L'électrothérapie

Controverse

CONTRE

Guillaume FOSSAT

Pt searcher, CHU Orléans

PhD student, Université Paris-saclay, UR 20201

Enseignant Université d'Orléans

guillaume.fossat@chr-orleans.fr

AUCUN CONFLIT D'INTERÊT

LAROUSSE

électrothérapie

nom féminin

Traitement utilisant l'énergie électrique ou l'enregistrement de l'activité électrique musculaire.

https://www.larousse.fr/dictionnaires/francais/%C3%A9lectroth%C3%A9rapie/28349#:~:text=activit%C3%A9%20%C3%A9lectrique%20musculaire.-,%C3%A9lectroth%C3%A9rapie%20n.f.,de%20l'activit%C3%A9%20%C3%A9lectrique%20musculaire.

TOUS LES AVIS

Par **Véronique D.** le 23 Nov. 2022 :

(5/5) ★★★★★

Produit évalué : **Multisport Pro Filaire sport électrostimulation musculaire**

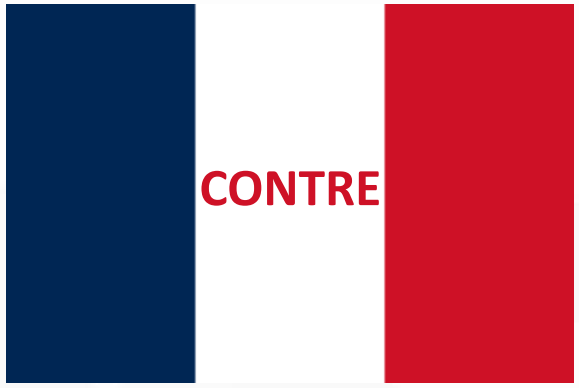
fontionne très bien

> je suis très satisfaite de ce produit. J'ai repris du muscle et c'est très gratifiant. Je recommande.

L'ÉLECTROSIMULATION

L'électrostimulation permet de faire travailler la masse musculaire par zone pour des effets de massage de préparation avant effort, de récupération après efforts et de musculation.

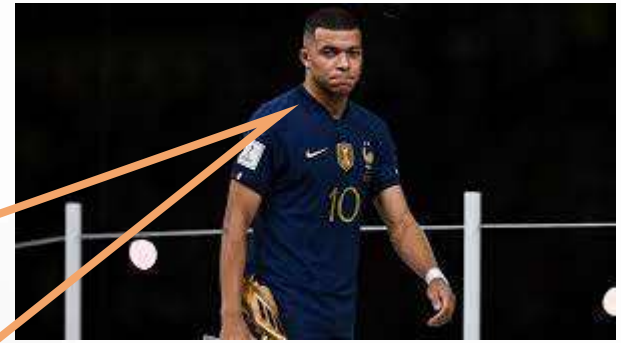
https://www.sport-elec.com/fr/



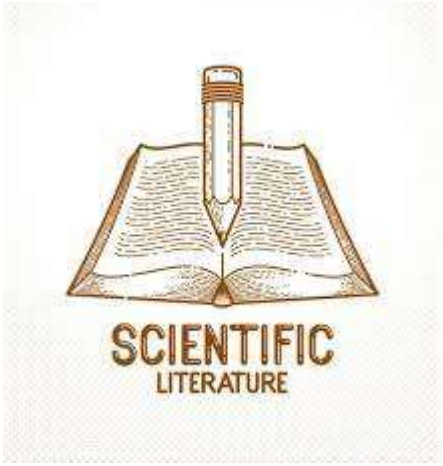
2

0

T'es pas censé défendre le contre?



Appuie toi sur la LITTÉRATURE SCIENTIFIQUE !



Mon premier argument scientifique

Les muscles des vrais patients de réanimation ne sont répondent pas à l'électrostimulation

Pourquoi cela ne fonctionne pas?

We were able to show that at the initiation of NMES, only two thirds of stimulations led to a contractile response in our cohort and that this number declined to one third throughout the first 7 days of stimulation, which we think is due to progressing pathophysiological processes. Established mechanisms that would hypothetically contribute to this effect are channelopathy, decreasing metabolic flexibility, advanced muscle atrophy and edema.

Table 1 Baseline characteristics

n		21
Sex (m/f)		16/76.2% / 5/23.8%
Age (years)		53.0 (45.0/70.0)
Weight (kg)		85.0 (75.0/100.0)
Height (m)		1.78 (1.74/1.80)
BMI (kg/m^2)		27.1 (24.2/30.9)
Diagnosis responsible for ICU admission	ARDS	8/38.1%
	Sepsis	3/14.3%
	Multiple trauma	7/33.3%
	Neurologic	2/9.5%
	Miscellaneous	1/4.8%
SOFA at ICU admission		13.0 (11.0/15.0)
APACHE II at ICU admission		25.0 (20.0/28.0)
SAPS2 at ICU admission		58.0 (47.0/65.0)
GCS at ICU admission		5.0 (3.0/6.0)
Time until first awakening (days)		17.0 (10.0/25.0)
ICU length of stay (days)		32.0 (21.0/43.0)
Percent of days with RASS > − 3 during ICU stay		64.3 (37.5/79.3)
Noradrenalin (µg/kg min)		0.07 (0.05/0.11)
Time requiring noradrenalin (days)		12.0 (9.0/18.0)
Survivors/non-survivors		18/85.7% / 3/14.3%
Non-excitable muscle membrane/excitable muscle membrane		7/50% / 7/50%
Start of NMES treatment after ICU admission (days)		3.0 (2.0/6.0)

Grunow et al. Critical Care (2019) 23:309
https://doi.org/10.1186/s13054-019-2540-4

Critical Care

RESEARCH Open Access

Differential contractile response of critically ill patients to neuromuscular electrical stimulation

Julius J. Grunow[1], Moritz Goll[2], Niklas M. Carbon[1], Max E. Liebl[2], Steffen Weber-Carstens[1,3] and Tobias Wollersheim[1,4*]

Patients

a Mechanically ventilated patients ≥ 18 years of age were included on the basis of a Sepsis-related Organ Failure Assessment (SOFA) score ≥ 9 within the first 72 h after ICU admission as well as written informed consent by a legal proxy and excluded if any of the following applied: prior hospital treatment for longer than 7 days, illness prohibiting early mobilisation, pre-existing neuromuscular disease, insulin-dependent diabetes mellitus, Body Mass Index > 35 kg/m^2, not ambulating before admission or poor prognosis with a high likelihood of death within the next hours.

relative contractile response

+

104

7

nities

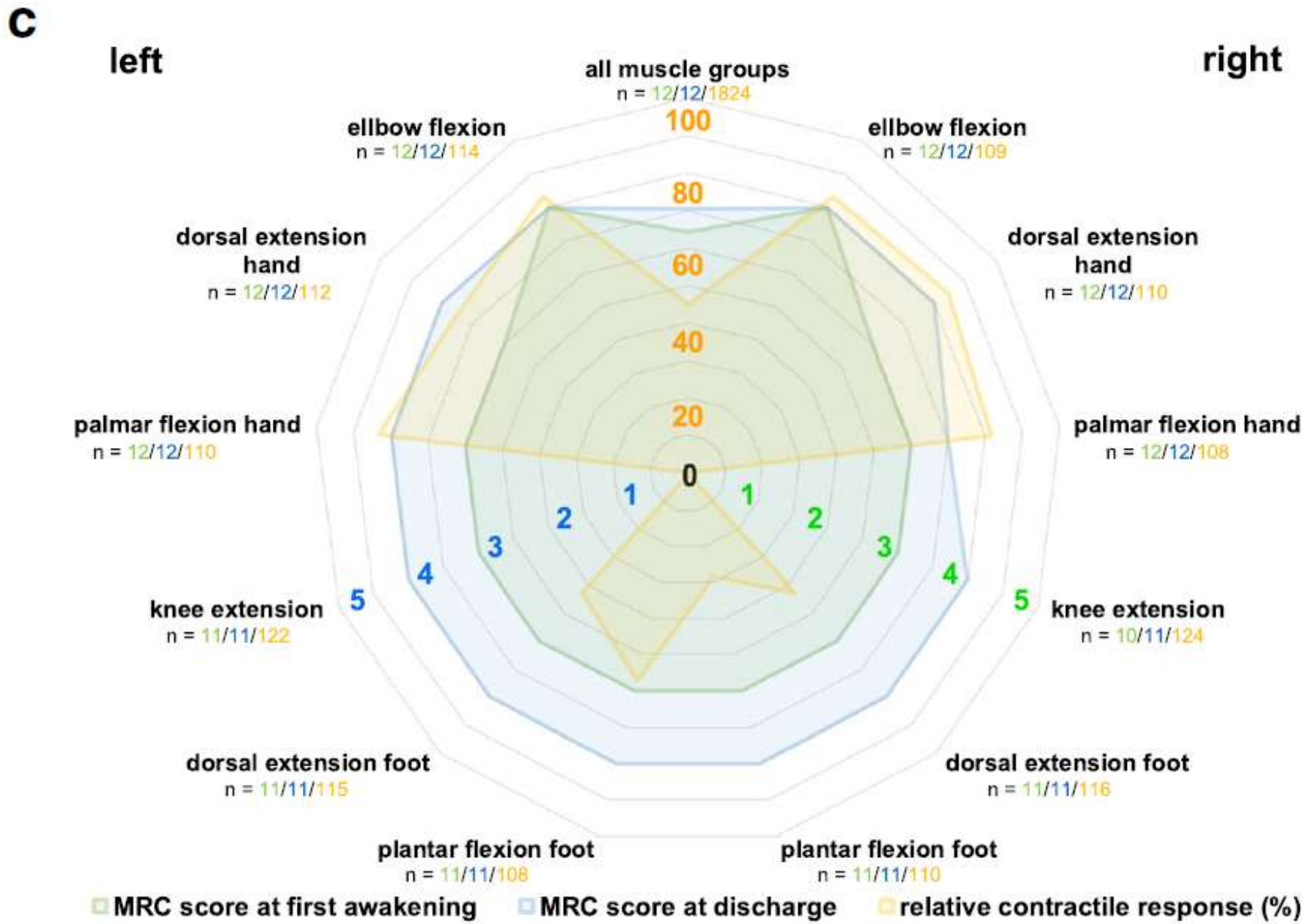
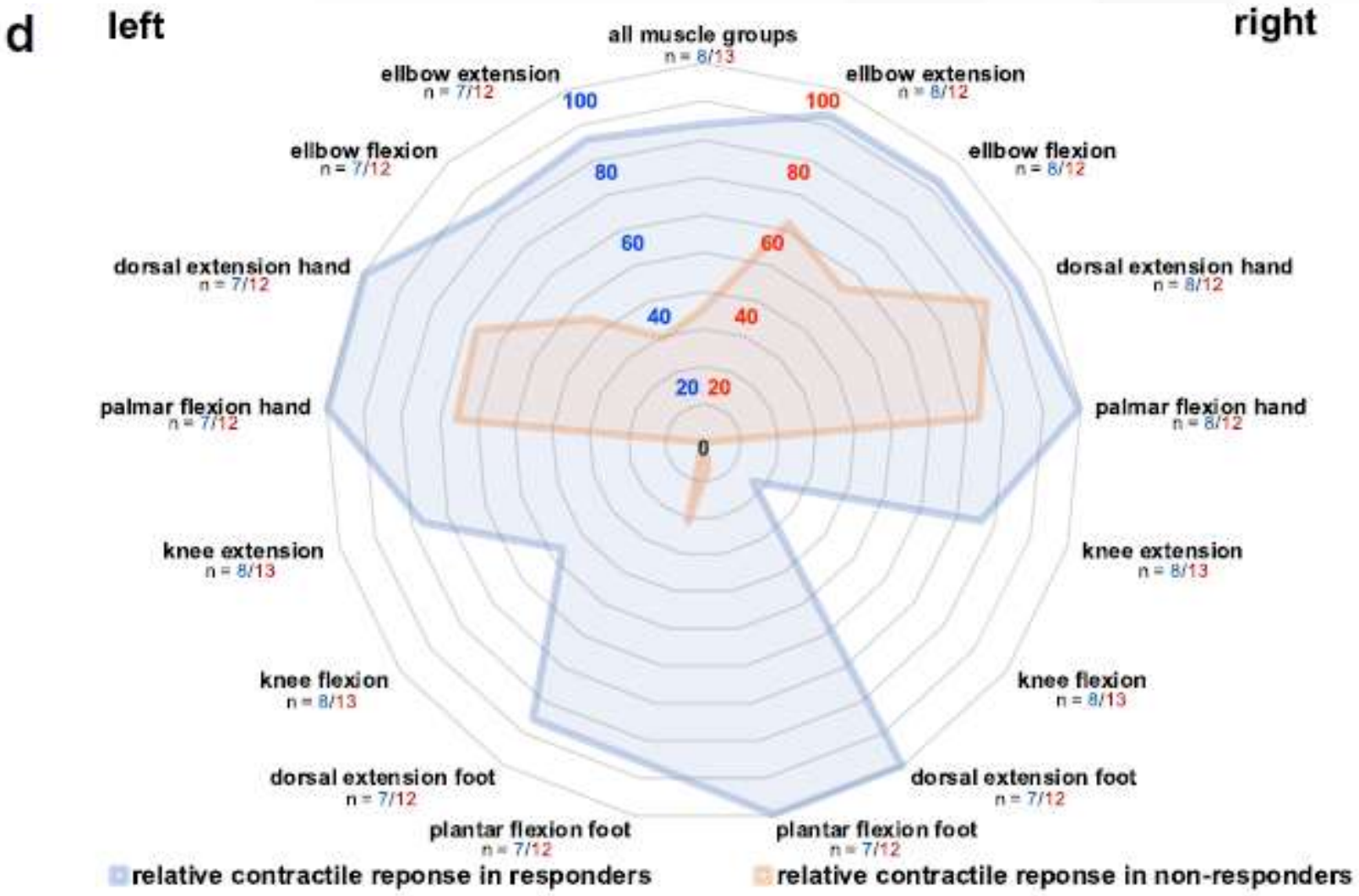
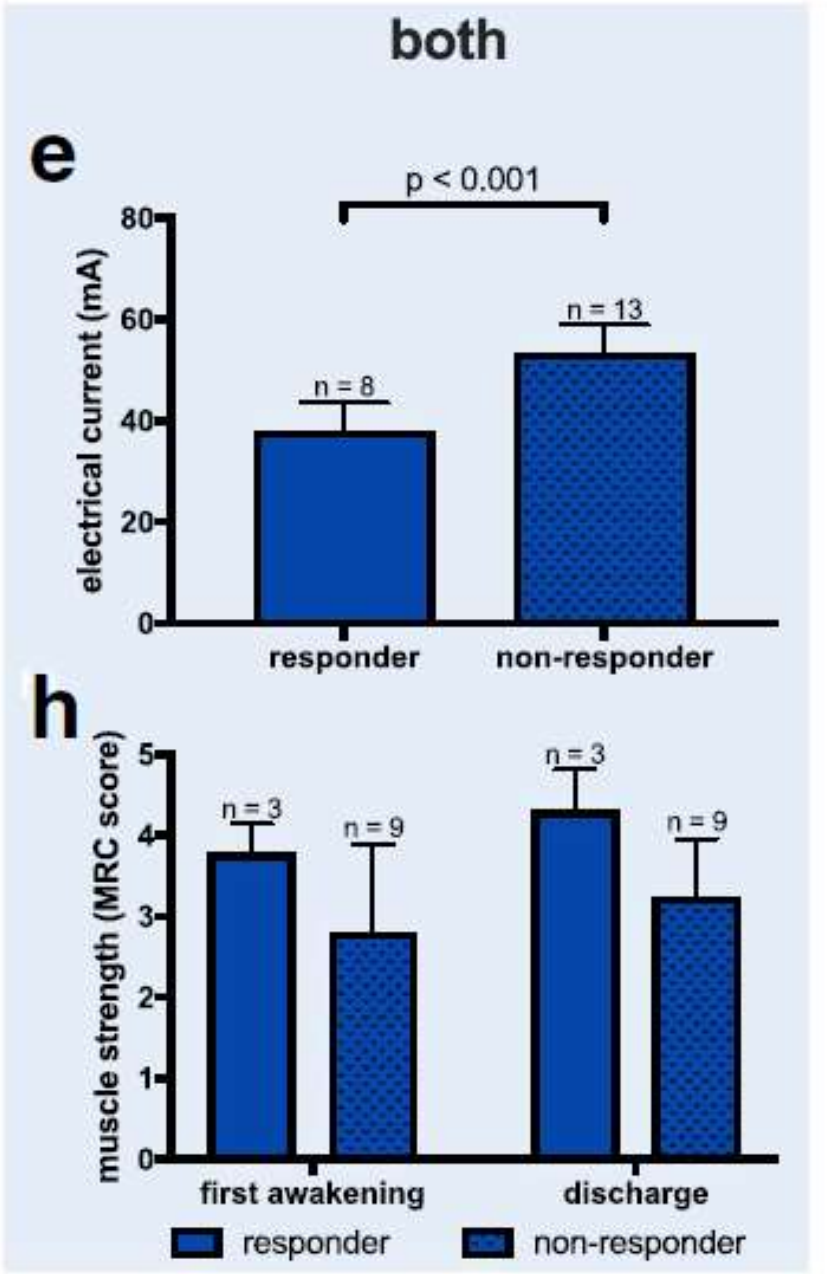

c
left
right
all muscle groups
n = 12/12/1824
ellbow flexion
n = 12/12/114
ellbow flexion
n = 12/12/109
dorsal extension hand
n = 12/12/112
dorsal extension hand
n = 12/12/110
palmar flexion hand
n = 12/12/110
palmar flexion hand
n = 12/12/108
knee extension
n = 11/11/122
knee extension
n = 10/11/124
dorsal extension foot
n = 11/11/115
dorsal extension foot
n = 11/11/116
plantar flexion foot
n = 11/11/108
plantar flexion foot
n = 11/11/110
100
80
60
40
20
0
1
2
3
4
5
MRC score at first awakening
MRC score at discharge
relative contractile response (%)

Table 2 Univariate analysis

		Responder	Non-responder	*p* value
Patients/stimulations (*n*)		8/702	13/1122	
Diagnosis responsible for ICU admission	ARDS	2/25.0%	6/46.2%	0.118
	Sepsis	0/0.0%	3/23.1%	
	Multiple trauma	4/50.0%	3/23.1%	
	Neurologic	2/25.0%	0/0.0%	
	Miscellaneous	0/0.0%	1/7.7%	
SOFA at ICU admission		12.0 [9.5/13.5]	14 [12.0/16.0]	*0.030*


d
left
right
all muscle groups
n = 8/13
ellbow extension
n = 7/12
ellbow extension
n = 8/12
ellbow flexion
n = 7/12
ellbow flexion
n = 8/12
dorsal extension hand
n = 7/12
dorsal extension hand
n = 8/12
palmar flexion hand
n = 7/12
palmar flexion hand
n = 8/12
knee extension
n = 8/13
knee extension
n = 8/13
knee flexion
n = 8/13
knee flexion
n = 8/13
dorsal extension foot
n = 7/12
dorsal extension foot
n = 7/12
plantar flexion foot
n = 7/12
plantar flexion foot
n = 7/12
100
80
60
40
20
0
relative contractile reponse in responders
relative contractile reponse in non-responders


both
e
p < 0.001
electrical current (mA)
80
60
40
20
0
n = 8
n = 13
responder
non-responder
h
muscle strength (MRC score)
5
4
3
2
1
0
n = 3
n = 9
n = 3
n = 9
first awakening
discharge
responder
non-responder

Pour que le courant circule, il faut que le patient ne soit

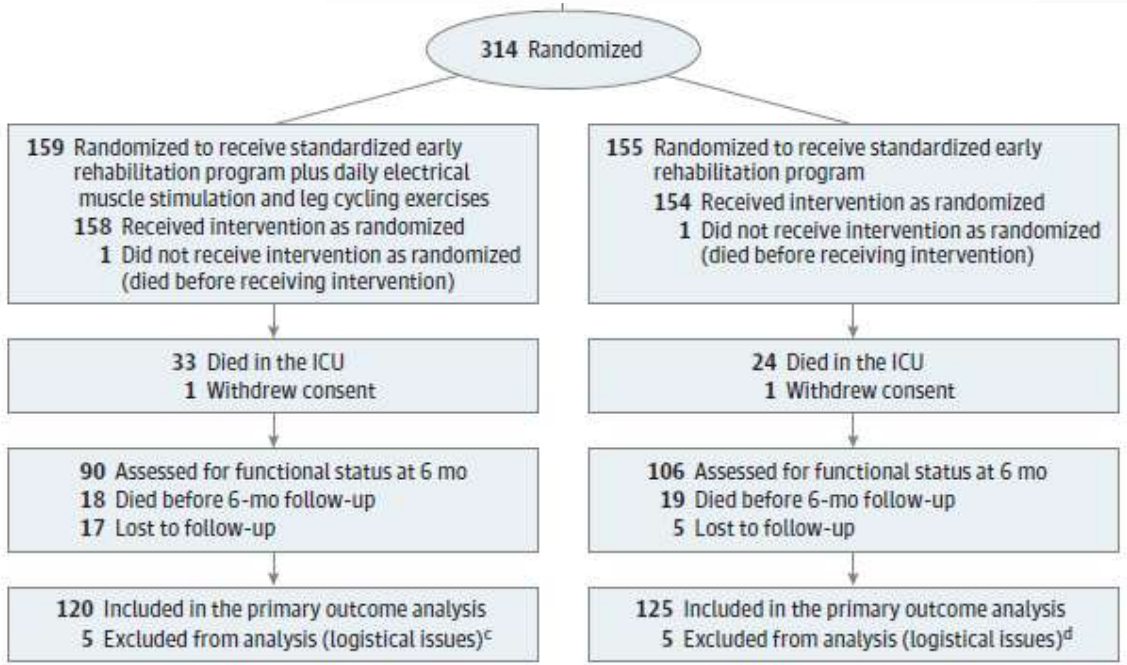
Pas grave (sepsis…)
Pas en surpoids
Sans pacemaker
Non enceinte/allaitante
Non hospitalisé depuis plus de 7 jours avant la réanimation…
Ne présentant pas une faiblesse musculaire au réveil

Donc pas un patient de réanimation!

Argument n°2

Même dans un grand échantillon

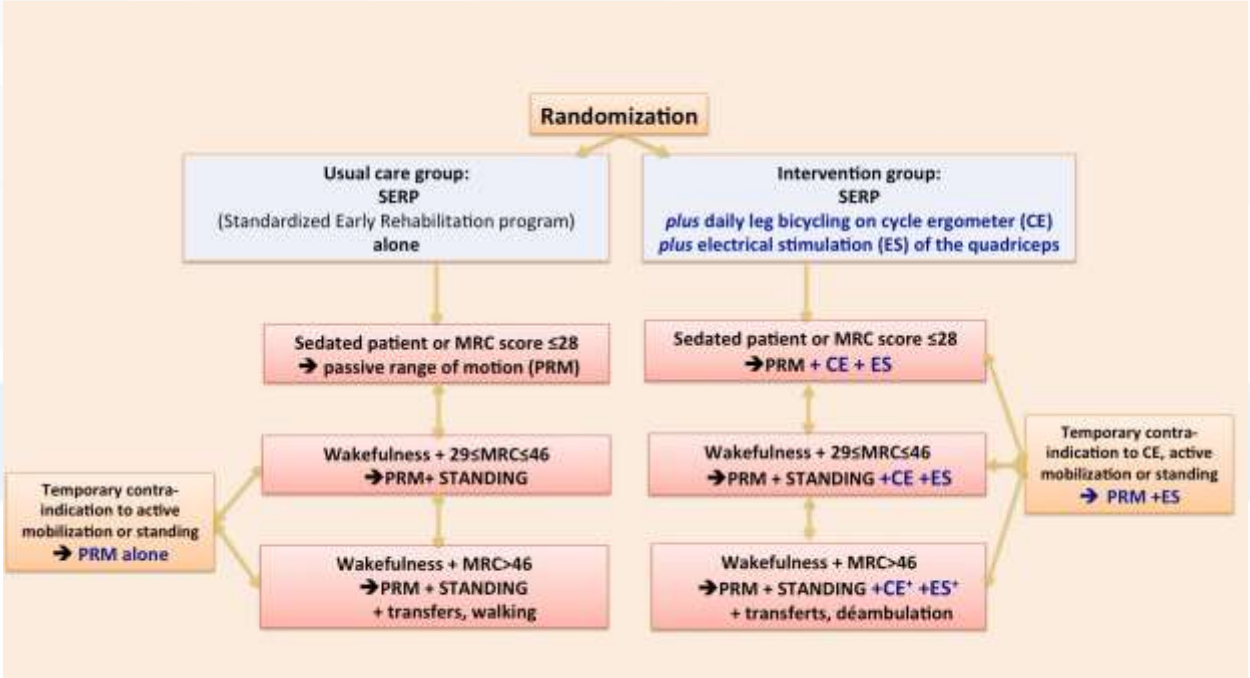
L'électrothérapie ne fonctionne pas



JAMA | Preliminary Communication

Effect of In-Bed Leg Cycling and Electrical Stimulation of the Quadriceps on Global Muscle Strength in Critically Ill Adults
A Randomized Clinical Trial

Guillaume Fossat, PT; Florian Baudin, PT; Léa Courtes, PT; Sabrine Bobet, PT; Arnaud Dupont, PT; Anne Bretagnol, MD; Dalila Benzekri-Lefèvre, MD; Toufik Kamel, MD; Grégoire Muller, MD; Nicolas Bercault, MD; François Barbier, MD, PhD; Isabelle Runge, MD; Mai-Anh Nay, MD; Marie Skarzynski, MD; Armelle Mathonnet, MD; Thierry Boulain, MD



- Electrical stimulation of the quadriceps following the 54-min "atrophy prevention program"
  - *Sedated patient (Ramsay score> 3 and RASS <0) or in awaking phase and MRC≤28*
  - *Patient in the awakening phase and 29≤MRC≤46*
  - *Awake patient and 29≤MRC≤46*
- Electrical stimulation of the quadriceps following the 20-min "muscle building" program
  - *Awake and* 47≤MRC

JAMA | Preliminary Communication

Effect of In-Bed Leg Cycling and Electrical Stimulation of the Quadriceps on Global Muscle Strength in Critically Ill Adults
A Randomized Clinical Trial

Guillaume Fossat, PT; Florian Baudin, PT; Léa Courtes, PT; Sabrine Bobet, PT; Arnaud Dupont, PT; Anne Bretagnol, MD; Dalila Benzekri-Lefèvre, MD; Toufik Kamel, MD; Grégoire Muller, MD; Nicolas Bercault, MD; François Barbier, MD, PhD; Isabelle Runge, MD; Mai-Anh Nay, MD; Marie Skarzynski, MD; Armelle Mathonnet, MD; Thierry Boulain, MD

	Median (IQR)[a]			
	Intervention Group (n = 158)	Usual Care Group (n = 154)	Between-Group Difference (95% CI)[b]	*P* Value
Primary Outcome				
Global MRC score at ICU discharge among ICU survivors[12,c]	48 (29 to 58)	51 (37 to 58)	MD, −3.0 (−7.0 to 2.8)	.28[d]
Change from study inclusion to ICU discharge				
Rectus femoris muscle thickness, mm	−1.9 (−8.0 to 0.2)	−2.4 (−7.1 to −0.3)	MD, −0.5 (−1.0 to 2.4)	.17[d]
Invasive mechanical ventilation, d				
Intention-to-treat population	5 (2 to 10)	5 (2 to 11)	MD, 0 (−2.0 to 1.5)	.69[h]
ICU survivors				
Frequency of reintubation within 48 h after first extubation, No./total (%) [95% CI]	12/131 (9.2)[5.3 to 15.3]	13/133 (9.8)[5.8 to 16.0]	ARR, 0.7 (−6.7 to 7.9)	>.99[g]

Argument n°3

Même après la réanimation

L'ES ne fonctionne pas

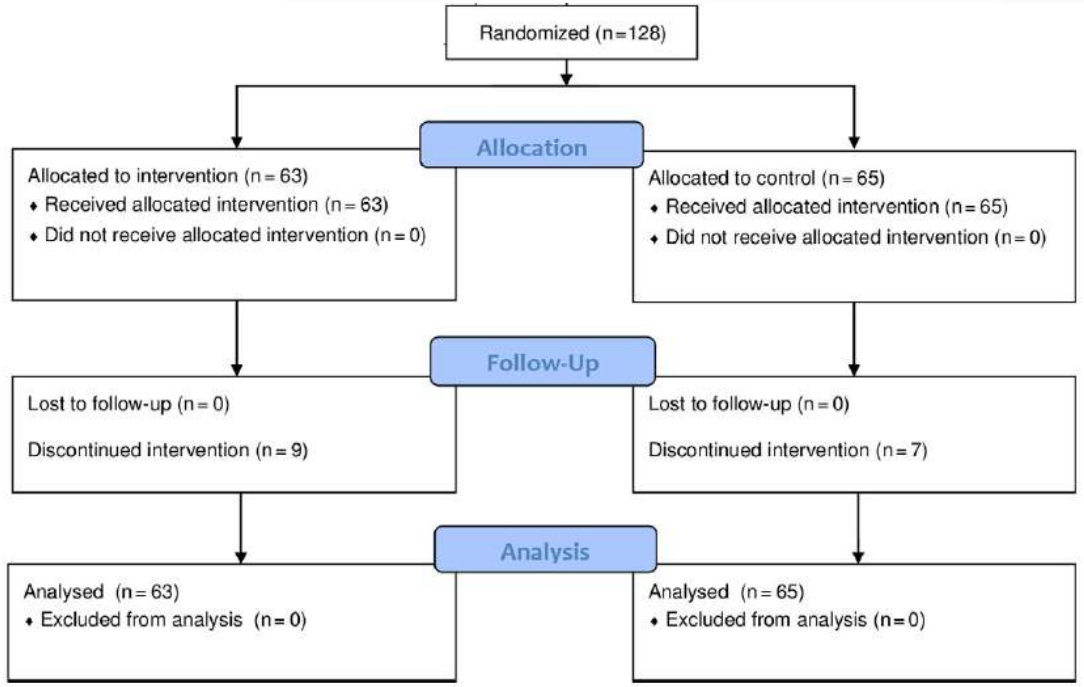


Fig. 1. Flow chart diagram of the patients discharged from the ICU during the study period.

Contents lists available at ScienceDirect
Journal of Critical Care
journal homepage: www.jccjournal.org

Effect of neuromuscular stimulation and individualized rehabilitation on muscle strength in Intensive Care Unit survivors: A randomized trial

Irini Patsaki, MSc[a], Vasiliki Gerovasili, MD[b,*], Georgios Sidiras, PhD[a], Eleftherios Karatzanos, PhD[b], Georgios Mitsiou, MSc[a], Emmanuel Papadopoulos, PhD[a], Anna Christakou, PhD[a], Christina Routsi, MD[a], Anastasia Kotanidou, MD[a], Serafim Nanas, MD[a]

2.5. Intervention

NMES implementation has been described in detail [28]. NMES was implemented daily (7 days/week) for 55 min on rectus femoris and peroneus longus of both lower extremities. The stimulator used was Rehab 4 Pro (Cefar Medical AB, Malmö, Sweden) and delivered biphasic, symmetric impulses of 45 Hz, with 400 μsec pulse duration, 12 s on (0,8 s rise time and 0,8 s fall time) and 6 s off. The intensity levels were aimed to cause visible contractions and be tolerated by the patients. In case of doubt, contraction was confirmed by palpation.

Patients in the control group received sham NMES along with usual care until hospital discharge. Sham NMES was implemented daily (7 days/week) for 55 min on the same muscle groups with the NMES group, but the intensity was set at the minimum value of 1–5 mA, without palpable contractions.

Table 2
The physical rehabilitation program of both groups.

		Intervention group		Control group	
Range of motion (ROM)		Passive and active		No	
Strength	Upper extremity	10–20 repetitions (resistance when tolerated)	Shoulder flexion/abduction Elbow flexion/extension Wrist flexion/extension	10 repetitions (no resistance)	Shoulder flexion/abduction Elbow flexion/extension
	Lower extremity		Hip flexion/abduction/adduction Knee flexion Ankle dorsiflexion/plantar flexion		Hip flexion Knee flexion Ankle dorsiflexion/plantar flexion
Functional exercises		Bed transfers from side to side, transfers to chair, coming to standing position		Sited position at the edge of the bed	
Ambulation		With or without mobility aid		Only if patient able to ambulate with minimal assistance	
Balance exercises		From sitting and standing position		No	
Frequency		40 min		20 min	
Duration		5 days/week until hospital discharge		5 days/week until hospital discharge	

2.4. Primary and secondary outcomes

Primary outcome of the study was muscle strength assessed with the MRC score and handgrip dynamometry at hospital discharge.

Secondary outcomes were functional ability assessed with the Functional Independence Measure (FIM) and hospital length of stay.

Table 3
MRC score at ICU discharge and weekly until hospital discharge in patients assigned to the NMES ($n = 63$) group and the control group ($n = 65$).

	MRC			ΔMRC%		
	NMES group	Control group	p	NMES group	Control group	p
ICU discharge	50 ± 13 ($n = 63$)	51 ± 10 ($n = 65$)	0.5			
1 week post ICU	53 ± 11 ($n = 51$)	53 ± 9 ($n = 56$)	0.98	13% ± 22 ($n = 51$)	7% ± 12 ($n = 56$)	0.1
2 weeks post ICU	52 ± 10 ($n = 28$)	51 ± 9 ($n = 30$)	0.83	34% ± 48 ($n = 28$)	18% ± 19 ($n = 30$)	0.1
3 weeks post ICU	51 ± 11 ($n = 19$)	51 ± 10 ($n = 19$)	0.95	28% ± 45 ($n = 19$)	24% ± 26 ($n = 19$)	0.7
4 weeks post ICU	49 ± 13 ($n = 12$)	50 ± 9 ($n = 14$)	0.84	43%59% ($n = 12$)	59% ± 29 ($n = 14$)	0.6
5 weeks post ICU	49 ± 14 ($n = 9$)	53 ± 8 ($n = 10$)	0.43	57% ± 69 ($n = 9$)	43% ± 30 ($n = 10$)	0.55
6 weeks post ICU	48 ± 12 ($n = 7$)	52 ± 5 ($n = 5$)	0.46	88% ± 112 ($n = 7$)	27% ± 17 ($n = 5$)	0.2
7 weeks post ICU	43 ± 12 ($n = 5$)	49 ± 4 ($n = 4$)	0.37	100% ± 120 ($n = 5$)	27% ± 23 ($n = 4$)	0.3
8 weeks post ICU	43 ± 14 ($n = 4$)	48 ± 6 ($n = 3$)	0.58	108% ± 136 ($n = 4$)	25%21 ($n = 3$)	0.3
Hospital discharge	48 ± 21 ($n = 63$)[a]	50 ± 18 ($n = 65$)[a]	0.53	3% ± 60 ($n = 63$)	1% ± 38 ($n = 65$)	0.85
Hospital discharge (without ITT analysis)	57 ± 7 ($n = 54$)	57 ± 5 ($n = 58$)	0.8	19% ± 47 ($n = 54$)	12% ± 20 ($n = 58$)	0.3

Values are given as No., mean ± SD (standard deviation); MRC: Medical Research Council score for muscle strength; ICU: Intensive Care Unit; NMES: neuromuscular electrical stimulation. ΔMRC%: Relative (%) difference in MRC compared to MRC value at ICU discharge. ITT: Intention to treat.

[a] Intention to treat analysis: drop outs were assigned a score of 0 for MRC at hospital discharge.

2.4. Primary and secondary outcomes

Primary outcome of the study was muscle strength assessed with the MRC score and handgrip dynamometry at hospital discharge.

Secondary outcomes were functional ability assessed with the Functional Independence Measure (FIM) and hospital length of stay.

5. Conclusion

NMES exercise and personalized physiotherapy in ICU survivors did not result in greater improvement of muscle strength, functional status and length of stay at hospital discharge in comparison to the control group, treated as usual.

Table 4
Handgrip dyn

Handgrip d						p
ICU dischar						0,86
1 week pos						0,93
2 weeks po						0,28
3 weeks po						0,96
4 weeks po						0,71
5 weeks po						0,88
6 weeks post ICU	8 ± 9 (*n* = 8)	9 ± 13 (*n* = 4)	0.91	22 ± 21	24 ± 29	0,93
7 weeks post ICU	3 ± 4 (*n* = 5)	3 ± 3 (*n* = 4)	0.75	10 ± 11	11 ± 10	0,95
8 weeks post ICU	5 ± 4 (*n* = 4)	8 ± 13 (*n* = 3)	0.66	14 ± 9	32 ± 55	0,54
Hospital discharge	14 ± 13 (*n* = 53)	16 ± 11 (*n* = 58)	0.46	45 ± 29	51 ± 23	0,25

Values are given as mean ± SD. Handgrip dynamometry absolute values were transformed to relative values (% predicted), according to the norms provided by Schlussel et al. 2008. SD: standard deviation, ICU: Intensive Care Unit, NMES: neuromuscular electrical stimulation.

[a] Two patients were unable to be evaluated due to presence of peripheral intravenous catheter.

ARGUMENT n°4

Même les REVUES SYSTEMATIQUES montrent cela ne fonctionne pas

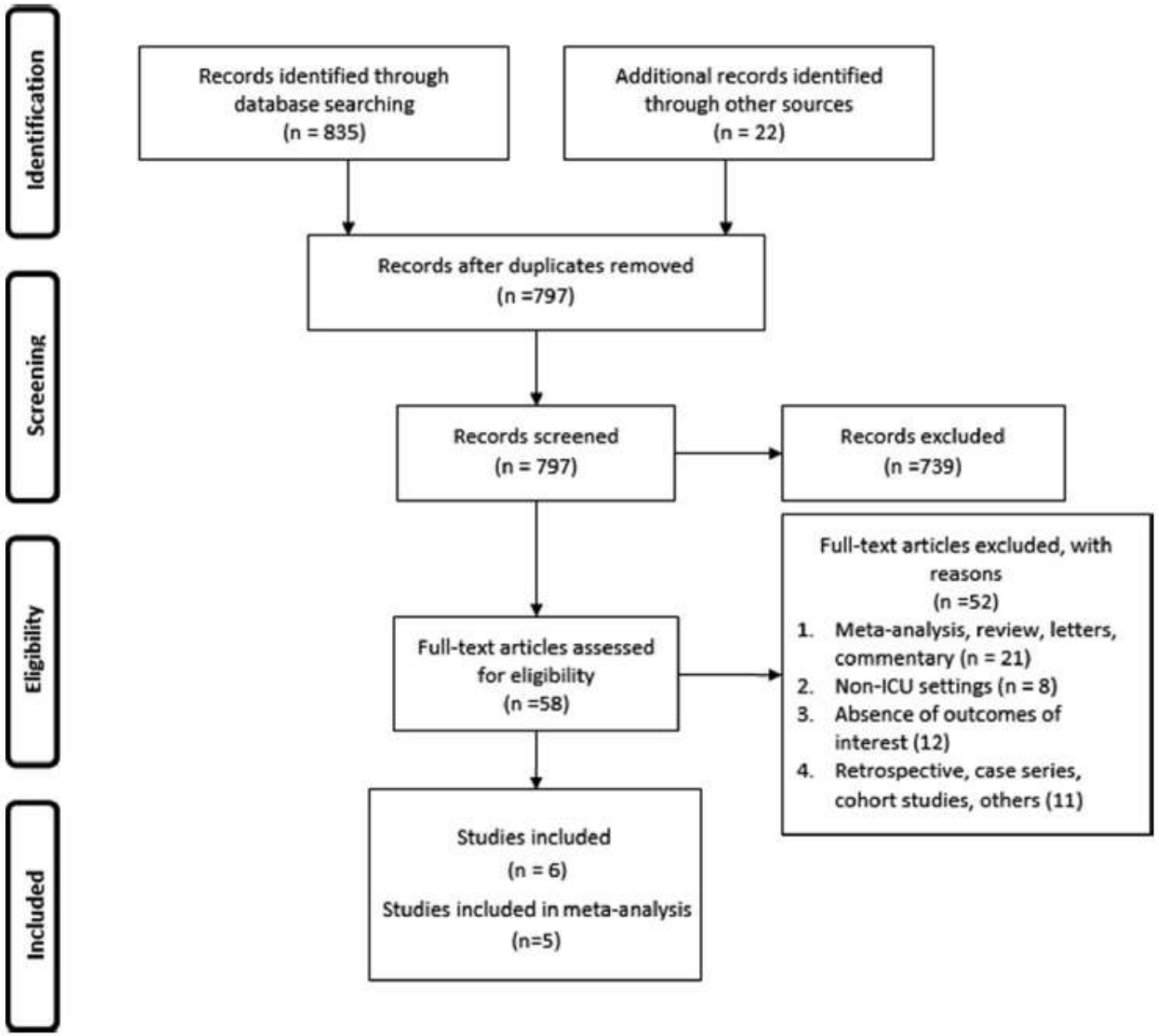


Fig. 1. Flow diagram for literature search and study selection.

Australian Critical Care
journal homepage: www.elsevier.com/locate/aucc

Review paper

Effects of neuromuscular electrical stimulation in critically ill patients: A systematic review and meta-analysis of randomised controlled trials

Y. Zayed, MD [a,*]
B. Kheiri, MD MRCP [a]
M. Barbarawi, MD [a]
A. Chahine, MD [a]
L. Rashdan, MD [a]
S. Chintalapati, MD [a]
G. Bachuwa, MD MS MHSA [a]
I. Al-Sanouri, MD [b]

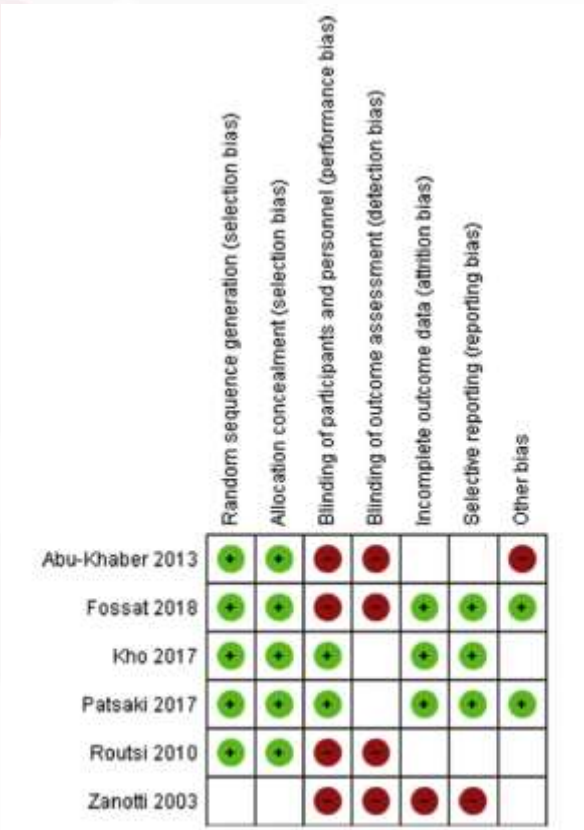
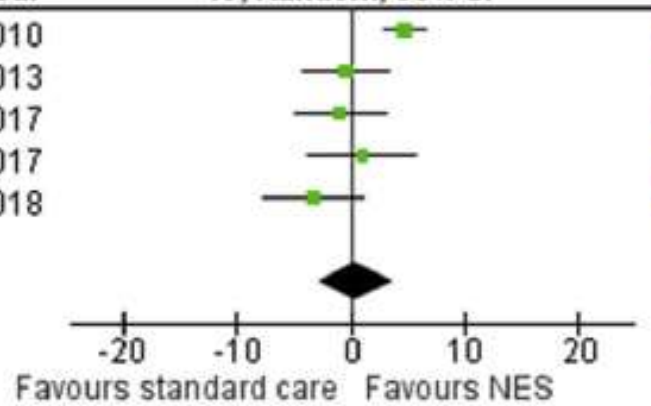


Fig. 2. Risk of bias assessment based on authors' judgement. Blank squares indicate unclear risk of bias.

Study or Subgroup	NES Mean	NES SD	NES Total	Control Mean	Control SD	Control Total	Weight	Mean Difference IV, Random, 95% CI	Year
Routsi 2010	56.75	2.25	24	52	4.5	28	24.7%	4.75 [2.86, 6.64]	2010
Abu-Khaber 2013	20.6	5.68	36	21	9.76	34	20.0%	-0.40 [-4.17, 3.37]	2013
Patsaki 2017	50	13	63	51	10	65	19.3%	-1.00 [-5.03, 3.03]	2017
Kho 2017	49	6	16	48	8	18	17.5%	1.00 [-3.72, 5.72]	2017
Fossat 2018	45.33	22.44	158	48.66	15.71	154	18.6%	-3.33 [-7.62, 0.96]	2018
Total (95% CI)			**297**			**299**	**100.0%**	**0.45 [-2.89, 3.80]**	

Heterogeneity: Tau² = 10.90; Chi² = 17.84, df = 4 (P = 0.001); I² = 78%
Test for overall effect: Z = 0.27 (P = 0.79)



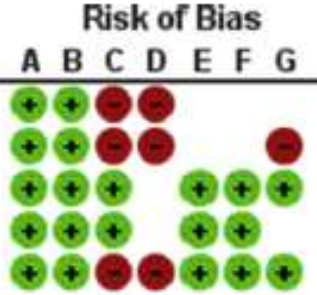


Fig. 3. Forest plots for global muscle strength at ICU discharge measured by modified Medical Research Council (mMRC) grading system.

Study or Subgroup	NES Events	NES Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI	Year
Routsi 2010	28	68	22	72	48.2%	1.35 [0.86, 2.11]	2010
Abu-Khaber 2013	4	40	6	40	6.9%	0.67 [0.20, 2.18]	2013
Kho 2017	3	16	1	16	2.1%	3.00 [0.35, 25.87]	2017
Fossat 2018	33	158	24	154	42.8%	1.34 [0.83, 2.16]	2018
Total (95% CI)		**282**		**282**	**100.0%**	**1.30 [0.95, 1.78]**	
Total events	68		53				

Heterogeneity: Tau² = 0.00; Chi² = 1.84, df = 3 (P = 0.61); I² = 0%
Test for overall effect: Z = 1.66 (P = 0.10)

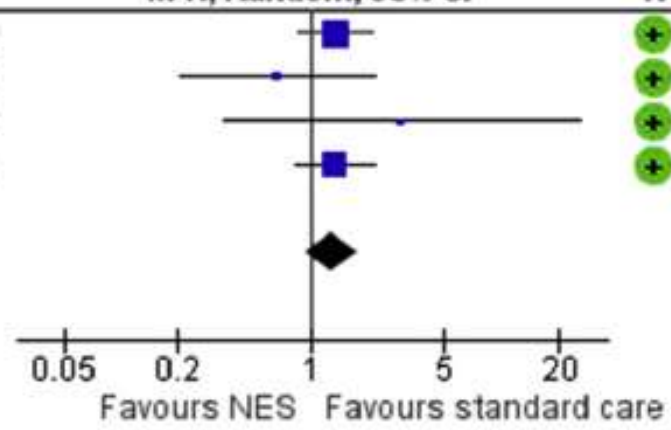


Fig. 4. Forest plot for intensive care unit mortality. NES: neuromuscular electrical stimulation; CI: confidence interval.

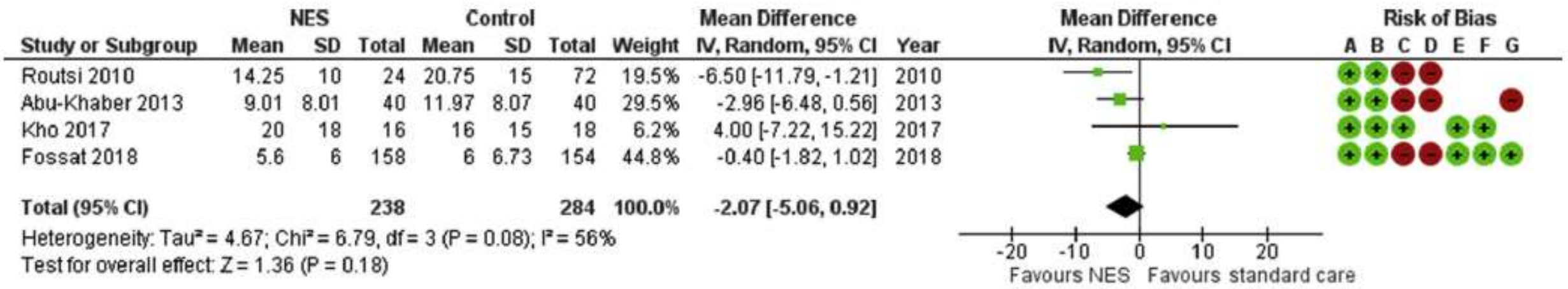


Fig. 5. Forest plot for duration of mechanical ventilation.

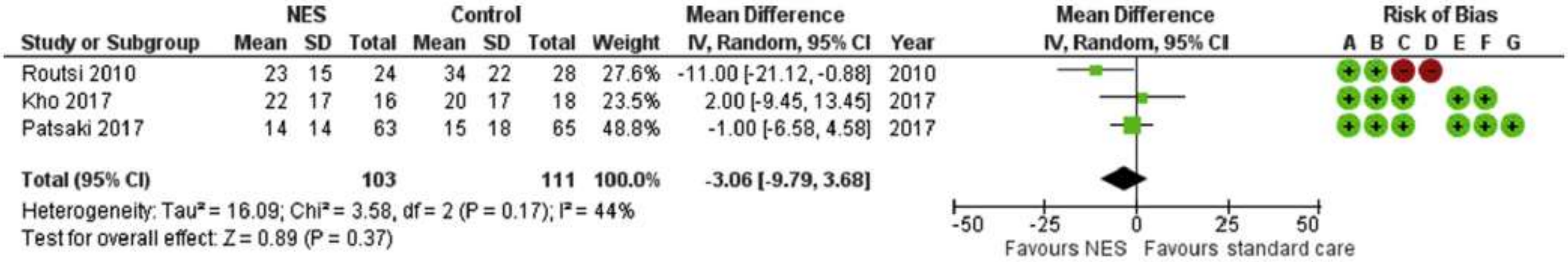
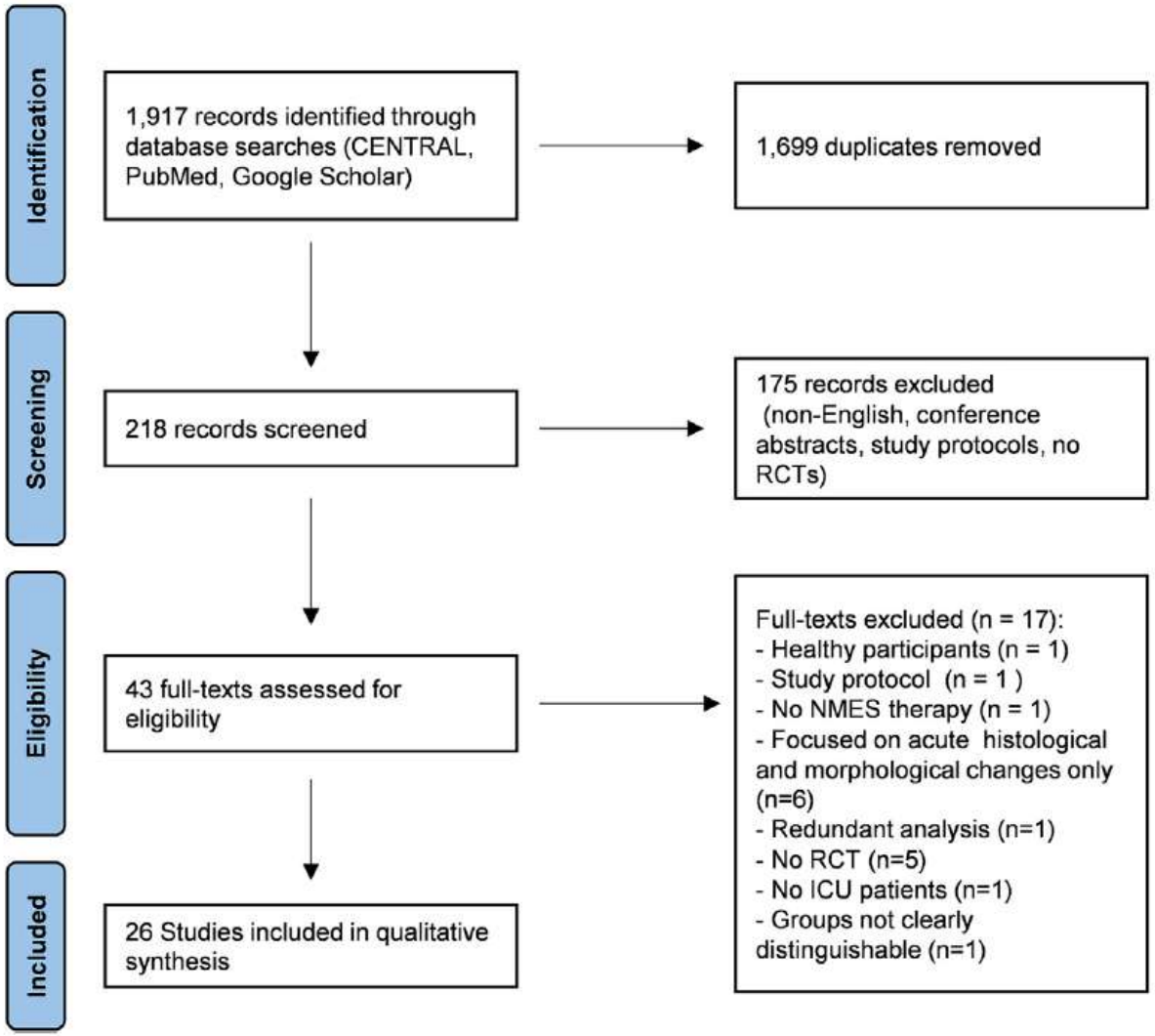


Fig. 6. Forest plot for intensive care unit length of stay.

5. Conclusion

Among critically ill patients, there were no significant differences between NES and the standard-of-care therapy on global muscle strength, ICU mortality, the duration of MV, or ICU length of stay. Further large RCTs are needed to determine which populations may benefit from this modality and to examine its efficacy and safety in adult patients in the ICU.



frontiers | Frontiers in Physiology

SYSTEMATIC REVIEW
published: 09 May 2022
doi: 10.3389/fphys.2022.865437

Therapeutic Potential of Electromyostimulation (EMS) in Critically Ill Patients—A Systematic Review

Maryam Balke[1,2], Marc Teschler[2,3], Hendrik Schäfer[2,3], Pantea Pape[1], Frank C. Mooren[2,3] and Boris Schmitz[2,3]*

[1]St. Marien Hospital Cologne, Department of Early Rehabilitation, Cologne, Germany, [2]Department of Rehabilitation Sciences, Faculty of Health, University of Witten/Herdecke, Witten, Germany, [3]DRV Clinic Königsfeld, Center for Medical Rehabilitation, Ennepetal, Germany

Result Summary

Our investigation indicates large heterogeneity between studies investigating the effects of EMS in critically ill patients on ICU. No pattern in muscular outcomes, post-intervention disease severity (SOFA/APACHE score), functional independence, or ICU length of stay/ventilation with respect to stimulated muscle groups or overall stimulation duration in days was identified. While the effect of sepsis on muscle parameters appears unclear, the effect of sepsis on functional outcomes/independence and duration of mechanical ventilation/ICU length of stay is likely negative and may prevent beneficial responses to EMS. No indications for a modifying effect of age and sex were detected, even though female patients were underrepresented in the analyzed studies.

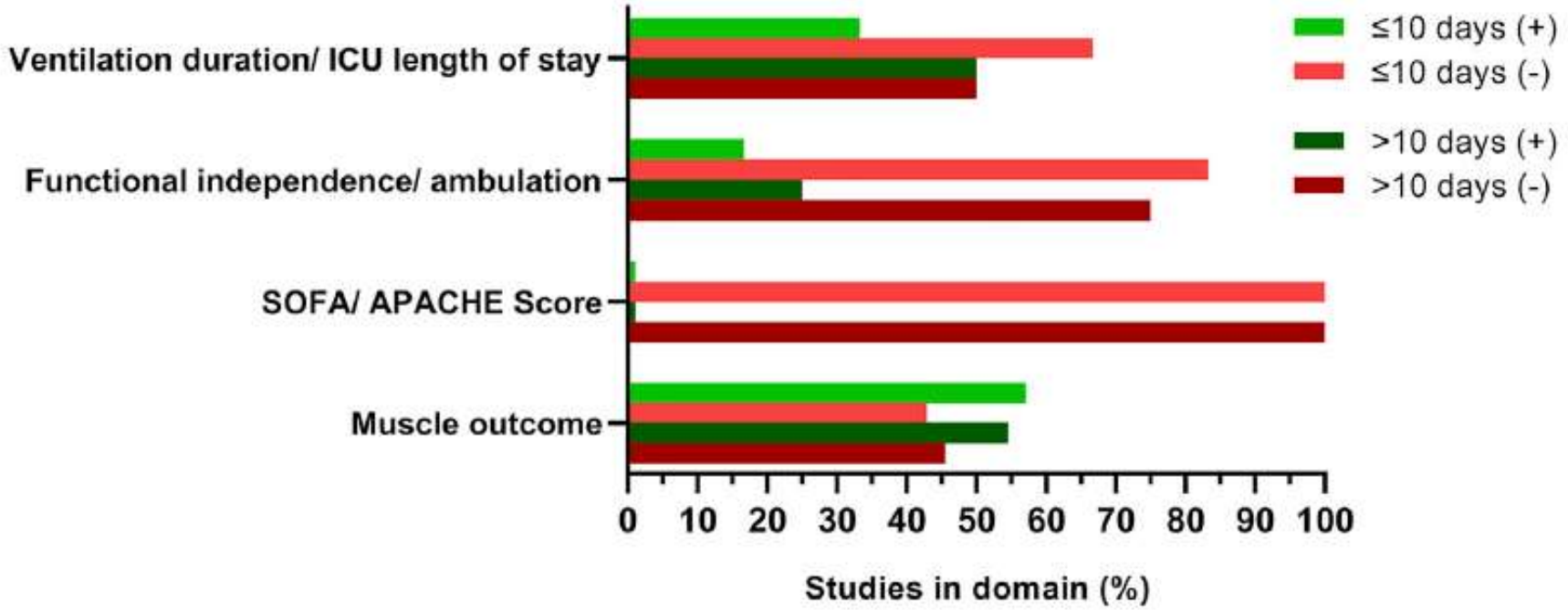


FIGURE 4 | EMS treatment duration did not affect study outcome. Studies were grouped by treatment duration of ≤/> 10 days, respective domain investigated, and reported outcome as presented in **Table 1**. Green (+) indicates significant positive effects of EMS intervention, red (-) indicates no EMS effects compared to control. Darker colors represent studies with treatment durations >10 days. Percent refers to number of studies investigating EMS effects on outcome variables in the respective domain. Multiple outcomes per study were considered if applicable. No study reported significant positive effects of EMS on disease severity scores [SOFA (Sepsis Related Organ Failure Assessment) and/or APACHE (Acute Physiology And Chronic Health Evaluation)]. ICU, intensive care unit.

ARGUMENT N°5

Même pour le diaphragme?

Non cela ne fonctionne pas non plus!

Intervention	Sham
• 50Hz Bi-directionnal • 300 ms • 10s/6s => contraction/rest • Palpable contraction • Not synchronized • Controlled or pressure support • Once a day / 5d a week • 20 minutes	• 2Hz Bi-directionnal • 300 ms • No contraction (interferences) • Not synchronized • Controlled or pressure support • Once a day / 5d a week • 20 minutes

TEDS or SHAM stopped after 1st extubation

Outcomes (Blind)

1. DTF during SBT (PS 10 PEP 0) preceding extubation
   - < 30% => dysfunction
   - < 20 % => severe dysfunction
2. MIP start SBT (PS 10 PEP 0)
3. CPEF start SBT
4. End-Tidal Thickness from inclusion to extubation

ClinicalTrials.gov

About This Site | Data About Studies | Study Basics | PRS Info

Record 1 of 1 | Return to Search

Home > Search Results > Study Record

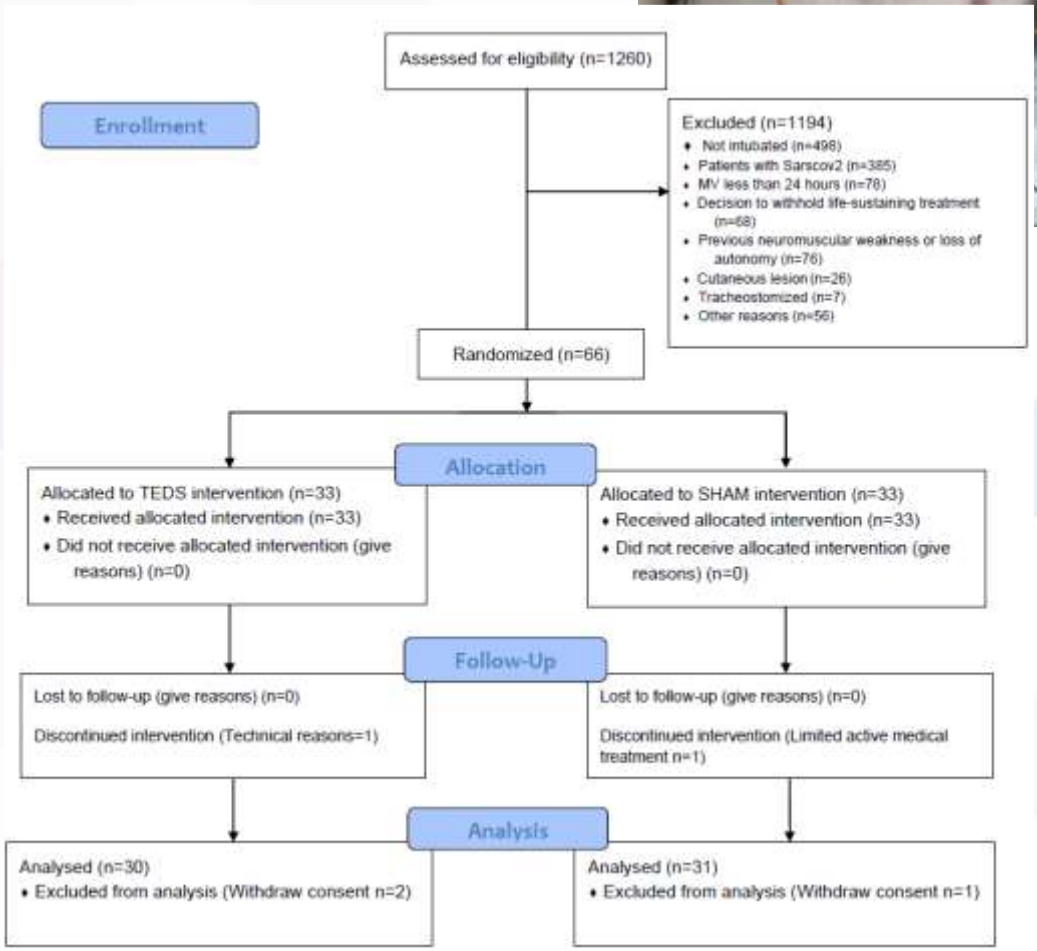
COMPLETED

ClinicalTrials.gov Identifier: NCT04171024

Transcutaneous Diaphragm Electrical Stimulation in Critically Ill Patients (TESLA)

Information provided by Clément MEDRINAL, Groupe Hospitalier du Havre (Responsible Party)

Last Update Posted: 2022-08-04



			Per Protocol Analysis Adjusted analysis		Intent to treat analysis Adjusted analysis		
	TEDS Group	Sham Group	Estimate (95%CI)	p-value	Estimate (95%CI)	p-value	Cohen's d
Primary Outcome							
DTF > 30% n(%)	16 (67)	13 (54)	1.65 (0.50 to 5.39)	0.411	1.55 (0.47 to 5.10)	0.472	-
DTF > 20% n(%)	22 (92)	20 (83)	2.02 (0.33 to 12.40)	0.449	1.61 (0.28 to 9.25)	0.591	-
Secondary Outcomes							
DTF (%), mean (SD)	47.46 (34.19)	38.67 (23.90)	6.46 (-10.19 to 23.11)	0.438	6.86 (-11.03 to 24.75)	0.442	0.19 (-0.32 to 0.70)
MIP cmH20, mean (SD)	35.57 (11.90)	29.71 (11.15)	5.83 (-1.53 to 13.19)	0.117	2.77 (-4.87 to 10.41)	0.469	0.18 (-0.33 to 0.69)
PEF (L/min), mean (SD)	83.20 (39.57)	75.37 (34.08)	7.80 (-16.59 to 32.19)	0.521	3.58 (-21.78 to 28.94)	0.776	0.07 (-0.44 to 0.82)
Days free of MV at d 28, median (Q1; Q3)	19.5 (4.0; 22.5)	21.0 (13.0; 23.0)	0.68 (0.26 to 1.76)	0.430	0.78 (0.31 to 1.92)	0.583	-
ICU LOS, mean (SD)	14.89 (9.52)	18.21 (12.83)	-4.60 (-10.93 to 1.73)	0.151	-3.40 (-9.43 to 2.63)	0.264	-0.28 (-0.79 to 0.23)


WHO WINS?