Nouvelles technologies
Les aides à la Mobilisation précoce

réanimation 2017
PARIS 11-13 JANVIER

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réanimation 2017
PARIS 11-13 JANVIER

Déclaration de liens

mon intervention
ne présente aucun conflit d'intérêt

srlf
SOCIÉTÉ DE RÉANIMATION DE LANGUE FRANÇAISE

Introduction

Early ambulation

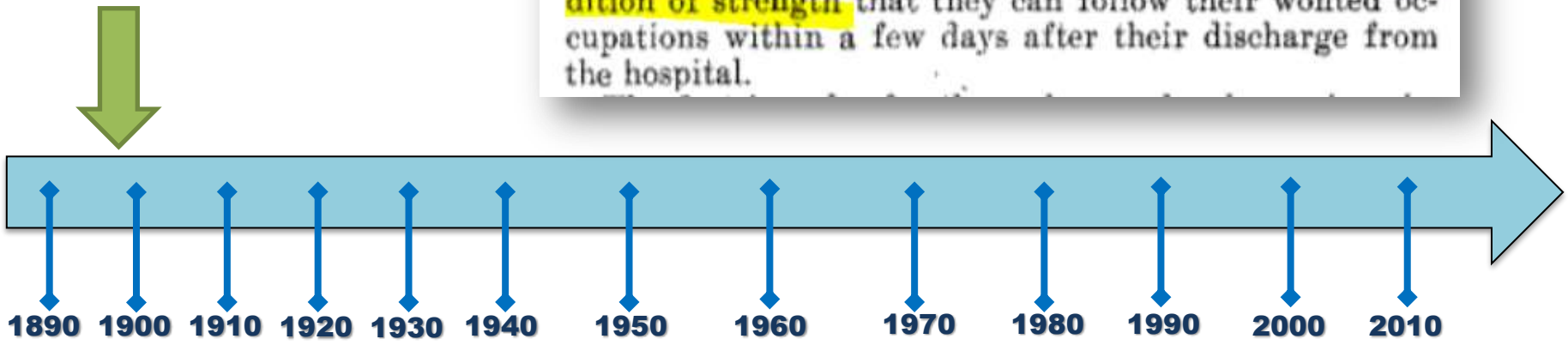
Ries, E. Some radical changes in the after-treatment of celiotomy cases, *J.A.M.A.*, 1899, *33*:454.

SOME RADICAL CHANGES IN THE AFTER-TREATMENT OF CELIOTOMY CASES.*

BY EMIL RIES, M.D.

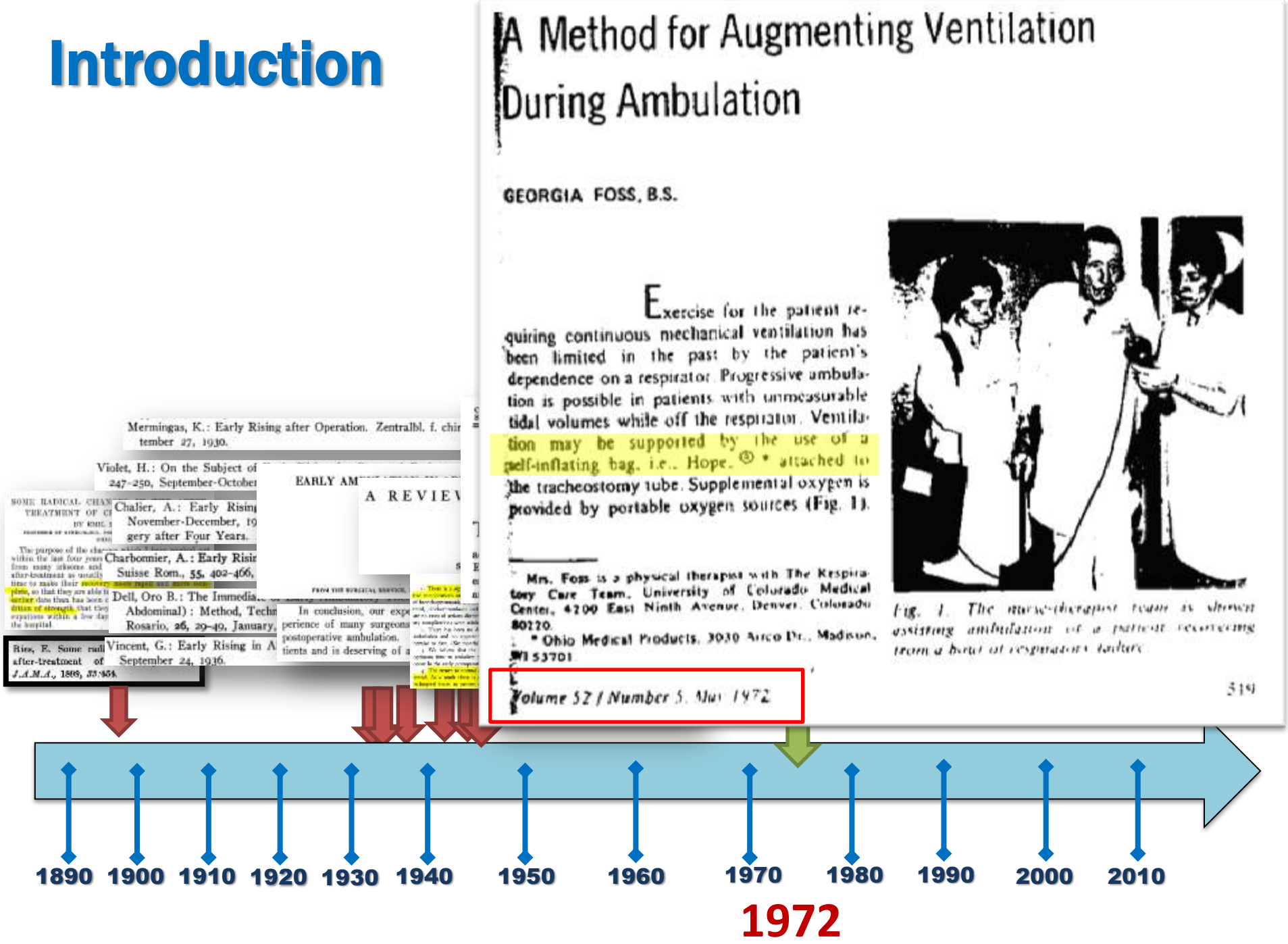
PROFESSOR OF GYNECOLOGY, POST-GRADUATE MEDICAL SCHOOL, CHICAGO.

The purpose of the changes which I have worked out within the last four years has been to free the patients from many irksome and disagreeable features of the after-treatment as usually carried out, and at the same time to make their recovery more rapid and more complete, so that they are able to leave the hospital at a much earlier date than has been customary and in such a condition of strength that they can follow their wonted occupations within a few days after their discharge from the hospital.



1899

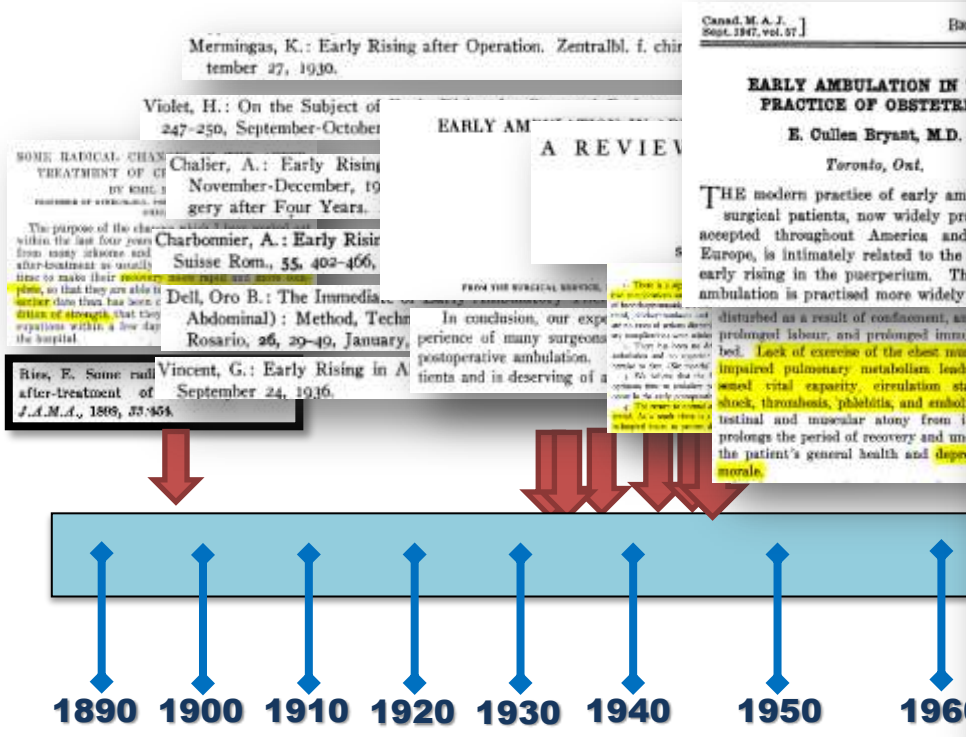
Introduction



Early Ambulation of Patients Requiring Ventilatory Assistance

J. Robert Burns, M.D., F.C.C.P.
and Frederick L. Jones, Jr., M.D., F.C.C.P.

CHEST, 68: 4, OCTOBER, 1975



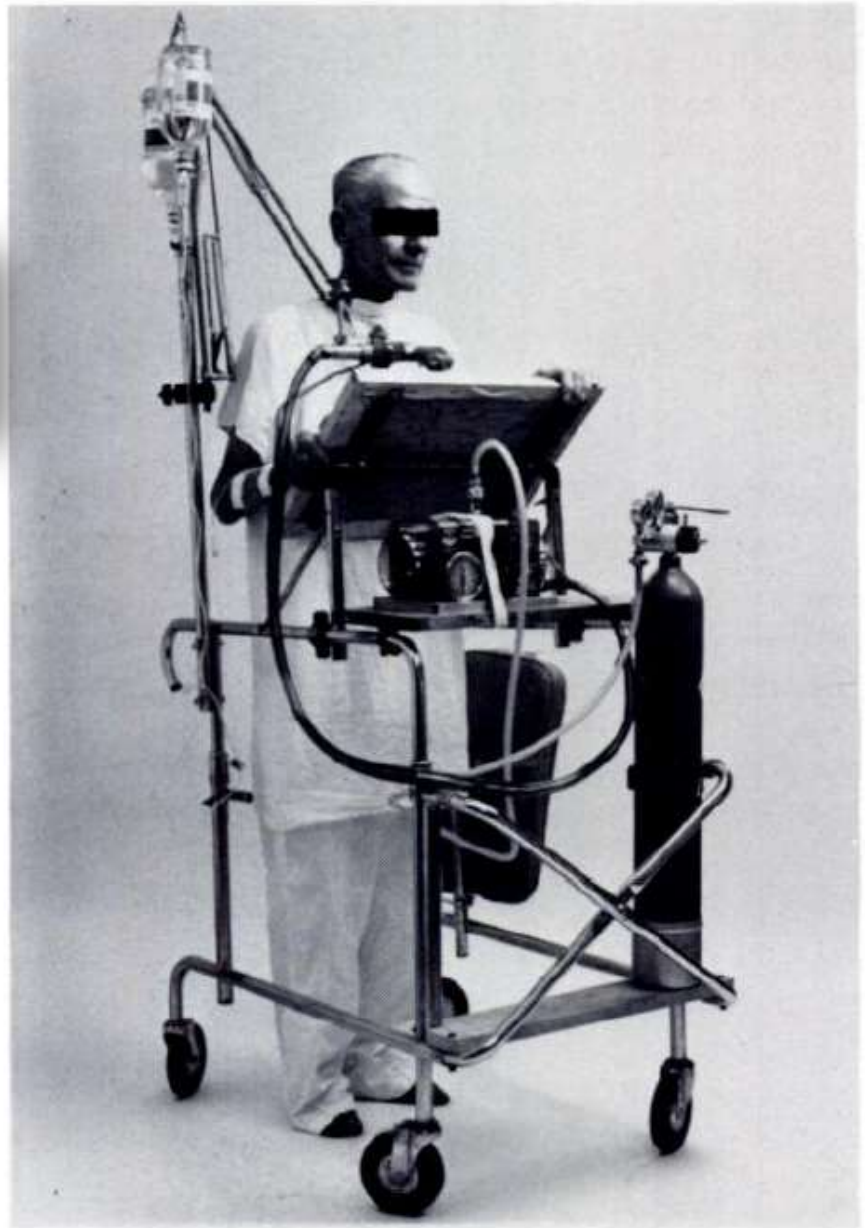


FIGURE 1. Device for early ambulation of patients requiring ventilatory assistance.

1975

Clinical Investigation

Early Mobilization of LVAD Recipients

Who Require Prolonged Mechanical Ventilation

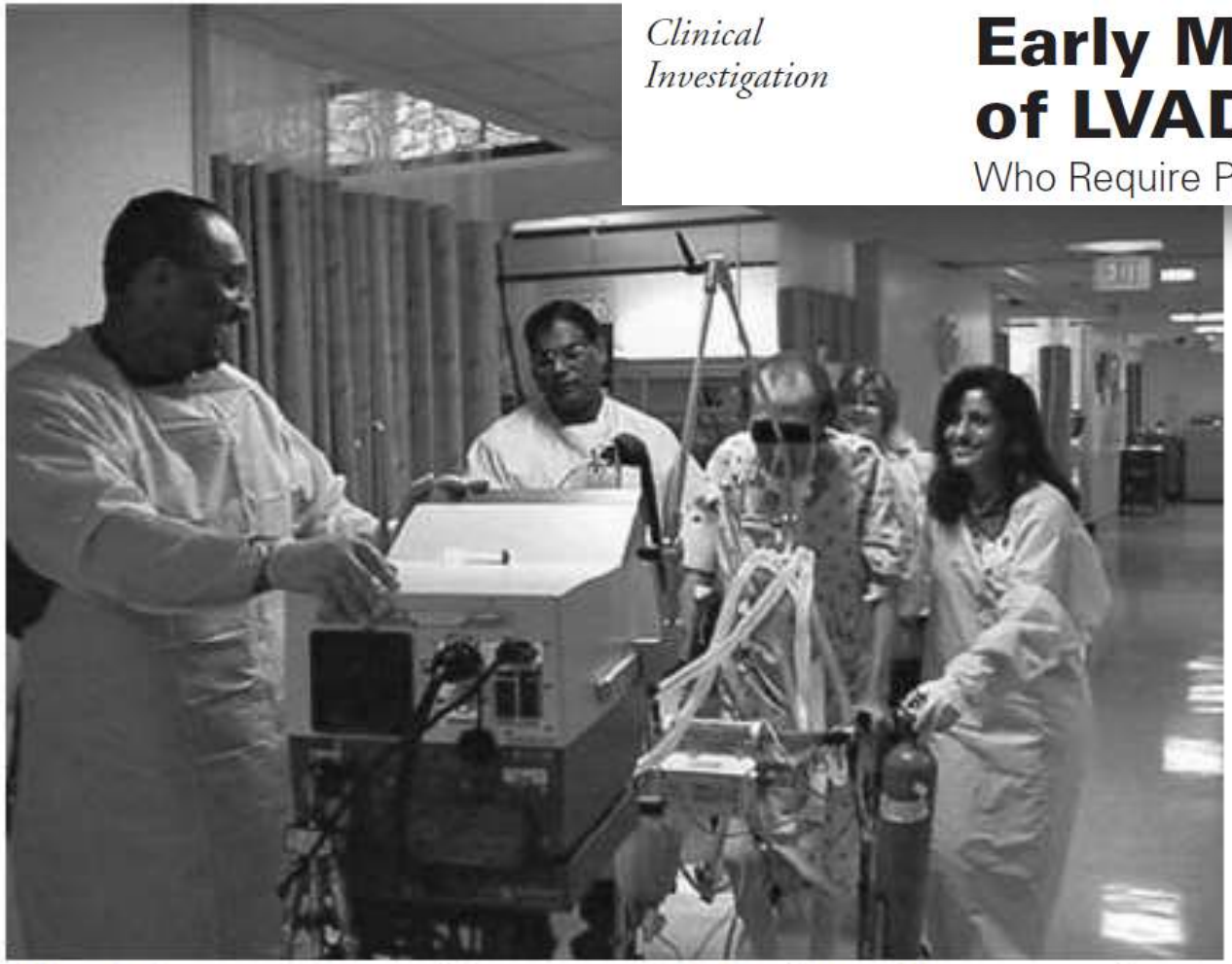


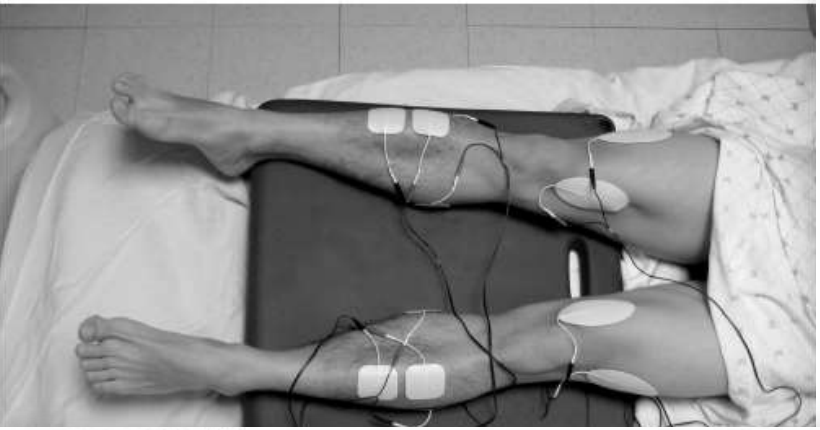
Fig. 1 *A portable ventilator, used in the intensive care unit, enabled a significant increase in distance walked and activity tolerance.*

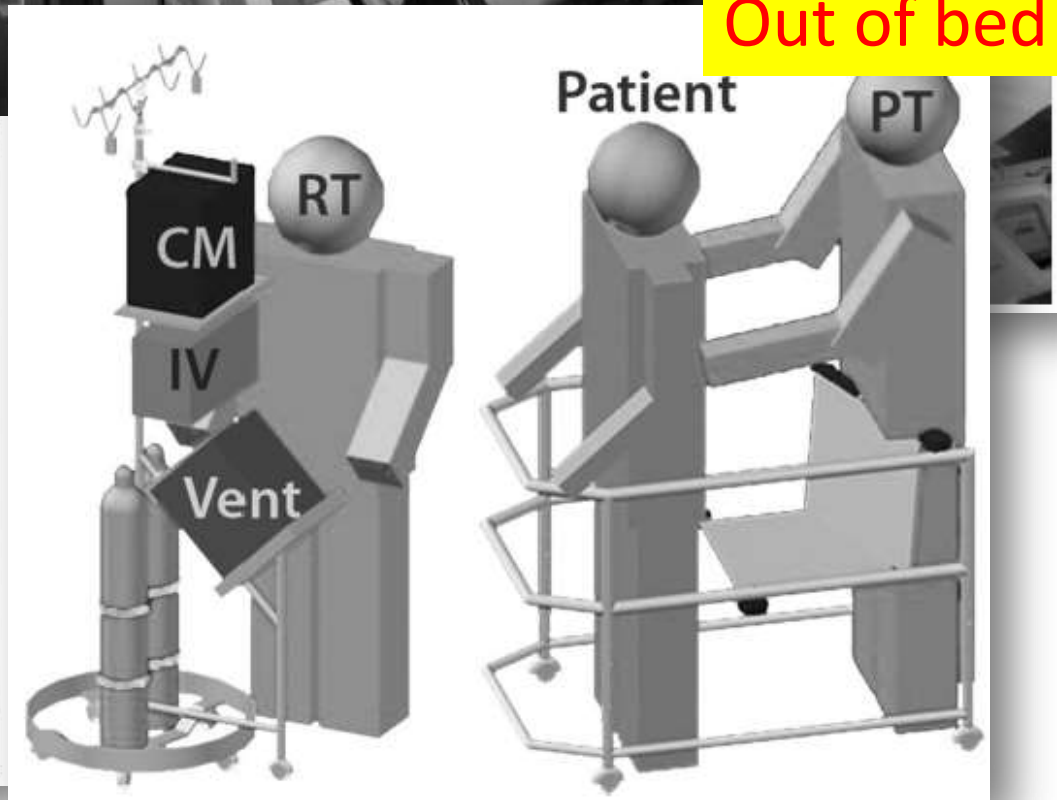
1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

2006

Technology to enhance physical rehabilitation of critically ill patients

Dale M. Needham, MD, PhD; Alex D. Truong





REVIEW

Physiotherapy in the Intensive Care Unit

R Gosselink, B Clerckx, C Robbeets, T Vanhullebusch, G Vanpee, J Segers

In bed

Out of bed

In bed

A

B

Fig. 2. Supported (A) and unsupported (B) limbs exercise during daily rehabilitation sessions.

IJMS
Vol 37, No 1, March 2012

Case Report

Tilt Table Practice Improved Ventilation in a Patient with Prolonged Artificial Ventilation Support in Intensive Care Unit

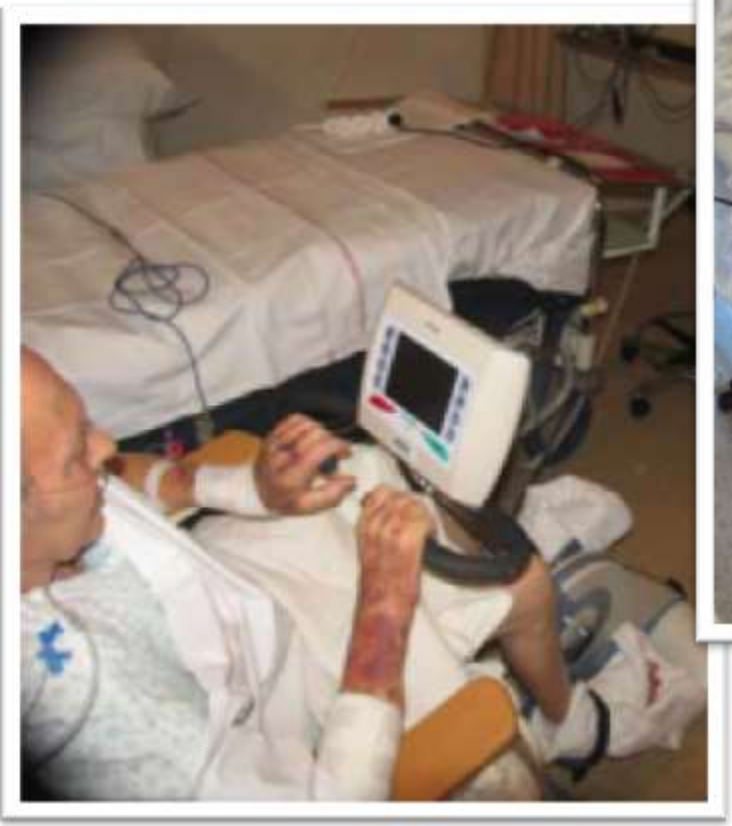
Verticalisation

REVIEW

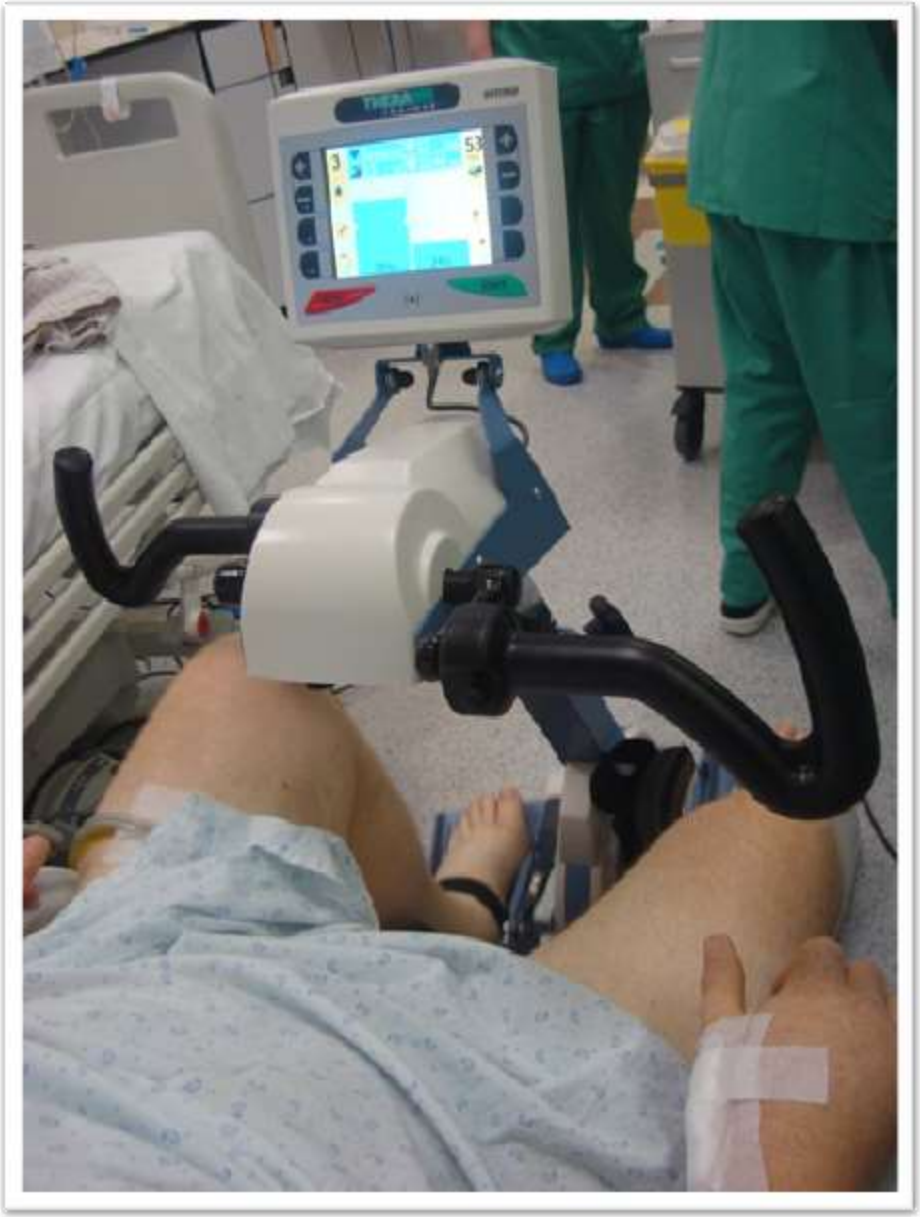
Physiotherapy in the Intensive Care Unit

R Gosselink, B Clerckx, C Robbeets, T Vanhullebusch, G Vanpee, J Segers

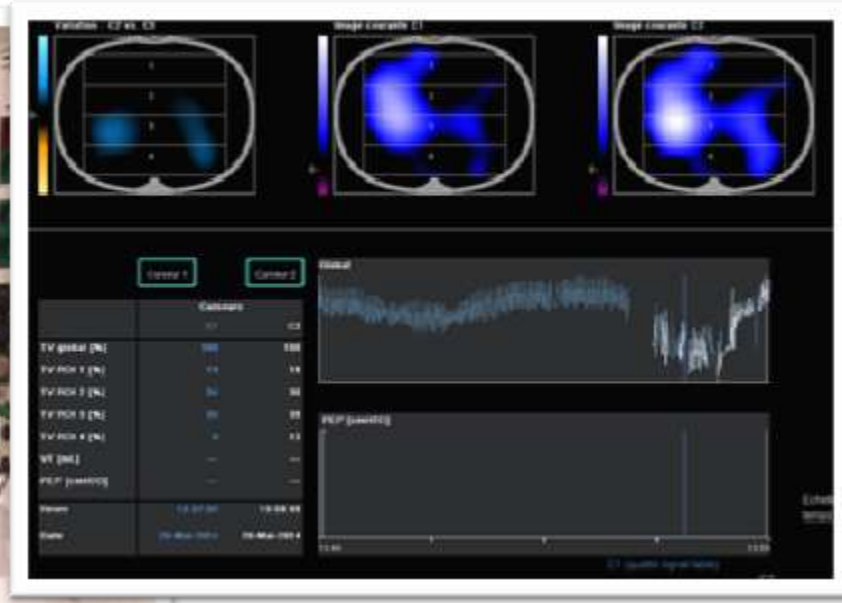
In Chair

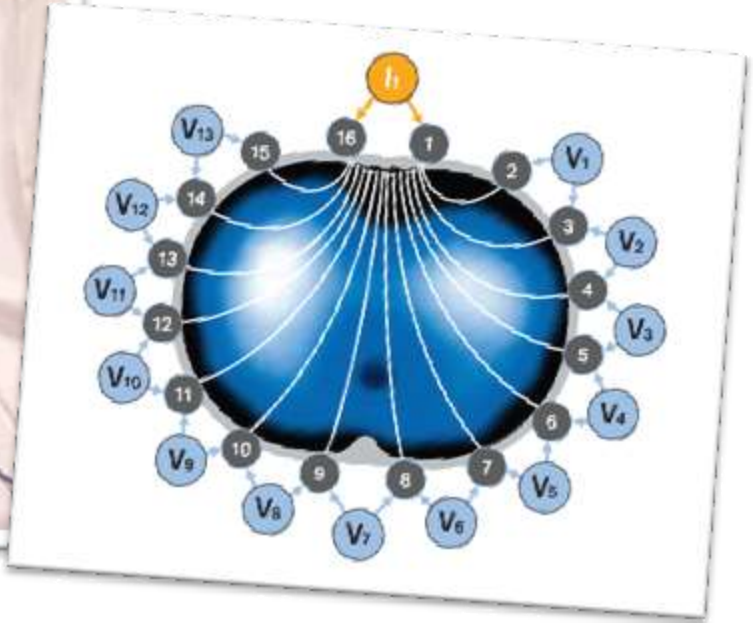


Activity Monitoring !



Respiratory Monitoring !



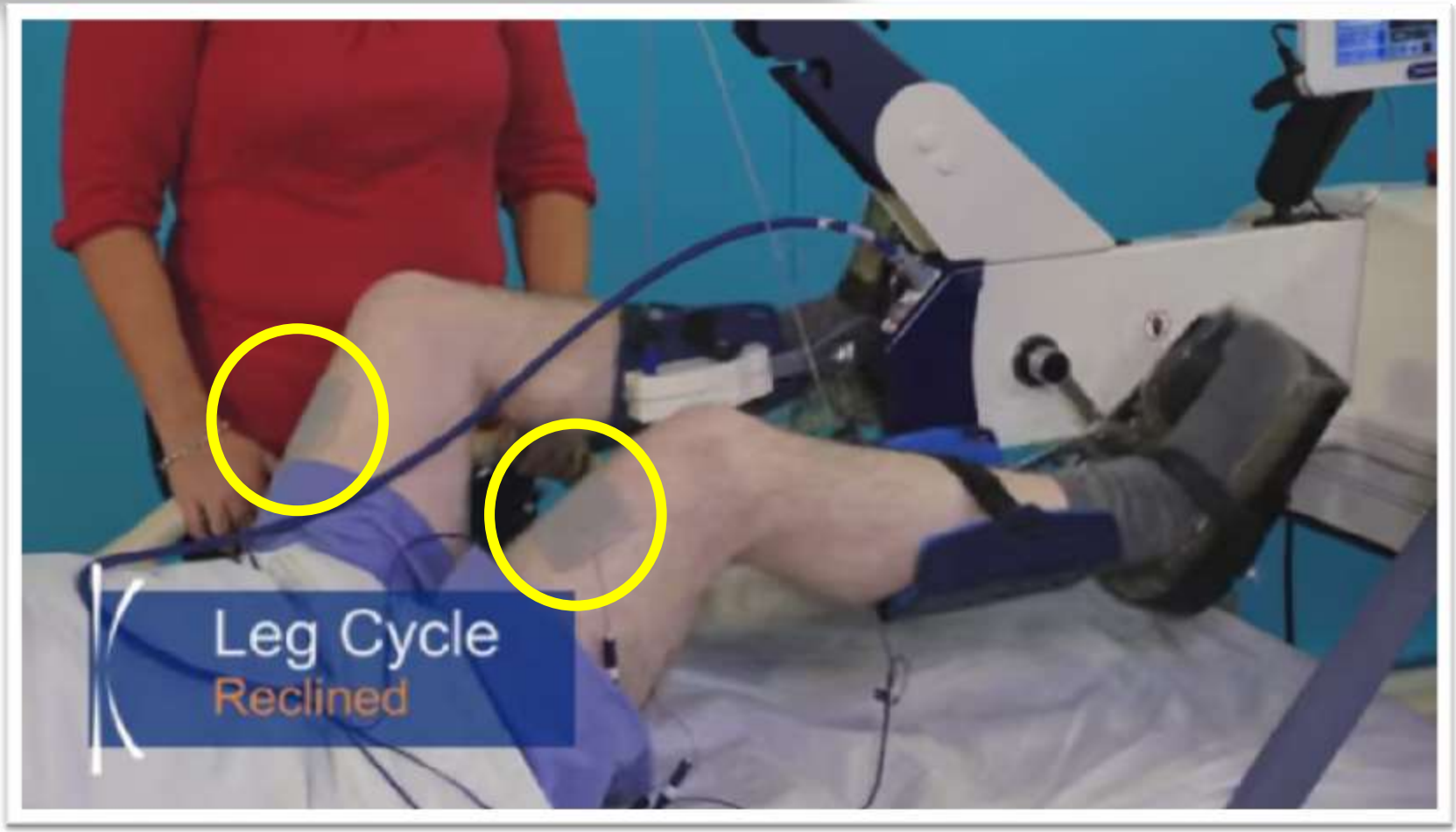


BMJ open

Early rehabilitation in critical care (eRiCC): functional electrical stimulation with cycling protocol for a randomised controlled trial

Selina M Parry,[1,2] Sue Berney,[2] René Koopman,[3] Adam Bryant,[1] Doa El-Ansary,[1] Zudin Puthucheary,[4] Nicholas Hart,[5] Stephen Warrillow,[6] Linda Denehy[1]

Australian and New Zealand Clinical Trials Registry ACTRN12612000528853



Pictures from
http://www.cyclonemobility.com/f.e.s/rt300-supine

Functional electrical stimulation (FES)

Pictures from
http://www.cyclonemobility.com/f.e.s/rt300-supine

Rocca et al. BMC Neurology (2016) 16:169
DOI 10.1186/s12883-016-0684-2

BMC Neurology

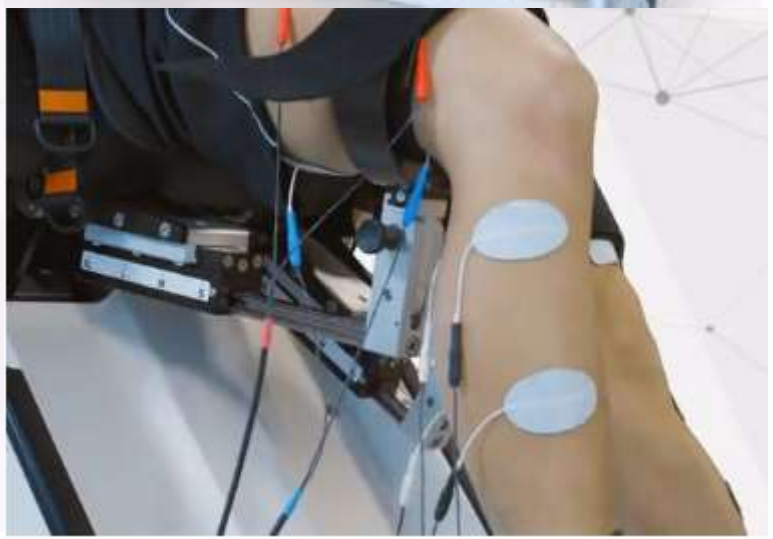
RESEARCH ARTICLE Open Access

Sympathetic activity and early mobilization in patients in intensive and intermediate care with severe brain injuries: a preliminary prospective randomized study

A. Rocca[1*], J.-M. Pignat[2], L. Berney[2], J. Jöhr[2], D. Van de Ville[3], R. T. Daniel[1], M. Levivier[1], L. Hirt[4], A. R. Luft[5], E. Grouzmann[6] and K. Diserens[2]

https://www.hocoma.com/usa/us/products/erigo/

Functional electrical stimulation (FES)

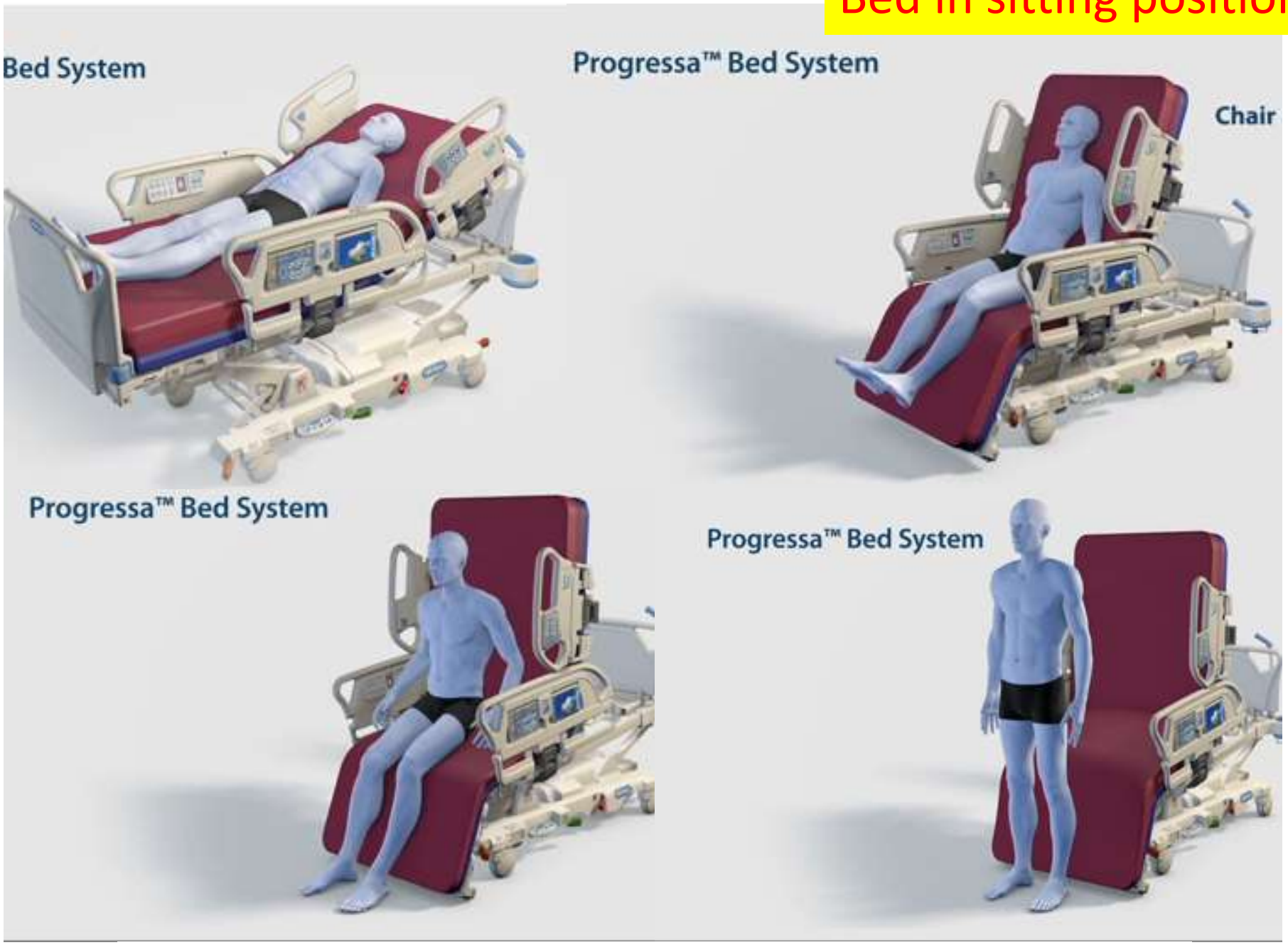


https://www.hocoma.com/usa/us/products/erigo/

In Chair **transfert**

Experimental Chair

Bed in sitting position



http://www.hill-rom.com/usa/Products/Category/Hospital-Beds/Progressa-bed-system/

Feasibility and Safety of Early Physical Therapy and Active Mobilization for Patients on Extracorporeal Membrane Oxygenation

Youngjun Ko,* Yang Hyun Cho,† Yun Hee Park,‡ Hyun Lee,§¶ Gee Young Suh,§¶ Jeong Hoon Yang,¶‖ Chi-Min Park,¶# Kyeongman Jeon,§¶ and Chi Ryang Chung¶

Bed in sitting position

Samsung Hospital - South Korea

Innovative Mobility Strategies for the Patient With Intensive Care Unit–Acquired Weakness: A Case Report

Darin W. Trees, James M. Smith, Steven Hockert

Figure 2.
The patient using a hydraulic-assist platform walker for upright standing on day 69.

Figure 3.
The patient using the parallel bars for gait re-education and balance training on day 78.

Figure 4.
At discharge on day 89, the patient walked 150 ft using a rolling walker under supervision.

Early activity is feasible and safe in respiratory failure patients*

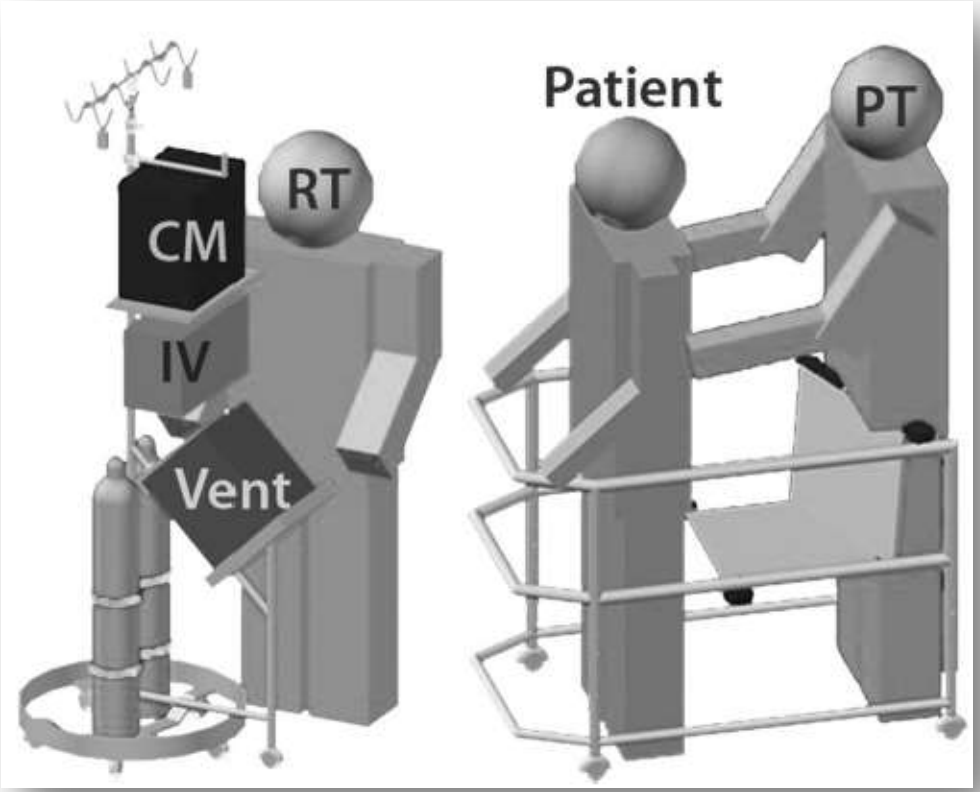
Polly Bailey, RN, APRN; George E. Thomsen, MD; Vicki J. Spuhler, RN, MS; Robert Blair, PT; James Jewkes, PT; Louise Bezdjian, RN, BSN; Kristy Veale, RN, BSN; Larissa Rodriquez, AS; Ramona O. Hopkins, PhD

Walking device

Technology to enhance physical rehabilitation of critically ill patients

Dale M. Needham, MD, PhD; Alex D. Truong, MD, MPH; Eddy Fan, MD

Walking device



John Hopkins hospital - USA

Feasibility and Safety of Early Physical Therapy and Active Mobilization for Patients on Extracorporeal Membrane Oxygenation

Youngjun Ko,* Yang Hyun Cho,† Yun Hee Park,‡ Hyun Lee,§¶ Gee Young Suh,§¶ Jeong Hoon Yang,¶‖ Chi-Min Park,¶# Kyeongman Jeon,§¶ and Chi Ryang Chung¶

Walking device

Samsung Hospital - South Korea

Active rehabilitation and physical therapy during extracorporeal membrane oxygenation while awaiting lung transplantation–a practical approach

David A. Turner, MD; Ira M. Cheifetz, MD, FCCM; Kyle J. Rehder, MD; W. Lee Williford, RRT; Desiree Bonadonna, BSE, CCP, LP; Scott J. Banuelos, MD; Stacey Peterson-Carmichael, MD; Shu S. Lin, MD, PhD; R. Duane Davis, MD; David Zaas, MD

Figure 1. Sixteen-year-old patient ambulating while being managed with venovenous extracorporeal membrane oxygenation.

Figure 2. Twenty-four-year-old patient ambulating while being managed with venovenous extracorporeal membrane oxygenation.

Walking with human assistance

REVIEW

Physiotherapy in the Intensive Care Unit

R Gosselink, B Clerckx, C Robbeets, T Vanhullebusch, G Vanpee, J Segers

Walking device

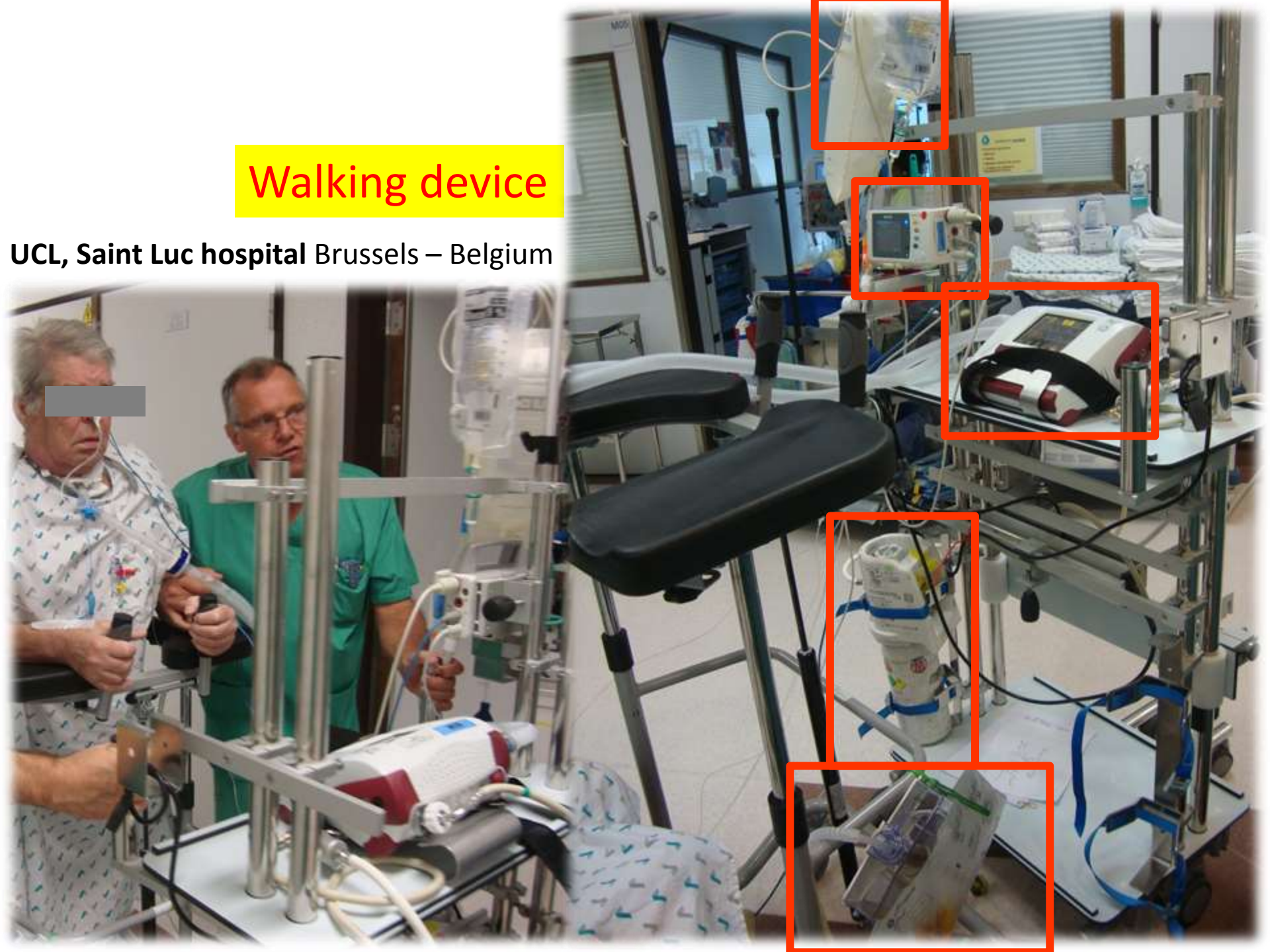
KUL
Leuven – Belgium

Image used with permission
courtesy of Vincent Lo,
UHN – Toronto General Hospital

UCL, Saint Luc hospital
Brussels – Belgium

Walking device

UCL, Saint Luc hospital Brussels – Belgium



UCL, Saint Luc hospital Brussels – Belgium

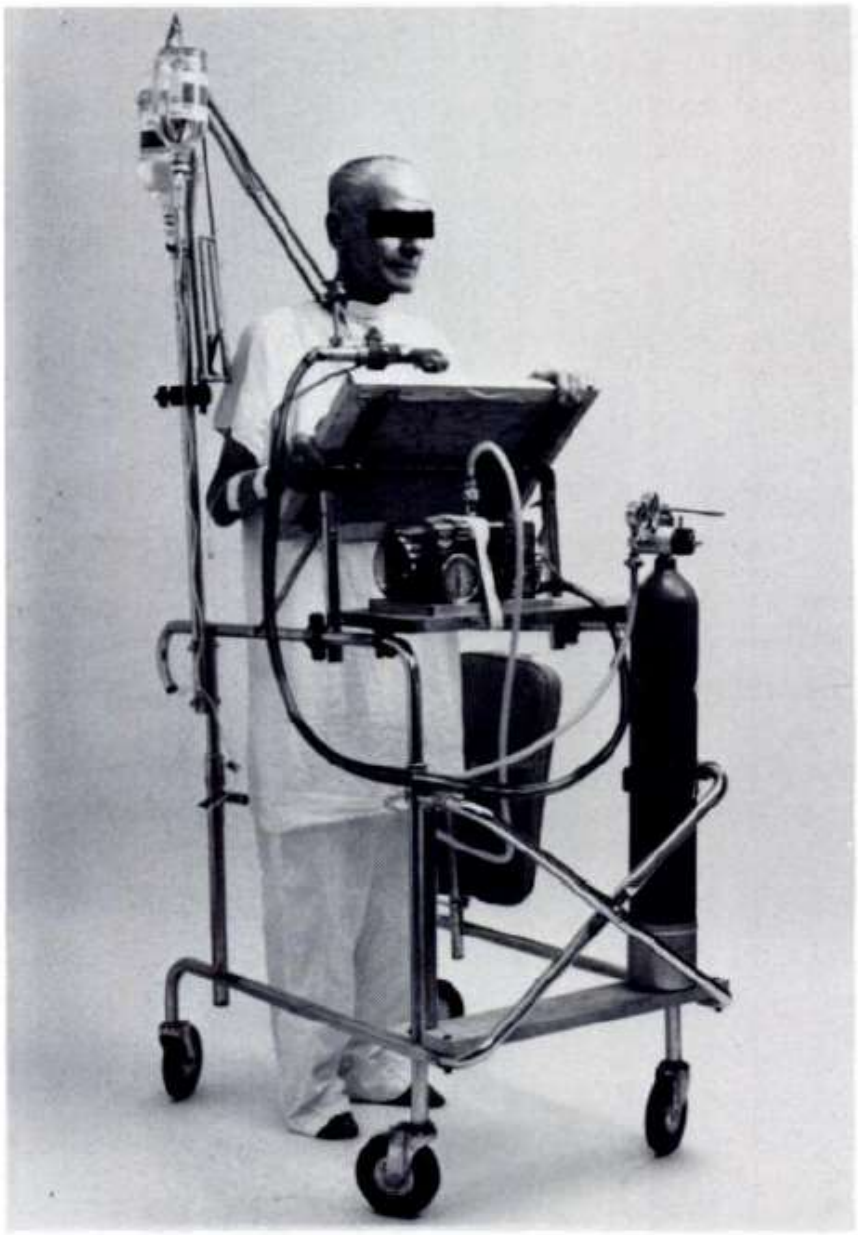
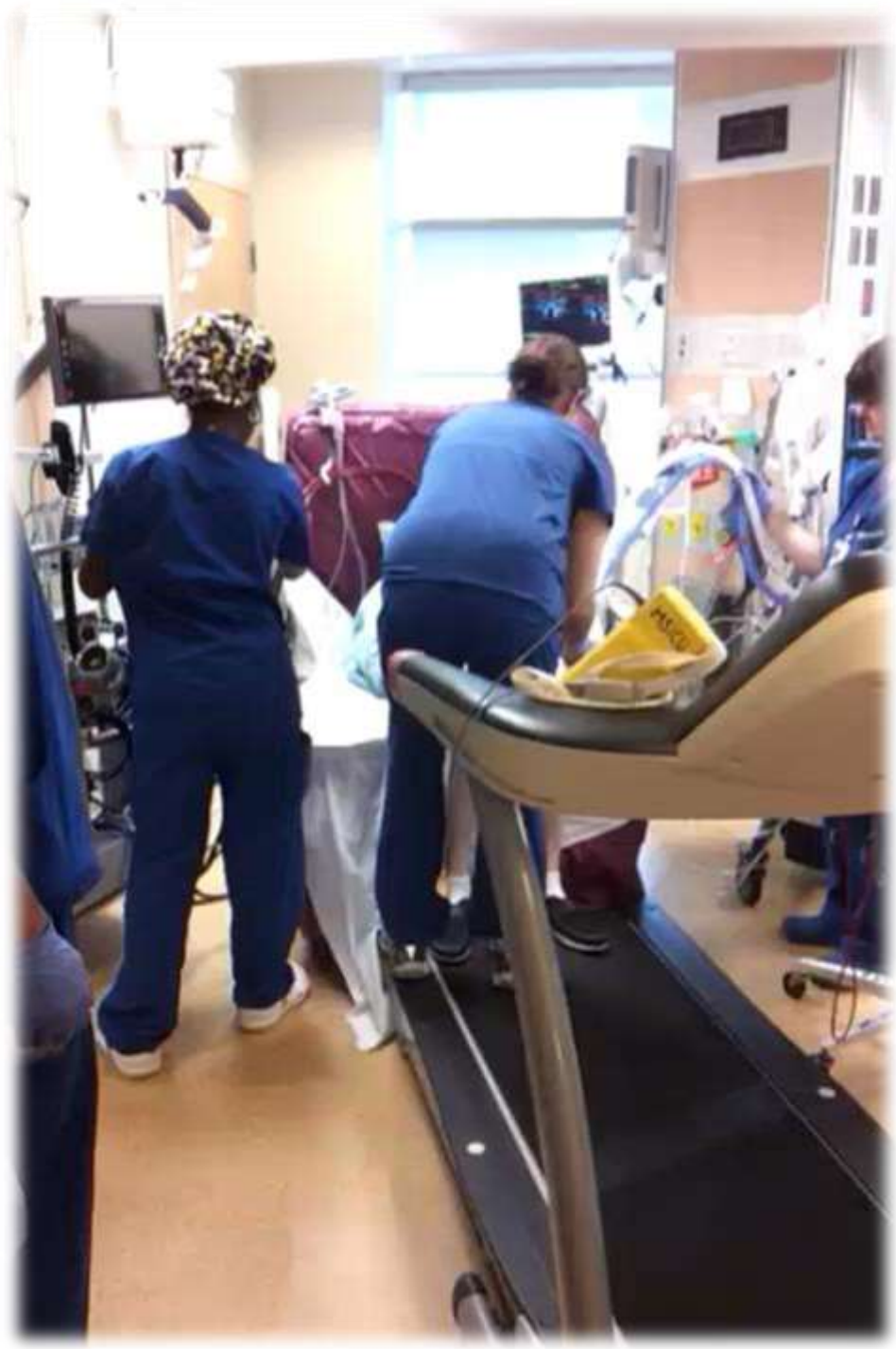


FIGURE 1. Device for early ambulation of patients requiring ventilatory assistance.

1975

47 y.o. female end-stage emphysema
VV ECMO via R IJ bridge to transplant

Image used with permission courtesy of Vincent Lo, **UHN – Toronto General Hospital**



22 y.o. male prev DLTx deteriorating, placed on VV ECMO as bridge to retransplantation

Image used with permission courtesy of Vincent Lo, **UHN – Toronto General Hospital**

29 y.o. male on VV ECMO via subclavian cannula x 3 months before re-transplantation

Image used with permission courtesy of Vincent Lo, **UHN – Toronto General Hospital**

Image used with permission courtesy of Vincent Lo, **UHN – Toronto General Hospital**

VA ECMO – central cannulation - Pulmonary capillary hemangiomatosis

Images used with permission courtesy of Dr. Rodrigo Orrego, **Clínica las Condes, Santiago (Chili)**

VV ECMO, femoral catheter – H1N1

VA ECMO – central cannulation - miocarditis viral

Images used with permission courtesy of Dr. Rodrigo Orrego, **Clínica las Condes, Santiago (Chili)**

Active Rehabilitation in a Pediatric Extracorporeal Membrane Oxygenation Patient

Carleen Zebuhr, MD, Amit Sinha, MD, Heather Skillman, MS, RD, CSP, CNSC, Shannon Buckvold, MD

January 2014

Figure 1. A cannula-support device was developed by using the patient's ski helmet. Patient consent was obtained.

Active Rehabilitation in a Pediatric Extracorporeal Membrane Oxygenation Patient

Carleen Zebuhr, MD, Amit Sinha, MD, Heather Skillman, MS, RD, CSP, CN
Shannon Buckvold, MD

36 y.o. female ARDS, Rehab post ECMO

Image used with permission courtesy of Vincent Lo, **UHN – Toronto General Hospital**

Rehab after 5 weeks on ECMO and complete bed rest

Image used with permission courtesy of Vincent Lo, **UHN – Toronto General Hospital**

Mail Online

Paralysed rugby player uses robot skeleton controlled by his THOUGHTS to walk again

Picture provided by:

REX BIONICS


UCL, Saint Luc hospital Brussels – Belgium

UCL, Saint Luc hospital
Brussels – Belgium

UCL, Saint Luc hospital Brussels – Belgium

Going outside…

UCL, Saint Luc hospital Brussels – Belgium

Interactive video games for rehabilitation in the ICU

Feasibility and observed safety of interactive video games for physical rehabilitation in the intensive care unit: a case series

Michelle E. Kho PT, PhD [a,*], Abdulla Damluji MBChB, MPH [b], Jennifer M. Zanni PT, MSPT, ScD [a,c], Dale M. Needham MD, PhD [a,d]

2011

http://www.uhn.ca/corporate/News/Pages/behind_the_scenes_at_uhn_ics_wii_bit_of_exercise.aspx

EARLY NEUROCOGNITIVE REHABILITATION IN INTENSIVE CARE © (ENRIC)

de **NEUROPSYCHOLOGY RESEARCH, FPT** hace 2 años | más

https://vimeo.com/102908289

Shower in MV patients

Pictures used with permission
courtesy of ***Heidi Engel, PT, DPT***
San Francisco, USA

Aust Crit Care. 2003 Aug;16(3):111-5.

The ventilated patient undergoing hydrotherapy: a case study.

Taylor S[1].

Active exercice

Walking

CONCLUSION

Previously published references to hydrotherapy for ventilated GBS patients have not been found, although this therapy is not uncommon for the unventilated GBS patient. It was found that, with appropriate preparation and staff numbers, hydrotherapy could be safely included as part of a patient's exercise regimen. For this patient, hydrotherapy was effective in increasing muscle strength through active exercises, improving range of movement in a weight supporting environment and improving her morale. Ventilation via tracheostomy need not delay access to the rehabilitation benefits of hydrotherapy in severe GBS.

CORRESPONDENCE

Feasibility and Safety of Hydrotherapy in Critically Ill Ventilated Patients

Felten-Barentsz K. *AJRCCM* 2015

Conclusion

This study presents the recovery process of eleven critically ill ventilated patients treated with HT, the content of the treatment sessions and the way they experienced this new therapy modality. HT is highly appreciated by patients and seems to have a positive effect on the psychological and mental recovery from critical illness.

Felten-Barentsz K.
Congress communication
Copenhagen - 6 nov 2015

ICU Recovery Network

Communication

Ventilator setting: Passy Muir® one-way speaking valve in *red circle*

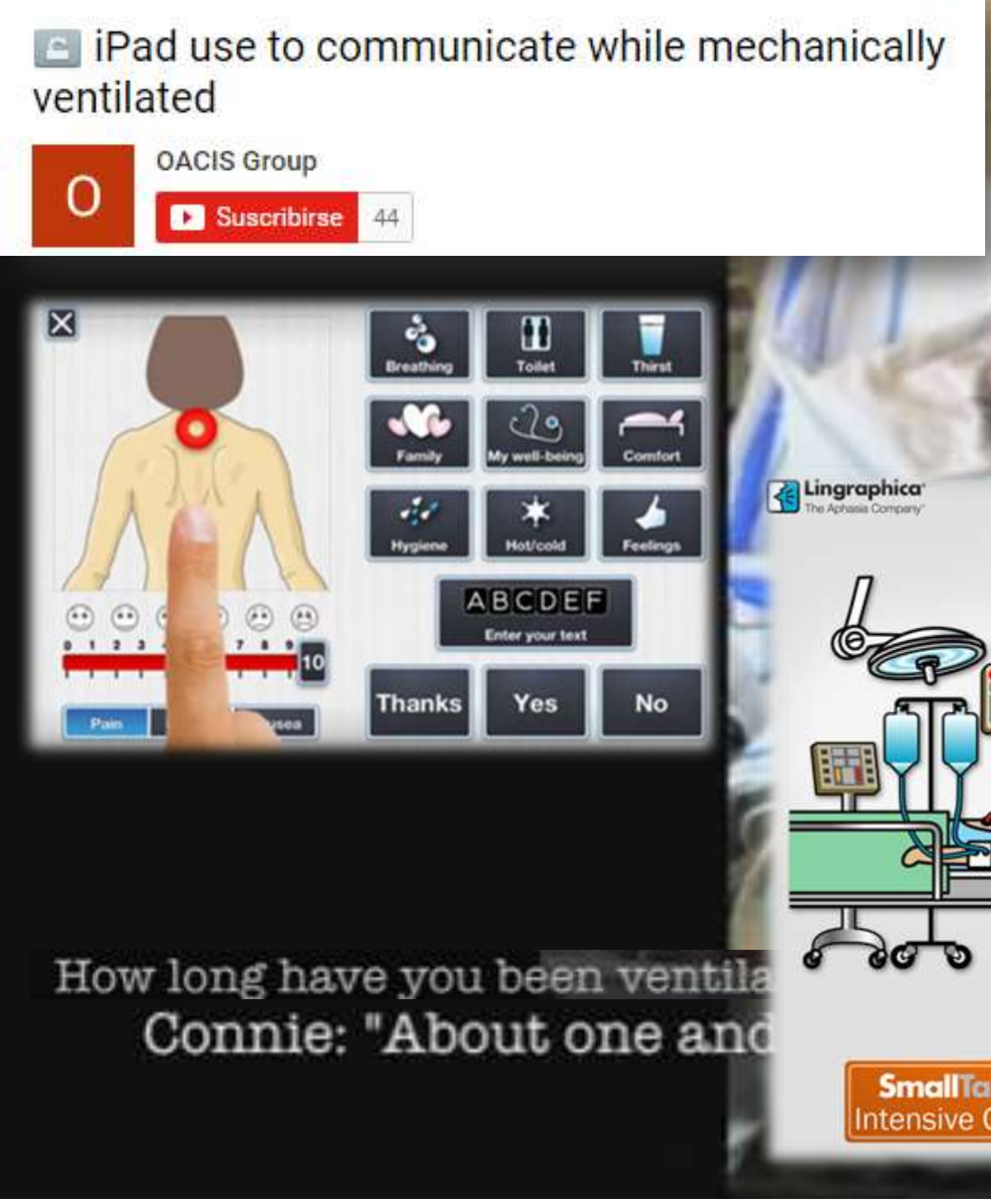
Intensive Care Med (2014) 40:1057–1058
DOI 10.1007/s00134-014-3315-7

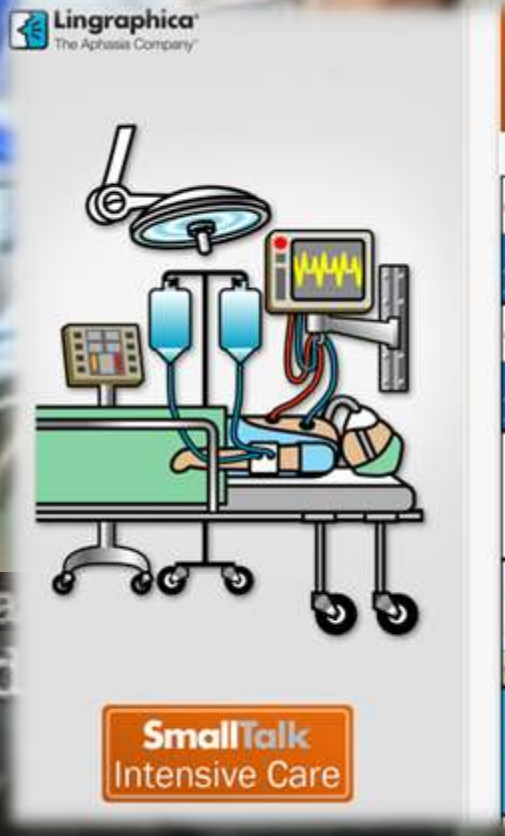
Peter H. Egbers
Renske Bultsma
Harmen Middelkamp
E. Christiaan Boerma

Enabling speech in ICU patients during mechanical ventilation

iPad use to communicate while mechanically ventilated

OACIS Group





New technologies

Can help with:

- ✓ Feedback on patient response
- ✓ Monitor progress over time
- ✓ Improve length of PT session
- ✓ Interact as the patient's coach and personal trainer
- ✓ Heavy maneuvers

They can not replace:

- x Physical assessment
- x Expertise of a rehabilitation specialist

Should always be applied with guidance of experts

Definitively can not replace…

Closeness of family members

Pictures used with permission courtesy of ***Heidi Engel, PT, DPT*** **San Francisco, USA**

Vies Intensives

LES SOINS INTENSIFS, LA RENCONTRE DE LA TECHNOLOGIE ET DE L'HUMANITE

Vies Intensives

LES SOINS INTENSIFS, LA RENCONTRE DE LA TECHNOLOGIE ET DE L'HUMANITE

Vies Intensives

LES SOINS INTENSIFS, LA RENCONTRE DE LA TECHNOLOGIE ET DE L'HUMANITE

Caregivers

Nurs Philos. 2008 Jan;9(1):55-61.

Beleaguered by technology: care in technologically intense environments.

Almerud S[1], Alapack RJ, Fridlund B, Ekebergh M.

Author information

Abstract

Modern technology has enabled the use of new forms of information in the care of critically ill patients. In intensive care units (ICUs), technology can simultaneously reduce the lived experience of illness and magnify the objective dimensions of patient care. The aim of this study, based upon two empirical studies, is to find from a philosophical point of view a more comprehensive understanding for the dominance of technology within intensive care. Along with caring for critically ill patients, technology is part of the ICU staff's everyday life. Both technology and caring relationships are of indispensable value. Tools are useful, but technology can never replace the closeness and **empathy** of the human touch. It is a question of harmonizing the demands of subjectivity with objective signs. The challenge for **caregivers** in ICU is to know when to heighten the importance of the objective and measurable dimensions provided by technology and when to magnify the patients' lived experiences, and to live and deal with the ambiguity of the technical dimension of care and the human side of nursing.

News feature from NBC Nightly News:

Looking at the benefits of pet therapy in the Intensive Care Unit

http://www.nbcnews.com/nightly-news/video/meet-the-dogs-helping-patients-bounce-back-from-intensive-care-719861827717?cid=eml_onsite

Merci beaucoup

cheryl.hickmann@uclouvain.be