Overview

Patients in the ICU due to Trauma

High risk for complications associated with immobility¹

Extensive orthopedic and neurological injuries¹

Difficult to mobilize these patients²

Lines and tubes

Medical stability

Sedation

Severe weakness





Early Mobility Contraindications

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Neurologic<sup>5</sup>
    No response to verbal
   stimulation
    Elevated ICP
    Agitation requiring sedative
Respiratory<sup>5</sup>
    Inability to maintain $pO2
   >86%
    FiO2 > 0.6 or PEEP > 12cm H20
    RR >40breaths/ min
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Orculatory<sup>5</sup>

MAP <60 mmHg or >115mmHg

HR >120 bpm or <50bpm at

rest

Dysrhythmia requiring

medication

Other<sup>5</sup>
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Renal replacement therapy

Unstable fractures

Open abdomen

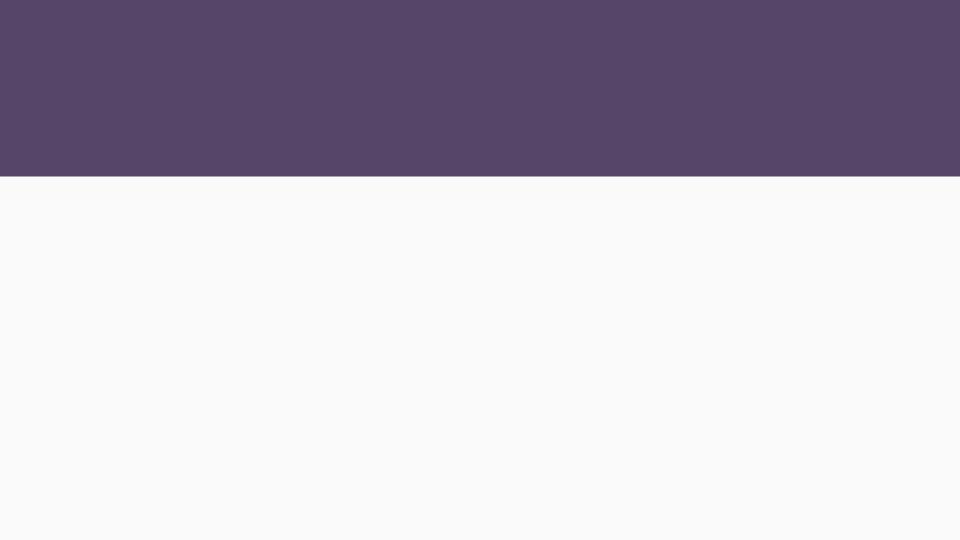
Current Research in the ICU

Six systematic reviews have found overall positive benefits of early mobility delivered in the ICU⁴

Early mobility has been shown to decrease ICU and hospital lengths of stay⁶

Importantly physical therapy can be performed safely for patients who are critically ill⁷







Methods

Search terms

Methods

Search limits

English language

Published within past 10 years

Peer-reviewed



Methods

Selection Criteria

Patients in the ICU due to trauma

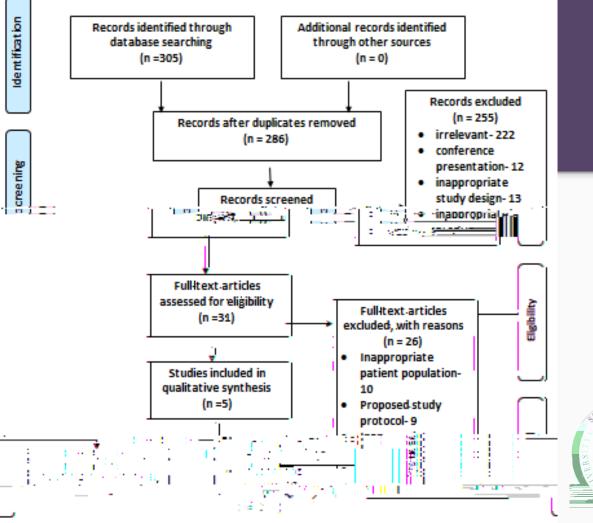
Adults > 18 years

Mobility performed as an intervention

Measures of hospital and ICU length of stay



PRISMA





Sackett Level

Author and Title	Study Design	Sackett Level of Evidence
Progressive Mobility Protocol Reduces Venous Thromboembolism Rate in Trauma Intensive Care Patients ¹		
- Effectiveness of an Early Mobilization Protocol in a Trauma and Burns Intensive Care Unit ⁸		
Mobility criteria for upright sitting with patients in the neuro/trauma intensive care unit: an analysis of length of stay and functional outcomes ⁹		
		1

Study Characteristics

Sample sizes ranged from 30-2,167 participants

Both males and females were included

Average age range: 44.1-65 years

Specific setting

Neuro/Trauma ICU 2

Burn/Trauma ICU - 1

Neurological ICU - 1

General ICU-1



Study Characteristics Continued

3 studies specified a classification system of mobility progression 1,6,8

Amount of classifications ranged from 3 to 6

Lower levels performed PROM and bed mobility

Higher levels performed transfers and ambulation



Study Characteristics Continued

- 1 study utilized a progression program without defining levels⁷ Categorized as ROM, bed based interventions, transfers, standing, and ambulation
- 1 study performed an upright sitting program⁹
 Participants were assisted from supine to upright sitting with

Study Characteristics Continued

Hospital Length of Stay^{1,6,7,8,9}

ICU Length of Stay^{1,6,7,8,9}

Gasgow Coma Scale (GCS)^{7,9}

Not specified	TBI, undefined trama	ISS	Decreased	Decreased	
Blunt trauma, Penetrating injury, Burns	SCI, fracture	ISS	Decreased	Decreased	
MVA, pedestrian injury, gunshot, assault	SDH, EDH, cerebral edema, Pneumocephalus, Hydrocephalus, cerebellar infarct SOI, spine subluxation	GCS	Decreased	Decreased	
Not specified	Not specified	Not specified	Decreased	Decreased	
Not specified	SAH, SDH, ICH, trauma	ccs	Not specified	Not specified	18

Conclusion

There is weak to moderate evidence available on whether early mobilization affects length of stay in patients following trauma



Conclusion

Physical therapy was safely involved in the ICU care of all patients following trauma

Although not statistically significant, hospital and ICU LOS improved in all studies to some degree



Clinical Relevance

Early mobility is a beneficial physical therapy intervention for

Limitations

Varied study designs

Small sample sizes

Limited definitions of protocols

Definition of early mobility as a treatment

Varied mechanism of injury



Future Research

Include long-term follow-up with larger sample size
Identify a standard definition of early mobility
Identify a standardized early mobility classification
Identify effects of early mobility on quality of life



Take Home Message

and ICU length of stay in patients following trauma
Utilizing early mobility as a treatment in the ICU is a safe and
feasible option for patients following a traumatic event to
prevent the detrimental effects of bed rest
Physical therapists play a vital role in implementing an early
mobility protocol as part of the interdisciplinary team







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Questions?

