

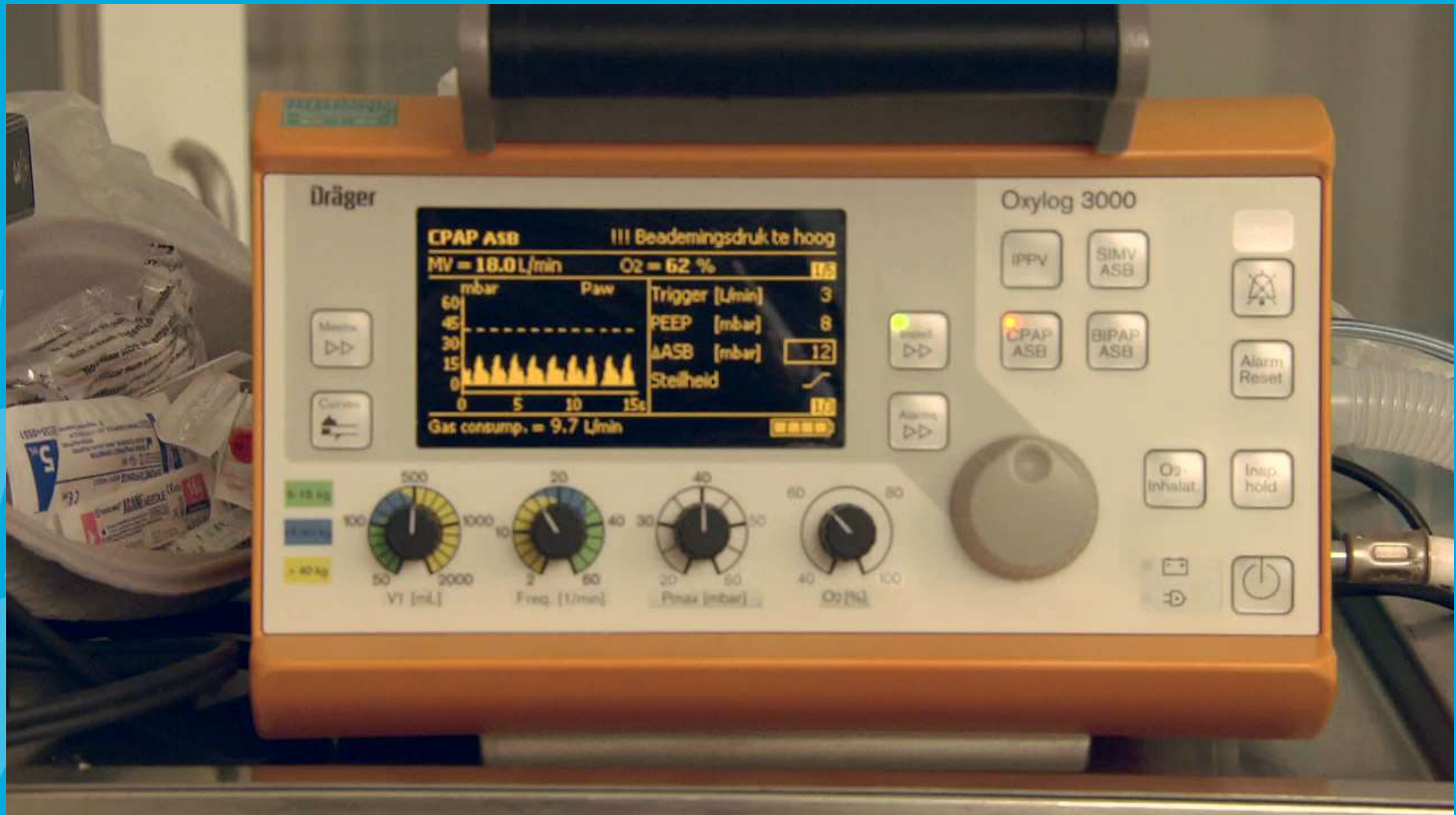
Early rehabilitation in the ICU:

MOVE IT or LOSE IT

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Introduction



Mortality and ARDS



ICU treatment

Buying time to allow vital systems to recover function is oftentimes associated with:

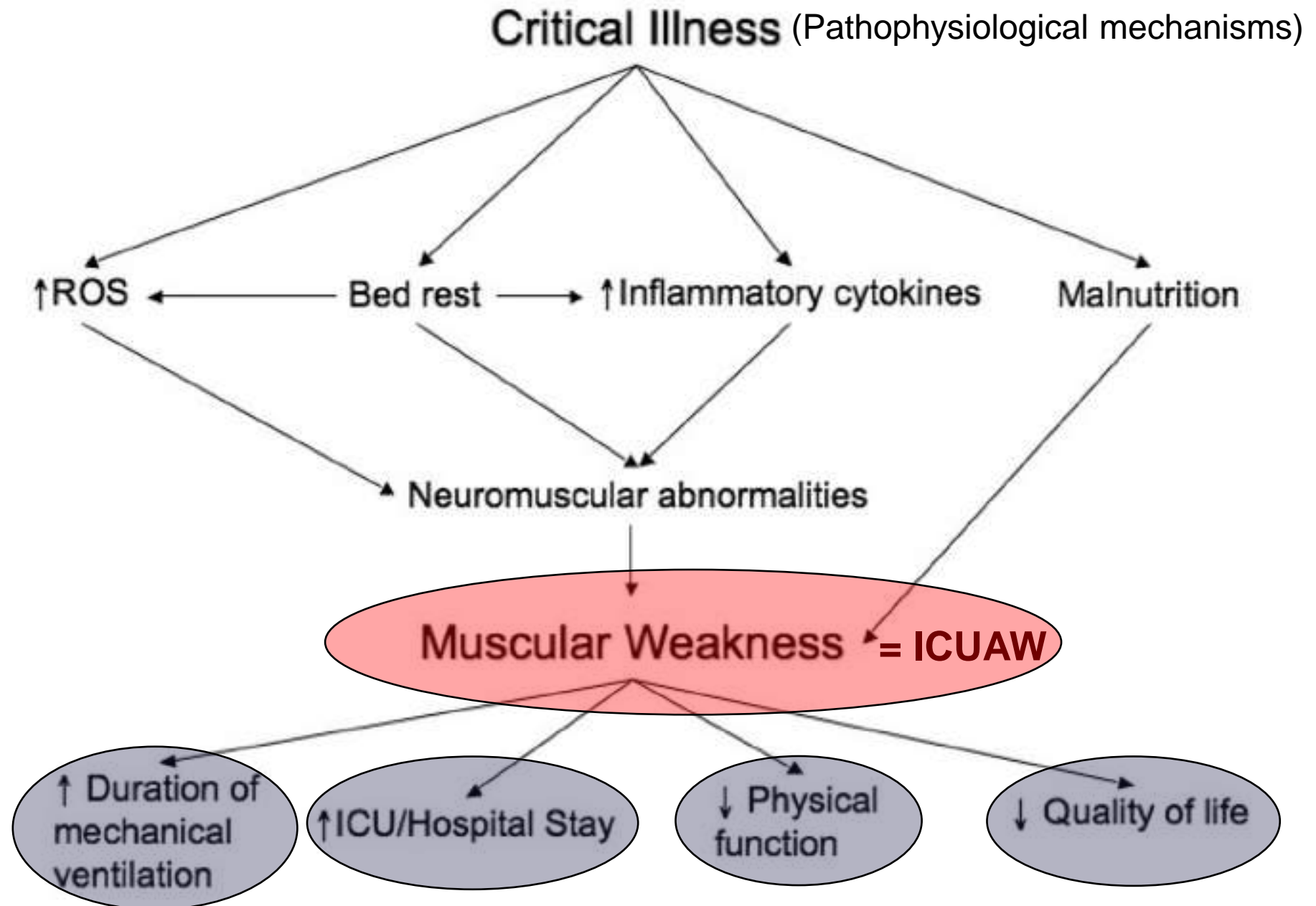
- prolonged bed rest
- inactivity

A patient is lying in a hospital bed in an intensive care unit (ICU). The patient is covered with a blue blanket and has a black rectangular mark over their face. The room is filled with medical equipment, including multiple IV drip stands with bags on the left, various monitors and machines on the right, and overhead medical arms. The ceiling has a large square light fixture. The overall scene depicts a high-tech medical environment.

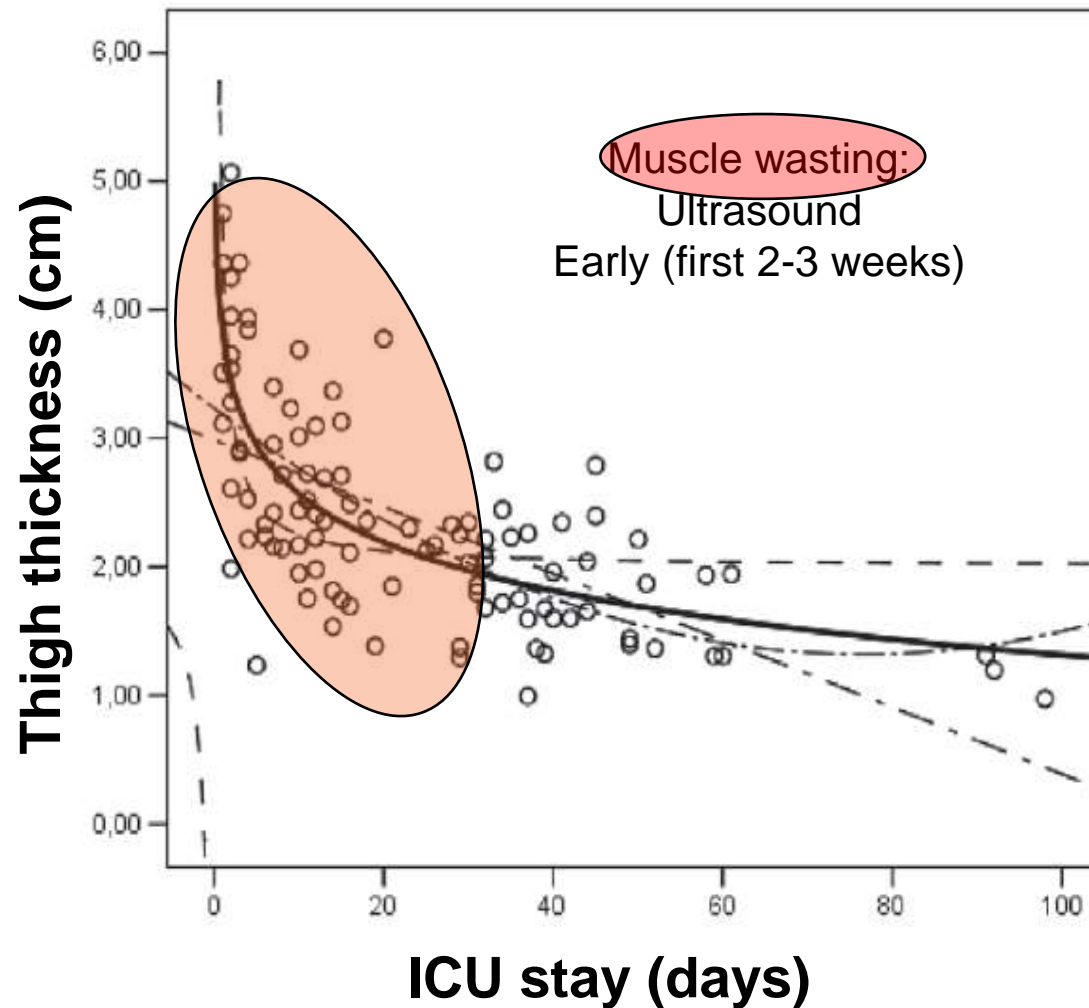
Weaning failure

Emotional functioning

Deconditioning, Inactivity



Thigh muscle layer thickness in critically ill ventilated patients



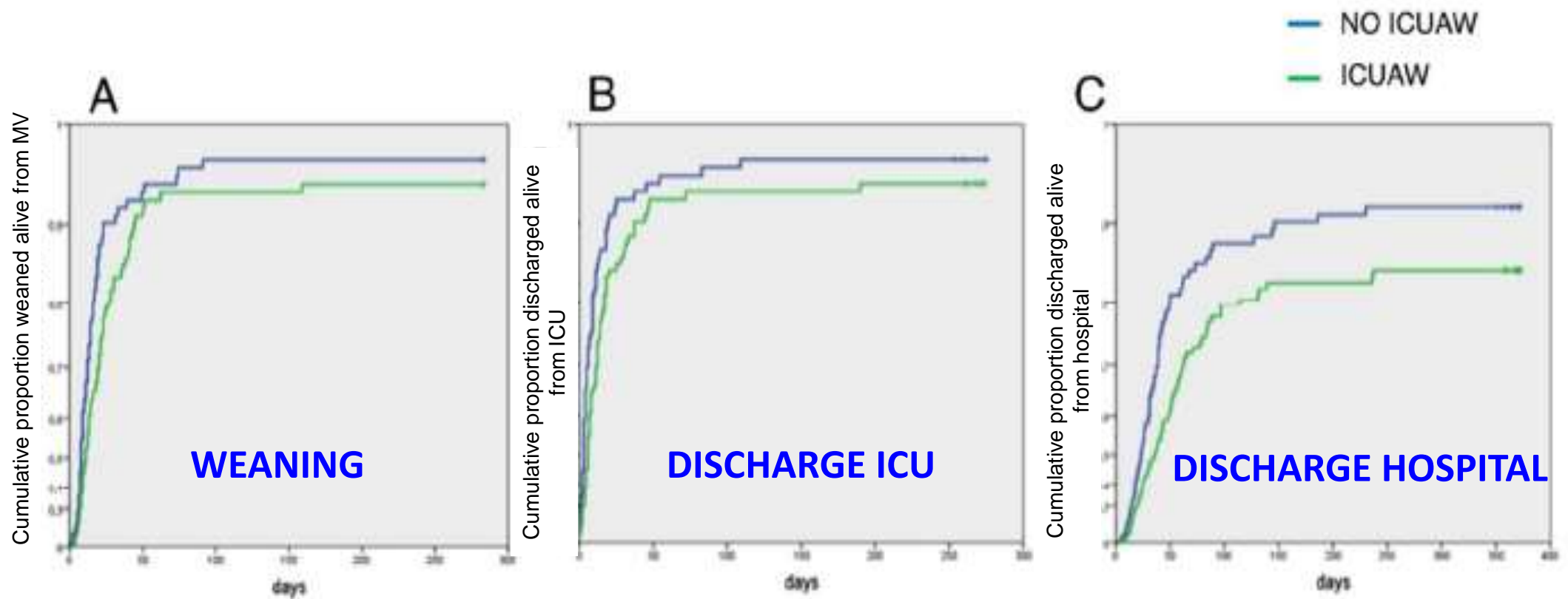
MRC total sumscore and muscle weakness

S5Q Correct Answer: /5	Right	Reason	EP	Left	Reason	EP	
MS: Abduction of the arm							
MS: Flexion of the forearm							
MS: Extension of the wrist							
MS: Flexion of the leg							
MS: Extension of the knee							
MS: Dorsal flexion of the foot							
STRENGTH SUBTOTAL VALUE							STRENGTH TOTAL =
EP SUBTOTAL VALUE							EP TOTAL =
MRC TOTAL SUMSCORE							
				Total score = 60/60 (max)			

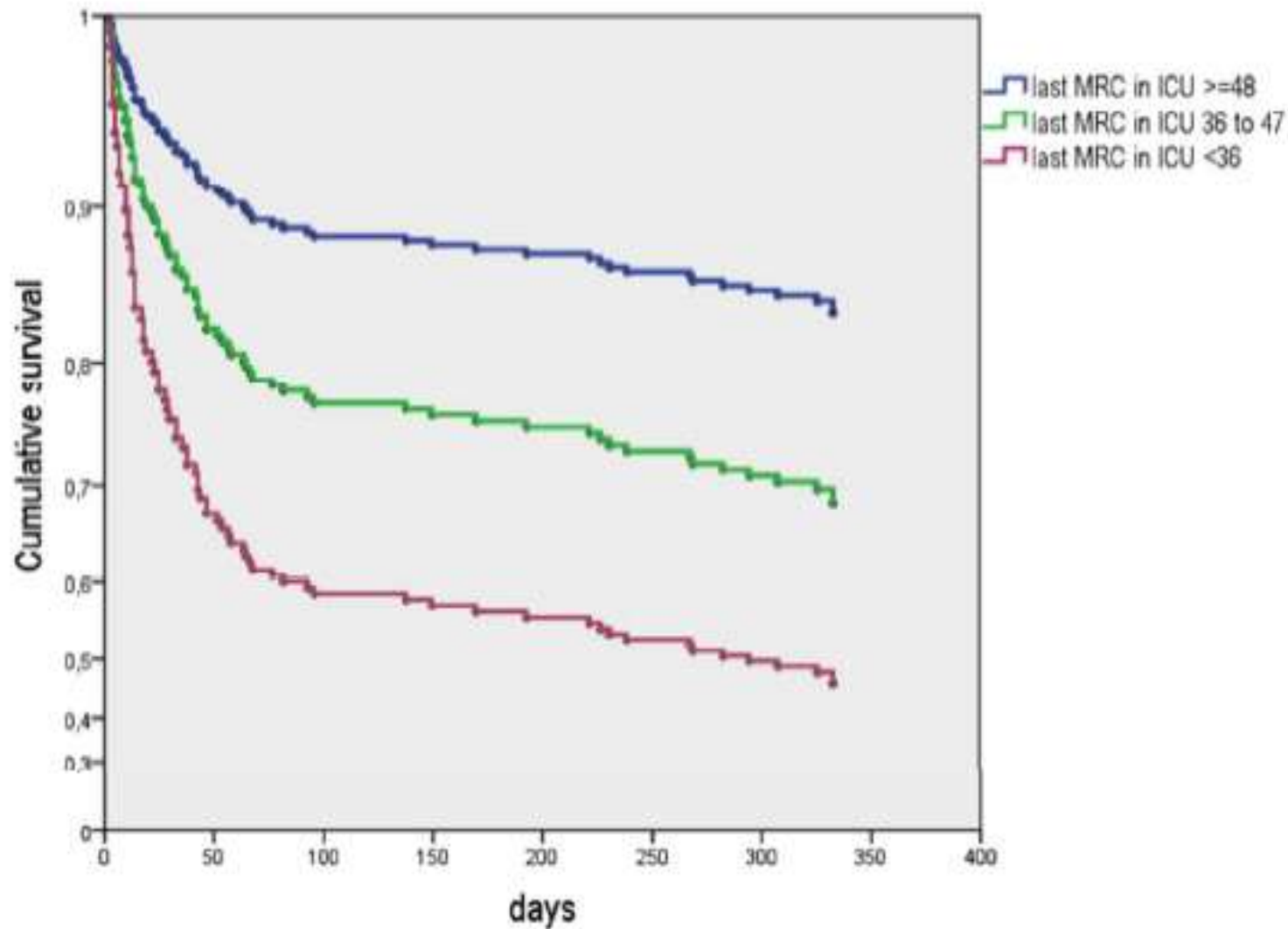
Score < 48/60: 'significant muscle weakness'

De Jonghe B, JAMA 2002

ICUAW and clinical outcome



ICUAW and survival



Prolonged ICU stay often results in *long term functional* and cognitive impairment (5Y)



Herridge et al. NEJM 2011

Recent studies confirmed that early mobilisation of mechanically ventilated patients is feasible and safe and shortens ICU and hospital LOS





Physiotherapy in Intensive Care **An Updated Systematic Review**

Kathy Stiller, PhD

Results: Fifty-five clinical and 30 nonclinical studies were reviewed. The evidence from randomized controlled trials evaluating the effectiveness of routine multimodality respiratory physiotherapy is conflicting. Physiotherapy that comprises early progressive mobilization has been shown to be feasible and safe, with data from randomized controlled trials demonstrating that it can improve function and shorten ICU and hospital length of stay.

Early exercise in critically ill patients enhances short-term functional recovery*

Chris Burtin, PT, MSc; Beatrix Clerckx, PT; Christophe Robbeets, PT; Patrick Ferdinande, MD, PhD; Daniel Langer, PT, MSc; Thierry Troosters, PT, PhD; Greet Hermans, MD; Marc Decramer, MD, PhD; Rik Gosselink, PT, PhD

Crit Care Med 2009 Vol. 37, No. 9



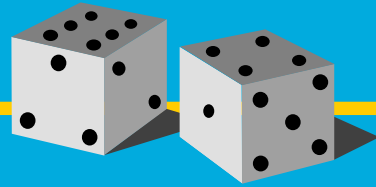
Reck MOTomed Movement Therapy Systems, Germany

Studie design



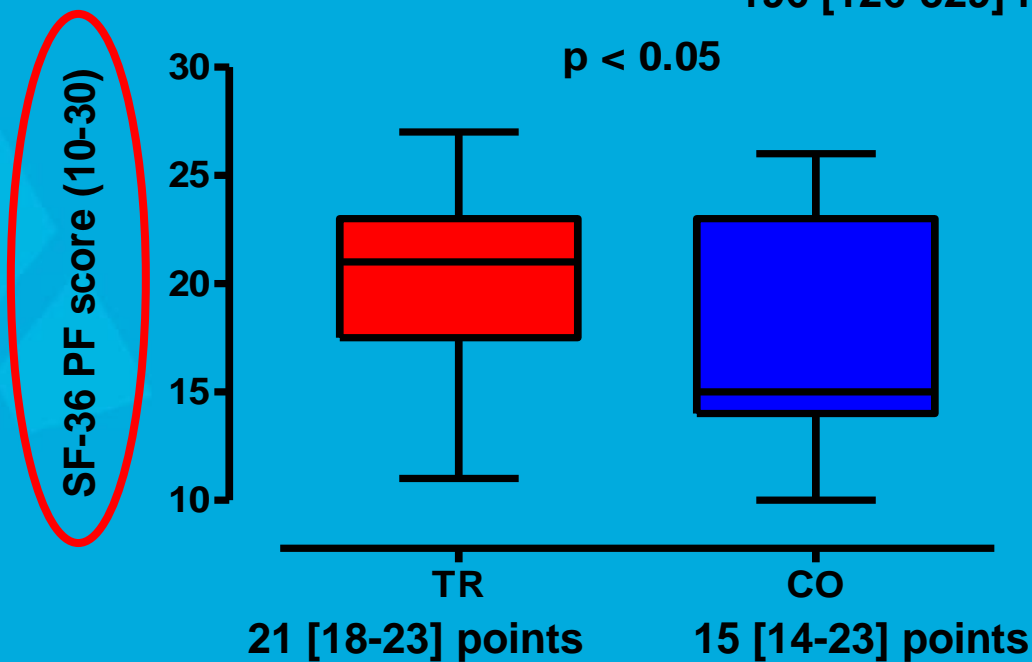
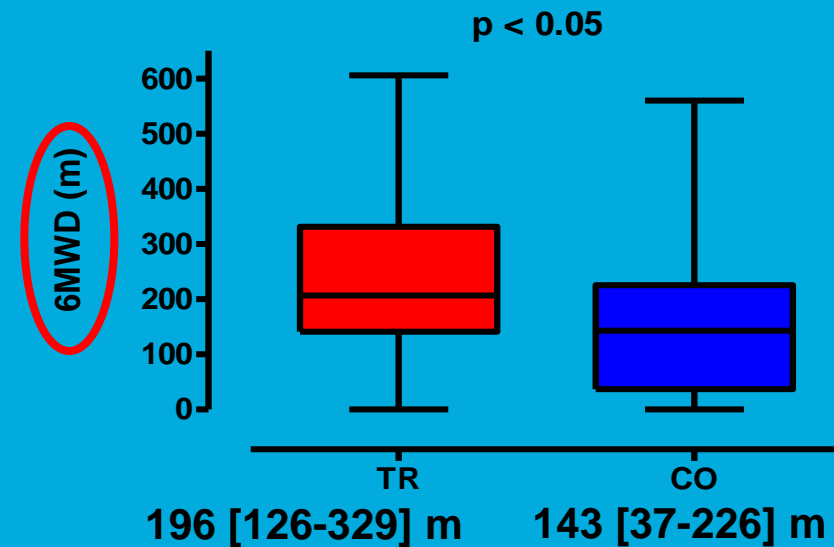
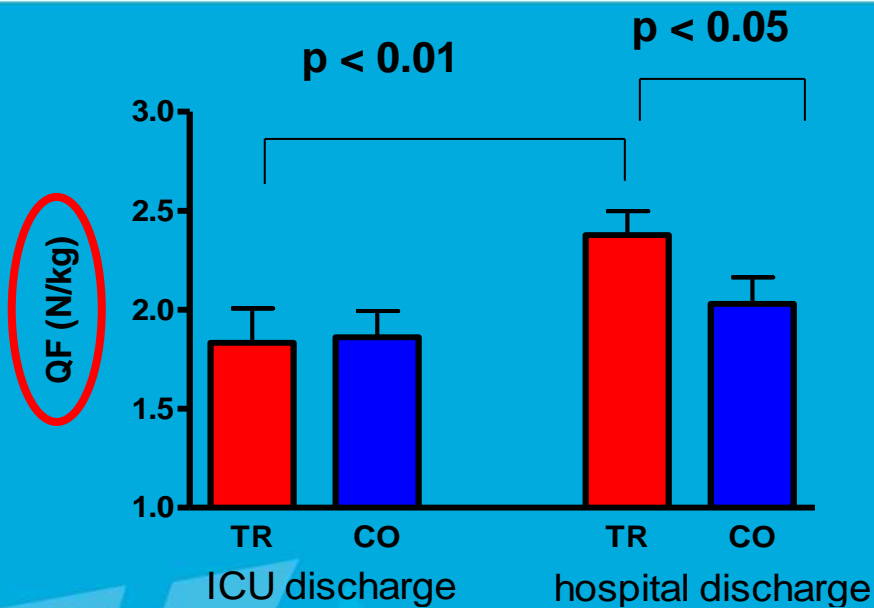
Critically ill patient

- 5 days ICU and forecast of another 7 days at the ICU



**Cycle programme
(passive/active)
20' per day
in addition to 'Usual'
care**

**'Usual' care:
respiratory physiotherapy
mobilisation**

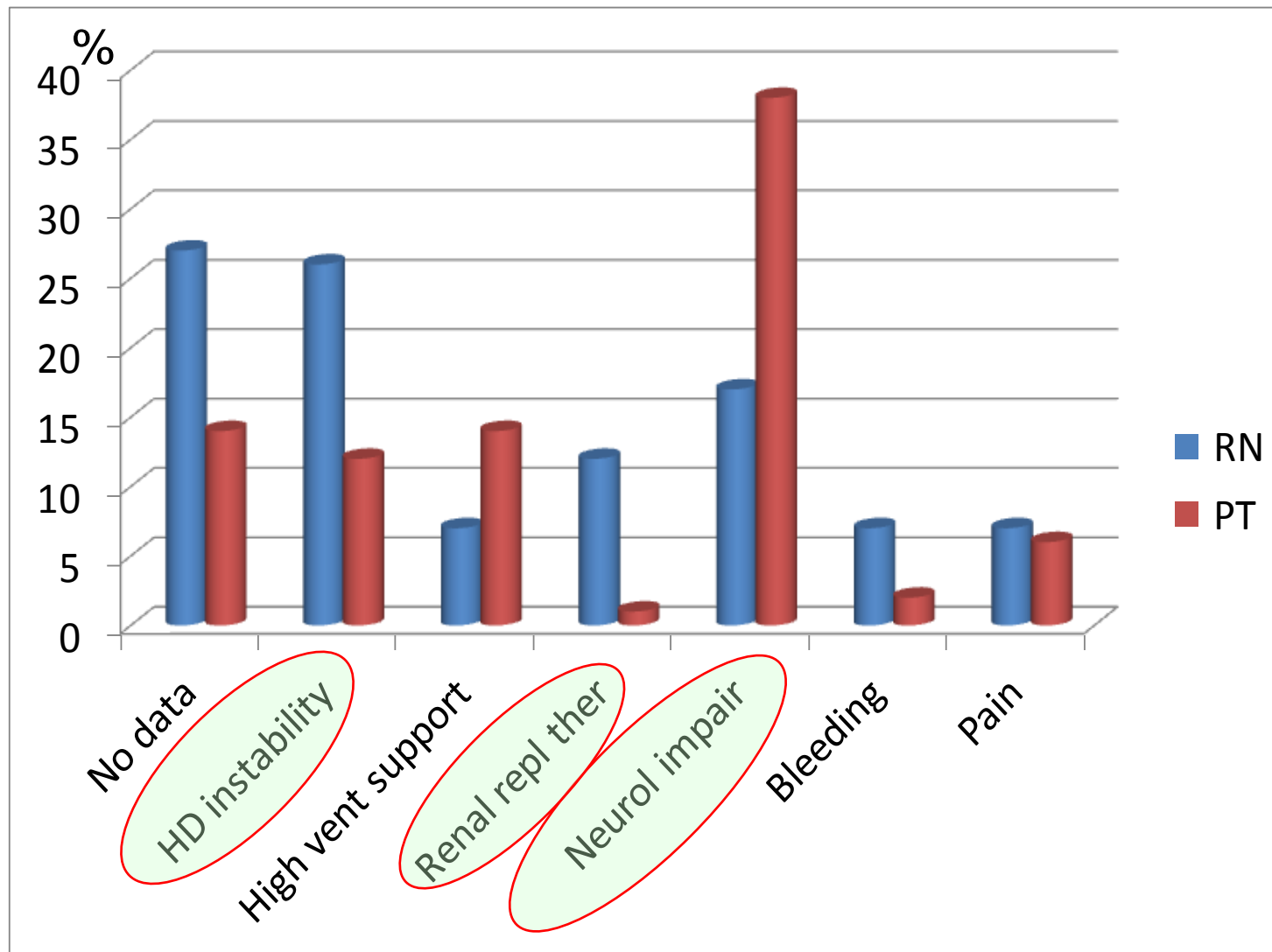


The feasibility and safety of early physical therapy in ICU patients

Frequently researched in highly specialized (university) centers

Nevertheless there are still *perceived 'barriers'* to facilitate rehabilitation on the ICU

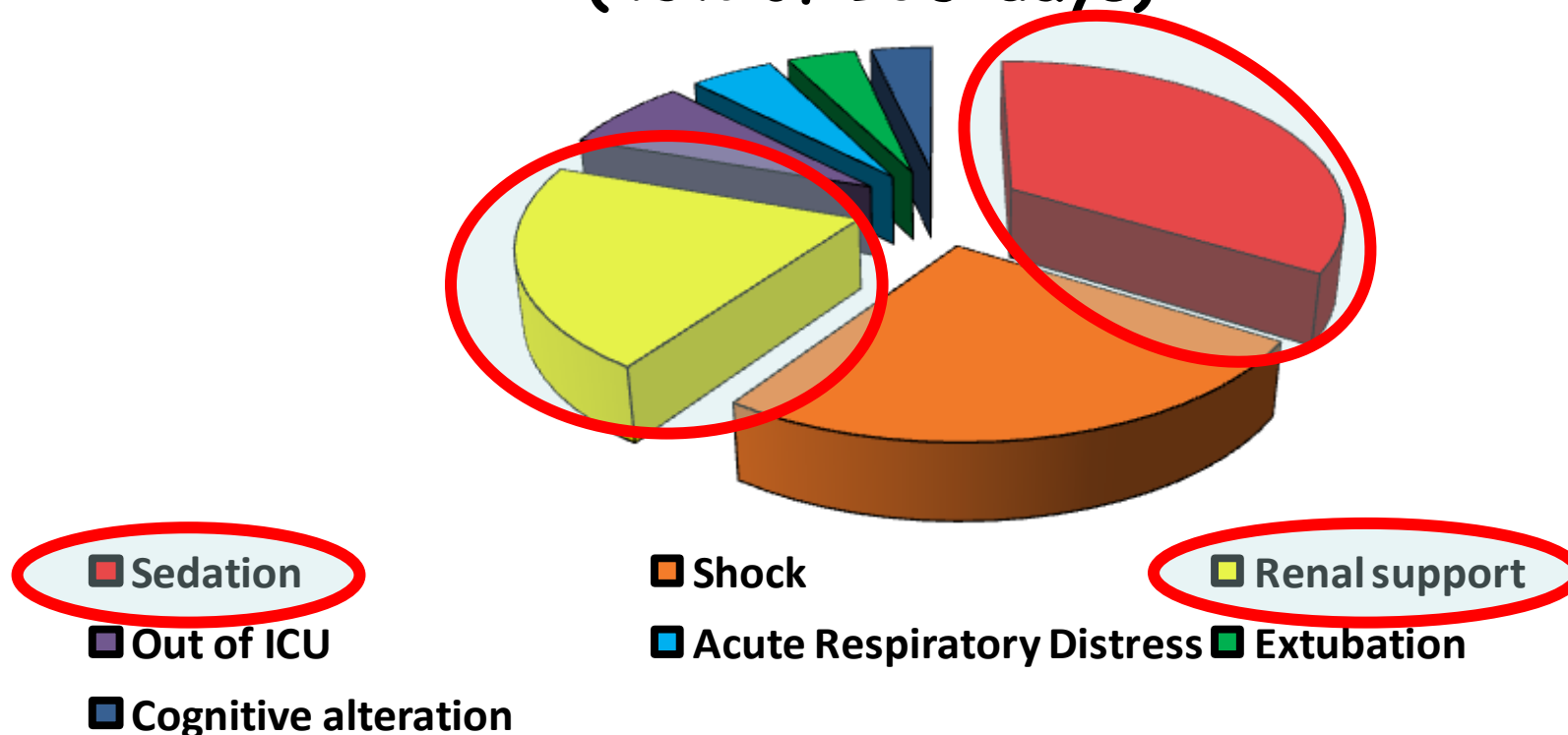
Early Mobilization in Critically Ill Patients: Patients' Mobilization Level Depends on Health Care Provider's Profession



The Feasibility of Early Physical Activity in Intensive Care Unit Patients: A Prospective Observational One-Center Study

Gael Bourdin MD, Jack Barbier, Jean-François Burle, Gérard Durante, Sandrine Passant, Bernard Vincent, Michel Badet MD, Frédérique Bayle MD, Jean-Christophe Richard MD PhD, and Claude Guérin MD PhD

Contraindication to Rehabilitation Intervention (43% of ICU days)



Teamwork enables high level of early mobilization in critically ill patients

Cheryl Elizabeth Hickmann, Diego Castanares-Zapatero, Emilie Bialais, Jonathan Dugernier, Antoine Tordeur, Lise Colmant, Xavier Wittebole, Giuseppe Tirone, Jean Roeseler and Pierre-François Laterre*

Hickmann et al. Ann.Intensive Care (2016)6:80

Observational study



171 patients admitted at ICU

81% received early mobilization within 24 hours



- Teamwork -> safety profile for mobilization early after ICU admission even in patients supported with vasoactive agents, MV, or renal replacement therapy.
- Mobilization patients with higher vasopressor doses and FiO_2 is achievable and without risks.

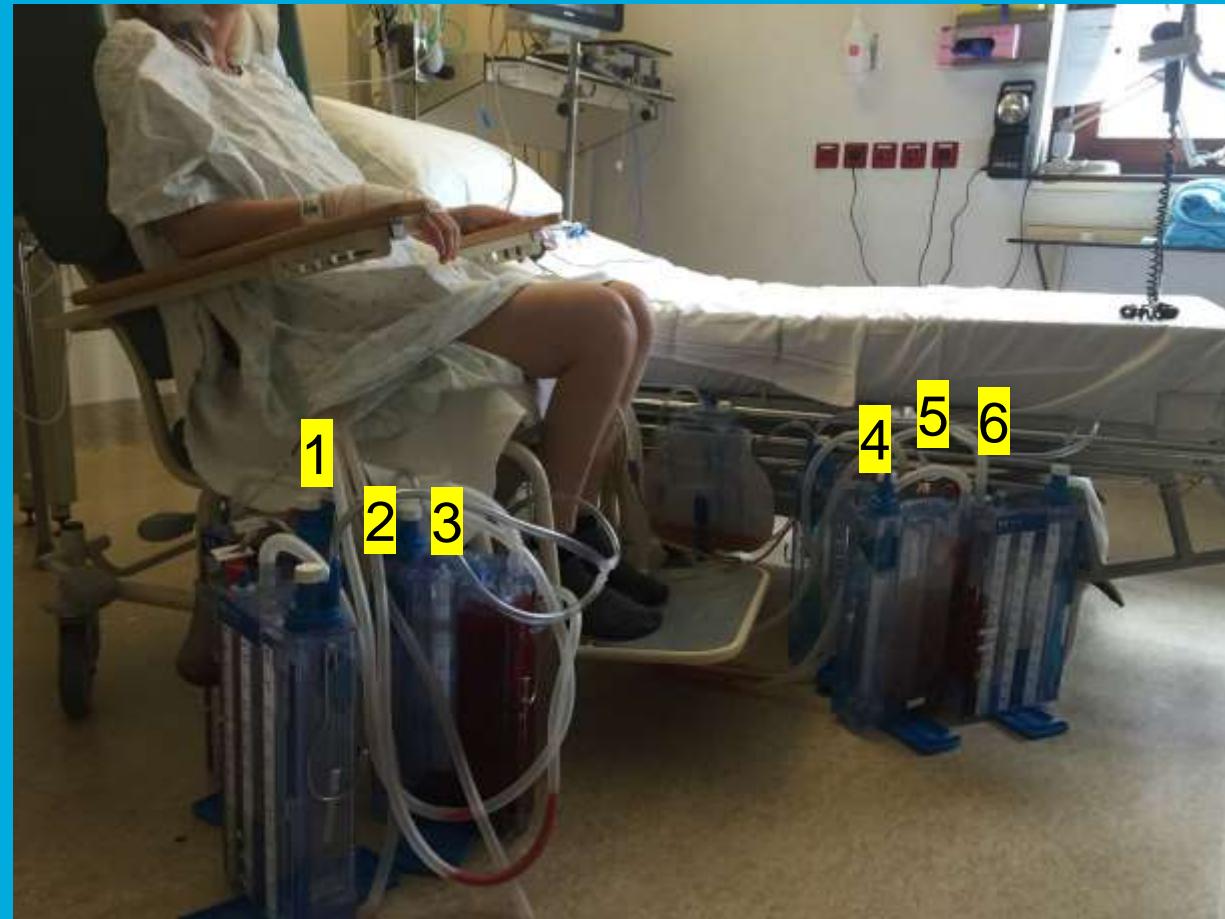
Solutions for barriers

- Other material ('Be creative')
- Team Work
- Change in mentality (worldwide)
- Mobility protocols (UZLeuven)



Solutions for barriers

- Charming and diplomate ☺



Success story for one patient: definitely worth it!!



Success story for one patient: definitely worth it!!



Conclusions I

Critical Illness is associated with short and long term morbidity (functional status, quality of life)

There is a variety of exercise modalities available for early stages of critical illness that facilitate functional outcome

Conclusions II

The role of physiotherapy and rehabilitation in early prevention and treatment of deconditioning during and after critical illness need much more attention

Research should be conducted to further establish the effectiveness of exercise modalities in patients with critical illness on muscle function, QOL and physical function

Conclusions III

Treatment should be administered jointly between medical, physical therapy and nursing staff.

The physical therapist should be responsible for implementing mobilization plans and exercise prescription and make recommendations for progression of these in conjunction with other team members.



ICU Physical Therapy Team



THANK YOU !