



**25^{ème} Journées d'Anesthésie
Réanimation Chirurgicale
d'Aquitaine**
7, 8 et 9 décembre 2016



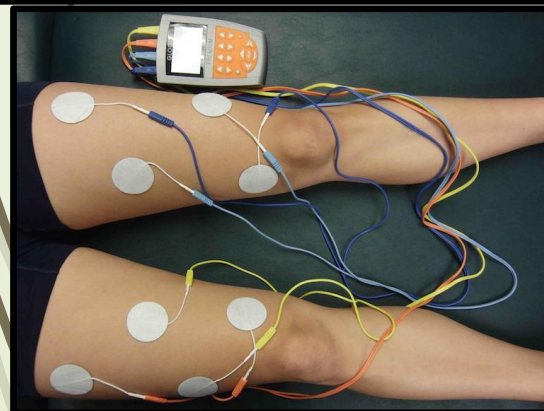
La Réhabilitation Préopératoire

Anne Freynet
Masseur-kinésithérapeute
Réanimation Magellan

REHABILITATION



- **Définition classique** (Larousse): Mesure individuelle, judiciaire ou légale, qui efface une condamnation pénale et ses conséquences.
- **Définition médicale:** processus qui vise à amener un patient à l'état de santé le plus proche possible de celui qui était le sien avant de tomber malade. Cela concerne aussi bien les facultés intellectuelles que physiques.
- **Fast-track rehabilitation:** prise en charge pluri-disciplinaire peri-opératoire pour réduire la durée d'hospitalisation et les complications post-chirurgicales.



Circuit Training
30"effort 30"repos
2'repos inter-série
Faire de 1 à 5 séries

11 Fontes sautées	12 Gainage costal	1 Pompes sur genoux
10 Soulevé de fesses	2 Crunch inversé	3 Burpees
9 Crunch-abdos croisés	4 Ciseau costal	5 Double crunch
8 Mountain climber	6 Gainage ventral	7 Jumping jack

Techniques de réhabilitation préopératoire

Makhabah et al. *Multidisciplinary Respiratory Medicine* 2013, **8**:4
<http://www.mrmjournal.com/content/8/1/4>



REVIEW

Open Access

Peri-operative physiotherapy

Dewi Nurul Makhabah¹, Federica Martino² and Nicolino Ambrosino^{1,2,3*}

Physiotherapy modalities

- **Muscle training (AET, RET, travail des membres)**
- **Réhabilitation respiratoire (cyclo-ergomètre..)**
- **Renforcement des muscles inspireurs (IMT)**
- **VNI préopératoire**
- ~~Stimulation électrique musculaire / TENS~~
- ~~Spirométrie incitative~~

Notion de **Prehabilitation**?

- Réhabilitation

- Cardio-vasculaire post chirurgie cardiaque
- Cardio-vasculaire post IDM
- Post-chirurgicale après chirurgie majeure
- Post réanimation (neuromyopathie de réanimation)

- **Prehabilitation**

- Notion de prise en charge pré-opératoire
- Patients à risque de complications post-opératoires
- Sous-groupes de patients (BPCO)





Prehabilitation:

- Optimisation médicale
- Optimisation physique
- Optimisation nutritionnelle
- Optimisation psychologique

- ☐ [The ability of **prehabilitation** to influence postoperative outcome after intra-abdominal operation: A systematic review and meta-analysis.](#)
- 3.

Moran J, Guinan E, McCormick P, Larkin J, Mockler D, Hussey J, Moriarty J, Wilson F.

Surgery. 2016 Nov;160(5):1189-1201. doi: 10.1016/j.surg.2016.05.014.

PMID: 27397681

[Similar articles](#)

Systematic review

Effect of total-body prehabilitation on postoperative outcomes: a systematic review and meta-analysis

D. Santa Mina^{a,b,c,*}, H. Clarke^{d,e}, P. Ritvo^{b,f}, Y.W. Leung^{d,e}, A.G. Matthew^{a,d},
J. Katz^{c,d,e}, J. Trachtenberg^{a,d}, S.M.H. Alibhai^{d,e}

- 22 études / chirurgie ortho / chirurgie organes (cœur, colon, poumon)
- 8 études étudiant les exercices préopératoires avant chirurgie organes
- résultats significatifs sur gain de force musculaire préopératoire concernant uniquement les études de chirurgie orthopédiaue

Diversité des techniques et des programmes



Effect of total-body prehabilitation on postoperative outcomes: a systematic review and meta-analysis

D. Santa Mina^{a,b,c,*}, H. Clarke^{d,e}, P. Ritvo^{b,f}, Y.W. Leung^{d,e}, A.G. Matthew^{a,d}, J. Katz^{c,d,e}, J. Trachtenberg^{a,d}, S.M.H. Alibhai^{d,e}

Rosenfeldt *et al.* [28]

Design: RCT
N = 117 (TX: n = 60; CON: n = 57)
Sample characteristics: elective coronary artery bypass graft and/or cardiac valve surgery
Mean age (range) in years: TX = 62.5 (59.0 to 68.5); CON = 68 (58.0 to 77.0) (between-group difference P = 0.06)

Sekine *et al.* [29]

Design: case-control study (prospectively enrolled participants into the intervention vs historical data from patients that did not receive the intervention)
N = 82 (TX: n = 22; CON: n = 60)
Sample characteristics: patients with non-small-cell lung carcinoma and chronic obstructive pulmonary disease
Mean age (SD) in years: TX = 69.0 (5.5); CON = 70.4 (4.6)

cool-down

Intervention design/setting: first 2 weeks, supervised, facility-based; from 2 weeks to surgery, exercise was unsupervised, home-based
F: 4 days/week for first 2 weeks (2 days in facility plus 2 days at home); I: up to 60% of maximum heart rate; D: 15 to 40 minutes; L: 8 weeks
Exercise specifics: AET circuit including cycle ergometry, treadmill walking and arm ergometry. After the first 2 weeks, participants were encouraged to continue exercising (walking) at home for 4 days/week (provided with heart rate monitor for intensity observation)
Ancillary intervention components [treatment arm (s) only]: four 60-minute mental stress reduction therapy delivered by an occupational therapist for first 2 weeks

Intervention design/setting: 'pulmonary exercises' were conducted in the 'rehabilitation room', 5000 steps per day were to be completed independently (not facility-based)
F: recommendation of 5000 steps everyday (F of 'pulmonary exercises' NR); I: NR; L: ~2 weeks
Exercise specifics: 'pulmonary exercises' were conducted for 30 minutes plus 5000 steps daily
Ancillary intervention components [treatment arm (s) only]: extensive breathing exercises

AET, aerobic exercise training; CON, control/usual care group; D, duration of exercise session; F, frequency of exercise (days or sessions per week); I, intensity; L, length of exercise programme; NR, not reported, RCT, randomised controlled trial; RM, repetition maximum; reps, repetitions; RET, resistance exercise training; RPE, rating of perceived exertion; SD, standard deviation; TX, treatment/exercise group; VO₂, oxygen consumption.

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J. Katz^{c,d,e}, J. Trachtenberg^{a,d}, S.M.H. Alibhai^{d,e}

- Post-operative outcomes:
 - QDV: résultats significatifs pour une seule étude (chir coronarienne)
 - Performance fonctionnelle: TD6M augmenté significativement à 6 mois après la chirurgie colorectal (1 étude)
 - Fitness aerobic: 5 études analysées: 2 avec résultats significatifs
 - Durée d'hospitalisation: 2 études significatives
 - Complications péri-opératoires: 2 études significatives contradictoires

Systematic review

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J. Katz^{c,d,e}, J. Trachtenberg^{a,d}, S.M.H. Alibhai^{d,e}

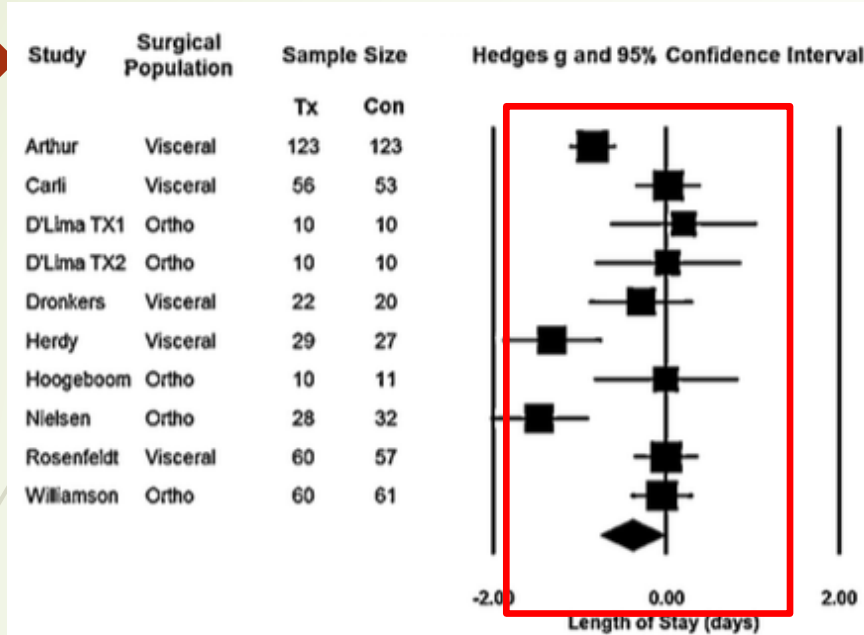


Fig. 1. Forest plot of length of stay. Ortho, orthopaedic surgery; Tx, treatment; Con, control; TX1, treatment arm 1 vs control; TX2, treatment arm 2 vs control; visceral, internal organ surgery.

- LOS: seul critère évaluable par la Méta-analyse.
- Significatif en faveur des groupes préhabilitation

Reeve J, Boden I (2016) *The Physiotherapy Management of Patients undergoing Abdominal Surgery* New Zealand Journal of Physiotherapy 44(1): 33-49. doi: 10.15619/NZJP/44.1.05

Key words: Physiotherapy, General surgery, Abdomen, Evidence-Based Practice

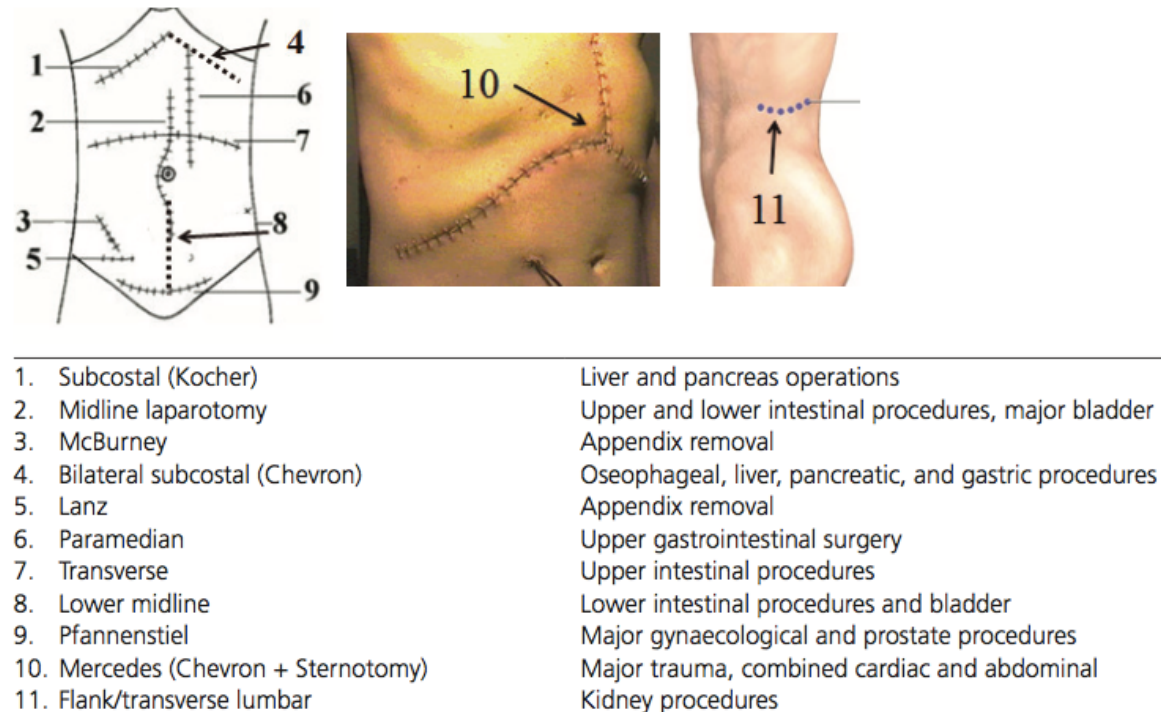


Figure 1: Incisions used for abdominal surgery and associated procedures (Mercedes image: Said 2008)

Reeve J, Boden I (2016) *The Physiotherapy Management of Patients undergoing Abdominal Surgery* New Zealand Journal of Physiotherapy 44(1): 33-49. doi: 10.15619/NZJP/44.1.05

Key words: Physiotherapy, General surgery, Abdomen, Evidence-Based Practice


Evidence from six clinical trials (Bourn et al 1991, Castillo and Haas 1985, Condie et al 1993, Denehy 2001, Fagevik Olsén et al 1997, Samnani et al 2014) suggests that a single preoperative physiotherapy session significantly reduces PPC rates. In the

postoperative care. These studies demonstrate the effectiveness of preoperative education and DB&C training, independent of postoperative physiotherapy, in reducing the incidence of PPCs.

Preoperative education

Key Points:

1. A single face to face session of preoperative education and DB&C training should be administered to all patients undergoing open upper abdominal surgery.
2. It is currently unknown if other forms of this education and training, eg video or booklet, are effective.



Reeve J, Boden I (2016) *The Physiotherapy Management of Patients undergoing Abdominal Surgery* *New Zealand Journal of Physiotherapy* 44(1): 33-49. doi: 10.15619/NZJP/44.1.05

Key words: Physiotherapy, General surgery, Abdomen, Evidence-Based Practice

Prehabilitation

Prehabilitation refers to the use of exercise-based interventions aimed at optimising preoperative function to improve postoperative outcomes or to increase surgical options in those patients who have borderline fitness for surgery. Evidence of the

Key Point:

Given the small number of studies, the heterogeneity of interventions and costs involved in providing such services, the routine provision of prehabilitation in all patients undergoing abdominal surgery cannot be recommended. However, it may be worthwhile in high-risk UAS patients, given the assumed cost of complications. This remains to be confirmed with cost-benefit studies.

2016

The ability of prehabilitation to influence postoperative outcome after intra-abdominal operation: A systematic review and meta-analysis



Jonathan Moran, BS,^a Emer Guinan, PhD,^a Paul McCormick, MD,^b John Larkin, MD,^b
David Mockler, BS,^c Juliette Hussey, PhD,^a Jeanne Moriarty, FFARCSI,^d and Fiona Wilson, PhD,^a
Dublin, Ireland

Preoperative exercise in the prevention of postoperative morbidity

Patient or population: patients with postoperative morbidity

Settings:

Intervention: preoperative exercise

Outcomes	Illustrative comparative risks* (95% CI)	Relative effect (95% CI)	No of Participants of the evidence (GRADE)	Quality	Comments
Assumed risk	Corresponding risk				
Control	Preoperative exercise				
Morbidity	Study population	OR 0.59 435	⊕⊕⊕⊕	very low	
	359 per 1000	249 per 1000 (176 to 338)	(0.38 to 0.91)		
	Moderate				
	400 per 1000	282 per 1000 (202 to 378)			

MORBIDITÉ

Usual Care: pas de ttt / Exercices respiratoires
Interventions: IMT / Marche /
exercices Resistance / aerobic exercices

Gpe control: Usual care + marche +
IMT à faible intensité
Interventions: Haute intensité

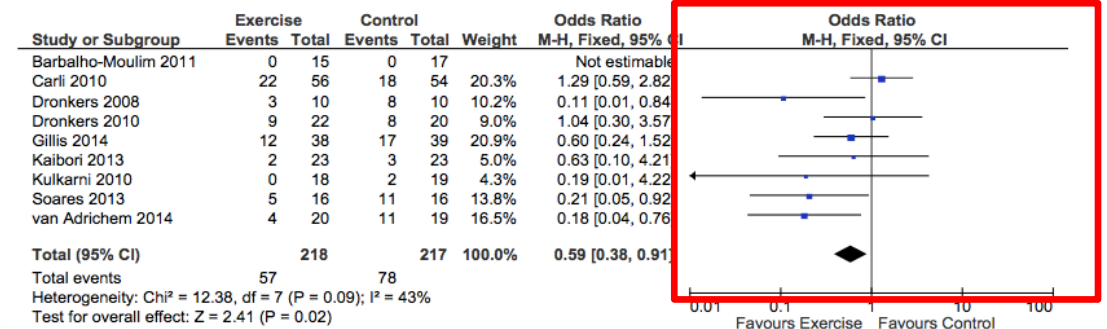


Fig 4. Exercise versus control: Morbidity. (Color version of this figure is available online.)

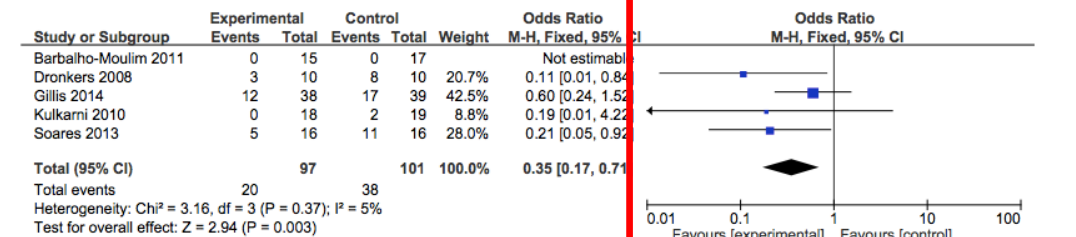


Fig 5. Exercise versus usual care: Morbidity. (Color version of this figure is available online.)

The ability of prehabilitation to influence postoperative outcome after intra-abdominal operation: A systematic review and meta-analysis



Jonathan Moran, BS,^a Emer Guinan, PhD,^a Paul McCormick, MD,^b John Larkin, MD,^b David Mockler, BS,^c Juliette Hussey, PhD,^a Jeanne Moriarty, FFARCSI,^d and Fiona Wilson, PhD,^a Dublin, Ireland

Gpe control: usual care ou faible intensité

Interventions: IMT seul / IMT + aerobic ex + ex resistance membres

PPC

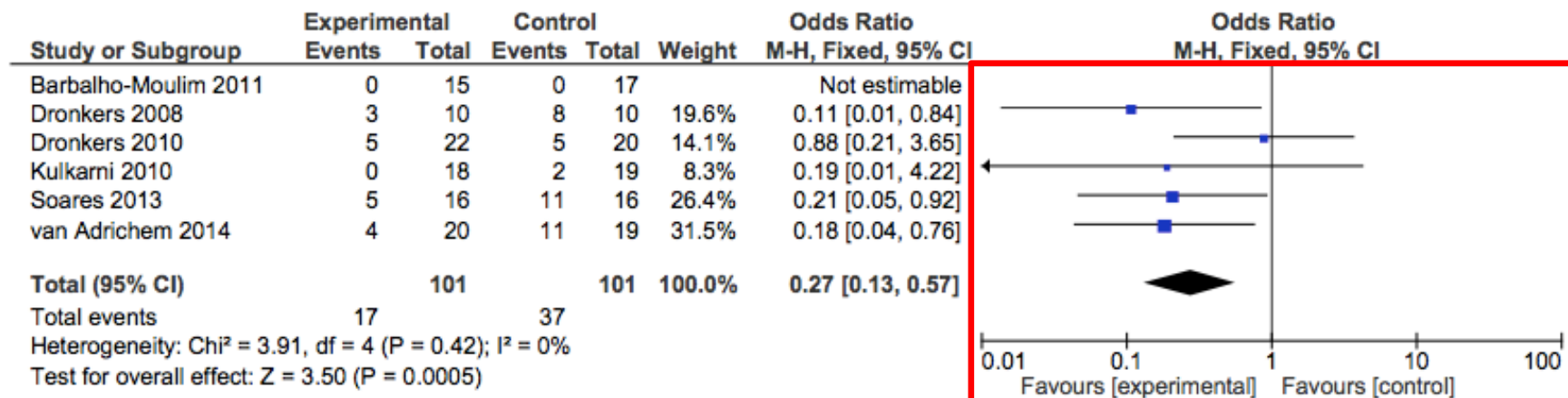


Fig 6. Exercise versus control: Postoperative pulmonary complications. (Color version of this figure is available online.)

The ability of prehabilitation to influence postoperative outcome after intra-abdominal operation: A systematic review and meta-analysis



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4 études dans méta-analyse
Autres études: very low

Prehabilitation:
IMT
Aerobic exercices
Resistances Training

LOS

Preoperative exercise to decrease postoperative length of stay

Patient or population: patients with to reduce postoperative length of stay

Settings:

Intervention: preoperative exercise

Outcomes	Illustrative comparative risks* (95% CI)	Relative No of effect (95% CI)	No of Participants of the evidence (GRADE)	Quality	Comments
	Assumed risk	Corresponding risk			
	Control	Preoperative exercise			
Length of	The mean length of	The mean length	232	⊕⊕⊕⊕	

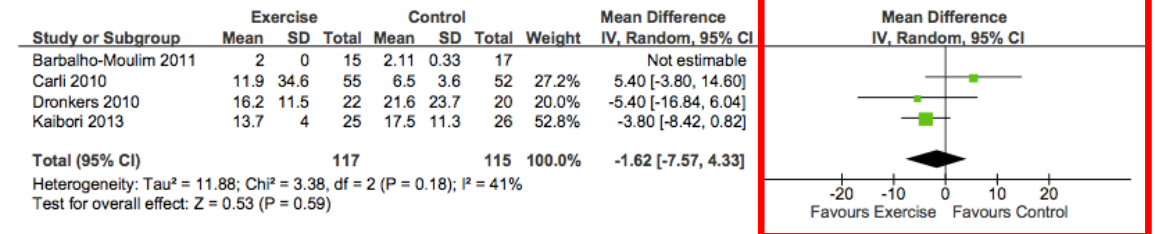


Fig 7. Exercise versus control: Length of stay. (Color version of this figure is available online.)

The ability of prehabilitation to influence postoperative outcome after intra-abdominal operation: A systematic review and meta-analysis



Jonathan Moran, BS,^a Emer Guinan, PhD,^a Paul McCormick, MD,^b John Larkin, MD,^b David Mockler, BS,^c Juliette Hussey, PhD,^a Jeanne Moriarty, FFARCSI,^d and Fiona Wilson, PhD,^a
Dublin, Ireland

In conclusion, prehabilitation can improve postoperative outcome by decreasing all-cause and pulmonary complications. The effect of prehabilitation is strongest when compared with no treatment or breathing exercises. The ability of prehabilitation to decrease postoperative mortality and LOS is inconclusive due to the low rate of mortality and the low number of studies reporting postoperative LOS. Although prehabilitation can decrease postoperative complications, the results of this meta-analysis should be considered with caution due to the relatively low methodologic quality of the included studies. Further RCTs are needed to validate the protective effects of prehabilitation.

ERS/ESTS TASK FORCE

**ERS/ESTS clinical guidelines on fitness for
radical therapy in lung cancer patients
(surgery and chemo-radiotherapy)**

A. Brunelli*, A. Charloux*, C.T. Bolliger, G. Rocco, J-P. Sculier, G. Varela, M. Licker,
M.K. Ferguson, C. Falvre-Finn, R.M. Huber, E.M. Clini, T. Win, D. De Ruyscher and
L. Goldman on behalf of the European Respiratory Society and European Society of
Thoracic Surgeons joint task force on fitness for radical therapy

PATIENT CARE MANAGEMENT

***The role of rehabilitation before and after lung resection
surgery***

Recommendations

1) Smoking cessation of sufficient duration (2–4 weeks) before surgery should be recommended, since it may change the smoking behaviour peri-operatively and decrease post-operative complications. Level of evidence 2+; grade of recommendation B.

2) Early pre- and post-operative rehabilitation should be recommended, since it may produce functional benefits in resectable lung cancer patients. Candidate selection, late outcomes (*i.e.* post-operative complications and death), and programme content and duration need to be further investigated. Level of evidence 2+; grade of recommendation C.

Réhabilitation et VNI avant exérèse pulmonaire chez les patients à haut risque opératoire[☆]

Pulmonary rehabilitation and non-invasive ventilation before lung surgery in very high-risk patients

P. Bagan^{a,*}, V. Oltean^b, A. Ben Abdesselam^a,
B. Dakhil^a, C. Raynaud^c, J.-C. Couffignal^a,
H. De Crémoux^c



- le sevrage tabagique avec consultation systématique avec un tabacologue ;
- l'optimisation du traitement médicamenteux de la BPCO (ajout d'un bronchodilatateur de longue durée d'action si absent et/ou de corticoïde inhalé) et traitement de l'addiction à l'alcool ou aux drogues ;
- une éducation respiratoire par des séances avec kinésithérapeutes et des séances de 20 minutes en groupe de gymnastique ventilatoire ;
- un soutien par une équipe de psychologues ;
- une assistance nutritionnelle par une diététicienne pour diminuer le surpoids ou supplémer une dénutrition préopératoire ;
- un programme d'exercice musculaire périphérique aérobie par réentraînement à l'effort en 15 séances de 30 minutes sur un ergocycle à une charge de 20 à 30 watts ;
- un contrôle de la douleur après l'effort ;
- une thérapie de relaxation par séances de 30 minutes dirigées par un sophrologue.

Le protocole VNI a inclus trois heures (une heure toutes les huit heures) de ventilation à double niveau de pression (pression expiratoire à 6 cm H₂O, pression inspiratoire à 12 cm H₂O), commençant deux semaines avant la chirurgie et continuant en postopératoire immédiat dès la deuxième heure après l'extubation.

Le protocole VNI a inclus trois heures (une heure toutes les huit heures) de ventilation à double niveau de pression (pression expiratoire à 6 cm H₂O, pression inspiratoire à 12 cm H₂O), commençant deux semaines avant la chirurgie et continuant en postopératoire immédiat dès la deuxième heure après l'extubation.

Tableau 2 Comparaison des tests fonctionnels et épreuves d'effort prédictifs postopératoire avant et après protocole de réhabilitation préopératoire (valeurs moyennes et écarts moyens).

Valeurs	Avant réhabilitation préopératoire	Après réhabilitation préopératoire	p
<i>VEMS ppo</i>			
Valeur moyenne en %	36,1	49,6	< 0,0001
Écart moyen en %	(4,3)	(9)	
<i>VO₂ max ppo</i>			
Valeur moyenne en %	42,4	53,8	< 0,0001
Écart moyen en %	(14,7)	(17,5)	

VEMS : volume maximal expire en 1 seconde exprimé en % de la valeur théorique ; VO₂ max : consommation maximale d'oxygène exprimée en % de la valeur théorique ; Ppo : prédictif (ve) postopératoire.



Best evidence topic - Thoracic oncologic

Is preoperative physiotherapy/pulmonary rehabilitation beneficial in lung resection patients?

Kumaresan Nagarajan^a, Ashley Bennett^a, Paula Agostini^a, Babu Naidu^{a,b,*}

Author, date and country Study type (level of evidence)	Patient group
Cesario et al., (2007), Lung Cancer, Italy, [2]	n=8 Lung cancer Surgeon's selection
Pilot trial (level 2b)	Four-week inpatient PRP
Jones et al., (2007), Cancer, USA, [3]	n=18 Lung cancer Surgeon's selection
Feasibility study (level 2b)	Three-week cycle (x five/week)
Bobbio et al., (2008), Eur J Cardiothorac Surg, Spain, [4]	n=12 Lung cancer COPD VO ₂ max < 15 ml/kg/min
Feasibility study (level 2b)	Four-week IMT (IS) + PMT (x five/week)
Sekine et al., (2005), Jpn J Thorac Cardiovasc Surg, Japan, [5]	n=22 (2005) vs. 60 (1995-1999) Lung cancer COPD
Historic case control study (level 2b)	Two-week IMT (IS) + PMT (5000 steps) (x five/week)

Varela et al., (2006),
Eur J Cardiothorac Surg,
Spain, [6]

n=119 (2002-2004) vs.
520 (1994-2002)

One day IMT (IS) +
PMT vs. IS alone

Historic case control
study
(level 2b)

Weiner et al., (1997),
J Thorac Cardiovasc Surg,
Israel, [7]

n=32
Lung cancer
COPD

Prospective randomised
control trial
(level 1b)

Preoperative two-week
IMT (IS) (x six/week)
vs. no training

Postoperative 12-week

Variabilité des programmes

Best evidence topic - Thoracic oncologic

Is preoperative physiotherapy/pulmonary rehabilitation beneficial in lung resection patients?

Kumaresan Nagarajan^a, Ashley Bennett^a, Paula Agostini^a, Babu Naidu^{a,b,*}

We conclude that a preoperative physiotherapy/pulmonary rehabilitation programme improves exercise capacity in patients undergoing thoracotomy and lung resection, and in patients with COPD preserves pulmonary function following surgery. Whether these benefits translate into a reduction in the development of PPCs is uncertain.

Prophylactic use of noninvasive ventilation in patients undergoing lung resectional surgery

2007

Christophe Perrin^{a,*,1}, Valérie Jullien^{a,1}, Nicolas Vénissac^b,
Frédéric Berthier^c, Bernard Padovani^d, Françoise Guillot^e,
Alain Coussement^d, Jérôme Mouroux^b

- Etude contrôlée randomisée
- Patients avec FEV1 < 70%th / chirurgie lobectomie par thoracotomie
- Prise en charge 7 jours avant et 3 jours après chirurgie pulmonaire
- Gpe contrôle: Aérosol VA +CPT (2/ jour: exercices respi, SI, Toux dirigée
- Gpe intervention: VNI masque facial , 2 niveaux de pression, 5X 1H / jour

Prophylactic use of noninvasive ventilation in patients undergoing lung resectional surgery

Christophe Perrin^{a,*,1}, Valérie Jullien^{a,1}, Nicolas Vénissac^b,
Frédéric Berthier^c, Bernard Padovani^d, Françoise Guillot^e,
Alain Coussement^d, Jérôme Mouroux^b

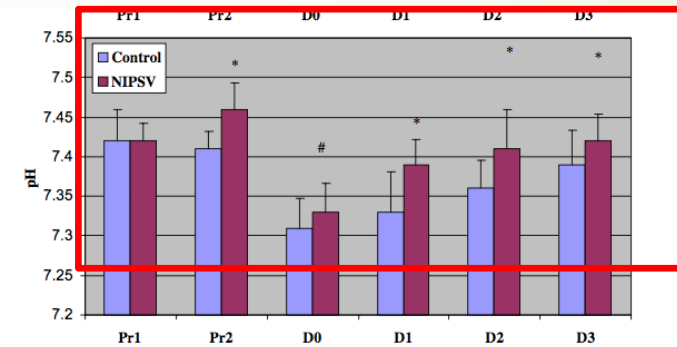
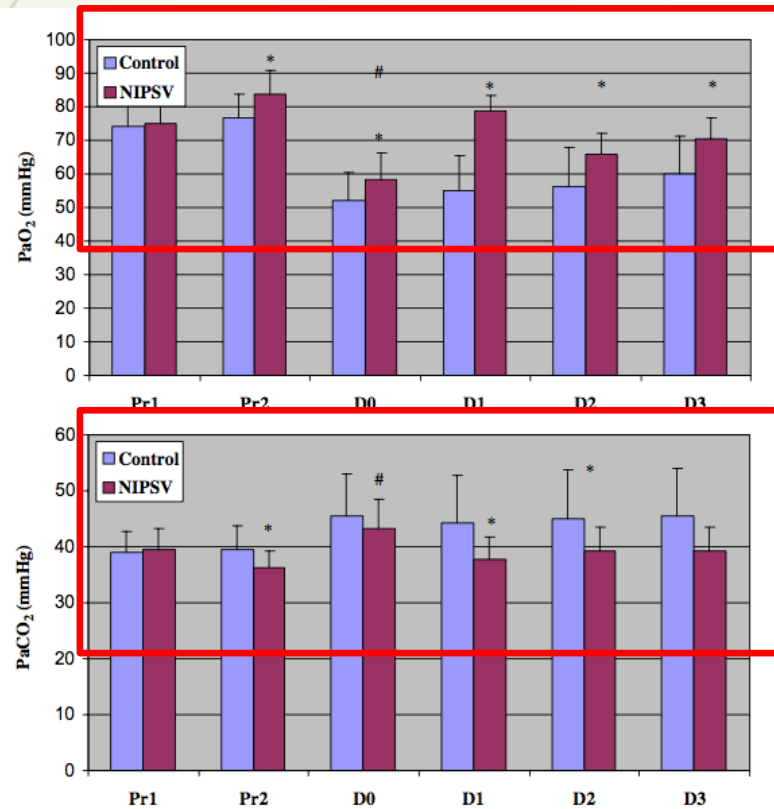


Figure 1 Effect of NIPSV on PaO₂, PaCO₂ and pH (on room air). Patients had standard treatment (control group) or standard treatment plus NIPSV (NIPSV group) during 7 days at home before surgery and 3 days postoperatively. Arterial blood gases were performed preoperatively (before (Pr1) and after (Pr2) treatment) and postoperatively (2 h after surgery (D0) and on day 1, day 2 and day 3). Note that arterial blood gases were performed before NIPSV sessions in the NIPSV group. Data are mean \pm SD. * $p < 0.05$ (control versus NIPSV groups); # $p < 0.05$ (Pr2 versus D0).

Pour le groupe VNI:

- PaO₂, PaCO₂, pH significatif entre Pr1 et Pr2 (préop)
- PaO₂, PaCO₂ et pH significatif entre Pr2 et D0 (préop / postop)
- PaO₂, PaCO₂ et pH significatif entre D0, D1, D2 et D3.

Prophylactic use of noninvasive ventilation in patients undergoing lung resectional surgery

Christophe Perrin^{a,*}, Valérie Jullien^{a,1}, Nicolas Vénissac^b,
Frédéric Berthier^c, Bernard Padovani^d, Françoise Guillot^e,
Alain Coussement^d, Jérôme Mouroux^b

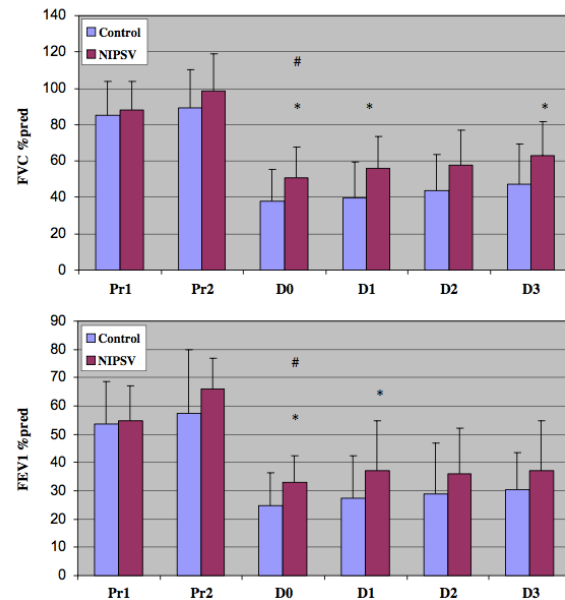


Figure 2 Effect of NIPSV on FVC and FEV₁. For the method, see legend of Fig. 1. Data are mean \pm SD. * $p < 0.05$ (control versus NIPSV groups); # $p < 0.05$ (Pr2 versus D0).

- Entre pré et post op: FEV1 et FVC évolue de façon significative dans le groupe VNI / Gpe contrôle (Pr2 / Do)
- Entre Pr2 et postop immédiat, baisse significative de FEV1 et FVC dans les deux groupes
- Retour aux valeurs préop rapidement
- Evolution significative au 1^{er} et 3^{ème} jour dans le groupe VNI / contrôle



Conclusion Préhabilitation

- Préhabilitation permet:
 - Augmentation des paramètres musculaires ET FONCTIONNELS (force)
 - Tests d'effort (TD6M...)
 - Aspect psy
- **MAIS**
- Préhabilitation:
 - Parfois pas assez de temps: aspect carcinologique
 - Outcomes post-opératoires PAS ASSEZ DOCUMENTÉS
 - Protocoles trop différents d'une équipe à l'autre
 - Méta-analyse peu fiables (méthodologie)
- **Etudes ultérieures +++ avant recommandations**
- **Notion de patients à risque post-opératoires (chirurgie pulmonaire: ppoVEMS...)**

Et le Fast-track??



REVIEW

Open Access

Peri-operative physiotherapy

Dewi Nurul Makhabah¹, Federica Martino² and Nicolino Ambrosino^{1,2,3*}

Fast-track rehabilitation

Fast-track rehabilitation programs include easy methods that have the potential to decline morbidity, hospital stay, and increase pain control when compared with conventional care. Patients with lung cancer who undergo lobectomy can be treated with fast-track rehabilitation. Fast-track rehabilitation is based on: minimally invasive

surgical techniques using video-assisted and muscle sparing incisions, normovolemia, normothermia, good oxygenation, euglycaemia, no unnecessary antibiotics, epidural patient-controlled analgesia, systemic opioids-free analgesia, early ambulation and oral feeding [37].

Feasibility and results of a fast-track protocol in thoracic surgery

2016

Virginie DUMANS-NIZARD ¹, Jeff GUEZENNEC ¹, François PARQUIN ²,
Philippe PUYO ², Edouard SAGE ², Rachida ABDAT ¹, Virginie VAILLANT ¹,
Alain CHAPELIER ², Jean-François DREYFUS ³, Marc FISCHLER ^{1*},
Morgan LE GUEN ¹ and the Foch Thoracic Anesthesiology Group

The rehabilitation program, designed jointly by the surgical and anesthesia teams, included four periods:

— The preoperative period: the patient was informed of the procedure during surgical and anesthesia consultations. The day before surgery, the nurse coordinator met the patient to describe his or her stay, and to teach respiratory physiotherapy.

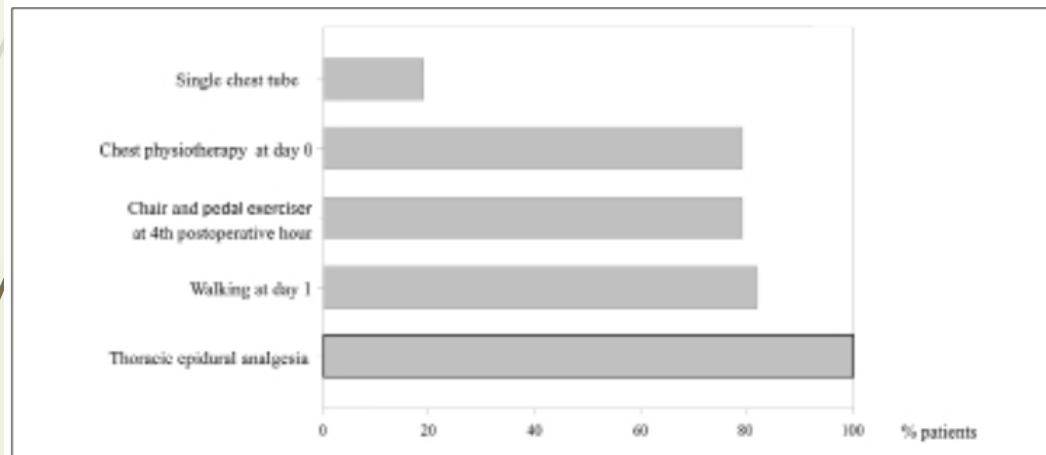


Figure 2.—Follow-up of rehabilitation protocol.

Feasibility and results of a fast-track protocol in thoracic surgery

Virginie DUMANS-NIZARD ¹, Jeff GUEZENNEC ¹, François PARQUIN ²,
Philippe PUYO ², Edouard SAGE ², Rachida ABDAT ¹, Virginie VAILLANT ¹,
Alain CHAPELIER ², Jean-François DREYFUS ³, Marc FISCHLER ^{1*},
Morgan LE GUEN ¹ and the Foch Thoracic Anesthesiology Group

Discussion

This rehabilitation program did result in a trend towards reduction in postoperative hospital stay compared to the comparative period (historical patients from the previous year) ($P=0.06$). Moreover, our study shows that the

Key messages

- A multimodal strategy of rehabilitation after thoracic surgery is feasible.
- Implementation of such a program should be accompanied by a coordinator to achieve every objective.
- In our experience, insertion of two thoracic chest tubes was a limiting factor for reduction of the length of stay.
- A multimodal program involves multi-professionals and patients and their family to reduce time between theoretical day of discharge and real day of discharge.

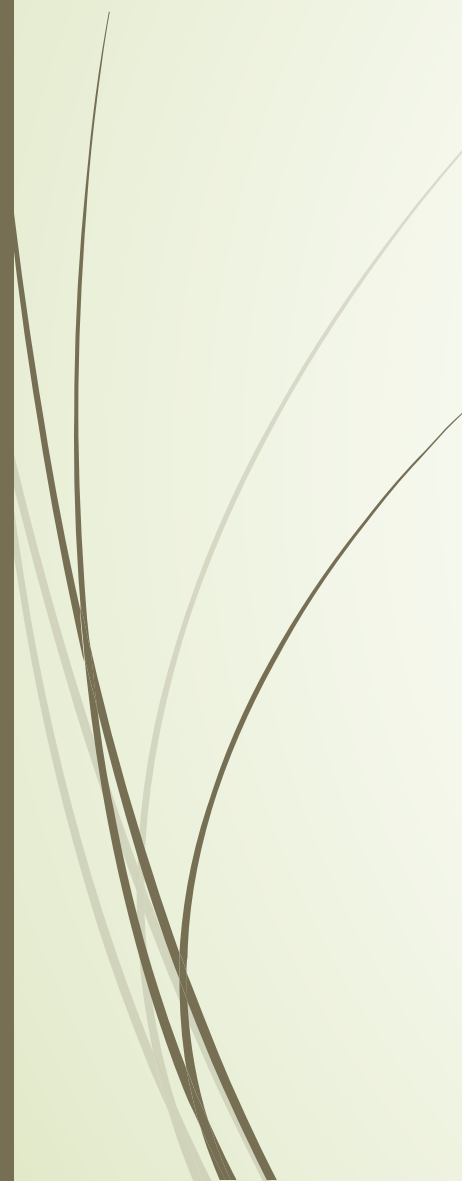

En conclusion

➤ En chirurgie viscérale:

- VNI préop: Pas d'études
- Préhabilitation: **S sur education, LOS, Morbidité, et PPC (recos faibles)**
- Méthodologies bof et programmes divers +++
- SI préop: pas d'étude
- Electro préop: pas d'étude

➤ En chirurgie thoracique:

- Préhabilitation : **S sur les capacités musculaires, VO2maxppo, VEMSppo, fonction pulmonaire chez le BPCO**
- VNI préop: attente de résultats futurs. **S sur GDS ET VEMS ET CVF, VEMSPPO ET VO2MAX ppo**
- SI préop: pas d'étude
- Electro préop: pas d'étude



	CHIR THORACIQUE	CHIR DIGESTIVE
SI préop	Pas explorée	Pas explorée
VNI préop	Tendance S	Pas explorée
Préhabilitation	S	S
Electro préop	Pas explorée	Pas explorée



➡ Merci de votre attention