



The effect of self-efficacy-enhancing-based active cycle of breathing technique on elder lung cancer patients with lung resection

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Background

1. Lung cancer has **the highest morbidity and mortality** of cancers worldwide and is the primary cause of death in male cancer patients.

2. Lung resection can improve the 5-year-survival rate for **68%**.



Background

Pneumonia
and
Atelectasi
S....

thoracotomy

video-assisted
thoracoscopic
surgery (VATS)



postoperative
pulmonary
complication

19%~59%

prolonged
hospital stay

respiratory
failure\death

health care
cost



To clear the airway secretion, improve the lung function and prevent the postoperative pulmonary complication, is an issue problem for elderly



Background



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Active Cycle of Breathing

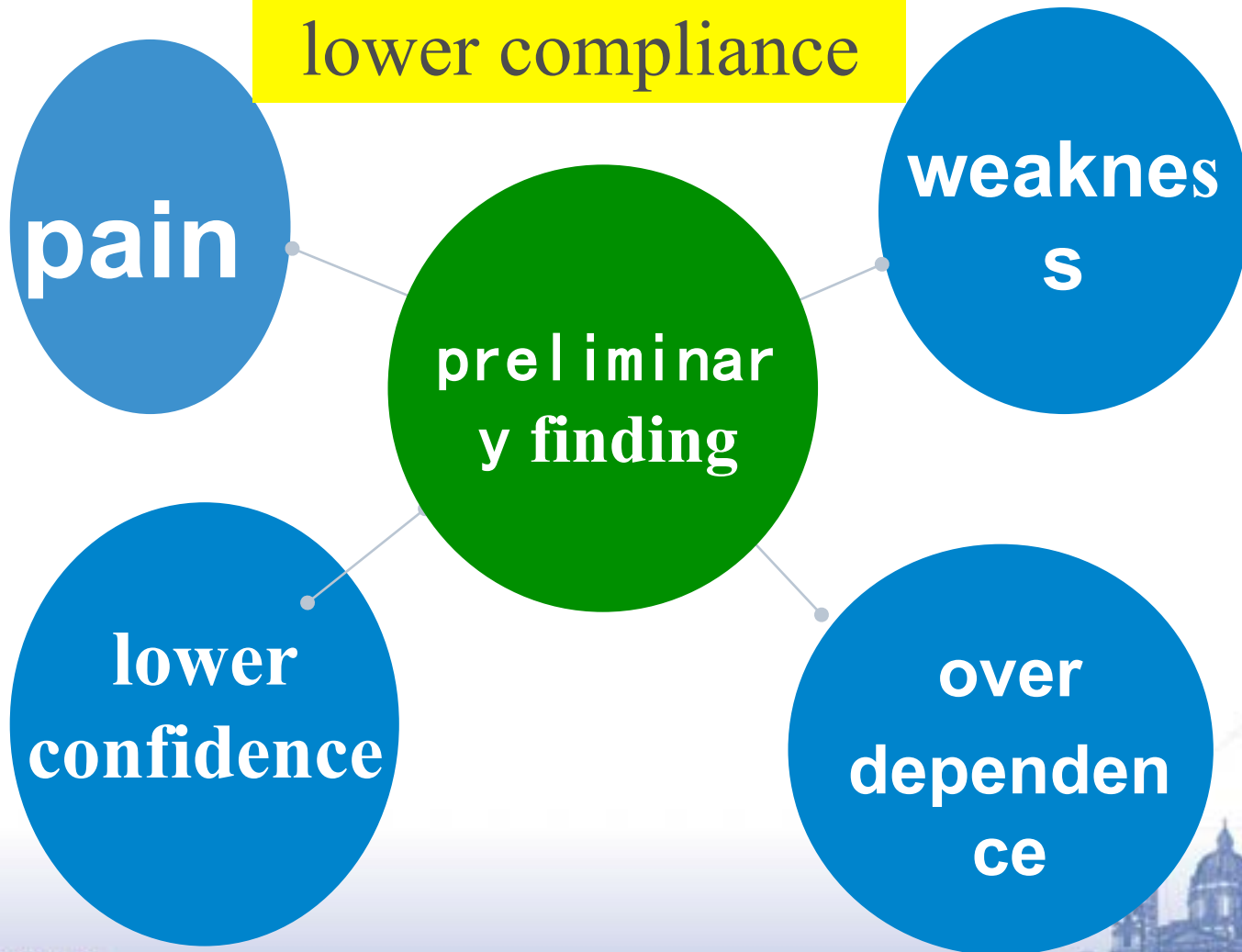
Technique (ACBT)

a short-term secretion
clearance technique



Background

elderly patients'
lower compliance



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Aim



- 1. To establish an intervention program of the self-efficacy-enhancing-based active cycle of breathing technique on elder lung cancer patients with lung resection.**
- 2. To explore the effect of self-efficacy-enhancing-based active cycle of breathing technique on elder lung cancer patients with lung resection**



Method



Study design:

A quasi-experimental trial with **a pre-post test design**, We allocated patients to the control group or intervention group according to their time of admission.

Sep 2016—Dec 2017
Control group
(routine breathing exercise)



Jan 2017—Apr 2018
Intervention group
(self-efficacy-enhancing-based active cycle of breathing technique)

Method

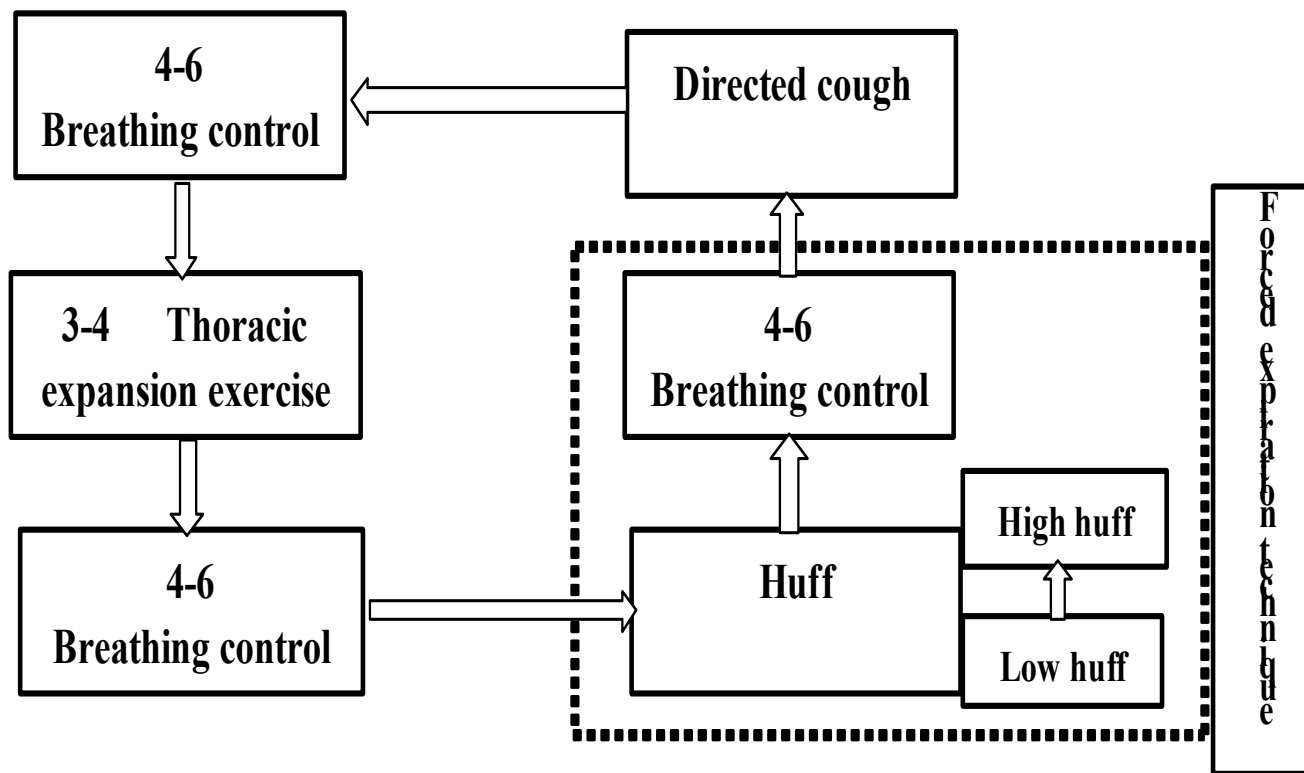


Fig. 1. Active cycle of breathing technique and directed coughing



Method

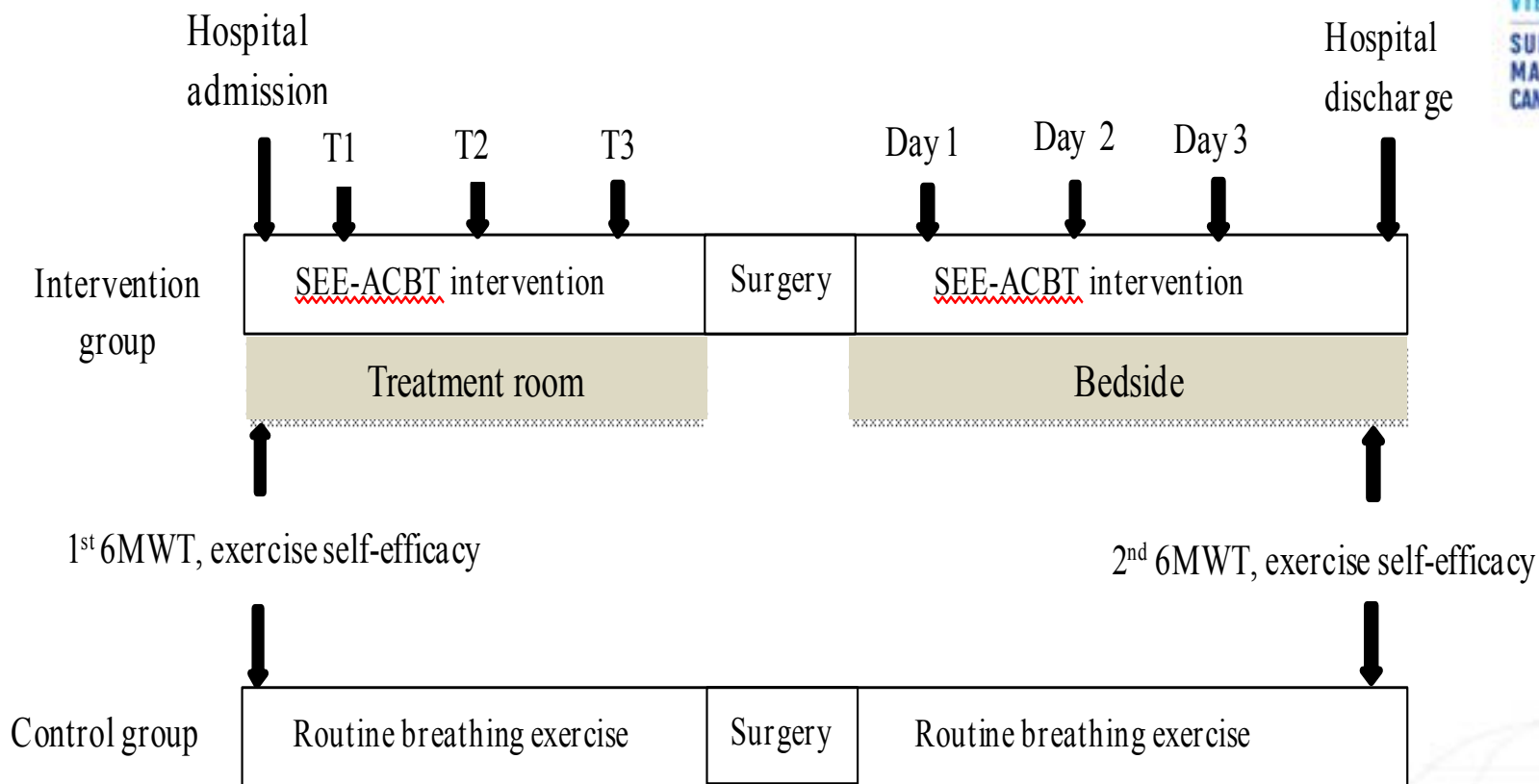


Fig. 2 Intervention procedure



Method

Mastering
experience



Vicarious
experience



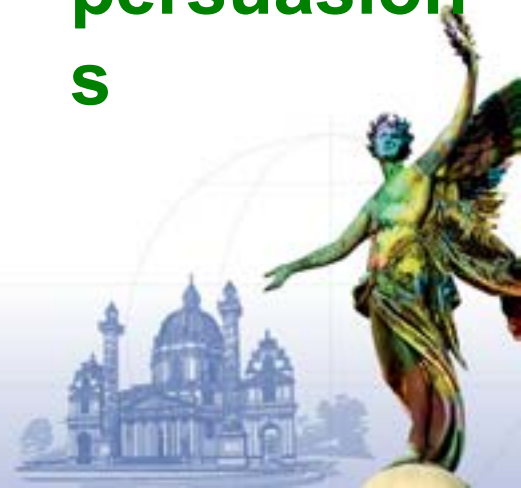
Emotion
al
arousal



Self-
efficacy



Verbal
persuasion
s



Method

中山大学附属肿瘤医院 胸科一区
SUN YAT-SEN UNIVERSITY CANCER CENTER

主动呼吸循环技术及有效咳嗽

主动呼吸循环技术 (active cycle of breathing technique ACBT) 是一种气道净化及呼吸功能锻炼的有效物理治疗方法, 目前已经广泛应用于慢性阻塞性肺部疾病、哮喘、肺囊性纤维化和胸部手术的康复治疗中。可以增加肺通气, 提高呼吸肌功能, 改善吸气和呼气肌的肌力、耐力及协调性, 促进血液循环及组织换气, 促进痰液的松动和排除, 对肺部肿瘤切除术后痰液的排除及肺的膨胀有明显效果, 能有效改善患者术后肺功能, 显著降低肺炎、肺不张等肺部并发症的发生。完整的ACBT共4步, 包括“4-4呼吸控制(腹式缩唇式呼吸)-3-5个胸部扩张锻炼(扩胸深呼吸)-4-4呼吸控制-3-3用力呼气”, 加上有效咳嗽。患者可根据自己的情况控制每个环节中动作的次数。

1. 腹式缩唇式呼吸: 一手放在腹部脐部下方, 用鼻深吸, 肚子鼓起, 憋住时, 再用缩口呼吸慢慢吐出, 憋4-6秒。
2. 扩胸深呼吸: 深吸气体, 胸廓上抬外扩, 然后慢慢将气体吐出, 憋3-5秒后深呼吸。
3. 用力呼气: 深吸气体, 用力缩口快速呼气, 胸廓收缩, 憋气10-20秒, 慢慢将气体吐出, 慢慢将胸廓放松。
4. 有效咳嗽: 深吸气体, 用力缩口快速呼气, 胸廓收缩, 憋气10-20秒, 用力将痰液从肺部咳出。

肺部肿瘤围手术期呼吸功能训练手册

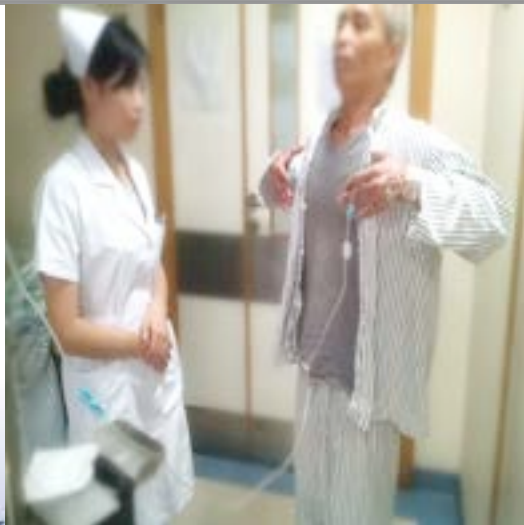
2 主动呼吸循环技术



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Method



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Outcome measures

1.24-h wet sputum weight

2.the peak expiratory flow (PEF)

3.postoperative pulmonary complications (PPC,
Melbourne Group Scale, MGS)

4.6-minute walk test (6MWT)

5.exercise self-efficacy (Self-Efficacy for Exercise Scale,
SEE-C)



Method



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clear sterile
pot



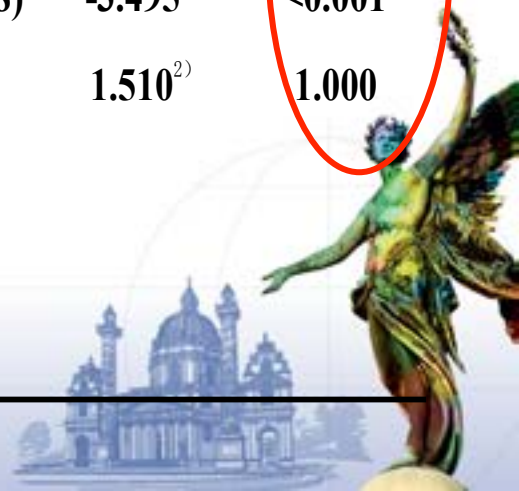
Exhalation peak flow meter



Results

Table 1 Effect of self-efficacy-enhancing-based active cycle of breathing technique on the postoperative outcomes

Variables	Control group (n=35)	Intervention group (n=35)	z/? ²	P-value
24-h wet sputum weight M (P25, P75)				
Postoperative day 1 (g)	4.5 (2.2, 7.8)	5.5 (2.6, 13.7)	-1.298 ¹⁾	0.194
Postoperative day 2 (g)	5.7 (2.2, 11.7)	12.1 (4.9, 24.7)	-2.502 ¹⁾	0.012
Postoperative day 3 (g)	4.9 (2.8, 10.2)	13.6 (5.5, 31.8)	-3.495 ¹⁾	<0.001
Postoperative pulmonary complication [n (%)]	6 (17)	1 (3)	1.510 ²⁾	1.000
Hypoxaemia	3 (9)	1 (3)		
Atelectasis	1 (3)	0		
Pneumonia	2 (6)	0		



Results

Table 2 The peak expiratory flow, six-minute walk test and exercise self-efficacy at baseline and after intervention



Variables	Baseline				After intervention			
	Control	Intervention	<i>t</i>	<i>P</i>	Control	Intervention	<i>t</i>	<i>P</i>
	group (<i>n</i> =35)	group (<i>n</i> =35)			group (<i>n</i> =35)	group (<i>n</i> =35)		
the peak expiratory flow (L/min)	355.7±98.2	397.4±122.2	-1.573	0.120	225.6±83.0	309.2±103.7	-3.693	<0.001
6-minute walk test (m)	534.8±69.3	554.7±78.1	-1.129	0.263	333.8±132.3	465.4±115.7	-4.430	<0.001
exercise self-efficacy	73.5±18.3	73.9±18.1	-0.085	0.932	68.9±20.6	77.8±13.0	-2.141	0.036

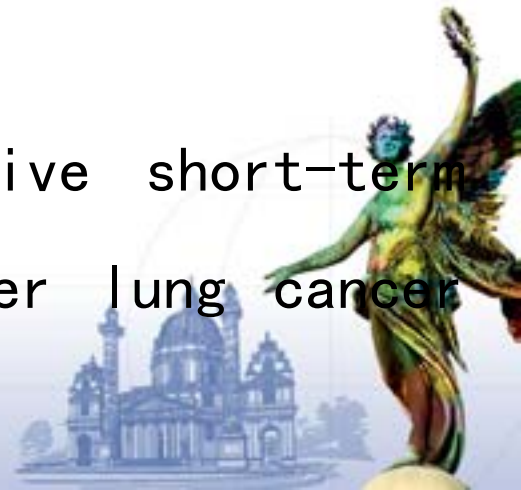


Conclusion



◆ The self-efficacy-enhancing-based active cycle of breathing technique could enhance the cough capacity, clear the airway secretion, improve the exercise capacity, and increase the self-efficacy of pulmonary rehabilitation,

◆ It is a kind of simple and effective short-term pulmonary rehabilitation method for elder lung cancer patients.





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Thank you for your listening

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