

## Réhabilitation Précoce Possible en Réa ?

JM Constantin, M.D. Ph.D.

Clermont
Auvergne

GRED

CNRS 6293

INSERM U1103

Département de Médecine Périopératoire Responsable des Réanimation CHU Clermont-Ferrand



### Liens d'intérêt

LFB MSD **BAXTER** DRAGER MAQUET FRESENIUS-KABI HOSPAL GE ORION **ASTELLAS ABBOTT VIASYS** ALERE **EDWARDS** PFIZER **PHILIPS HAMILTON** MASSIMO **BBRAUN BiRD-Corporation ASTUTE Medical** Fisher-Paykel Sedana Medical

Ministère de la santé PHRC ANR-DGOS





## Réhabilitation Précoce

Possible en Réa?

# Souhaitable?

## New Trends in ICU?

## Less is more

## Moins ventiler

# Moins Remplir

# Moins Séclater

Effect of Protocolized Sedation on Clinical Outcomes in Mechanically Ventilated Intensive Care Unit Patients. A MetaAnalysis.

	Protocolized sedation		L	Isual ca	re		Mean difference	Mean difference	
Study	Mean	SD	Total	Mean	SD	Total	Weight (%)	IV, random (95% CI)	IV, random (95% CI)
Duration of mechanical ventila	ition								
Brook et al, <sup>7</sup> 1999	3.71	5.56	162	5.16	6.4	159	22.6	-1.45 (-2.76 to -0.14)	<del></del> -
Kress et al,8 2000	4.7	4.52	68	7.3	9.41	60	15.0	-2.60 (-5.21 to 0.01)	<del></del>
Girard et al, 11 2008	7.1	7	167	9.2	8.4	168	20.5	-2.10 (-3.76 to -0.44)	<del></del>
Bucknall et al, 12 2008	3.29	3.61	153	2.41	3.45	159	25.4	0.88 (0.10 to 1.66)	en e
Anifantaki et al, 10 2009	7.7	13.5	49	8.7	8.35	<del>4</del> 8	8.0	-1.00 (-5.46 to 3.46)	<del></del>
Weisbrodt et al,9 2011	8	8.08	26	8.4	7.3	24	8.5	-0.40 (-4.66 to 3.86)	<del></del>
Subtotal (95% CI)			625			618	100.0	-1.04 (-2.54 to 0.47)	<u> </u>
Heterogeneity: $\tau^2$ =2.16; $\chi^2$ =19.2 Test for overall effect: $z$ =1.35 ( $P$		P=.002);	l <sup>2</sup> =/4%						
ICU LOS									
Brook et al, <sup>7</sup> 1999	5./	5.9	162	/.5	6.5	159	25.6	-1.80 (-3.16 to -0.44)	
Kress et al,8 2000	6.4	6.01	68	9.9	9.78	60	15.6	-3.50 (-6.36 to -0.64)	<del></del>
Bucknall et al, 12 2008	3.92	7.66	153	3.67	6.58	159	23.9	0.25 (-1.34 to 1.84)	<b>→</b>
Girard et al, 11 2008	9.1	9.41	167	12.9	13.49	168	17.8	$-3.80 \ (-6.29 \ \text{to} \ -1.31)$	<b></b>
Anifantaki et al, 10 2009	14	13.5	49	12	10.17	<del>4</del> 8	8.3	2.00 (-2.75 to 6.75)	<del></del>
Weisbrodt et al, <sup>9</sup> 2011	8.2	8.08	26	11.3	8.3	24	8.8	-3.10 (-7.65 to 1.45)	<del></del>
Subtotal (95% CI)			625			618	100.0	-1.73 (-3.32 to -0.14)	<u> </u>
Heterogeneity: $\tau^{2}$ –2.10; $\chi^{2}$ –12.5 Test for overall effect: $z$ =2.13 ( $P$		p=.03); l <sup>2</sup>	-60%						
Hospital LOS									
Brook et al, <sup>7</sup> 1999	14	17.3	162	19.9	24.2	159	22.8	-5.90 (-10.51 to -1.29)	
Kress et al,8 2000	13.3	9.41	68	16.9	13.42	60	27.9	-3.60 (-7.67 to 0.47)	<del></del>
Bucknall et al, 12 2008	13	18.6	153	13	60.6	159	5.8	0.00 (-9.87 to 9.87)	
Girard et al, 11 2008	14.9	13.26	167	19.2	18.3	168	36.1	-4.30 (-7.72 to -0.88)	
Anifantaki et al, 10 2009	31	47.6	49	21	31.6	<del>4</del> 8	2.3	10.00 (-6.05 to 26.05)	<del></del>
Weisbrodt et al,9 2011	21.1	22.76	26	18.5	14.6	24	5.1	2.60 (-7.92 to 13.12)	
Subtotal (95% CI)			625			618	100.0	-3.55 (-5.98 to -1.12)	<b>→</b>
Heterogeneity: $\tau^2 = 1.20$ ; $\chi^2 = 5.71$ , $df = 5$ ( $P = .34$ ); $l^2 = 12\%$							-20 -I0 0 I0 20		
Test for overall effect: z=2.86 (P=.004) Favors p								Favors protocol Favors usual care	

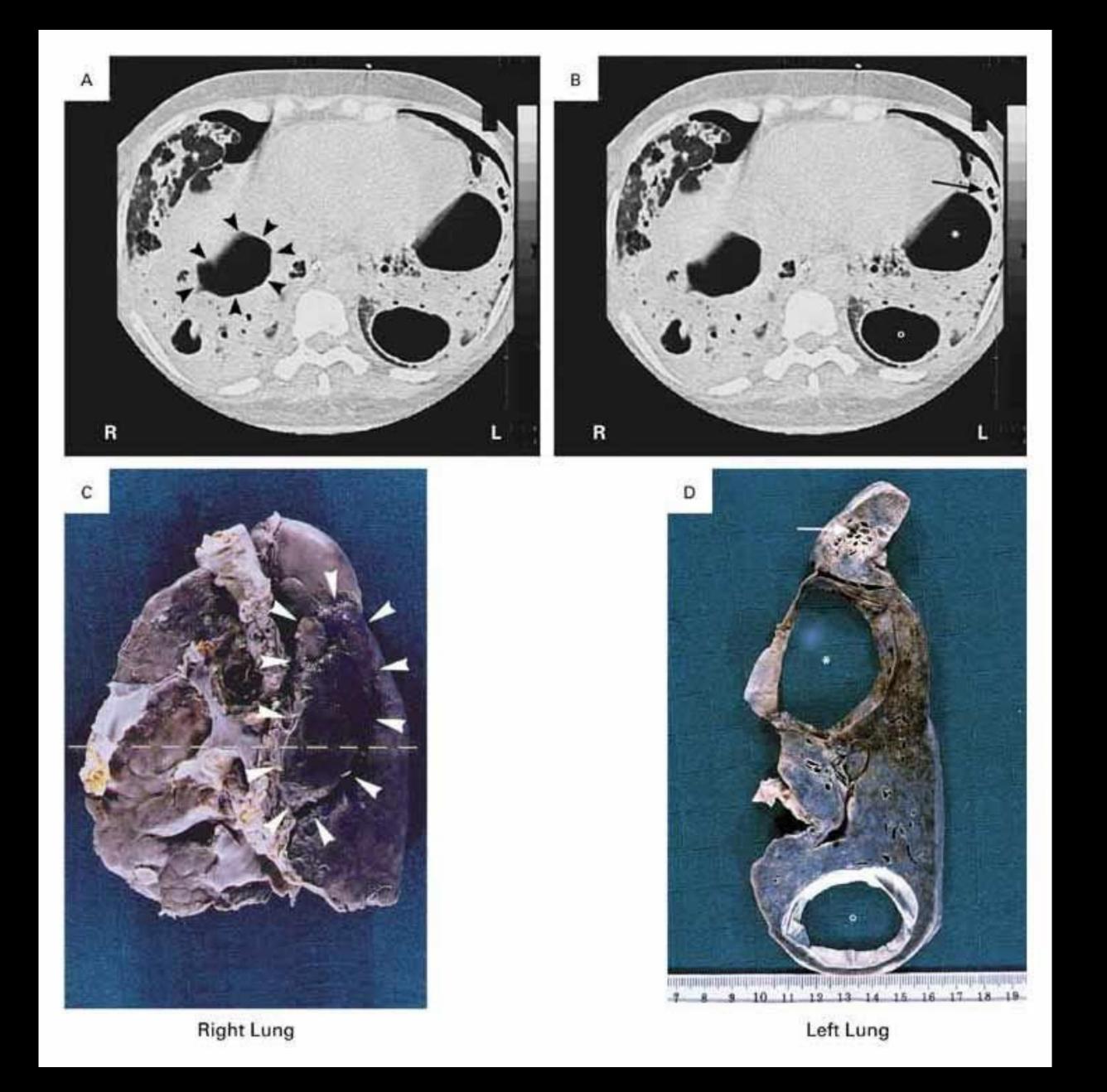
# Que deviennent nos patients?



# Que deviennent les survivants du SDRA?







ESTABLISHED IN 1812

APRIL 7, 2011

VOL. 364 NO. 14

## Functional Disability 5 Years after Acute Respiratory Distress Syndrome

Margaret S. Herridge, M.D., M.P.H., Catherine M. Tansey, M.Sc., Andrea Matté, B.Sc., George Tomlinson, Ph.D.,
Natalia Diaz-Granados, M.Sc., Andrew Cooper, M.D., Cameron B. Guest, M.D., C. David Mazer, M.D.,
Sangeeta Mehta, M.D., Thomas E. Stewart, M.D., Paul Kudlow, B.Sc., Deborah Cook, M.D.,
Arthur S. Slutsky, M.D., and Angela M. Cheung, M.D., Ph.D.,
for the Canadian Critical Care Trials Group

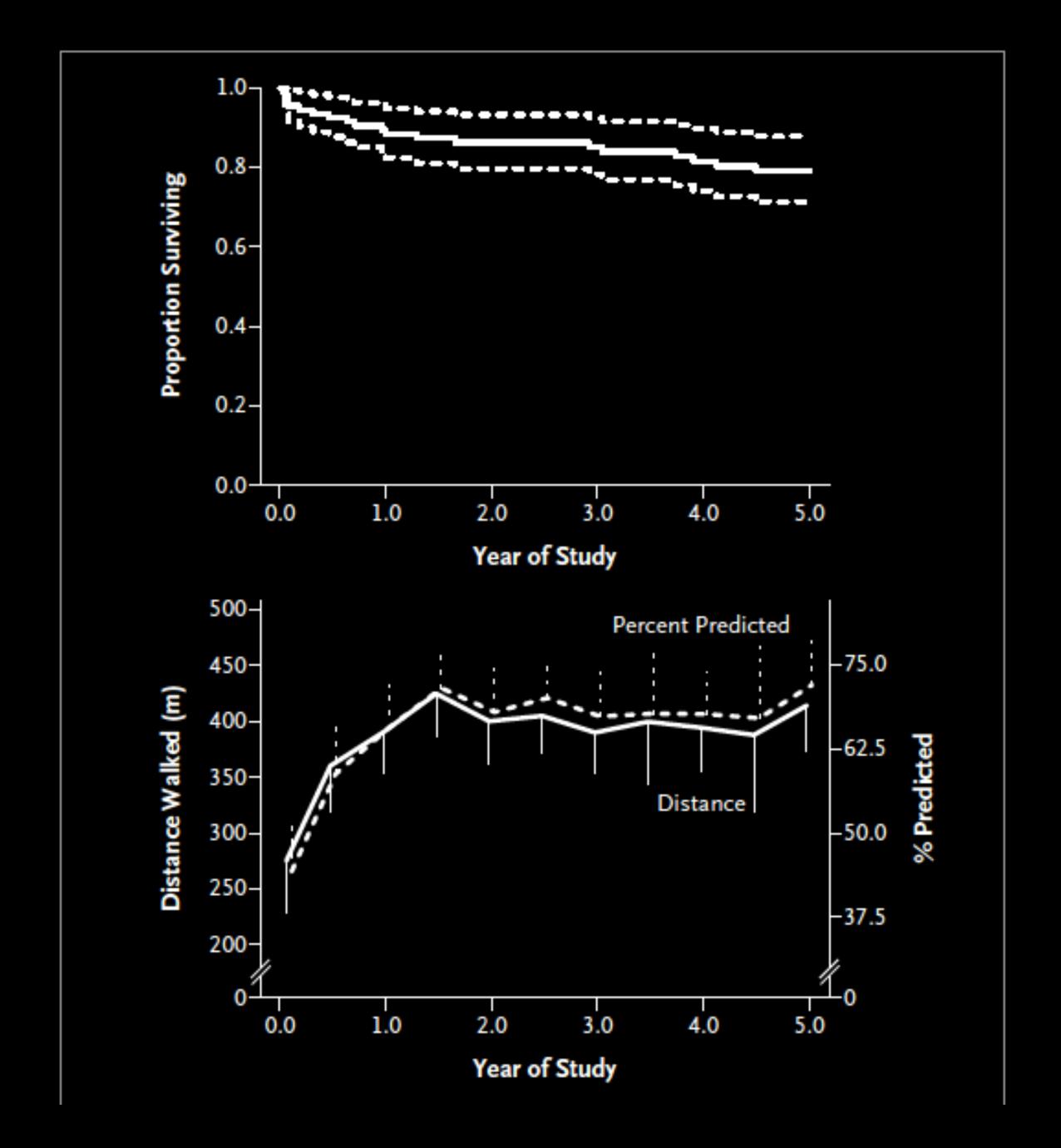
ESTABLISHED IN 1812

APRIL 7, 2011

VOL. 364 NO. 1

### Functional Disability 5 Years after Acute Respiratory Distress Syndrome

Margaret S. Herridge, M.D., M.P.H., Catherine M. Tansey, M.Sc., Andrea Matté, B.Sc., George Tomlinson, Ph.D.,
Natalia Diaz-Granados, M.Sc., Andrew Cooper, M.D., Cameron B. Guest, M.D., C. David Mazer, M.D.,
Sangeeta Mehta, M.D., Thomas E. Stewart, M.D., Paul Kudlow, B.Sc., Deborah Cook, M.D.,
Arthur S. Slutsky, M.D., and Angela M. Cheung, M.D., Ph.D.,
for the Canadian Critical Care Trials Group



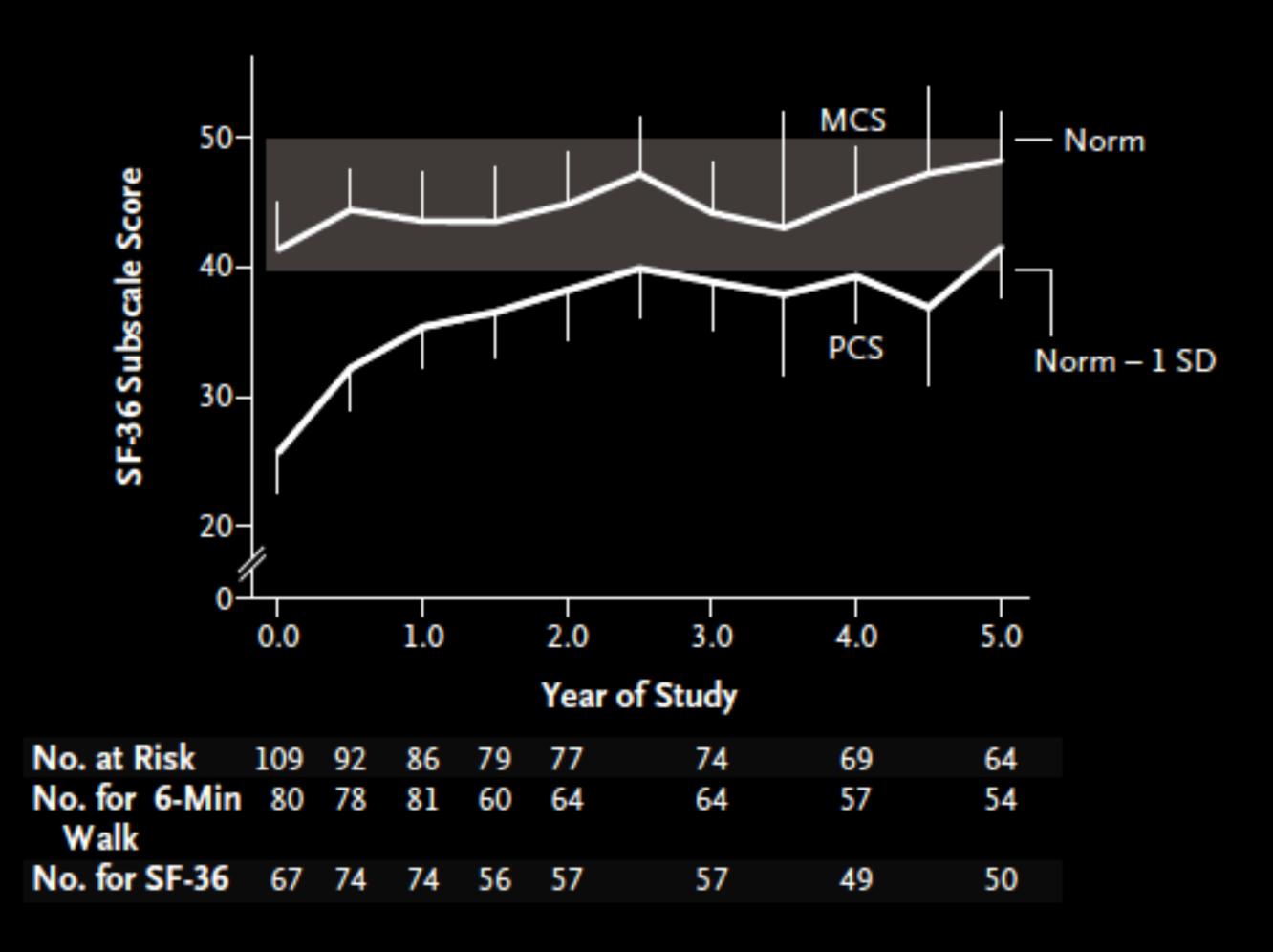
ESTABLISHED IN 1812

APRIL 7, 2011

VOL. 364 NO. 14

#### Functional Disability 5 Years after Acute Respiratory Distress Syndrome

Margaret S. Herridge, M.D., M.P.H., Catherine M. Tansey, M.Sc., Andrea Matté, B.Sc., George Tomlinson, Ph.D.,
Natalia Diaz-Granados, M.Sc., Andrew Cooper, M.D., Cameron B. Guest, M.D., C. David Mazer, M.D.,
Sangeeta Mehta, M.D., Thomas E. Stewart, M.D., Paul Kudlow, B.Sc., Deborah Cook, M.D.,
Arthur S. Slutsky, M.D., and Angela M. Cheung, M.D., Ph.D.,
for the Canadian Critical Care Trials Group



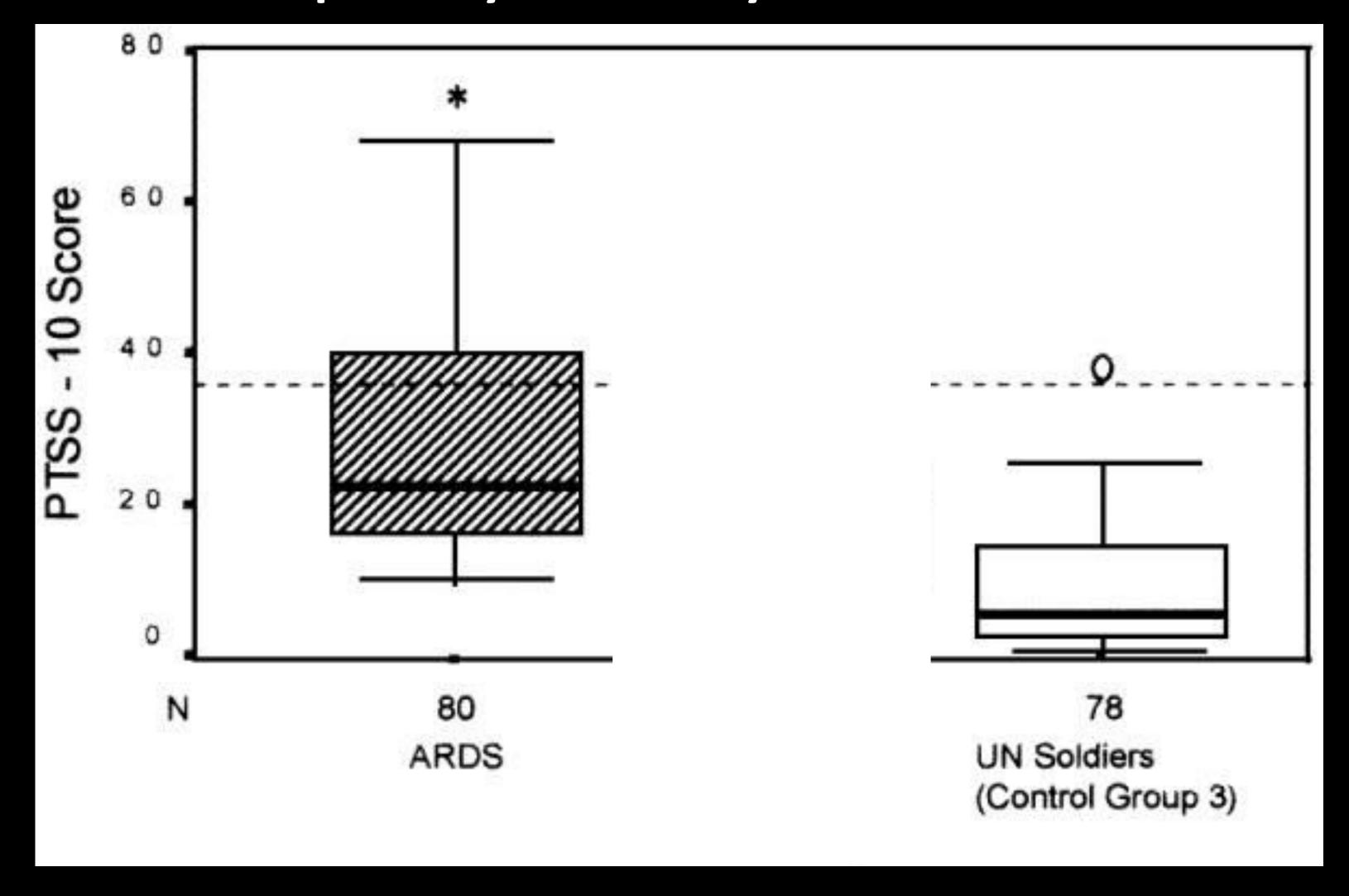
# Syndrome de stress post traumatique (PTSD)





SSPT: trouble anxieux sévère qui se manifeste à la suite d'une expérience vécue comme traumatisante (attentats, viol, guerre...).

# Health-related quality of life and posttraumatic stress disorder in survivors of the acute respiratory distress syndrome.



ESTABLISHED IN 1812

APRIL 7, 2011

VOL. 364 NO. 14

#### Functional Disability 5 Years after Acute Respiratory Distress Syndrome

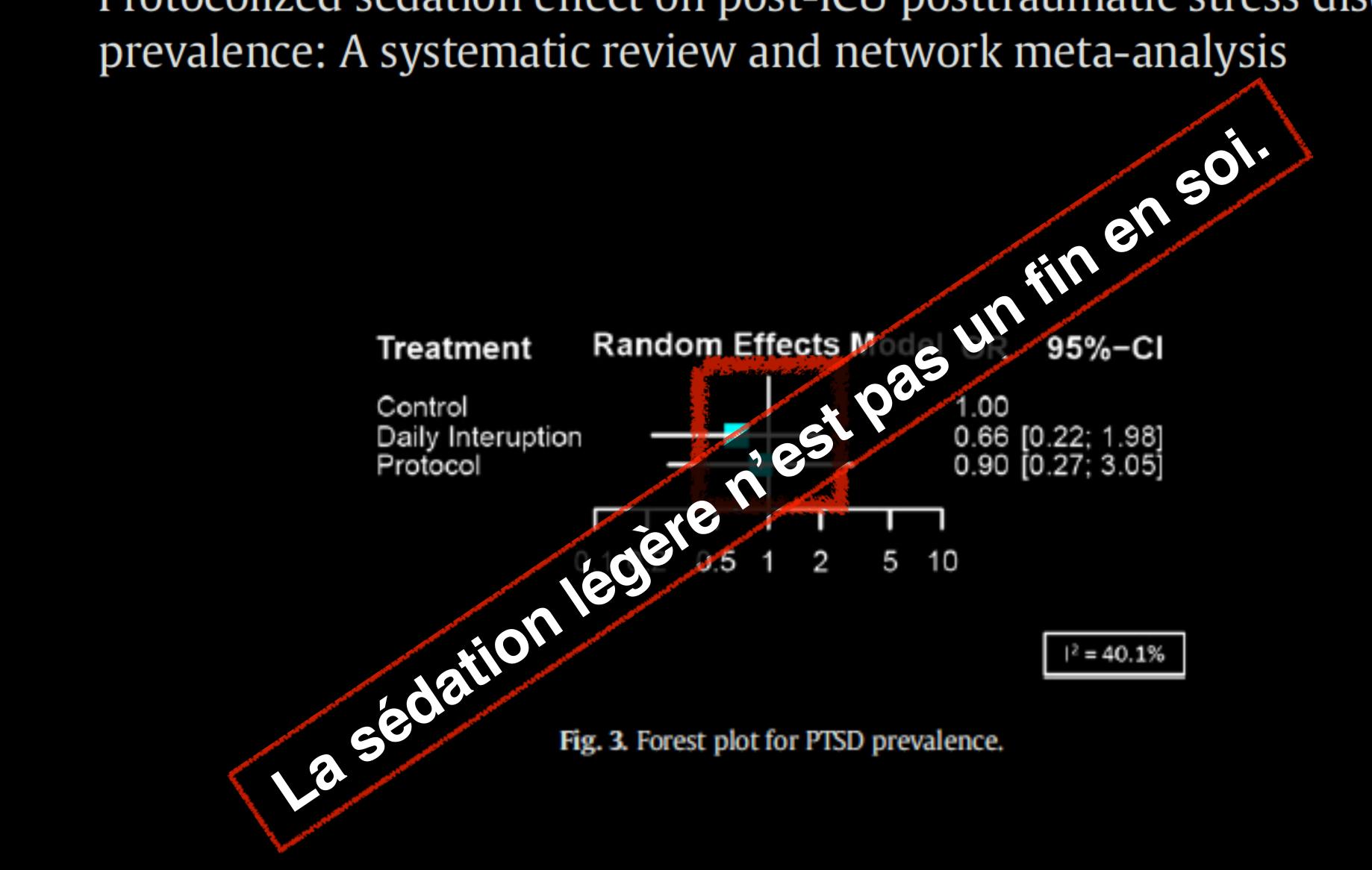
Margaret S. Herridge, M.D., M.P.H., Catherine M. Tansey, M.Sc., Andrea Matté, B.Sc., George Tomlinson, Ph.D., Natalia Diaz-Granados, M.Sc., Andrew Cooper, M.D., Cameron B. Guest, M.D., C. David Mazer, M.D., Sangeeta Mehta, M.D., Thomas E. Stewart, M.D., Paul Kudlow, B.Sc., Deborah Cook, M.D., Arthur S. Slutsky, M.D., and Angela M. Cheung, M.D., Ph.D., for the Canadian Critical Care Trials Group



In summary, young, previously working patients with ARDS who have few coexisting illnesses may not recover completely and may have ongoing functional limitations after an episode of critical illness. This may be attributed to persistent ICU-acquired weakness, in addition to a variety of other physical and mental health impairments. Family members may also have psychological dysfunction, which may further compromise outcomes. The health burden of critical illness may be likened to that of chronic disease with similar health care utilization. Research priorities include a better understanding of the pathophysiology of ICU-acquired weakness and an evaluation of the effects of a customized, family-centered, rehabilitation program on longterm outcomes after a critical illness.

# Impact d'un protocole de sédation?

Protocolized sedation effect on post-ICU posttraumatic stress disorder prevalence: A systematic review and network meta-analysis



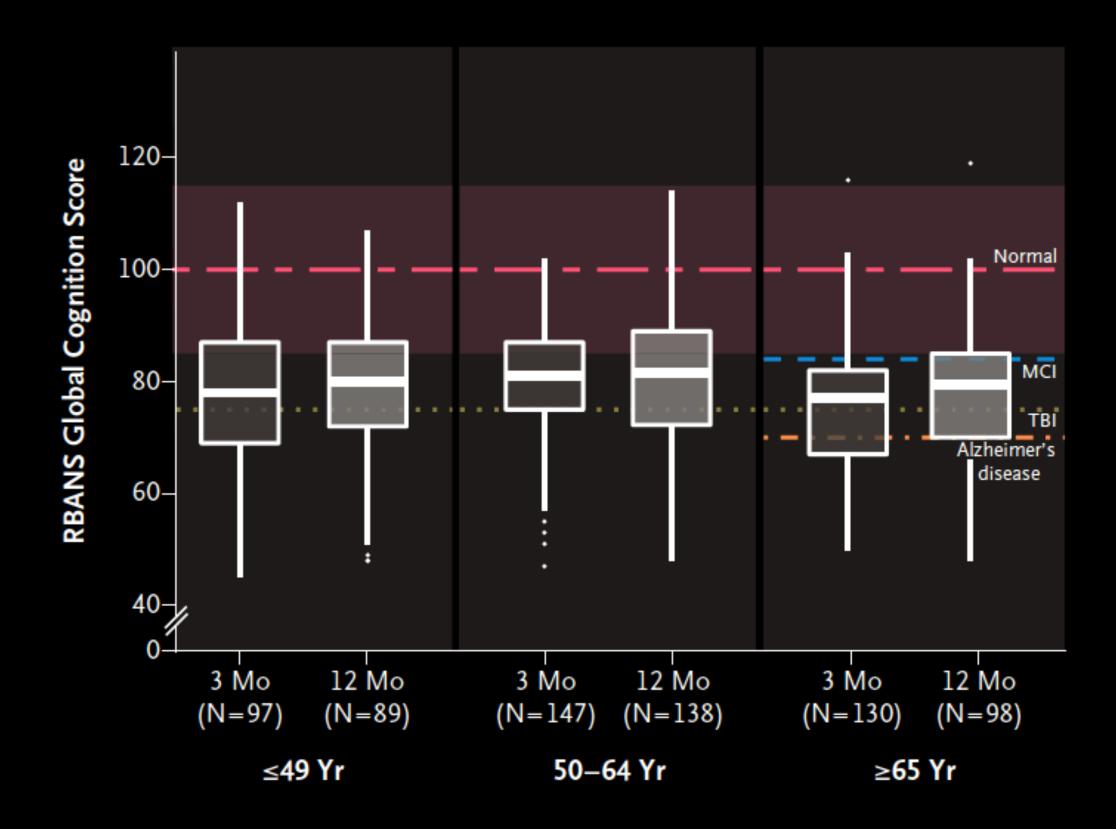
## Neuro-myopathie

Troubles cognitifs

#### ORIGINAL ARTICLE

## Long-Term Cognitive Impairment after Critical Illness

P.P. Pandharipande, T.D. Girard, J.C. Jackson, A. Morandi, J.L. Thompson, B.T. Pun, N.E. Brummel, C.G. Hughes, E.E. Vasilevskis, A.K. Shintani, K.G. Moons, S.K. Geevarghese, A. Canonico, R.O. Hopkins, G.R. Bernard, R.S. Dittus, and E.W. Ely, for the BRAIN-ICU Study Investigators\*



#### **REVIEW ARTICLE**

#### CRITICAL CARE MEDICINE

## ICU-Acquired Weakness and Recovery from Critical Illness

John P. Kress, M.D., and Jesse B. Hall, M.D.

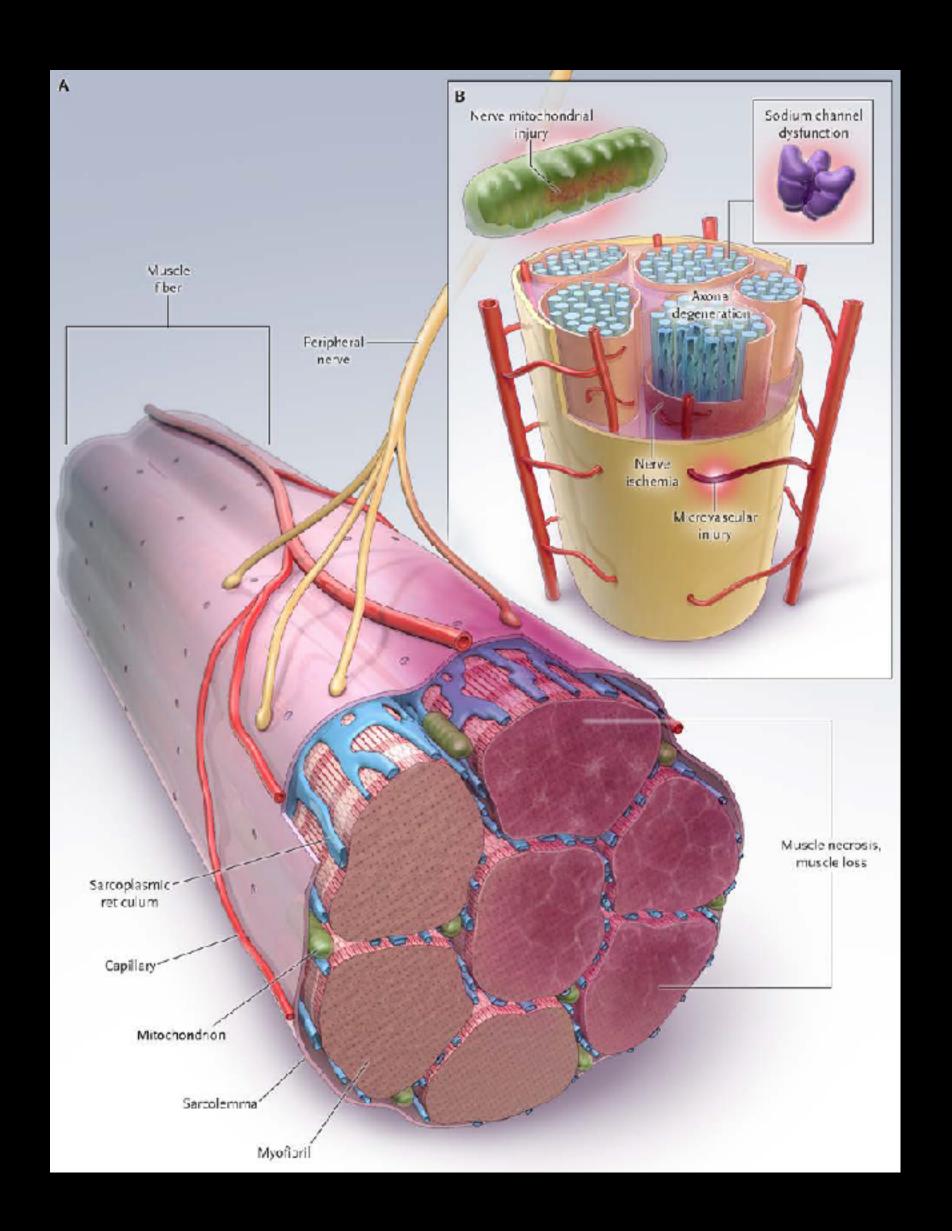
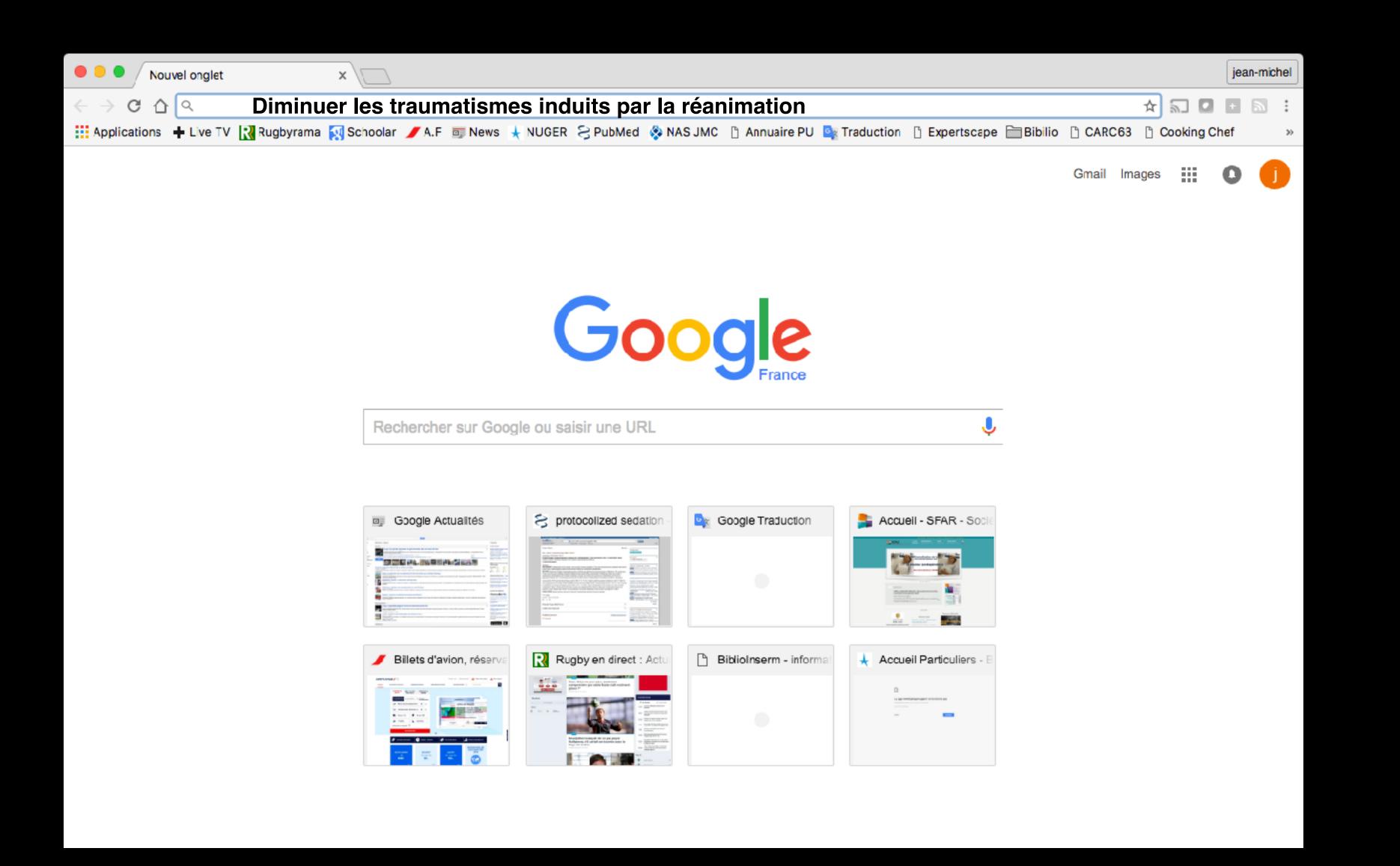
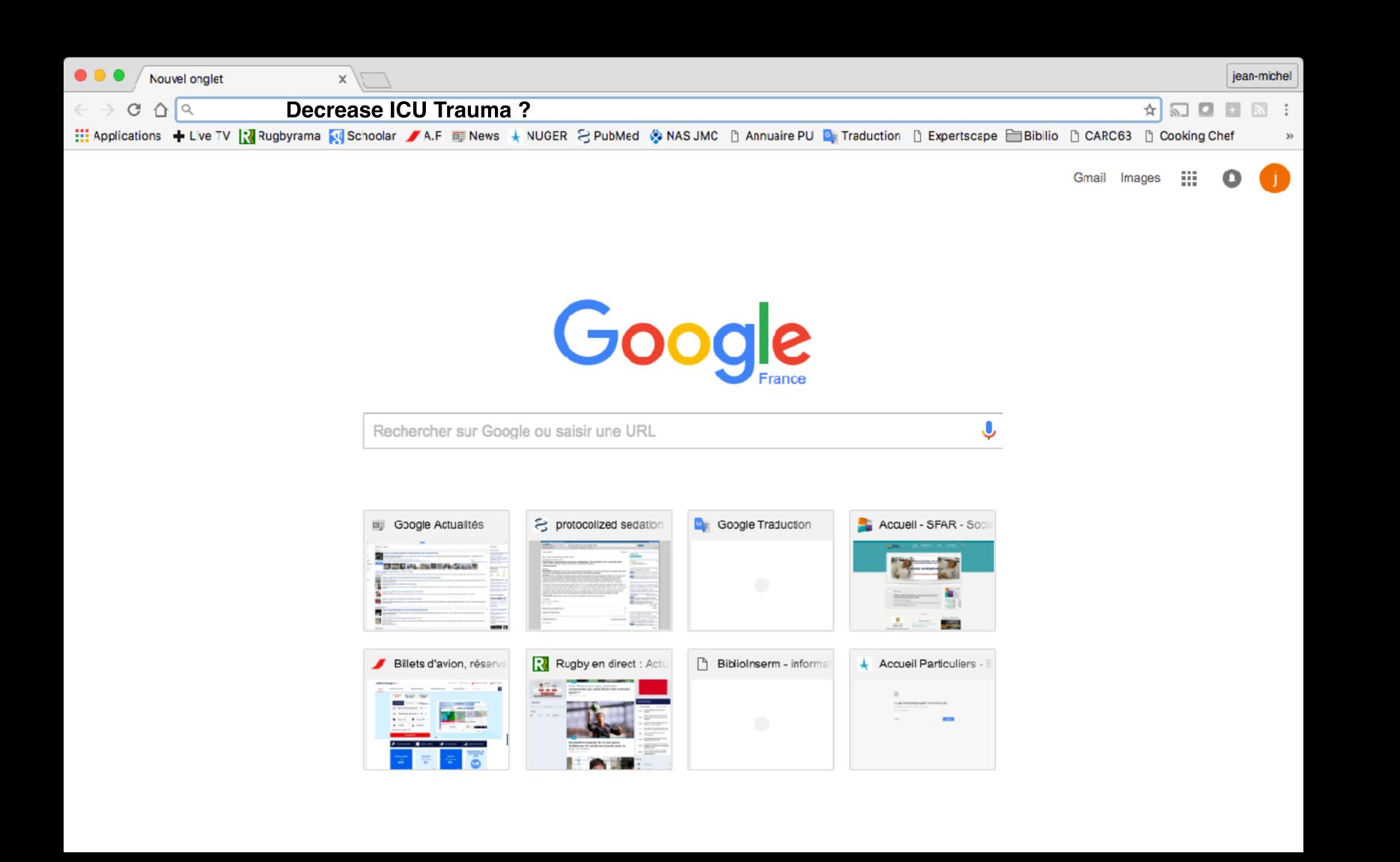


Table 3. Clinical Risk Factors and Path	ophysiological Features of Critical	Pathophysiological processes			
Illness Polyneuropathy and Critical Illi	ness Myopathy.	Critical illness polyneuropathy			
Variable	Reference	Motor nerves affected more than	Bolton et al.⁴		
Clinical risk factors of both critical		sensory nerves			
illness polyneuropathy and critical illness myopathy		Secondary denervation muscle injury (myopathy)	Bolton et al.4		
Female sex	De Jonghe et al. <sup>11</sup>	Proposed mechanisms			
Sepsis	Garnacho-Montero et al.28	Nerve ischemia	Bolton <sup>20</sup>		
Catabolic state	Trojaborg et al.,15 Garnacho-Montero et al.28	Nerve microvascular injury	Bolton,20 Fenzi et al.21		
Multiorgan system failure	De Jonghe et al.11	Nerve mitochondrial injury	Van den Berghe et al. <sup>22</sup>		
Systemic inflammatory response	Jaber et al.,33 Levine et al.34	Sodium channelopathy	Rich and Pinter <sup>26</sup>		
syndrome		Critical illness myopathy			
Long duration of mechanical ventilation	De Jonghe et al. <sup>11</sup>	Primary myopathy — selective myosin loss, muscle necrosis	Derde et al. <sup>8</sup>		
Immobility	Levine et al., <sup>32</sup> Papazian et al., <sup>39</sup> Iwashyna et al. <sup>41</sup>	(e.g., ubiquitin-proteasome proteolysis)			
Hyperglycemia	Van den Berghe et al.13	Mitochondrial dysfunction	Carré et al.29		
Glucocorticoids	De Jonghe et al. <sup>11</sup>	Oxidative stress	Reid and Moylan <sup>30</sup>		
Neuromuscular blocking agents	MacFarlane and Rosenthal, <sup>3</sup> Leatherman et al. <sup>12</sup>	Sodium channelopathy	Rich and Pinter <sup>26</sup>		



# Solutions?





"All the News That's Fit to Print"

## The New York Times

Washington Edition

thickening clouds, colder late. high in low 40s. Weather map, Page D8

OL. CLVIII . . . . No. 54,553

6' 2009 The New York Times

MONDAY, JANUARY 12, 2009

### New Idea to Cut I.C.U. Trauma: Get Patients Up, Tubes and All

#### By GINA KOLATA

For years, doctors thought they had done their jobs if patients came out of an intensive care unit alive.

Now, though, researchers say they are alarmed by what they are finding as they track patients for months or years after an I.C.U. stay. Patients, even young ones, can be weak for years. Some have difficulty thinking and concentrating or have post-traumatic stress disorder and terrible memories of nightmares they had while heavily sedated.

While patients may be suffering lingering effects from illnesses that brought them to the LC.U.,

researchers are increasingly convinced that spending days, weeks or months on life support in the units can elicit unexpected, longlasting effects.

So now some I.C.U.'s are trying what seems like a radical solution: reducing sedation levels and getting patients up and walking even though they are gravely ill, complete with feeding tubes, intravenous lines and tethers to ventilators.

Even a few days in an I.C.U. can be physically devastating immediately afterward, said Dr. Naeem Ali of Ohio State Universi-

Continued on Page All

#### New Approach to Cut Trauma From I.C.U.: Get Patients Walking

as at their finalises of their bulleting the party of their party commenced the statement beginning the bragation flower feet in coloniery conduction, in Station



And the same of th

The same is not a superior of the contract of

market about a highly for the Name and A could prove the same of the sam



# Let's GO

## Primum non nocere

pediatric literature Saoirse Cameron, MA Ab, Ian Ball, MD, MSc bc, Gediminas Cepinskas, DVM, PhD bd, Karen Choong, MB, BCh, MSc Ae, Timothy J. Doherty, MD, PhD a.b.f, Christopher G. Ellis, PhD b.c.d, Claudio M. Martin, MD, MSc b.c. RESEARCH Expert consensus and recommendations on safety criteria for active mobilization of mechanically ventilated critically ill adults E Cycling Exercise in Mechanically Safety Safety and feasibility of femoral catheters during physical rehabilitation in the intensive care unit<sup>♠,♠♠,★</sup> Abdulla Damluji MB, ChB, MPH<sup>a,b</sup>, Jennifer M. Zanni PT, DScPT<sup>b,c</sup>, Earl Mantheiy BA<sup>b,e</sup>, Elizabeth Colantuoni PhD<sup>b,d</sup>, Michelle E. Kho PT, PhD<sup>b,c</sup>, Dale M. Needham MD, PhD b,c,e,\* 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 RESEARCH Early mobilization on continuous renal replacement therapy is safe and may improve filter life Feasibility and safety of in-bed cycling for physical rehabilitation in the intensive care unit 本, 本本 Michelle E. Kho, PT, PhD 4,b,a, Robert A. Martin, BA 6, Amy L. Toonstra, PT, DPT d.f. Jennifer M. Zanni, PT, DSc(PT) a.d.f, Earl C. Mantheiy, BA d.f, Archana Nelliot, BS d.f, Dale M, Needham, FCPA, MD, PhD a.d.f.

Early mobilization in the critical care unit: A review of adult and

# Que faire?



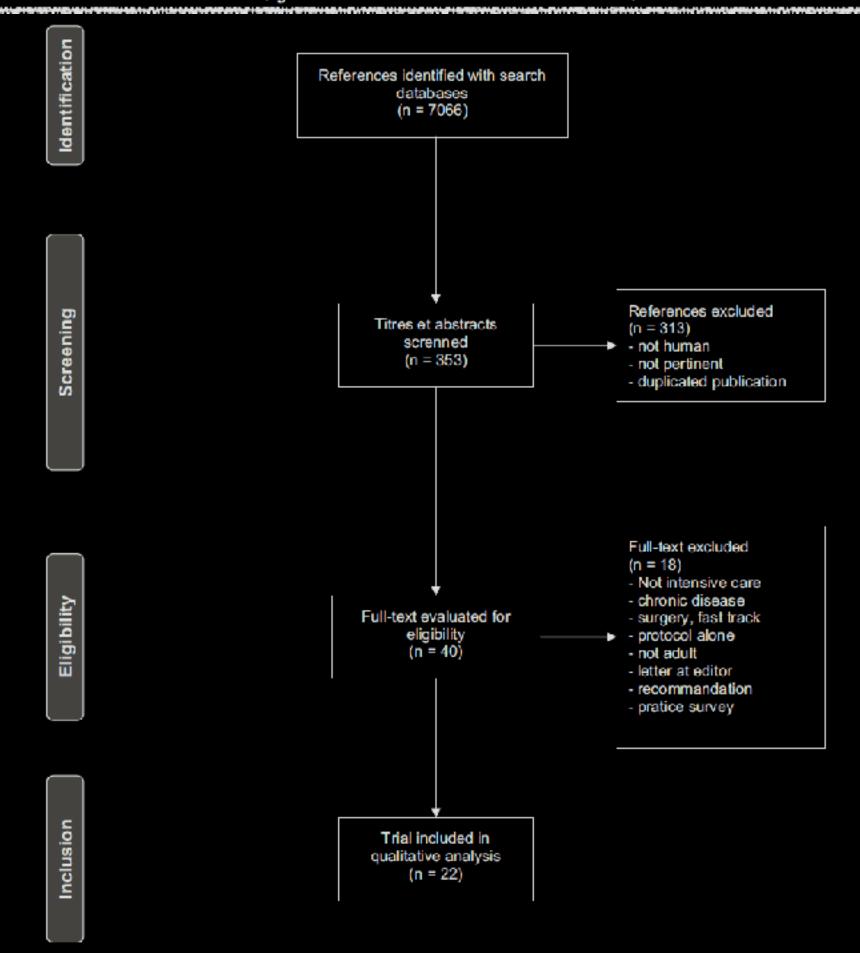


Review

### Systematic review of early exercise in intensive care: A qualitative approach



Hélène Laurent<sup>a</sup>, Sylvie Aubreton<sup>a</sup>, Ruddy Richard<sup>b,c</sup>, Yannael Gorce<sup>a</sup>, Emilie Caron<sup>a</sup>, Aurélie Vallat<sup>a</sup>, Anne-Marie Davin<sup>a</sup>, Jean-Michel Constantin<sup>d,\*</sup>, Emmanuel Coudeyre<sup>a</sup>



#### Review

Systematic review of early exercise in intensive care: A qualitative approach



Hélène Laurent<sup>a</sup>, Sylvie Aubreton<sup>a</sup>, Ruddy Richard<sup>b,c</sup>, Yannael Gorce<sup>a</sup>, Emilie Caron<sup>a</sup>, Aurélie Vallat<sup>a</sup>, Anne-Marie Davin<sup>a</sup>, Jean-Michel Constantin<sup>d,\*</sup>, Emmanuel Coudeyre<sup>a</sup>















# Qui fait?



Move the body and the brain ...of ICU patients

# Just ask the physiotherapists





Yes, just ask physiotherapists!



### For a 20 beds ICU:

2 physiotherapists Upper limbs2 physiotherapists Lower limbs2 Respiratory physiotherapists

. . .

7 days / 12h

### 24 beds ICU



### 24 beds ICU



2 physiotherapists
5 days / 7
8 hours



involve Nurses for the early rehabilitation process

just ask nurses to do that!



### We already manage:

Sedation
wining from mechanical ventilation
Tight glycemic control
Vasopressors
Relatives and family

. . .

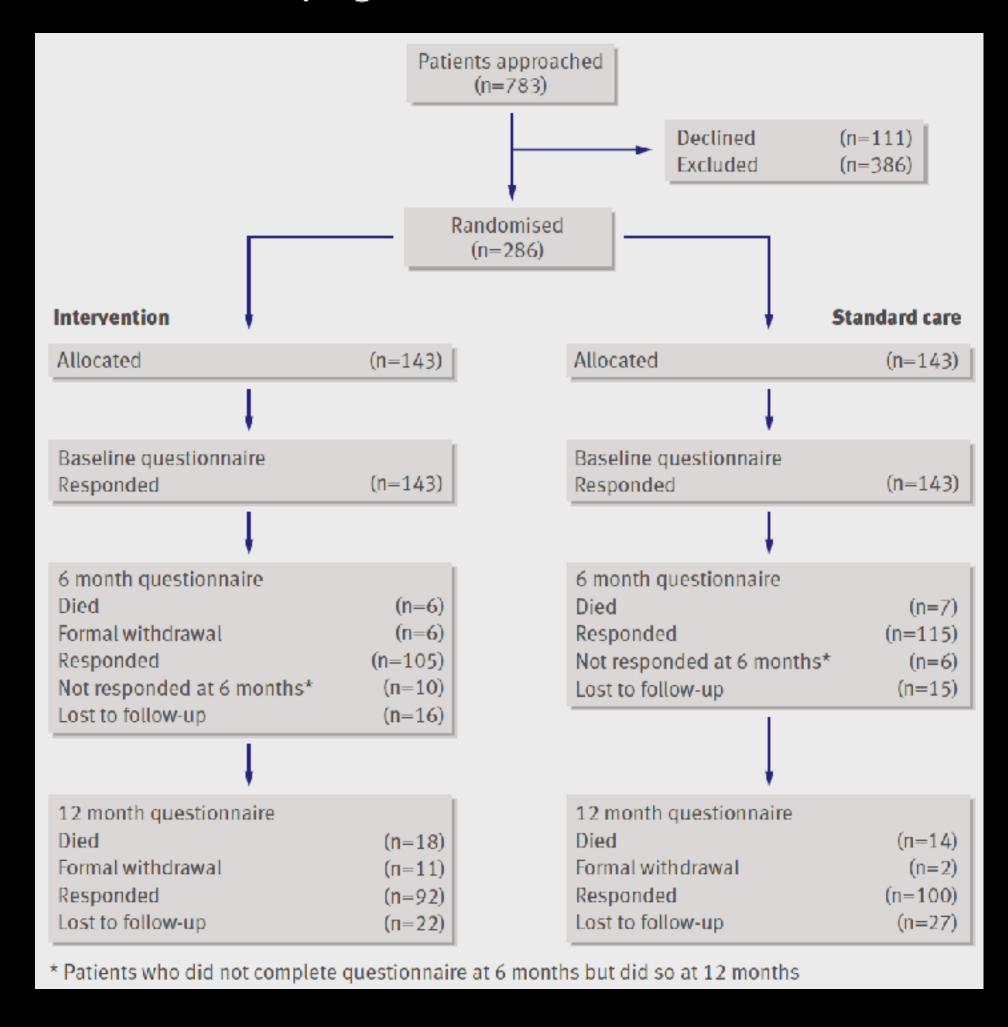
# What Else?

# Protocole

# BMJ

#### RESEARCH

The PRaCTICaL study of nurse led, intensive care follow-up programmes for improving long term outcomes from critical illness: a pragmatic randomised controlled trial





#### RESEARCH

The PRaCTICaL study of nurse led, intensive care follow-up programmes for improving long term outcomes from critical illness: a pragmatic randomised controlled trial

Table 3 Primary outcome of trial of a nurse led rehabilitation programme for patients discharged from intensive care. Results were analysed on the basis of intention to treat (adjusted for minimisation covariates\*), per protocol, and the treatment received

	Intervention		Standa	Standard care		
SF-36 score at 12 months	No of patients	Mean (SD) score	No of patients	Mean (SD) score	Effect size (95% CI)	P value
Intention to treat analysis						
Physical component score	90	42.0 (10.6)	97	40.8 (11.9)	1.1 (-1.9 to 4.2)	0.46
Mental component score	90	47.1 (12.7)	97	46.8 (12.4)	0.4 (-3.0 to 3.7)	0.83
Per protocol analysis						
Physical component score	80	42.3 (10.8)	97	40.8 (11.9)	1.6 (-1.6 to 4.8)	0.33
Mental component score	80	48.5 (11.8)	97	46.8 (12.4)	1.7 (-1.7 to 5.1)	0.33
Treatment received analysis						
Physical component score	80	42.3 (10.8)	107	40.7 (11.7)	1.7 (-1.4 to 4.8)	0.27
Mental component score	80	48.5 (11.8)	107	45.8 (13.0)	2.6 (-0.8 to 6.0)	0.14
Minimisation covariates were	ago cox HADS see	oro ADACHE II ccoro I	CE ccore and trial co	entro (con table 1 f	or definitions of abbre	uintinna)

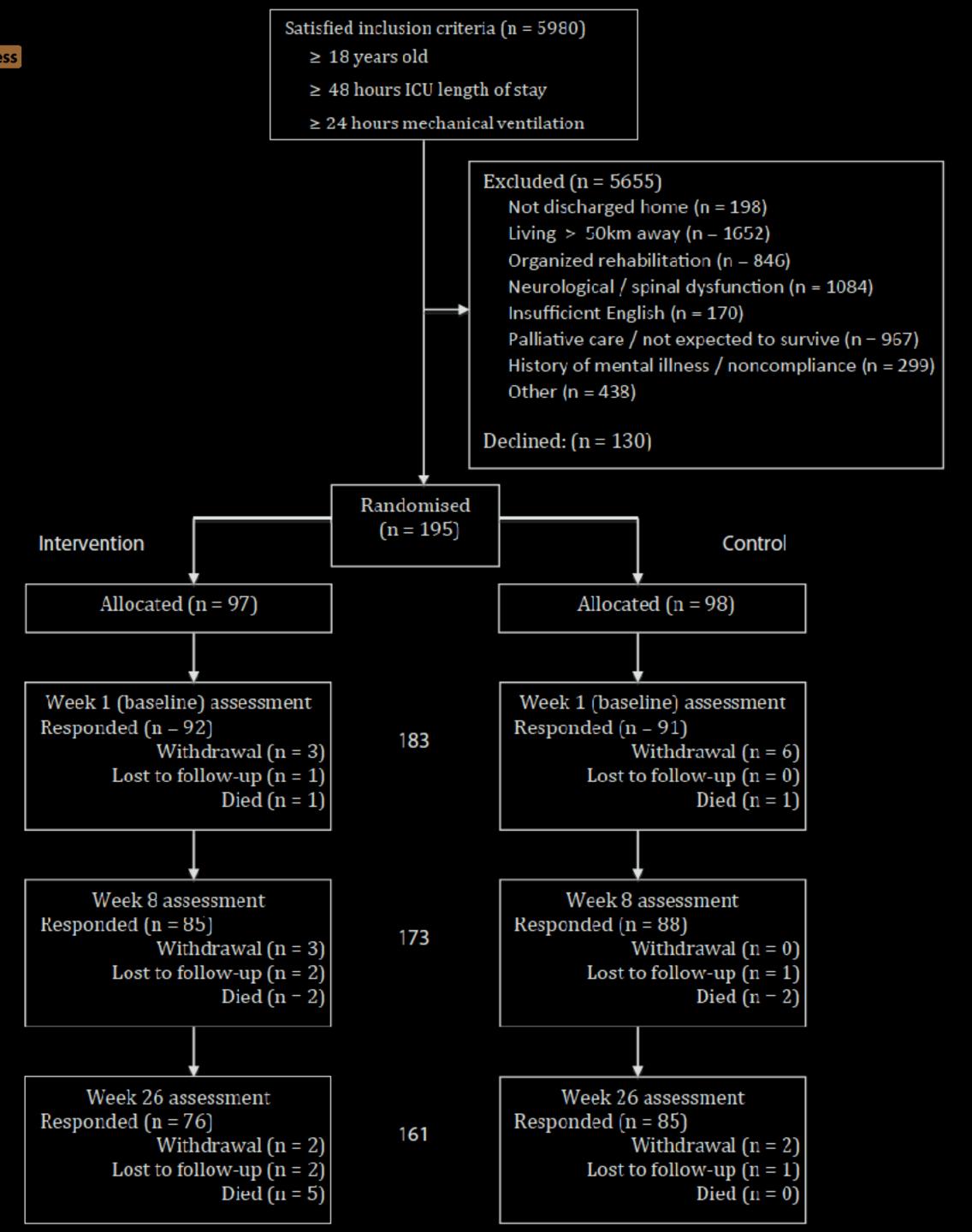
\*Minimisation covariates were age, sex, HADS score, APACHE II score, ICE score, and trial centre (see table 1 for definitions of abbreviations).

Health-related quality of life and physical recovery after a critical illness: a multi-centre randomised controlled trial of a home-based physical rehabilitation program

Doug Elliott<sup>1\*</sup>, Sharon McKinley<sup>2</sup>, Jennifer Alison<sup>3</sup>, Leanne M Aitken<sup>4</sup>, Madeleine King<sup>5</sup>, Gavin D Leslie<sup>6</sup>, Patricia Kenny<sup>7</sup>, Penny Taylor<sup>1</sup>, Rachel Foley<sup>8</sup> and Elizabeth Burmeister<sup>9</sup>

Health-related quality of life and physical recovery after a critical illness: a multi-centre randomised controlled trial of a home-based physical rehabilitation program

Doug Elliott<sup>1\*</sup>, Sharon McKinley<sup>2</sup>, Jennifer Alison<sup>3</sup>, Leanne M Aitken<sup>4</sup>, Madeleine King<sup>5</sup>, Gavin D Leslie<sup>6</sup>, Patricia Kenny<sup>7</sup>, Penny Taylor<sup>1</sup>, Rachel Foley<sup>8</sup> and Elizabeth Burmeister<sup>9</sup>



Health-related quality of life and physical recovery after a critical illness: a multi-centre randomised controlled trial of a home-based physical rehabilitation program

Doug Elliott<sup>1\*</sup>, Sharon McKinley<sup>2</sup>, Jennifer Alison<sup>3</sup>, Leanne M Aitken<sup>4</sup>, Madeleine King<sup>5</sup>, Gavin D Leslie<sup>6</sup>, Patricia Kenny<sup>7</sup>, Penny Taylor<sup>1</sup>, Rachel Foley<sup>8</sup> and Elizabeth Burmeister<sup>9</sup>

SF-36 Domains	Week 1		Week 8		Week 26	
Groups	C	I	C	I	C	I
Physical function	29.1	27.3	41.0	39.9	41.8	42.6
Role function-physical	25.5	25.1	38.0	38.2	40.9	42.1
Bodily pain	43.0	38.7	49.0	46.7	46.9	44.5
General health	43.5	41.7	46.0	44.7	45.3	44.8
Vitality	38.1	36.0	46.9	45.5	47.0	47.6
Social function	30.1	27.9	44.9	43.0	44.5	44.5
Role function-emotional	32.0	28.0	42.4	41.1	42.9	43.6
Mental health	43.4	40.1	48.2	48.0	48.1	48.4
Physical component Summary	33.0	31.6	42.7	40.5	42.9	42.8
Mental component summary	40.0	36.6	47.5	46.9	47.2	48.0

Health-related quality of life and physical recovery after a critical illness: a multi-centre randomised controlled trial of a home-based physical rehabilitation program

Doug Elliott<sup>1\*</sup>, Sharon McKinley<sup>2</sup>, Jennifer Alison<sup>3</sup>, Leanne M Aitken<sup>4</sup>, Madeleine King<sup>5</sup>, Gavin D Leslie<sup>6</sup>, Patricia Kenny<sup>7</sup>, Penny Taylor<sup>1</sup>, Rachel Foley<sup>8</sup> and Elizabeth Burmeister<sup>9</sup>

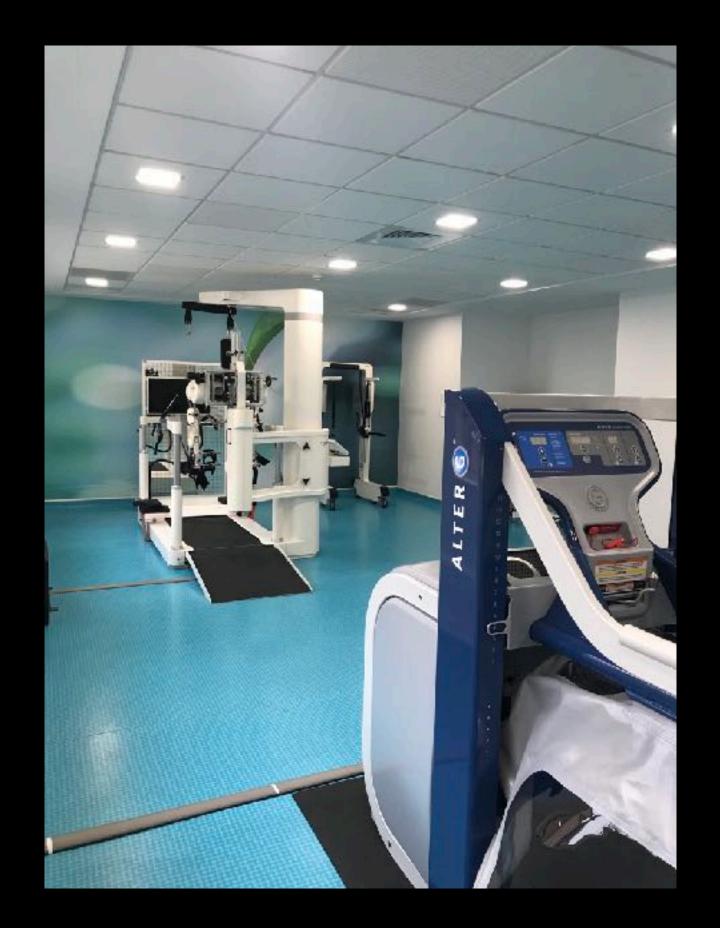


### TOO LATE SOLD

#### RESEARCH

The PRaCTICaL study of nurse led, intensive care follow-up programmes for improving long term outcomes from critical illness: a pragmatic randomised controlled trial











"All the News That's Fit to Print"

# The New York Times

OL. CLVIII . . . . No. 54,553

6'2009 The New York Times

MONDAY, JANUARY 12, 2009

#### New Idea to Cut I.C.U. Trauma: Get Patients Up, Tubes and All

#### By GINA KOLATA

care unit alive.

Now, though, researchers say they are alarmed by what they are finding as they track patients for months or years after an I.C.U. stay. Patients, even young ones, can be weak for years. Some have difficulty thinking and concentrating or have post-traumatic stress disorder and terrible memories of nightmares they had while heavily sedated.

While patients may be suffering lingering effects from illnesses that brought them to the I.C.U.,

For years, doctors thought researchers are increasingly conthey had done their jobs if pa- vinced that spending days, weeks tients came out of an intensive or months on life support in the units can elicit unexpected, long-

> So now some I.C.U.'s are trying what seems like a radical solution: reducing sedation levels and getting patients up and walking even though they are gravely ill, complete with feeding tubes, intravenous lines and tethers to

Even a few days in an I.C.U. can be physically devastating immediately afterward, said Dr. Naeem Ali of Ohio State Universi-

Continued on Page All

#### New Approach to Cut Trauma From I.C.U.: Get Patients Walking

**Washington Edition** 

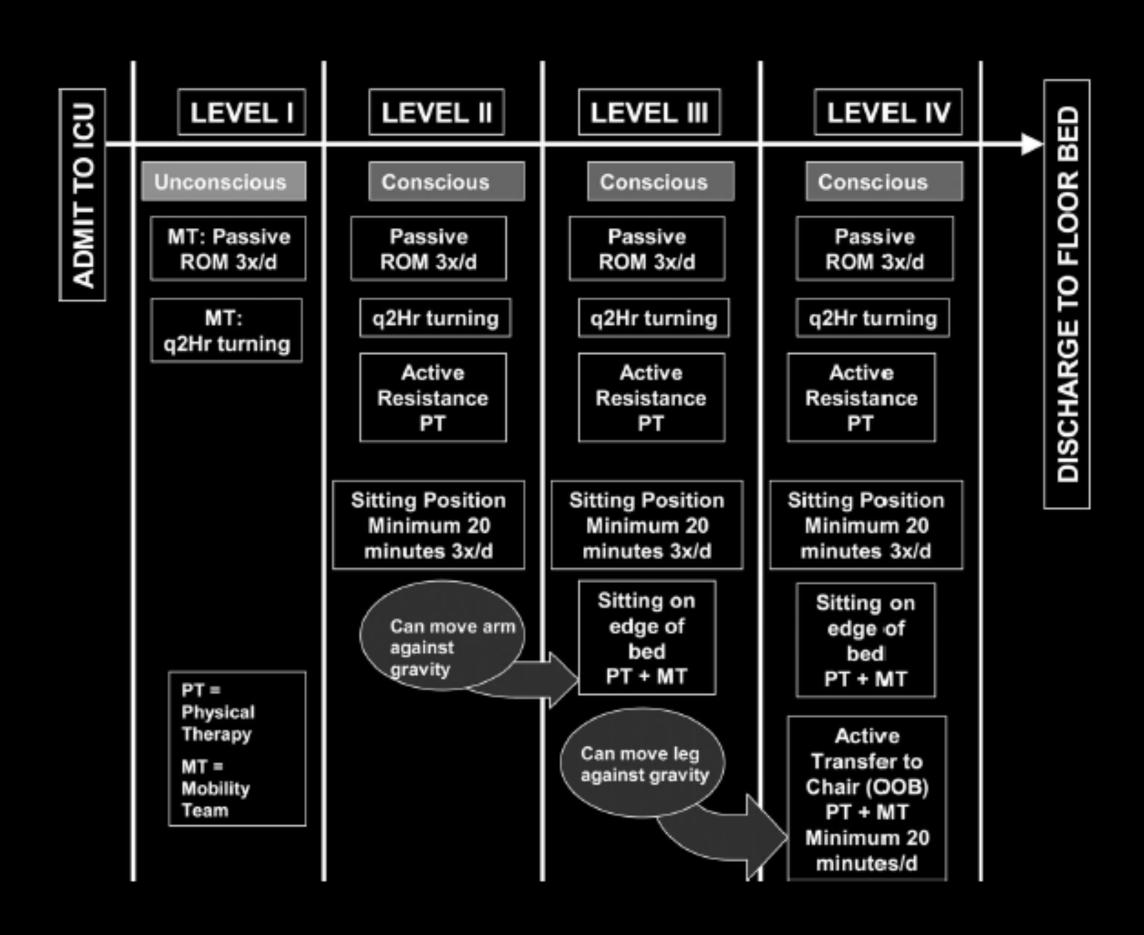
thickening clouds, colder late, highin low 40s. Weather map, Page D8.



# Plus Tôt!!

### Early intensive care unit mobility therapy in the treatment of acute respiratory failure\*

Peter E. Morris, MD; Amanda Goad, RN; Clifton Thompson, RN; Karen Taylor, MPT; Bethany Harry, MPT; Leah Passmore, MS; Amelia Ross, RN, MSN; Laura Anderson; Shirley Baker; Mary Sanchez; Lauretta Penley; April Howard, RN; Luz Dixon, RN; Susan Leach, RN; Ronald Small, MBA; R. Duncan Hite, MD; Edward Haponik, MD



## Early intensive care unit mobility therapy in the treatment of acute respiratory failure\*

Peter E. Morris, MD; Amanda Goad, RN; Clifton Thompson, RN; Karen Taylor, MPT; Bethany Harry, MPT; Leah Passmore, MS; Amelia Ross, RN, MSN; Laura Anderson; Shirley Baker; Mary Sanchez; Lauretta Penley; April Howard, RN; Luz Dixon, RN; Susan Leach, RN; Ronald Small, MBA; R. Duncan Hite, MD; Edward Haponik, MD

	Usual Care (n = 135)	Protocol (n = 145)	p
Days to first out of bed	13.7 (11.7–15.7)	8.5 (6.6–10.5)	<.001
Days to first out of bed (adjusted <sup>a</sup> )	11.3 (9.6–13.4)	5.0(4.3-5.9)	<.001
Ventilator days	$9.0\ (7.5-10.4)$	7.9(6.4-9.3)	.298
Ventilator days (adjusted <sup>a</sup> )	10.2 (8.7–11.7)	8.8 (7.4–10.3)	.163
ICU LOS days	8.1 (7.0–9.3)	7.6 (6.3–8.8)	.084
ICU LOS days (adjusted <sup>a</sup> )	6.9(5.9 - 8.0)	5.5(4.7-6.3)	.025
Hospital LOS days	17.2 (14.2 - 20.2)	14.9 (12.6–17.1)	.048
Hospital LOS days (adjusted <sup>a</sup> )	14.5 (12.7–16.7)	11.2 (9.7–12.8)	.006

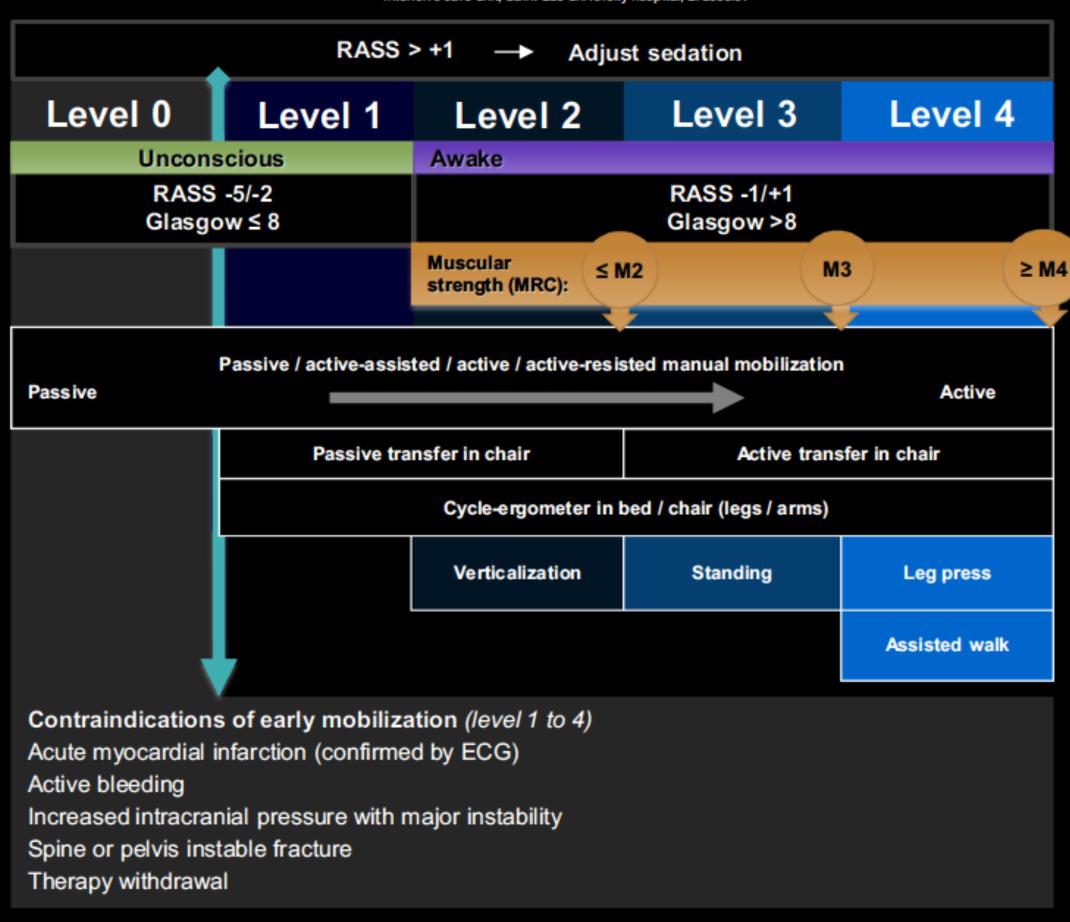
## Teamwork enables high level of early mobilization in critically ill patients



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

#### Early mobilization protocol

M. Patri, CE. Hickmann, E. Bialais, J. Dugernier, P-F Laterre, J. Roeseler Intensive care unit, Saint Luc university hospital, Brussels.



Feasibility and safety of early combined cognitive and physical therapy for critically ill medical and surgical patients: the Activity and Cognitive Therapy in ICU (ACT-ICU) trial

N. E. Brummel

T. D. Girard

E. W. Ely

P. P. Pandharipande

A. Morandi

C. G. Hughes

A. J. Graves

A. Shintani

E. Murphy

B. Work

B. T. Pun L. Boehm

T. M. Gill

R. S. Dittus

J. C. Jackson

	Coma/Stupor (RASS -5 / -4)	Arouses to Voice (RASS -3 / -2)	Alert/ Calm (RASS -1, 0, +1)
ğ.j	Passive ROM	Passive ROM	Active Exercises
Therapy (daily)		Sit	Sit at Edge of Bed
SalT			Stand/Transfer
Physical			ADL Training
₫.			Walk
			***************************************
ik)	No Intervention	Orientation	Orientation
herap e daily			Digit Span Forward
/e T			Matrix Puzzle
Cognitive Th (twice			"Real World"
တိ			Digit Span Reverse
			Noun List Recall
			Paragraph Recall
			Letter-Number Sequences
			Pattern Recognition

## ACRM AMERICAN CONGRESS OF REHABILITATION MEDICINE

#### Archives of Physical Medicine and Rehabilitation

journal homepage: www.archives-pmr.org

Archives of Physical Medicine and Rehabilitation 2017; ■: ■ ■ - ■ ■



ORIGINAL RESEARCH

# Intensive Early Rehabilitation in the Intensive Care Unit for Liver Transplant Recipients: A Randomized Controlled Trial

Pierre Maffei, Sandrine Wiramus, MD, Laurent Bensoussan, MD, PhD, Laurence Bienvenu, Eric Haddad, Sophie Morange, MD, Mohamed Fathallah, PhD, Jean Hardwigsen, MD, Jean-Michel Viton, MD, PhD, Y. Patrice Le Treut, MD, Jacques Albanese, MD, PhD, Emilie Gregoire, MD, PhD

Table 4 Number of days between entry into the ICU and first sitting on the edge of bed, first sitting in a chair, first walking, and first transit; duration of mechanic ventilation; and LOS in ICU, MCU, and hospital

		Usual Treatment Group (n=20)	Experimental Group (n = 20)	P*
First sitting on the edge of bed	Mean ± SD	10±13	3±2	.048*
First sitting on a chair	Mean ± SD	10±13	4±4	.114
First walking	Mean ± SD	22±9	31±38	>.99
First transit	Mean ± SD	6±3	4±2	.015*
Ventilation, h	Mean ± SD	30.4±48.5	11.7±13	.104
	Median (min-max)	8.5 (2-168)	6 (3-59)	
LOS in ICU, d	Mean ± SD	14.3±20	12±15.7	.690
	Median (min-max)	7 (3-94)	7 (2-73)	
LOS in MCU, d	Mean ± SD	8±6.3	7±10	.863
	Median (min-max)	2.5 (0-27)	0 (0-17)	
LOS in ICU plus MCU, d	Mean ± SD	19.3±21	15.2±16.1	.499
	Median (min-max)	11.5 (4-94)	10 (3-73)	
LOS in Surgery department, d	Mean ± SD	11.6±7.2	12.7±7.8	.644
	Median (min-max)	9.5 (3-29)	10 (4-36)	
LOS in Hospital, d	Mean ± SD	31±25	28±18	.672
	Median (min-max)	22 (12-123)	21 (11-89)	

Abbreviations: max, maximum; MCU, middle care unit; min, minimum.

<sup>\*</sup> Significant, Mann-Whitney U test.



CRÉÉ MODIFIÉ 08/03/2016 13:42

ELÉMENTS

Protocole de sevrage CRÉÉ MODIFIÉ 08/03/2016 10:12

ELÉMENTS

CRÉÉ MODIFIÉ 08/03/2016 10:10 ELÉMENTS

Protocle

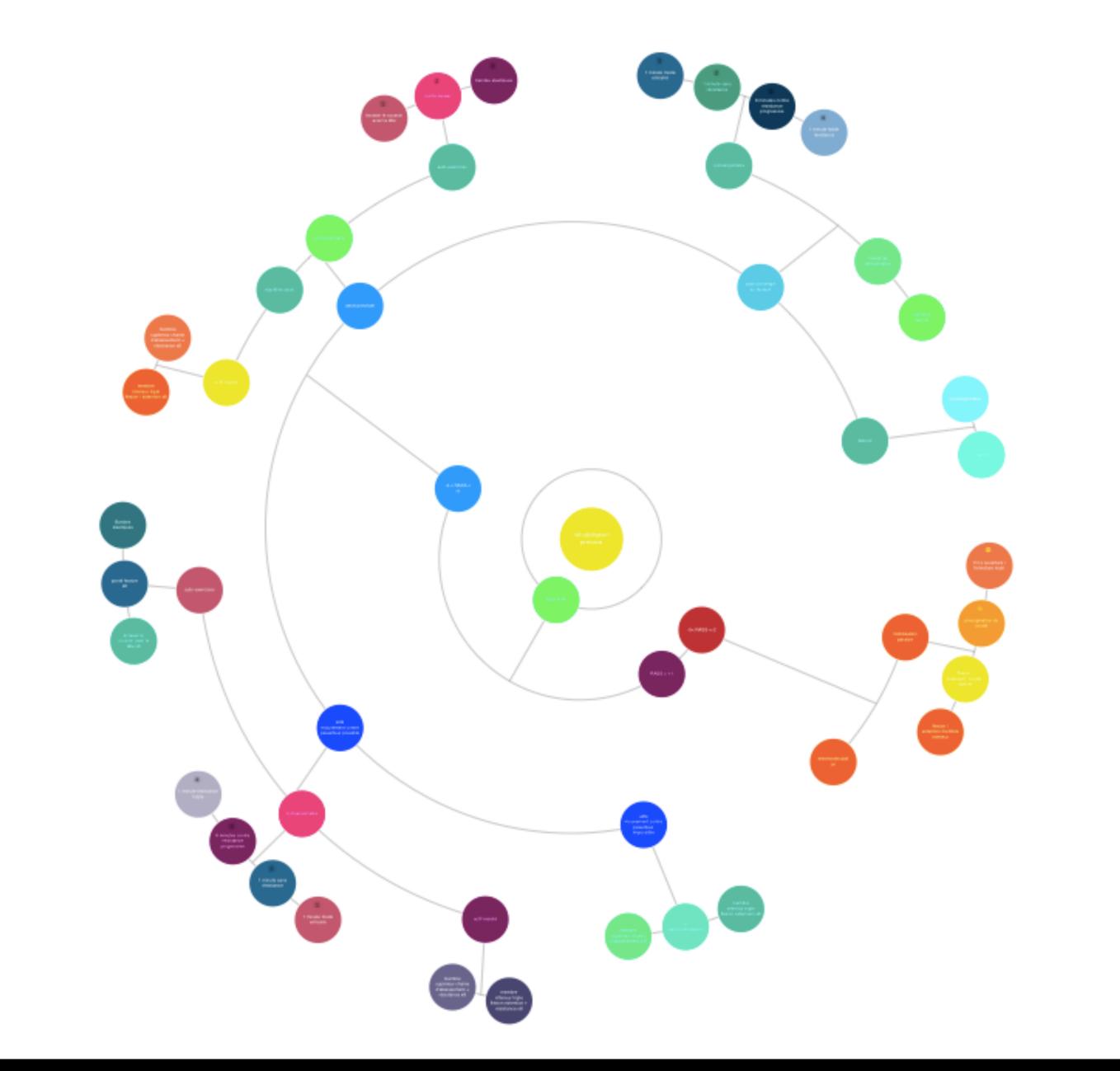
insuline

Protocole de Sedation CRÉÉ MODIFIÉ 06/03/2016 10:12 ELÉMENTS 64









### Protocole de réhabilitation

#### Réhabilitation précoce :

- -Lutter contre les troubles de l'alitement prolongé
- -Conserver l'indépendance fonctionnelle
- -Améliorer la qualité de vie
- Protocole standardisé pour une meilleure efficacité des soins sans nuire au patient
- Nécessite surveillance hémodynamique et ventilatoire
- Tolérance mesurée par une EVA d'Inconfort : Douleur, fatigue et gène respiratoire

EVA 0 pas d'inconfort 1-3 inconfort léger 4-6 inconfort modéré 7 inconfort sévère 4-6 inconfort



### Bilan Kiné

- Niveau conscience
- Niveau participation
- Bilan articulaire : déficit, attitudes vicieuses
- Bilan douleur, cutané
- Evaluation de la motricité
- -Motricité périphérique : Score MRC
- -Tonus Axial
- Bilan fonctionnel
- -Transferts
- -Equilibre assis, debout, marche
- -gestes vie quotidienne : boire, écrire.....

#### **MESURE**

#### Score MRC (Medical Research Council)

Fonctions évaluées (6 à droite et 6 à gauche)	Score attribué à chaque groupe musculaire
<ul> <li>Antepulsion du bras</li> <li>Flexion de l'avant-bras</li> <li>Extension du poignet</li> <li>Flexion de cuisse</li> <li>Extension de la jambe</li> <li>Flexion dorsale du pied</li> </ul>	0 = absence de contraction visible 1 = contraction visible sans mouvement du membre 2 = mouvement insuffisant pour vaincre la pesanteur 3 = mouvement permettant de vaincre la pesanteur 4 = mouvement contre la pesanteur et contre résistance 5 = force musculaire normale

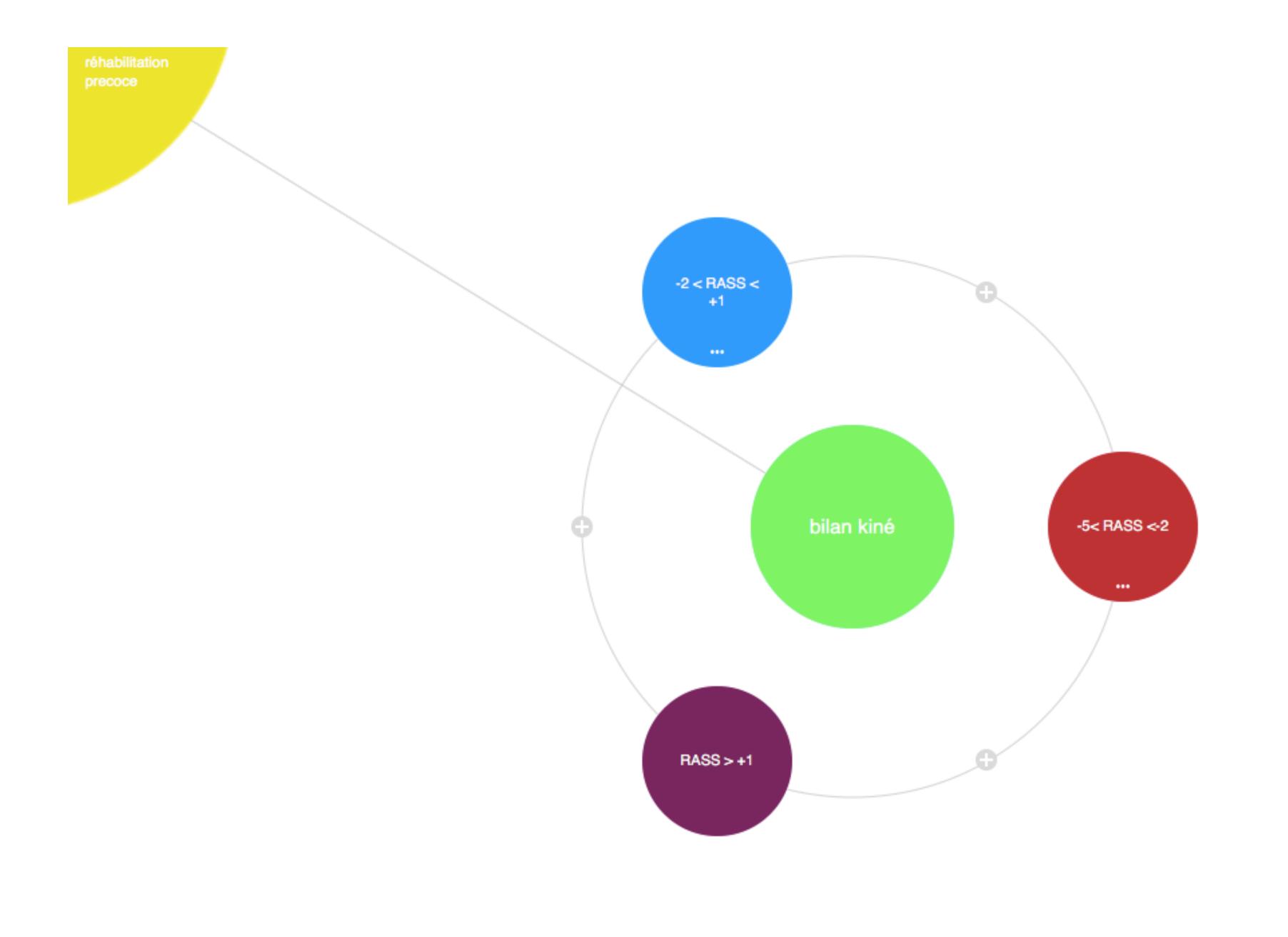
6

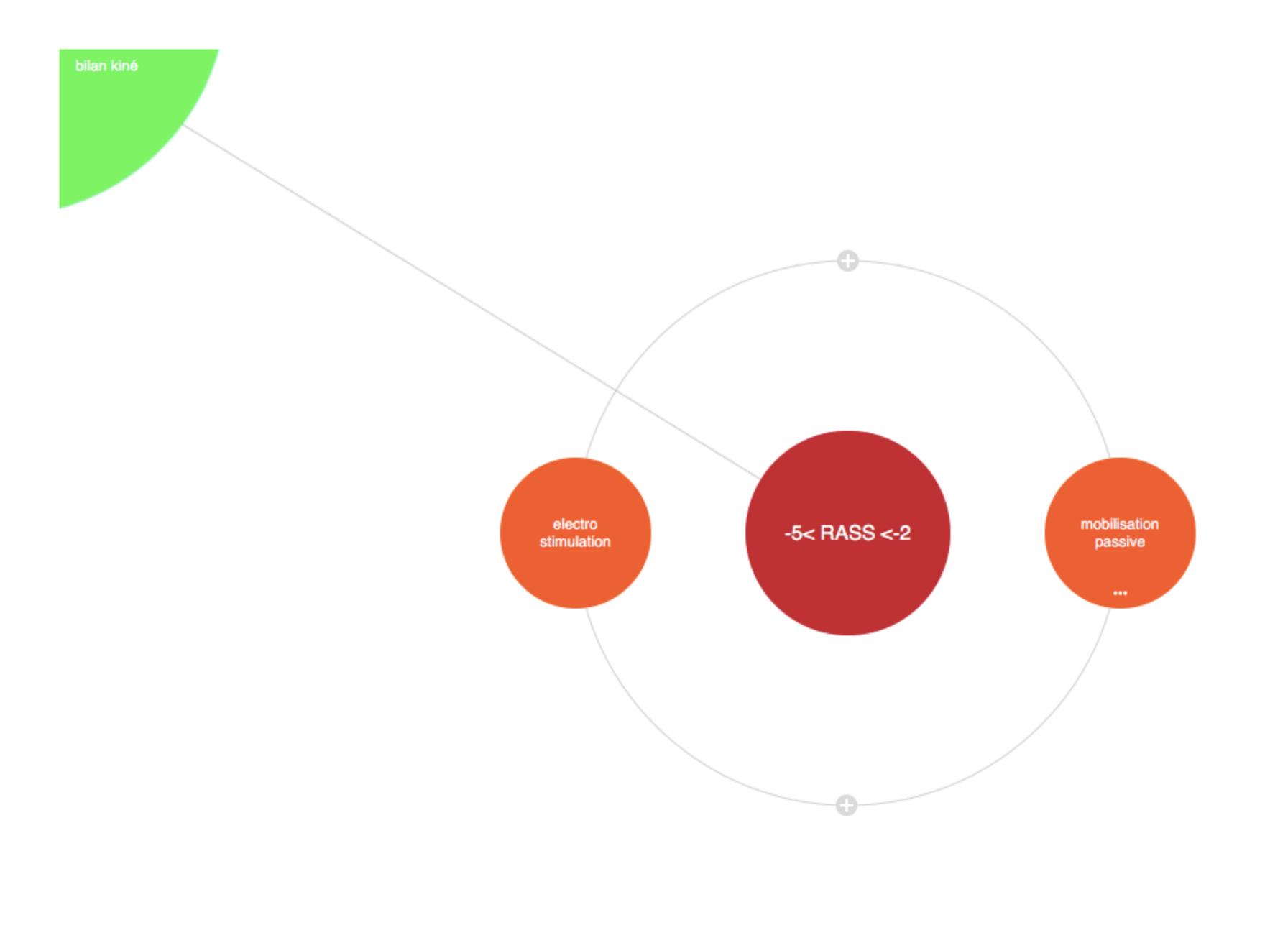
Si pathologie spécifique (neurologique, orthopédique)  $\rightarrow$  bilan kiné adapté et rééducation spécifique

Permet de définir les capacités et les déficiences du patient ainsi que les principes de précaution.

Permet d'adapter l'intensité et la durée des exercices en fonction de l'évolution du patient.

→ Réhabilitation adaptée







## Mobilisation passive

- Débutée le plus tôt possible
- Maintien des amplitudes articulaires en évitant les rétractions musculo-tendineuses
- Entretenir la trophicité musculaire
- Entretenir le schéma moteur, l'image mentale du mouvement.

• Etape préliminaire à la réhabilitation

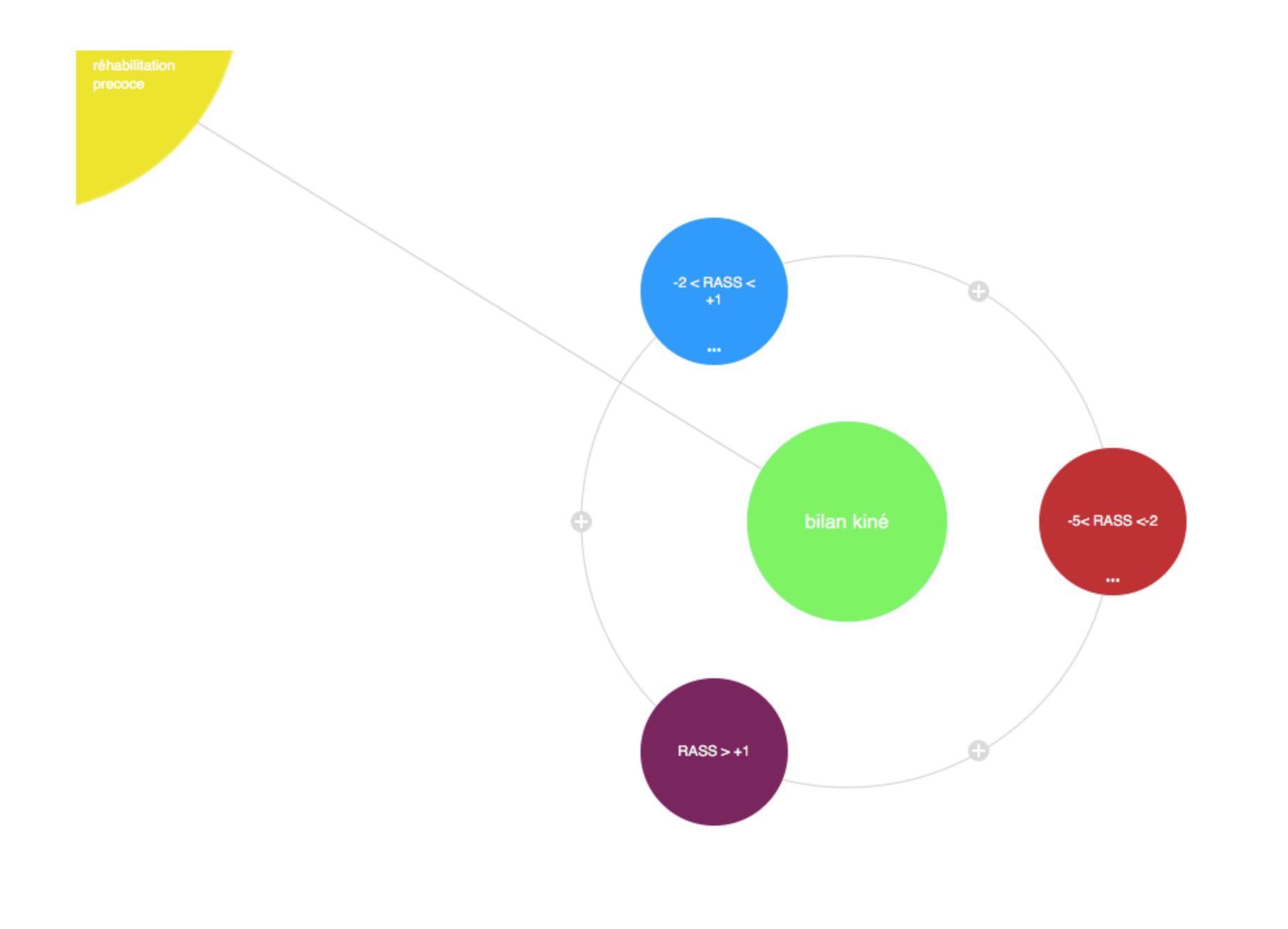
## Electrostimulation

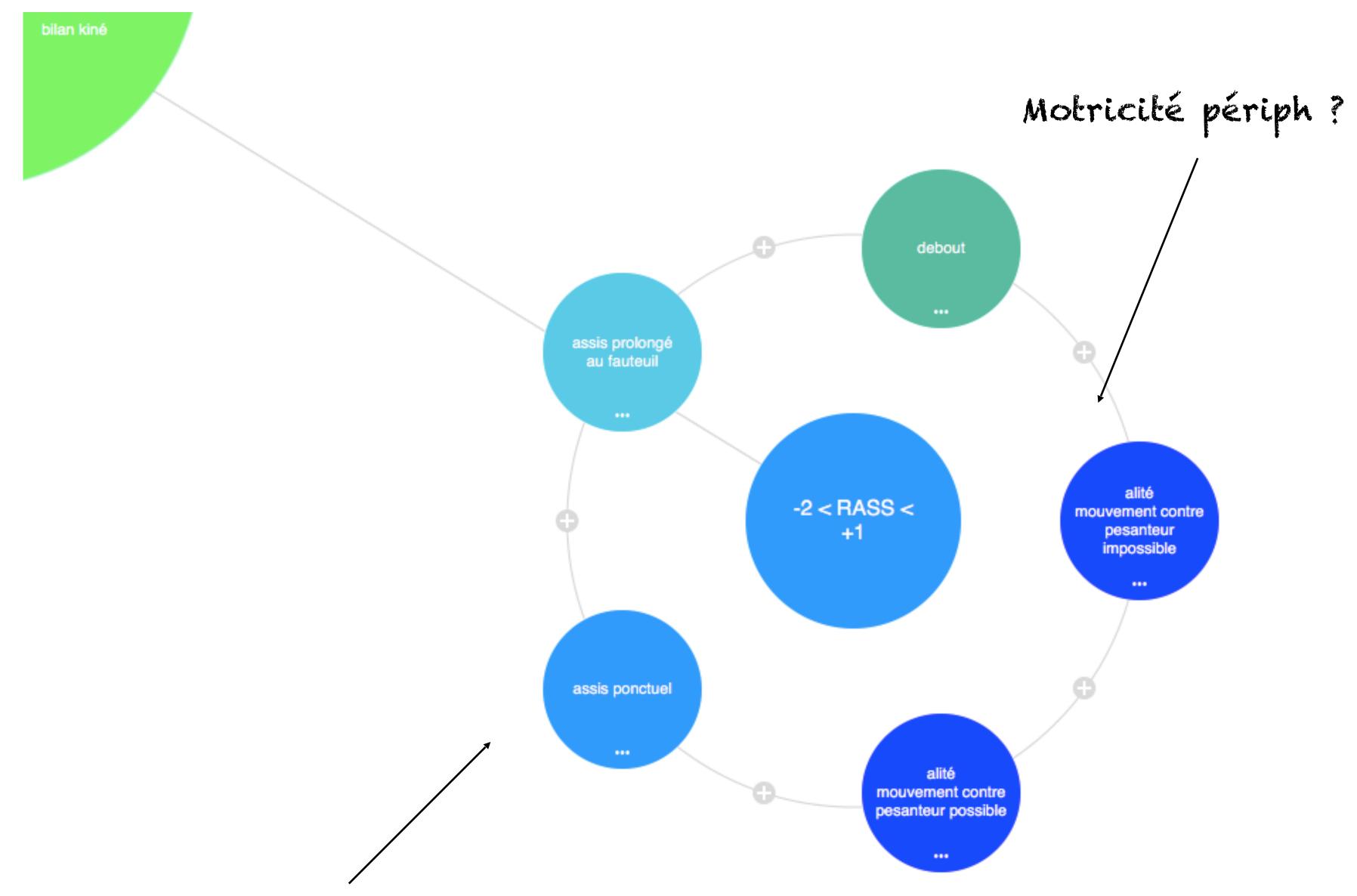
- Ne pas être délétère
- Gain de force musculaire



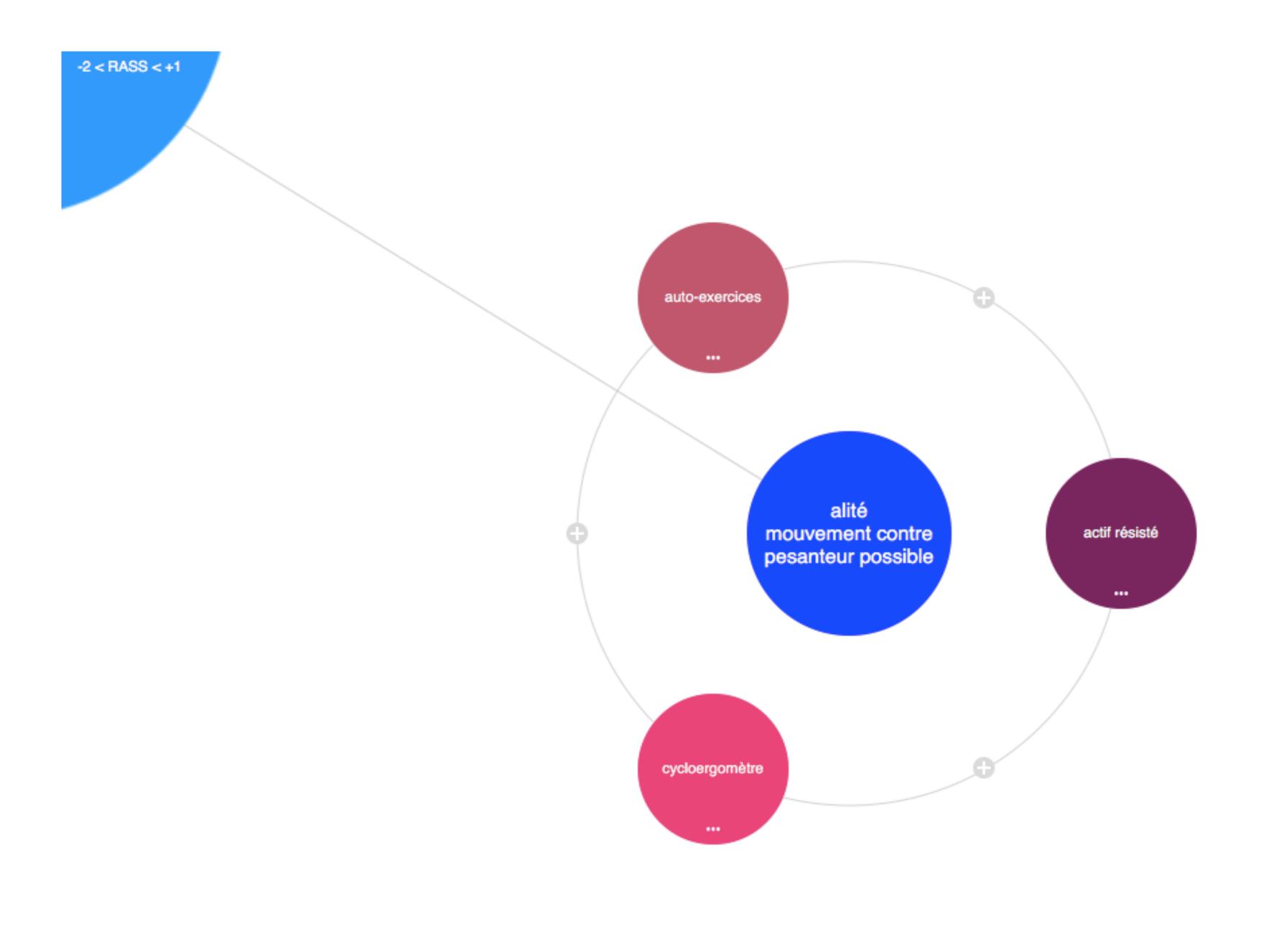
### Installation du patient

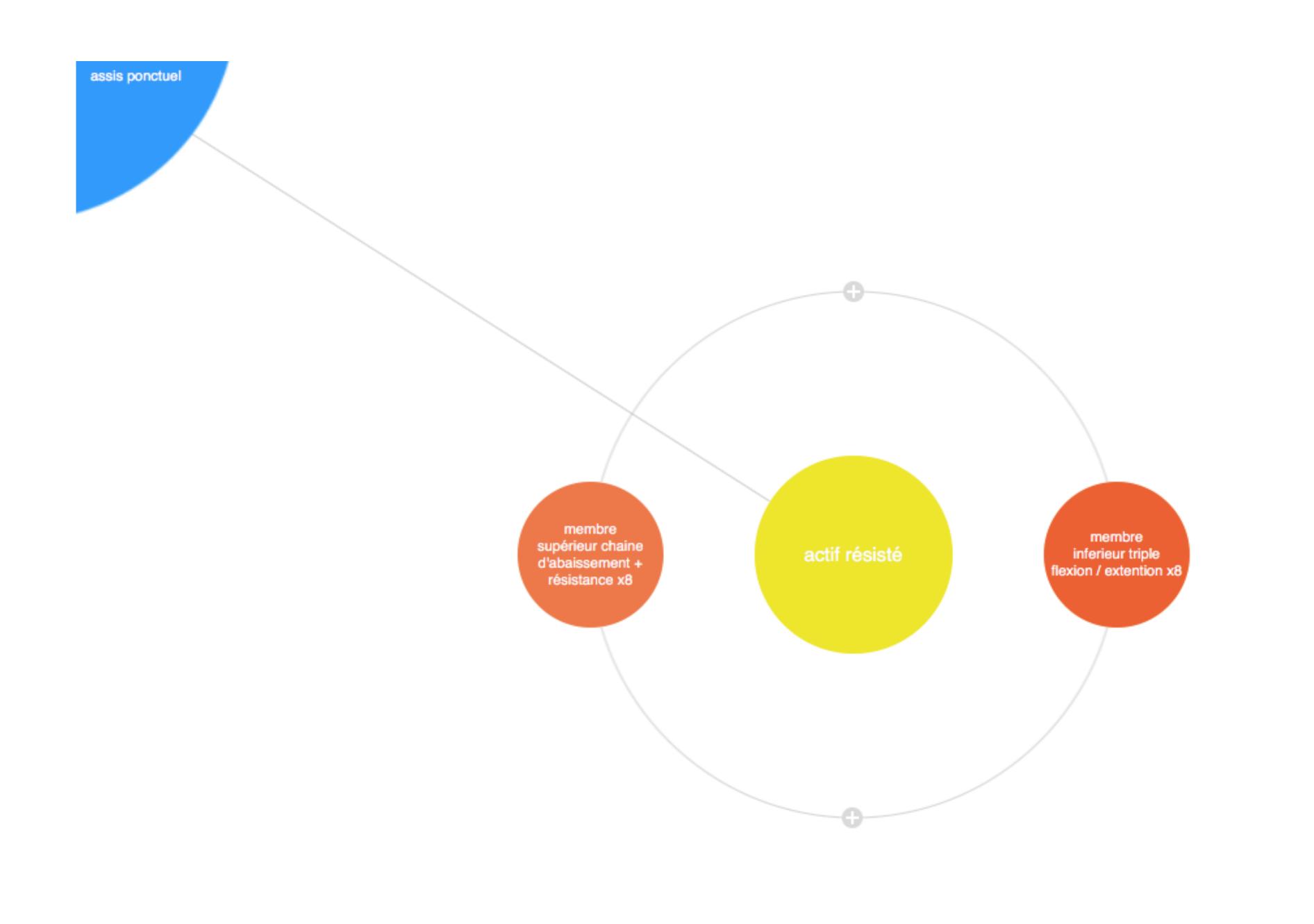
- Eviter attitudes vicieuses
- Articulations en position fonctionnelle
- Dossier relevé 45°, jambes surélevées
- Utilisation de coussins de positionnement, de gouttières





Tonicité axiale?





#### Mobilisation active

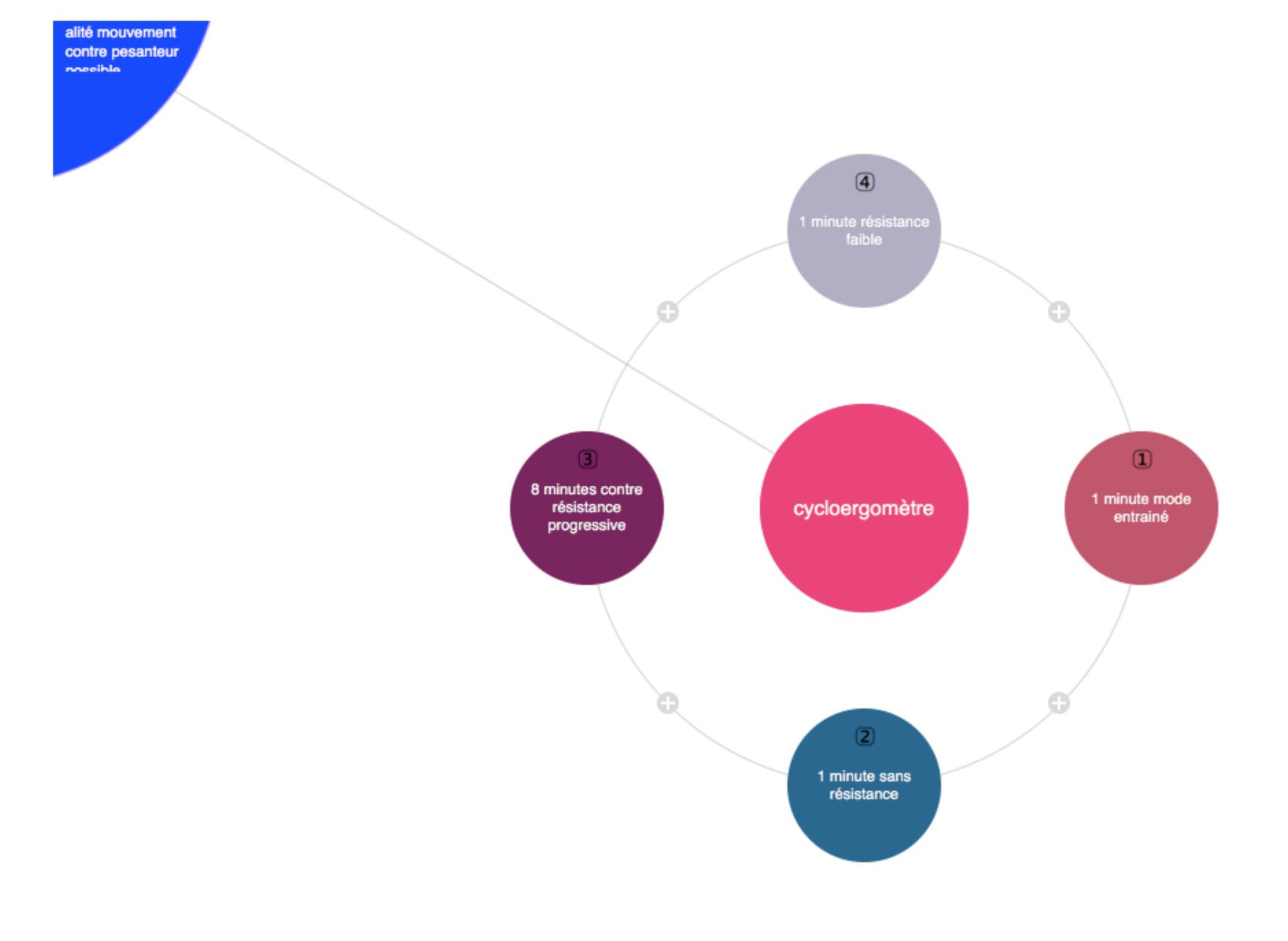
- Rechercher le plus tôt possible la collaboration du patient
- Notion d'encouragement primordiale, rôle de coaching du soignant
- Avec temps de repos Respect fatigabilité et douleur
- Progressive Actif-aidé, Actif libre, contre résistance.
- Bilans kiné réguliers pour réévaluer les capacités du patient et réadapter la réhabilitation



## Cycloergomètre

- En mode entrainé
- Contre résistance progressive
- Contrôle du genou





## Auto-exercices

- écrase coussin, ponté fessier
- balles, altères, travail de préhension ...
- implique le patient, début d'autonomie.

## Verticalisation progressive

- Implication de toute l'équipe pluridisciplinaire
- Préparation environnement
- Informer le patient pour obtenir son adhésion et sa participation
- Sollicitation progressive des muscles antigravitaires

#### Assis Ponctuel bord du lit

- Stimulation du tonus axial
- Travail équilibre assis
- Redressement axial actif
- Favoriser les stimulations proprioceptives : pieds au sol.



## Fauteuil

- Travail de la verticalisation
- Actif résisté, auto exercices, cycloergomètre avec résistance progressive
- Aides techniques (DBL, lèvemalade, ...)

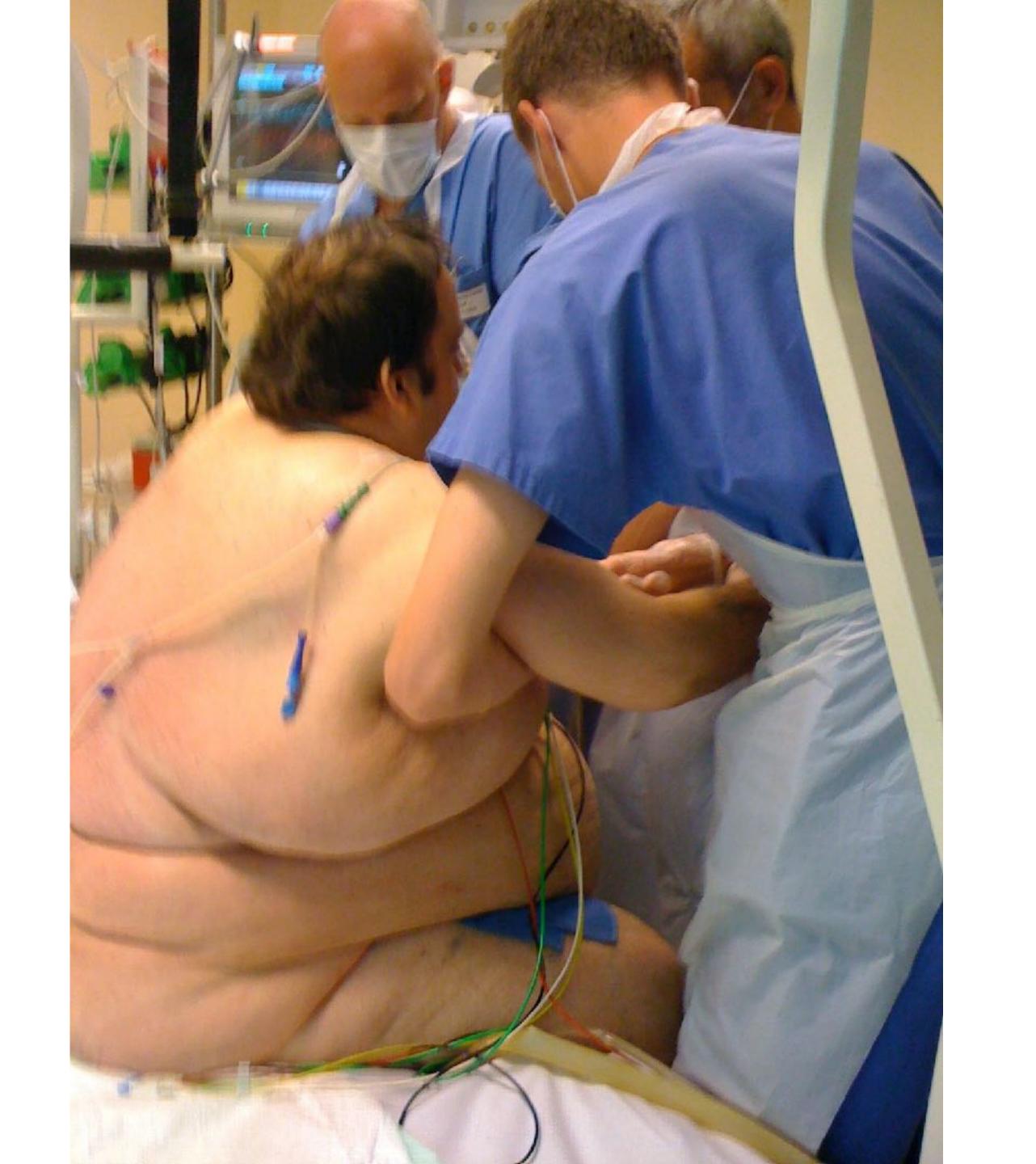


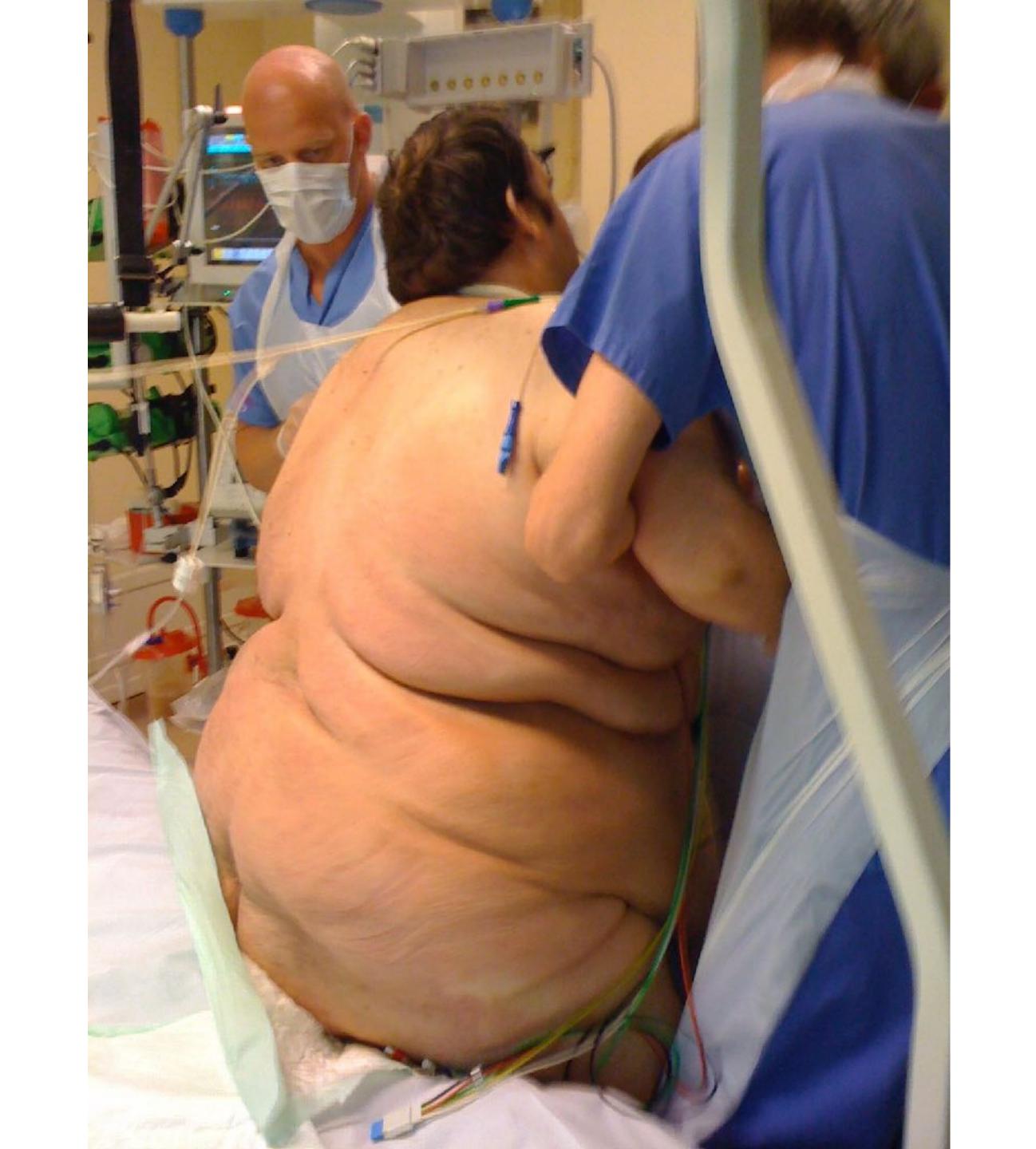
## Debout

- Renforcement musculaire en charge
- Travail équilibre
- Marche sur place puis augmentation périmètre marche













# Envisager dés l'admission







Early mobilization is an integral part of standard care



#### Sédation Coopérative



Réhabilitation précoce



# Oui mais pas chez moi

#### **FOCUSED REVIEWS**

#### Barriers and Strategies for Early Mobilization of Patients in Intensive Care Units



Rolf Dubb<sup>1</sup>\*, Peter Nydahl<sup>2</sup>\*, Carsten Hermes<sup>3</sup>, Norbert Schwabbauer<sup>4</sup>, Amy Toonstra<sup>5</sup>, Ann M. Parker<sup>6</sup>, Arnold Kaltwasser<sup>1</sup>, and Dale M. Needham<sup>7</sup>



### Barriers and Strategies for Early Mobilization of Patients in Intensive Care Units



Rolf Dubb<sup>1</sup>\*, Peter Nydahl<sup>2</sup>\*, Carsten Hermes<sup>3</sup>, Norbert Schwabbauer<sup>4</sup>, Amy Toonstra<sup>5</sup>, Ann M. Parker<sup>6</sup>,

### Barriers

### Strategy (References)

### Physical barriers

High severity of illness, patients "too sick" or "too well"

Hemodynamic instability, arrhythmias

Respiratory instability/distress, ventilator asynchrony

Pain

Poor nutritional status Obesity (e.g., BMI ≥30)

Baseline or new immobility/weakness

Neuropsychological barriers Deep sedation and/or paralysis

Delirium, agitation

Patient refusal, lack of motivation, anxiety

Fatigue, need for rest, sleepiness

Palliative care

ICU devices and equipment

ICU-related devices

Interprofessional meetings\*T; PT screening of

ICU patients\*† (32, 41, 42, 46) Stepwise approach\*†‡; protocols\*†‡; safety criteria\*<sup>†‡</sup>; avoid mobilization until 2 h after increase in vasopressor dose\*T, valid assessment \*<sup>†‡</sup> (9, 10, 19, 23, 24, 26, 31, 44, 46, 48, 50)

Stepwise approach to mobility, including a safety check after each step\*†‡; protocol for standardized mobilization, including safety criteria\*<sup>†‡</sup>; adjust F<sub>1O2</sub>, PEEP, or other ventilator settings for mobilization\* (9, 10, 19, 24, 26, 31)

Screen for pain\*T; provide pain medication before mobilization\*† (10, 48)

Perform nutritional screening<sup>‡\*</sup> (38)

Use protocol for standardized mobilization\*†‡ (33, 47, 48)

Initiate mobility within 24 h of admission\*T; re-evaluate daily\*†; consult neurology\*† (10, 24)

Perform routine assessments of sedation and pain\*T; target lighter sedation goals\*T; avoid medications with long half-lives\*11 interprofessional approach<sup>‡\*</sup> (10, 19, 44, 46-48, 50)

Delirium screening\*<sup>†</sup>; use of antipsychotics\*<sup>†</sup>; reduce benzodiazepine use\*1 (10, 25, 36, 44) Adjust treatment plan with patient input\*<sup>T</sup>;

provide patient education and encouragement\*T (9, 19, 25)

Safety criteria\*1; sleep protocols to improve sleep quality\*1 (10, 25, 27, 36)

Focus treatment on patient goals for quality of life <sup>‡</sup> (25)

Hemodynamic monitoring equipment Use portable monitors\*; secure application of equipment and lines\*† (10, 12)

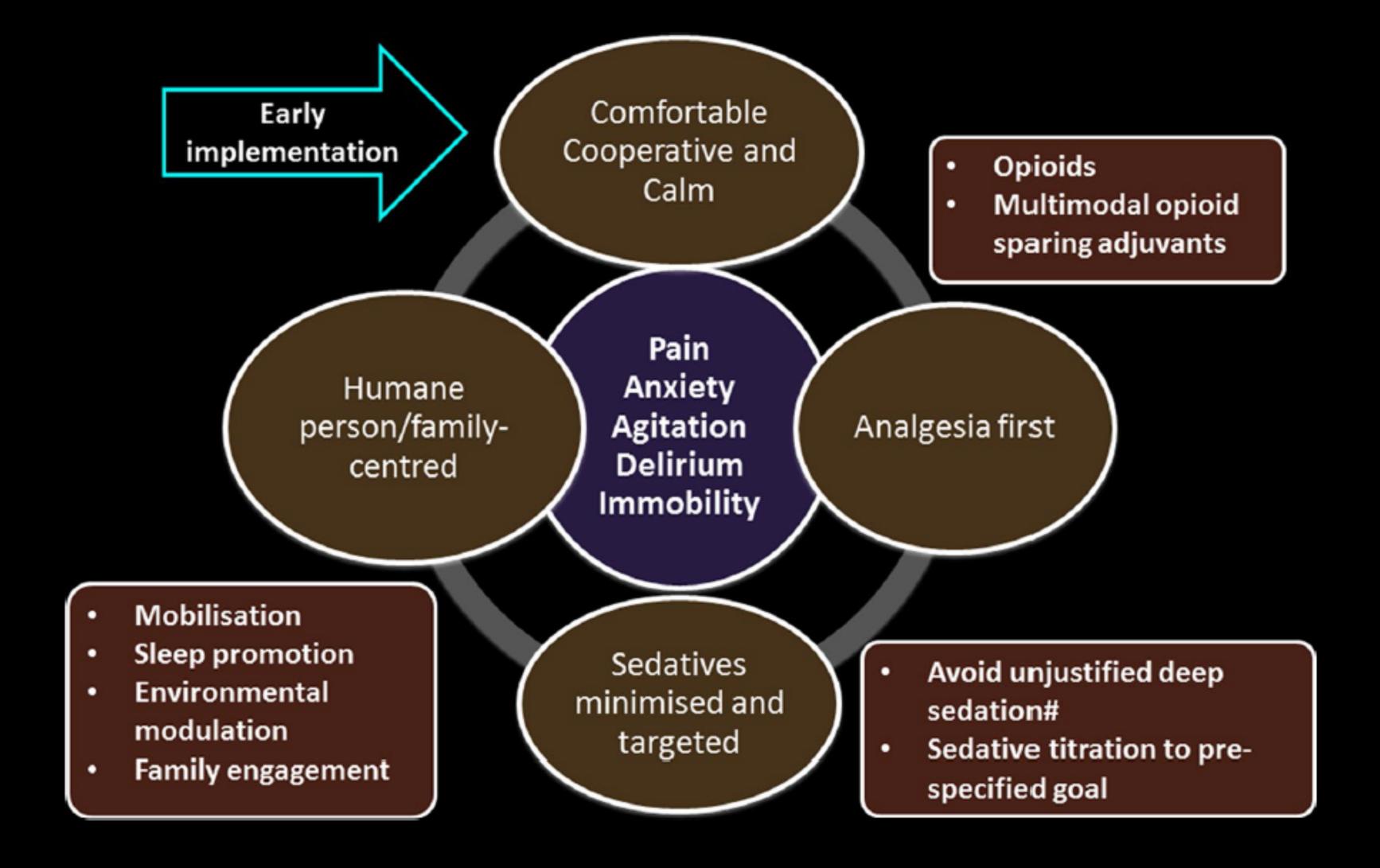
Stepwise approach to mobility\*†; secure lines/tubes/drains<sup>†</sup>; perform premobility planning\*†; interdisciplinary teamwork\*†‡; define responsibilities for each discipline\*17; strategic choice of catheter insertion location<sup>‡</sup> (9–13, 19, 27, 29, 39, 43, 44, 46–48)

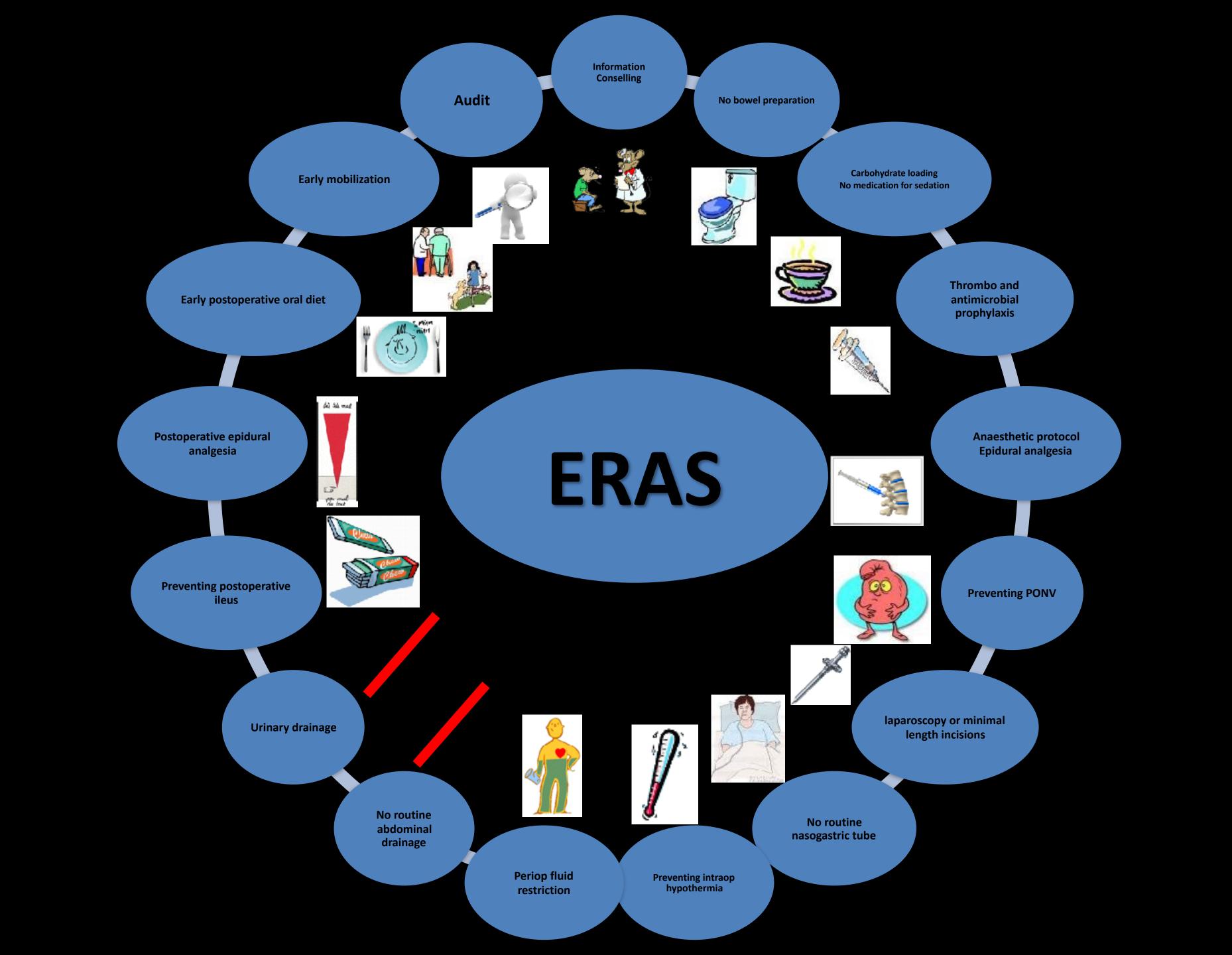
Barrière	Stratégie		
Patient trop grave, instable sur le plan hémodynamique, arythmique	Débuts progressifs, discussions multi-professionnelles, pas de mobilisation pendant 2h après augmentation des amines, critères d'évaluation précis		
Problèmes respiratoires	Débuts progressifs, protocoles incluant les paramètres du ventilateur.		
Douleur	Evaluation de la douleur, analgésie avant les exercices.		
Dénutrition	Evaluation de la dénutrition, assurer un apport suffisant.		
Obésité	Utiliser un protocole spécifique. Mobiliser plus de ressources humaines.		
Sédation	Cibler une sédation légère, évaluer quotidiennement la sédation et l'analgésie, éviter les molécules à demi-vie longue, favoriser les échanges multi-professionnels		
Delirium	Evaluer et détecter le delirium, traiter si delirium productif, éviter les benzodiazépines.		
Refus du patient, faible motivation	Mettre en avant le but en ciblant que la qualité de vie.		
Moniteurs et équipement encombrants	Favoriser les moniteurs portables		
Drains, sondes, cathéters	Approche progressive, sécuriser les drains sondes cathéters avant mobilisation		
EER	Contrindiquer si accès vasculaire en fémoral. Possible en cave >. Favoriser pose cathéter en cave >.		

# Pas possible ...

## Comfort and patient-centred care without excessive sedation: the eCASH concept

Jean-Louis Vincent<sup>1\*</sup>, Yahya Shehabi<sup>2</sup>, Timothy S. Walsh<sup>3</sup>, Pratik P. Pandharipande<sup>4</sup>, Jonathan A. Ball<sup>5</sup>, Peter Spronk<sup>6</sup>, Dan Longrois<sup>7</sup>, Thomas Strøm<sup>8</sup>, Giorgio Conti<sup>9</sup>, Georg-Christian Funk<sup>10</sup>, Rafael Badenes<sup>11</sup>, Jean Mantz<sup>12</sup>, Claudia Spies<sup>13</sup> and Jukka Takala<sup>14</sup>









CARING FOR THE

### Initial Trophic vs Full Enteral Feeding in Patients With Acute Lung Injury The EDEN Randomized Trial

per let he per distribute of these heatest to mention the standard committee to the letting problem.

Main Concern Measures Vermittee-her days to make \$1.00 km \$2.00 km to the heatest annual committee the measurement of the heatest annual committee the heatest annual com ming, formulation, and amount of MAAA previous relief of the desiration remain makes make the second Heritages, and the remainment of the second Heritages, and the remainment of the second Heritages, and the second second Heritages, and the second In fact, 1986 FEXES SEED AUGUST COST.

The authors work have been broken and been broken and been broken and been broken and been authorized by the seed and been broken and been broken and been authorized by the seed and the seed and been authorized by the seed and the seed

### ORIGINAL ARTICLE

### Permissive Underfeeding or Standard Enteral Feeding in Critically III Adults

Yassen M. Arabi, M. D., Abdulaziz S. Aldawond, M. D., Samir H. Haddad, M. D. Hasan M. Al-Dorzi, M.D., Hani M., Jamim, M.P.H., Ph.D., Gwynne Jones, M.D. Sangeeta Mehta, M.D., Laurahn McInyle, M.D., Othman Solaimar, M.D., Maram H. Sakkijha, R.D., Mushasaf Sadat, M.B., B.S., and Lara Afesh, M.S.N., for the Permit Trial Group?

weby. The appropriate coloric goal for critically ill adults is unclear. We evaluated the for Health Eclerons and King Abdullah effect of restriction of non-protein calones (permassive underfeeding), as compared international Wedical Research Center
(YMALKA SHH HMALD FMT) with standard enteral Reeding, on 90-day mortality among critically ill adults, with MJLS, MS, LA), and Key falsal Sport maintenance of the full recommended amount of protein in both groups, callet Hospital and Emerch Center (0.5.)—all in Reach Saud Ambie the Department of Internal Mediates Associated Sports of Internal Mediates Sports of Internal Mediates Sports of Interna

Force of the particular of the groups (57+74 g per day and 50+75 g per day, respectively. Pa(0.70). The 90-day complete list of investigators in the mortality was similar. 121 of 445 patients (27.2%) in the permissive-underfeeding omplets for of investigation in the provided provided in the standard Heeding group died tiefative mining likewish provided provided provided provided Dan SR). We seeming 17 and Group is provided Dan SR). We seeming a theory of the provided provided Dan SR). We seeming a three events were reported; there were no significant any Appardix, wishing between group differences with respect to feeding integrance, diamete, intertions enablebrat on May 20, 2015, securited in the intensive care unit (ICU), or ICU or hospital length of stay.

Enteral feeding to deliver a moderate amount of nonprotein calories to critically ill adults was not associated with lower mortality than that associated with planned delivery of a full amount of composition calories. (Bunded by the King Abdullah International Medical Research Center: Permit Current Controlled That's number,

### THE MEN' BROKERD JOURNAL SPREDICTIFF

### ABSTRACT

Department of steamed Markins, Areasi
on Unbrandy of Bellan Nordical Court.
Releast 1 showes (4 MT) and two Department of Markins, Dictains of Cellul Care Markins, Dictains, many outcome was 90 day mortality.

Golder Can Medicing De-

### Early versus On-Demand Nasoenteric Tube Feeding in Acute Pancreatitis

C.J. Bakker, S. van Brunezhot, H.C. van Santocoek, M.L. Bercelink, J.L. Bet M.A. Bocomcence, C.H. Dejong, H. van Goog, K. Booscha, U.Ahree AE, S. Bou W.M. van Gerwandern, J. Hancher, J. A. F. Ghasphender, G.F. van de Santocoek, V.B. Nicarenhuit, A.F. Schasphender, G.F. van de Santocoek, G.F. van d

### A RETRACT

Faily critical feeding the angle a monoraterial feeding table to often used in patients with sower score parametrists to present gui-derived information for the standard of limited. We concluded a multication, randomized trial comparing out a randomized trial comparing with an oral data at 11 feeting after constraints. For the state of times and or constituted a market and, the dominated final companies of the constitute of the state of th

in the contract of the Plant in the ingress according to the second according to the contract of the second according to the s

A total of LM patients were area led at 10 United Acopatals. The paramy and point of total of 100 patients (SOL) in the early group and in 20 of 101 patients (SOL) in the early group and in 20 of 104 (20%) in the on-demand group (risk rates, 1210) 100, confidence entired, 12.00 to 1.00 to 1.00 parameters are not received and income different temporary and the confidence in the confidence of death [120], and 70, respectively, P=0.331; In the confidence in the parameter of the confidence of the

This trial did not show the superiority of early associated who find as compensative and the state of the superiority of early associated who find as one of the superiority as the state of the superiority and the state of the superiority and the superiority and the superiority of the superiority o

ORIGINAL ARTICLE

Permissive Underfeeding or Standard Enteral Feeding in Critically III Adults

Yasari M. Arabi, M.D., Abdulazia S. Alrizannori, M.D., Sarnir H. Harkiari, M.D.,
Hasan M. Al-Dorzi, M.D., Harri M. Tarnim, M.P.H. Ph.D., Gwynne Jones, M.D.,
Sangeeta Mehta, M.D., Lauralyn McIrtyre, N.D., Othman Sclaiman, M.S.,
Maram H. Sakkijha, R.D., Musharaf Sadat, M.B., B.S., and Lara Afesh, M.S.N.,
for the PermiT Trial Group?

### ARSTRACT

The appropriate calonic goal for critically ill adults is unclear. We evaluated the foliate appropriate calonic goal for critically ill adults is unclear. We evaluated the foliate foliate (permissive underfeeding), as compared for effect of restriction of nonprotein calonies (permissive underfeeding), as compared for with standard enteral feeding, on 90-day mortality among critically ill adults, with M.H.S. with standard enteral feeding, on 90-day mortality among critically ill adults, with M.H.S. maintenance of the full recommended amount of protein in both groups.

At zoon contors, we randomly assigned 204 critically if adults with a medical, we experience contors, we remove admission category to permission materials (40 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements) or standard enteral feeding (70 to 100%) for up calculated calonic requirements (70 to 100%) for up calculated (70 to 100%) for up c

Baseline discontinuities were similar in the two properties of the patients aware reserving mechanical ventilation. Evering the intervention period, the permissive sender state of the properties of the permissive winders and properties of the permissive of the per beweargusty liferences with respect to feeling intolerance, that is sequined in the intensive care unit (ICI), or ICI or hespital length of

Enteral freeding to deliver a moderate amount of nonprotein calories to critically ill and delivery of a full amount of nonprotein calories. (Funded by the King Abdullah International Medical Kesearch Center, Permit Carrent Controlled Trials number, 15%CTM 68144998.)

The NEW ENGLAND JOURNAL of MEDICINE

### ORIGINAL ARTICLE

### Trial of the Route of Early Nutritional Support in Critically Ill Adults

Sheila E. Harvey, Ph.D., Francesca Parrott, M.Sci., Dovid A. Harrison, Ph.D. Danielle E. Bear, M.Res., Ella Segaran, M.Sc., Hichard Beale, M.B., B.S., Gooff Bellingan, M.D., Richard Leonard, M.B., B.Chir., Michael G. Mythen, M.D., and Kathryn M. Rowan, Ph.D., for the CALORIES Trial Investigators\*

### ABSTRACT

Uncertainty exists about the most effective route for delivery of early nutritional. From the Chrisal Irid: Unit, Intensive support in critically if adults. We hypothesized that delivery through the pasen

[SFH, FF, RAH, KM F], the Depart.

teral route is superior to that through the enteral route.

(XFM, FP, Da M, KM E), the Department of the State (Da. 2), and Adult Critical Care (Da. 2), and St. Thomas' NHS Foundation.

We concluded a pragmatic, randomized trial involving adults with an unplanned admission to one of 33 English intensive care units. We randomly assigned patients.

[LS, RL], the Division Cadema, Allegy and Calendaria, All who could be fed through either the parenteral or the enteral route to a delivery route, with nutritional support initiated within 36 hours after admission and contimed for up to 5 days. The primary outcome was all-cause mortality at 30 days. — unity College London Hospitals BHG

We enrolled 2400 patients; 2388 (99.5%) were included in the analysis (1191 in the parenteral group and 1197 in the enteral group). By 30 days, 399 of 1388 patients (34.2%) in the parenteral group and 409 of 1195 patients (34.2%) in the enteral group had died fieldstwe risk in parenteral group, 0.37; 97% confidence interval, 0.86 to 1.08; P=0.37). There were significant reductions in the parenteral group, as compared with the enteral group, in rates of hypoglycemia (44 patients D.7%) vs. •A complete lix of the investigators and 74 patients [6,2%]; P=0,006) and vomiting (000 patients [8,4%] vs. 194 patients committee members in the CALDRES [16,2%], P<0,001). There were no significant differences between the parenteral analysis produces at NijM.org. group and the enteral group in the mean number of treated infectious complica-tions (0.22 vs. 0.21; P= 0.72), 90-day mortality (442 of 1184 patients E7.7%) vs. 464 This wide was probled on Ornshell of 1188 patients (39.1%), P=0.40), in rates of 14 other secondary outcomes, or in rates of adverse events. Caloric intake was similar in the two groups, with the target — Doc totocopulativeses intake not achieved in most patients.

### CONCLUSIONS

We found no significant difference in 30-day mortality associated with the nutterof. delivery of early autritional support in critically ill adults. (Funded by the United Kingdom Mational Institute for Health Research; CALORIES Current Controlled Trials number, ISECTOR17386141.)

### arly Parenteral Nutrition in Critically III Patients Vith Short-term Relative Contraindications Early Enteral Nutrition

Randomized Controlled Trial

a Service, ESS	of religious or distribution in
della i Americani, 1986	led robbie INO problems
on II. Finder, HCCM	Objective Trainbertie while
man State of State of	
Sppa T. Baighan, MN	medical labour Distance 200
NAME OF TAXABLE PARTY.	Impath in Each Bill and Nov Zu
nal Wheep POIN	the section of the place of
King District	interestion Deler Bed
to Poda, KSO	and the second second
in this Pill broadpains of the	Breefe Abill of 1773 pilled
CHARLES THE REAL PROPERTY.	PRO CHEED pulliarly requiring of
Subolica sussession scraffs	
in rowmen car alone the	3.0 Filler's making skip Pil s
1960/ and is assessed as the	MAIL RPHI SPRING
standard of our live private	
Control of the Contro	

Dept of C. 1934 Management (Market Solid







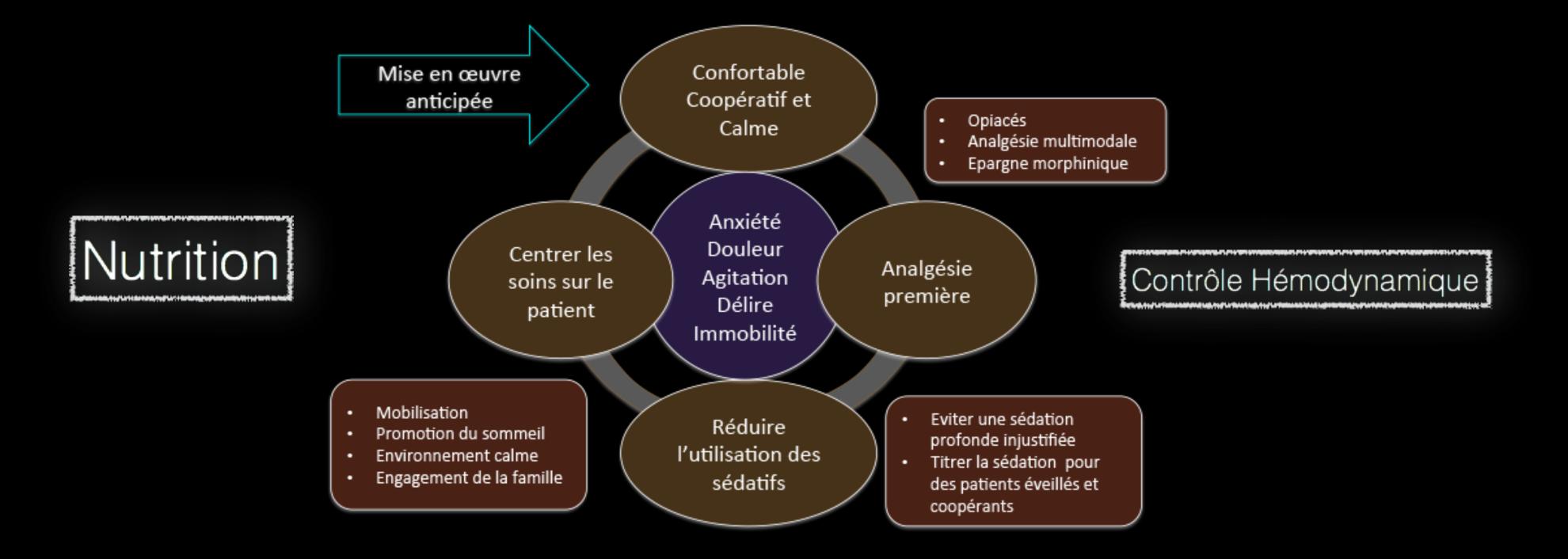








### Remplissage Vasculaire



Ventilation mécanique

# Conclusion

# Réhabilitation Précoce en Réanimation

# Possible

# Recommandé



Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit

### Statements and Recommendations



- Delirium assessment should be routinely performed in all ICU patients (1B).
- The CAM-ICU and ICDSC delirium monitoring tools are the most valid and reliable scales to assess delirium in ICU patients (A).
- Mobilize ICU patients early when feasible to reduce the incidence and duration of delirium, and to improve functional outcomes (1B).
- Promote sleep in ICU patients by controlling light and noise, clustering patient care activities, and decreasing stimuli at night (1C).
- Avoid using rivastigmine to reduce the duration of delirium in ICU patients (1B).
- Suggest avoiding the use of antipsychotics in patients who are at risk for torsades de pointes (2B).
- Suggest not using benzodiazepines in ICU patients with delirium unrelated to ET0H/benzodiazepine withdrawal (2B).

### Statements and Recommendations



- Delirium assessment should be routinely performed in all ICU patients (1B).
- The CAM-ICU and ICDSC delirium monitoring tools are the most valid and reliable scales to assess delirium in ICU patients (A).
- Mobilize ICU patients early when feasible to reduce the incidence and duration of delirium, and to improve functional outcomes (1B).
- Promote sleep in ICU patients by controlling light and noise, clustering patient care activities, and decreasing stimuli at night (1C).
- Avoid using rivastigmine to reduce the duration of delirium in ICU patients (1B).
- Suggest avoiding the use of antipsychotics in patients who are at risk for torsades de pointes (2B).
- Suggest not using benzodiazepines in ICU patients with delirium unrelated to ETOH/benzodiazepine withdrawal (2B).

### Statements and Recommendations



- Delirium assessment should be routinely performed in all ICU patients (1B).
- The CAM-ICU and ICDSC delirium monitoring tools are the most valid and reliable scales to assess delirium in ICU patients (A).
- Mobilize ICU patients early when feasible to reduce the incidence and duration of delirium, and to improve functional outcomes (1B).
- Promote sleep in ICU patients by controlling light and noise, clustering patient care activities, and decreasing stimuli at night (1C).
- Avoid using rivastigmine to reduce the duration of delirium in ICU patients (1B).
- Suggest avoiding the use of antipsychotics in patients who are at risk for torsades de pointes (2B).
- Suggest not using benzodiazepines in ICU patients with delirium unrelated to ETOH/benzodiazepine withdrawal (2B).

### WHAT'S NEW IN INTENSIVE CARE



Implementing early physical rehabilitation and mobilisation in the ICU: institutional, clinician, and patient considerations

Selina M. Parry<sup>1\*</sup>, Peter Nydahl<sup>2</sup> and Dale M. Needham<sup>3,7,5</sup>

### Team

### A) Identify & address barriers

- Create inter-professional team
- Identify specific local barriers
- Select strategies to address barriers
- Re-evaluate progress frequently

### B) Engage team

- Identify champions across each discipline
- Motivate team to lead change

### C) Educate

- Skills training
- Bed side teaching & case scenarios
- Train in clinical decision making

### D) Communicate & Coordinate:

- Coordinate with pain, sedation/agitation, and delirium status and interventions
- Perform daily inter-professional rounds & define goals for today

### Patient

- 1) Evaluate pre-ICU & current functional status
- 2) Assess current physiological status
- 3) Evaluate feasibility & safety
- 4) Select mobility target & intervention(s)
- 5) Communicate & reinforce goals
- 6) Perform interventions
- 7) Evaluate progress

- Evaluate premorbid function and ICU-related impairments; consider frailty evaluation and an ICU-specific functional scale (e.g. PFIT-s, FSS-ICU, IMS, CPAx)
- Indude assessment of pain, sedation, and delirium status using recommended instruments (e.g. CPOT, RASS, CAM-ICU)
- Evaluate if benefits outweigh potential risks, and what interventions are feasible with available resources
- Set areas to target (e.g., strength, endurance, aerobic capacity, ADLs)
- Select appropriate interventions & combine with other daily care activities
- Plan & coordinate with team and patient; consider integration of family
- Set & reinforce dynamic individualized goals
- Prepare required equipment, and secure lines, tubes and medical devices
- · Perform step wise interventions, re-assessing safety status and criteria
- Assess patient progress at least weekly & at ICU discharge, with handover to next team

Fig. 1 Approach to implementing physical rehabilitation and mobilisation in the ICU. Relevant considerations at both the team- and patient-level are outlined to enable implementation of physical rehabilitation and mobilisation in the intensive care unit

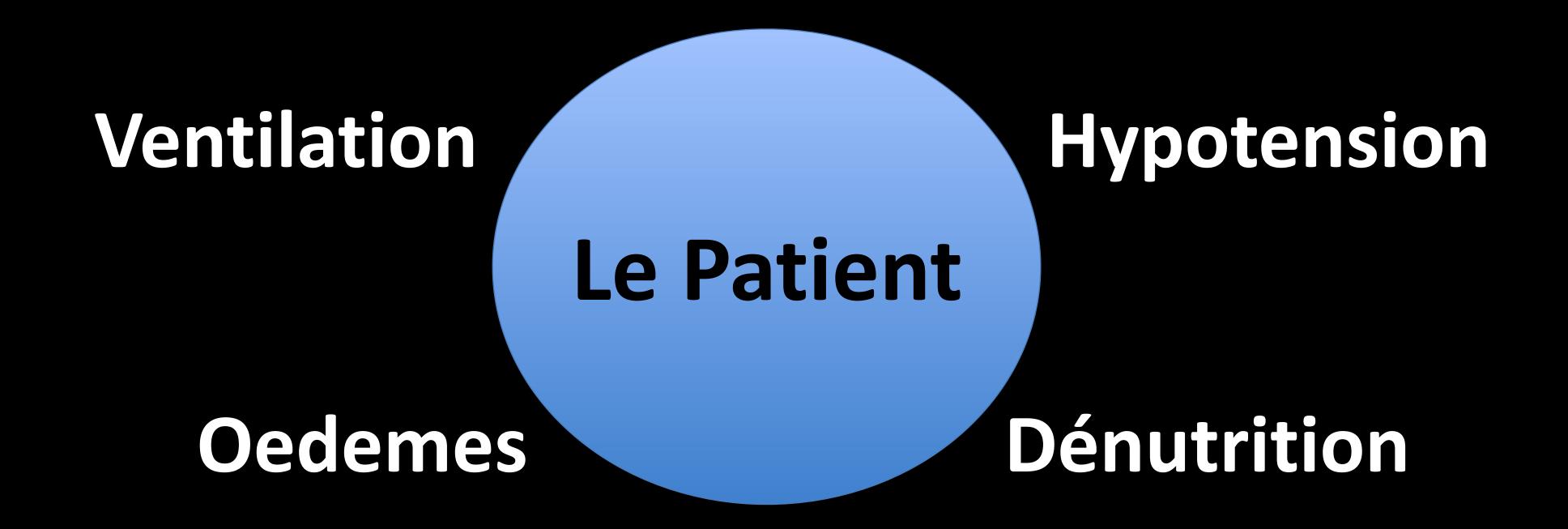
# Protocole progressif

# Multidisciplinaire

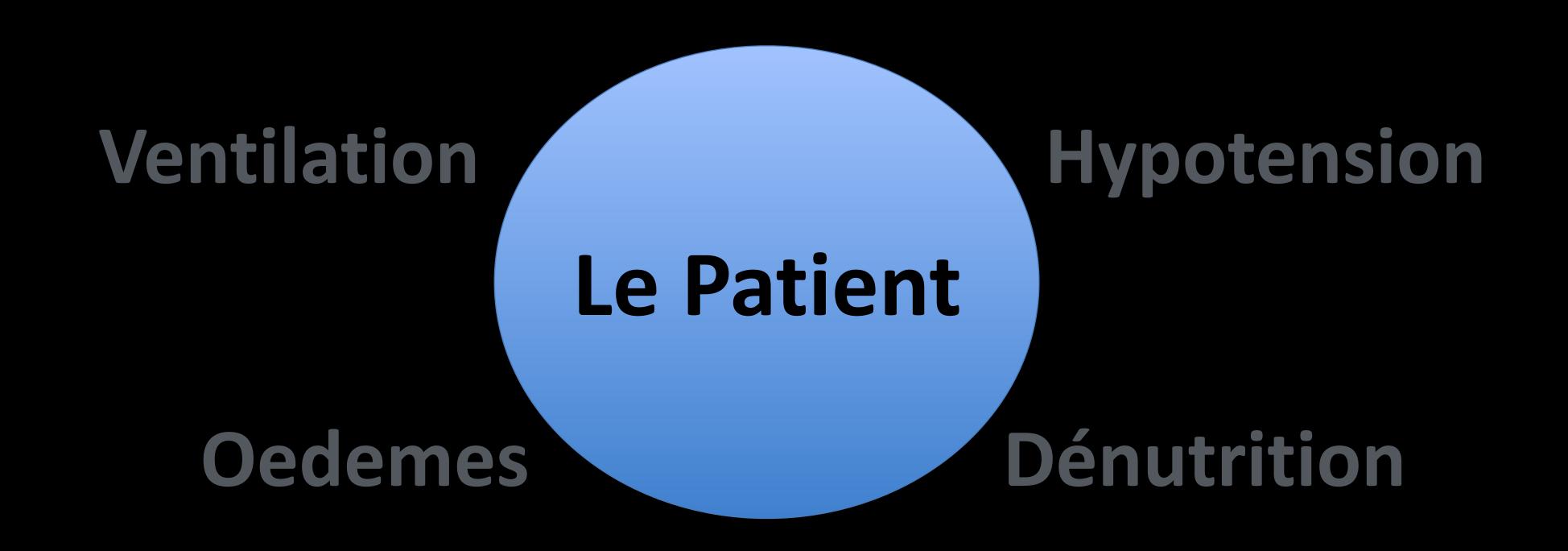
# Standard de soin

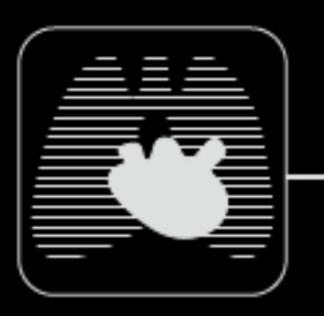
# Réhabilitation précoce

Sédation



# Qualité des Soins Sédation





## CHEST

### **Editorials**

CHEST | Volume 144 | Number 1 | July 2013

## Surviving the ICU Does Not Mean That the War Is Over

Merci de votre attention ...