Critical Care Mobility in Patients with Obesity: Integrating Respiratory Support, Safe Mobilization, and Outcomes in the ICU

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BariSolutions is transforming healthcare by advancing safe, equitable care for plus-size patients through education, compliance support, and specialized clinical programs. By equipping hospitals with resources, training, and technology guidance, we strive to help improve patient outcomes while reducing caregiver injury and system costs. At its core, BariSolutions is helping create a world where size no longer limits the quality of care or daily life.

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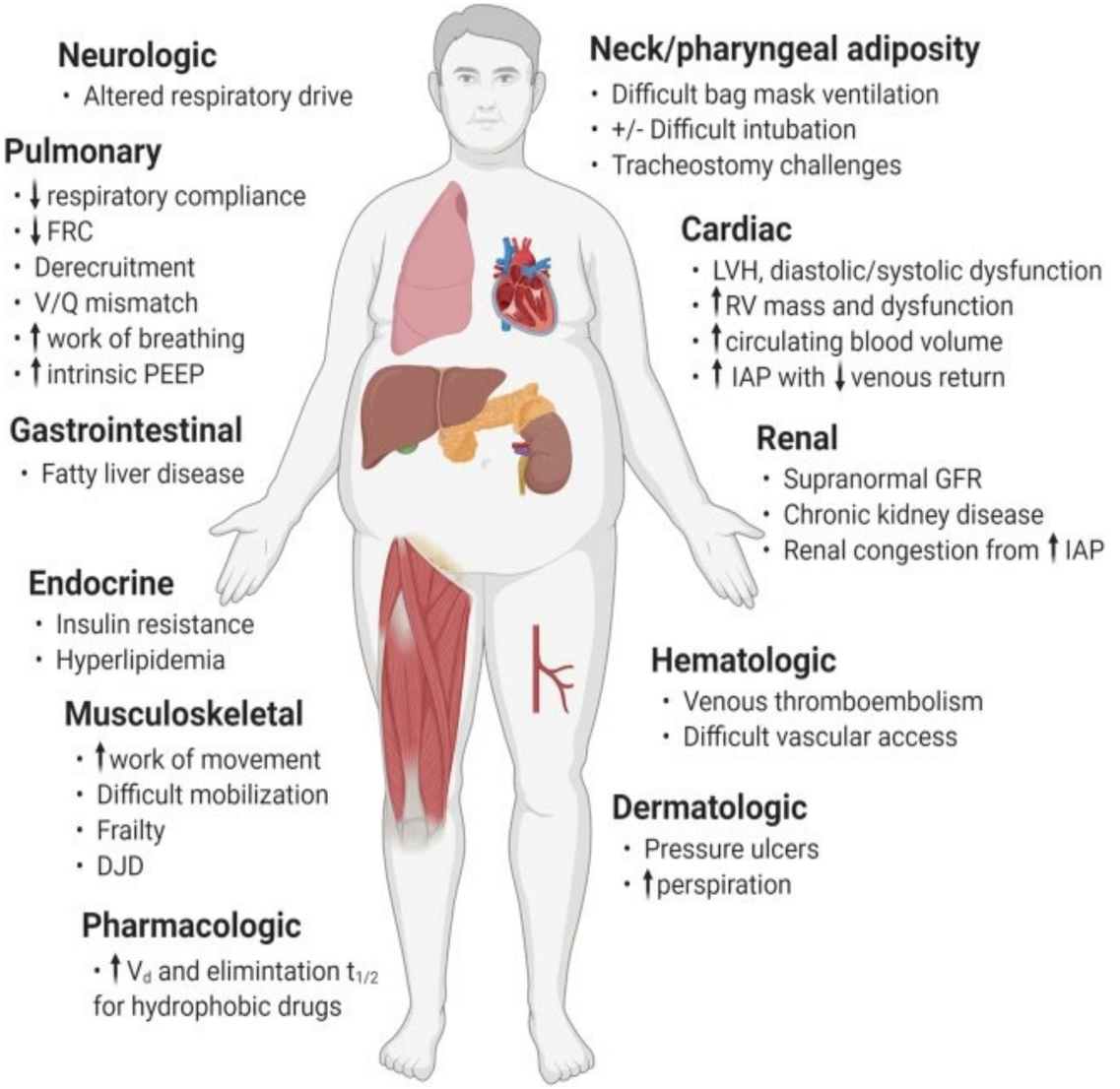
Objectives

- Describe the impact of obesity on respiratory mechanics and critical illness outcomes
- Explain the role of early mobility in preventing ICU-acquired weakness and improving recovery outcomes
- Identify barriers to mobilizing critically ill patients with obesity receiving respiratory support
- Discuss interdisciplinary strategies that integrate respiratory care, safe patient handling, and progressive mobility
- Apply evidence-based mobility principles to improve patient and workforce safety in critical care

Rising Prevalence of Obesity

- Rising prevalence of obesity in ICU populations
  - Gallagher 2006
- Clinical implications for respiratory management and mobility



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Hazards of Immobility

- Pressure injuries
- Deconditioning
- Fall-related injury
- Prolonged LOS
- Readmission in 30 days
- RESPIRATORY

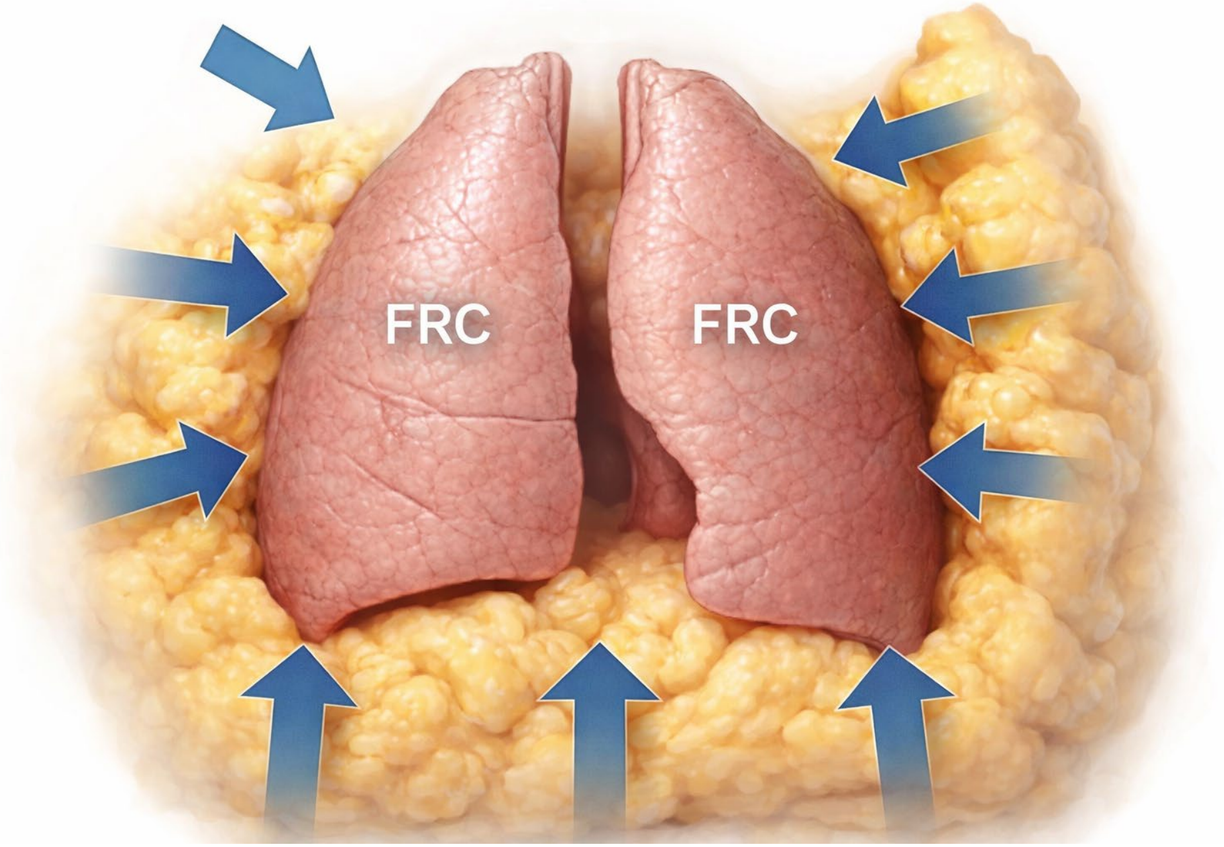
Respiratory Physiology and Obesity

- Effects of obesity on lung mechanics
- Ventilation challenges and oxygen considerations
- Implications for ARDS and ventilator management

Effects of Obesity on Lung Mechanics

Reduced resting lung volumes = Functional Residual Capacity (FRC)

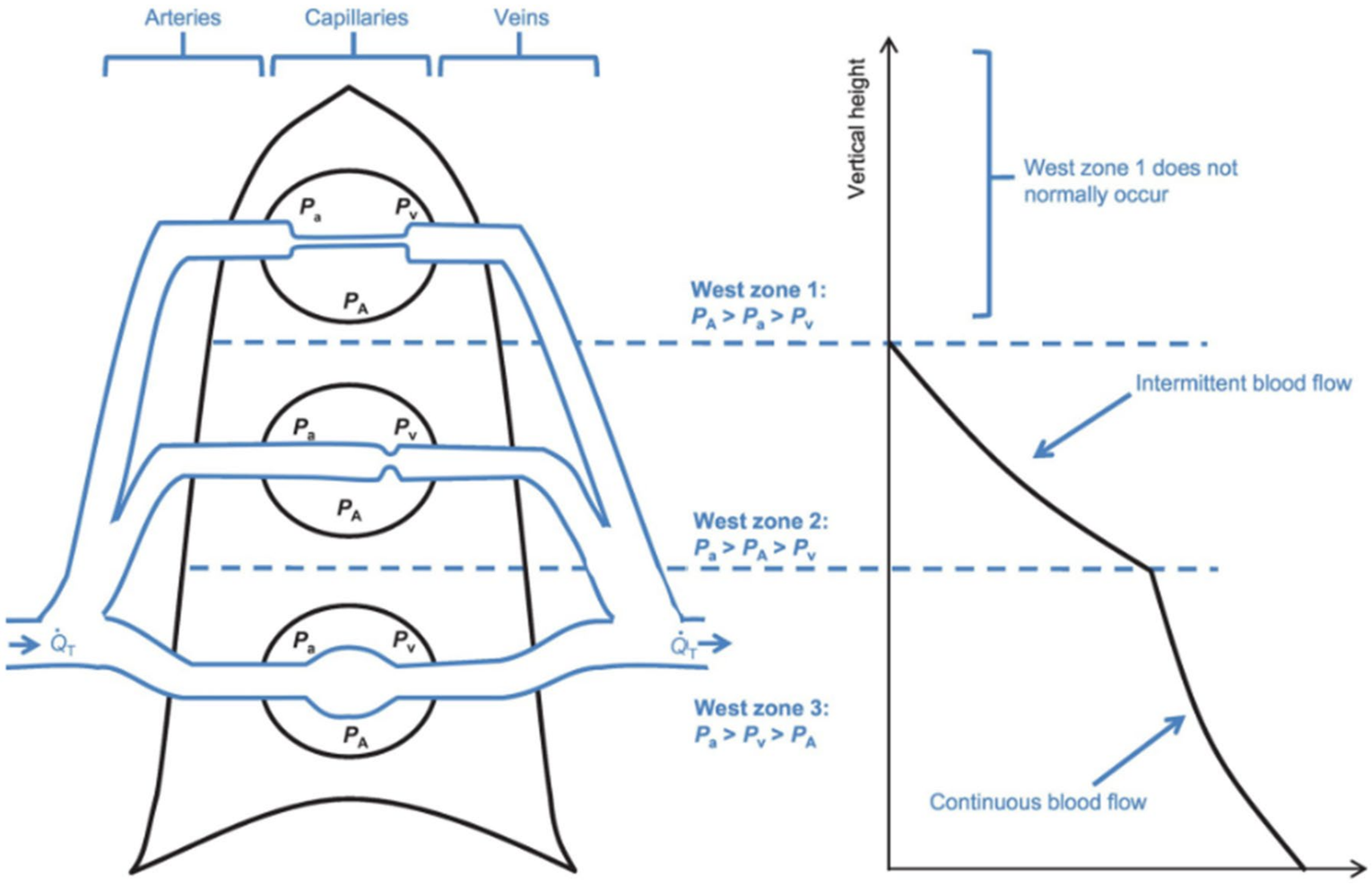
In patients with obesity there is restriction from surrounding adipose tissue and reduction from surrounding adipose tissue and reduction in lung compliance



Ventilation Challenges and Oxygen Considerations

What are the zones?

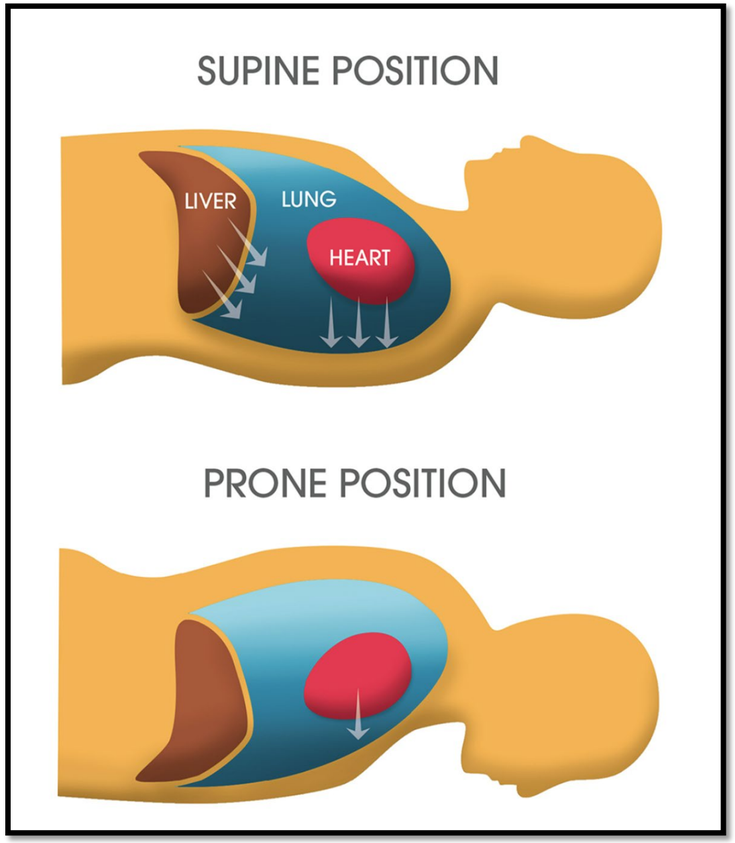
Why are they important to SPHM professionals?



Implications for ARDS and Ventilator Management

1. Give the lungs the best opportunity to expand – getting the heart off!

2. Utilize the alveoli that are recruitable and have perfusion to help the patient oxygenate and ventilate



In-bed Mobility

What can patients do in-bed?

Resistance bands on foot or side rails

In-bed therapy devices

Immobility and ICU-Acquired Weakness

Errol’s Journey: From Covid-19 to Cancun

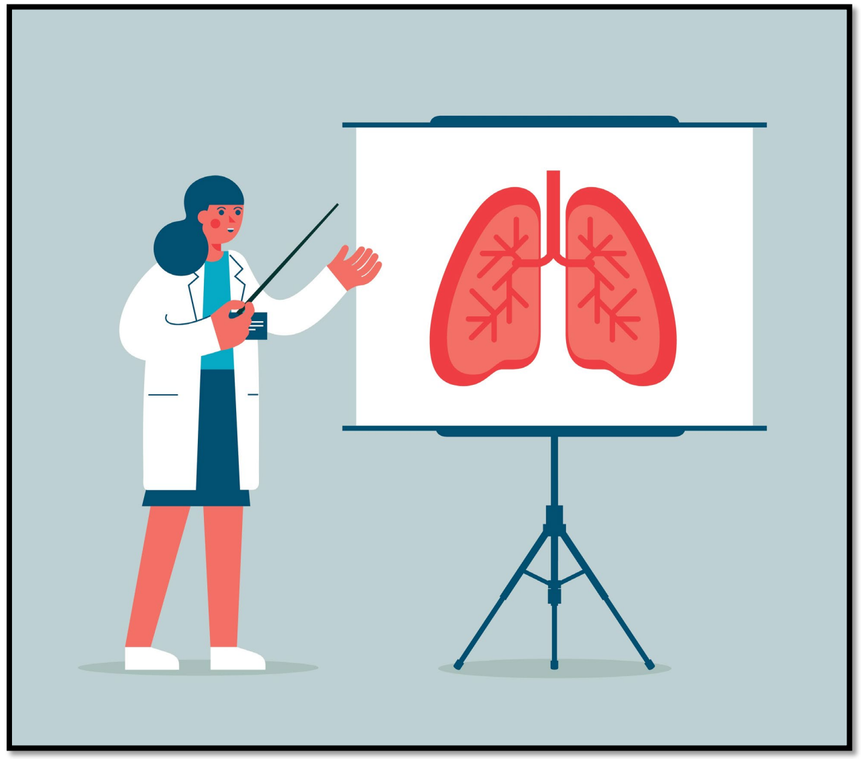
YouTube

Link

Errol's Journey frohttps://www.youtube.com/watch?v=5A0Jcyfj5mEm Covid-19 to Cancun

ICU Mobility in Mechanically Ventilated Patients

- Evidence supporting early mobilization
- Mobility protocols and safety screening



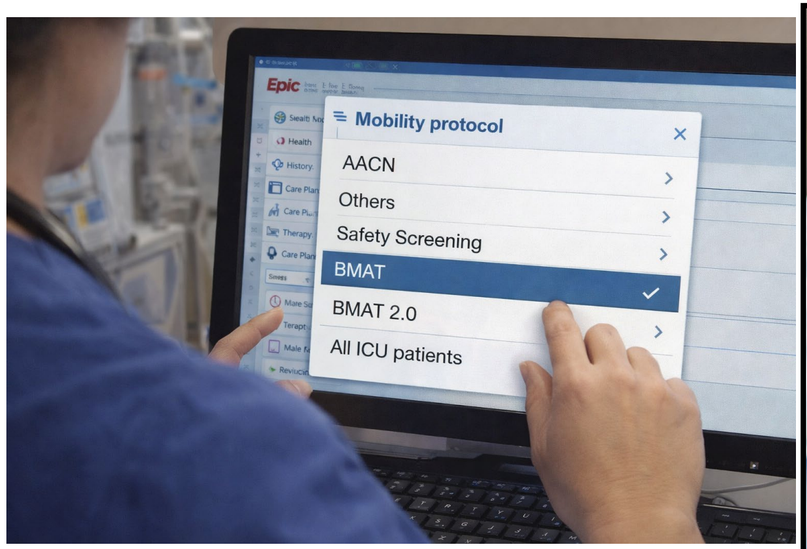
Polling Question

Is mobility screening performed in your setting?

A. Never
B. Sometimes
C. Always
D. All patients are assumed to be immobile

Mobility Protocols and Safety Screening

- Mobility protocol
  - AACN
  - Others
- Safety Screening
  - BMAT
  - BMAT 2.0
- All ICU patients



Integrating Respiratory Care and Mobility

- Mobilization during mechanical ventilation
- Respiratory therapy and rehabilitation collaboration
- Case examples and implementation strategies

Polling Question

What are the barriers to ICU mobility?

A. Patients are too sick
B. The equipment is too cumbersome
C. I don’t know what to do when the patient codes while being mobilized
D. Leader fails to encourage regular mobility

ICU Mobility with Ceiling Lift

- Walking sling
- Portable ventilator
- Walking aid

Mobilization During Mechanical Ventilation

Would a higher acuity walking aid be more in line with safe patient handling and mobility of the ICU patient if it were to be able to support IV therapy, monitoring, drainage bags, and a ventilator?

Immobility and ICU-Acquired Weakness

- Pathophysiology of ICU weakness
  - Hazards of immobility
- Long term functional outcomes after critical illness
  - Discharge disposition
  - Readmission
  - 12-month mortality

Case Examples and Implementation

- 38-year-old male admitted with COVID
- No significant medical history other than BMI of 36
- Previously completed Ironman and is currently active
- Upon admission, his oxygen requirements increased rapidly
- He was intubated and placed on MV within 24 hours of admission
- Subsequently placed on VV ECMO due to refractory hypoxemia
- Goal to maintain RASS score at 0 to -1

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Case Examples and Implementation

Hospital Day	Mobilization Intervention
4	Chair via ceiling lift (full MV and ECMO)
7	PT evaluation, sitting on EOB (full MV and ECMO)
12	Sit-to-stand (full MV and ECMO)
14	Decannulation (full MV)
17	Sit-to-stand and stand-pivot to chair (PS MV)
18	Same (extubated, HFNC)
21-23	2x per day PT sessions; step-ups, sit-to-stands, short distance ambulation (HFNC)
25	Step-ups in room for stair simulation; in-room mobilization with nursing staff (NC)
29	D/C home with exercise program

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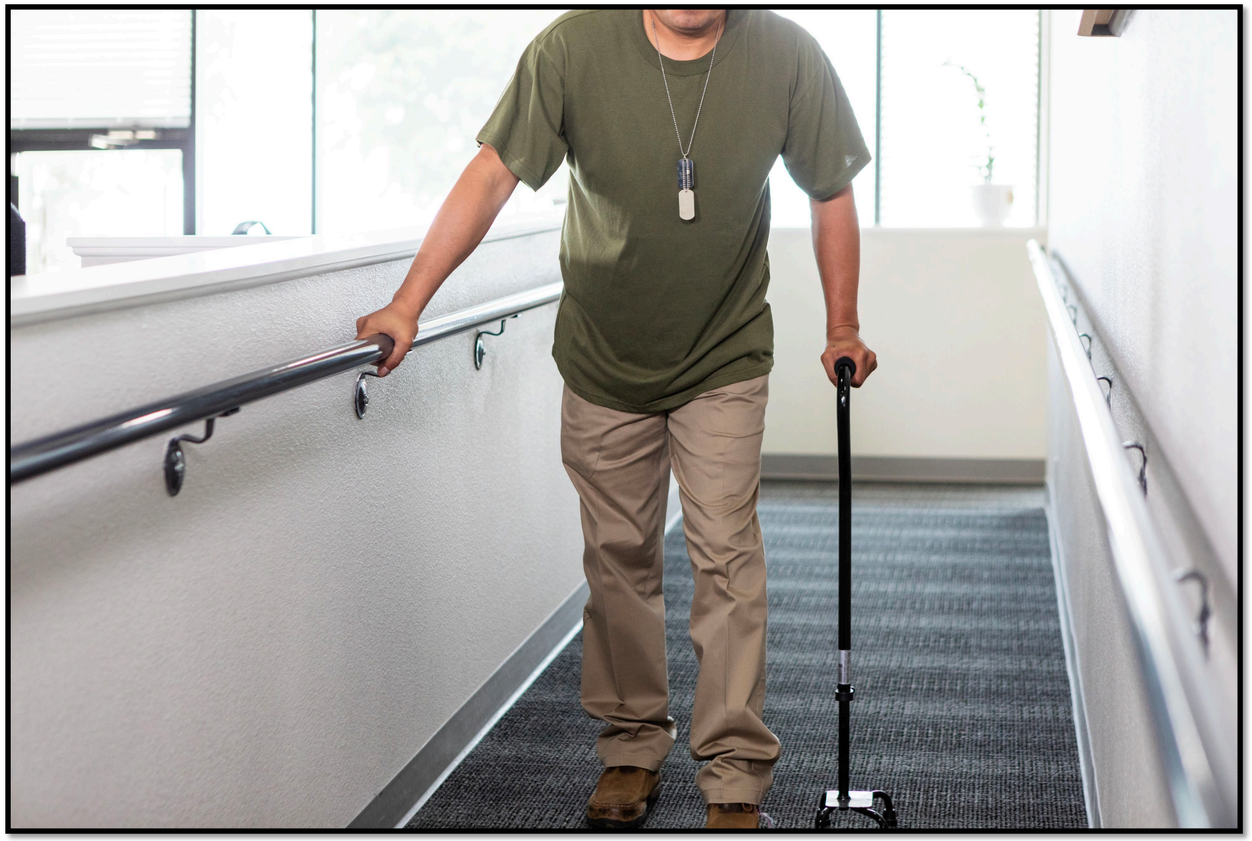
Polling Question

When implementing an early mobilization plan in the ICU, which factors must be assessed prior to and during mobilization?

A. Hemodynamic and respiratory stability, including vasopressor requirements, oxygenation status, and ventilator settings
B. Neurologic status, including level of consciousness, delirium risk, and ability to follow commands
C. Presence of invasive devices and lines, with appropriate securement and risk mitigation strategies
D. All of the above

Mobility Doesn’t End in the ICU



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Evidence Supporting ICU Mobility

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Thank you!

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