability to with a higher possibility of being discharged
  - A retrospective cohort study on 285 survivors of prolonged ICU-stay
  - The importance of mobility training in long-term acute care hospitals