

# CAHE JC Critically Appraised Article Summary

## Journal Club Details

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<b>Date of submission</b>	July 2008
<b>Journal Club location</b>	Lyell McEwin Hospital
<b>JC Facilitator</b>	Cassie Sealby

## Clinical Scenario

What is the effectiveness of using arm ergometer in improving the cardiovascular endurance and quality of life of patients with chronic obstructive pulmonary disorders?

## Review Question/PICO/PACO

- P:** Patients with COPD
- I:** Arm ergometry
- C:** No intervention
- O:** Respiratory muscle strength, cardiovascular endurance, SOB, QoL

## Article/Paper

Gigliotti F, Coli C, Bianchi R, et al. *Chest* 2005; 128: 1225-1232.

Arm Exercise and Hyperinflation in Patients with COPD: Effect of Arm Training

**Article Methodology:** Prospective Clinical Trial

**Returned JC on:** 7 July 2008

**By CAHE staff member:** Lucylynn Lizarondo

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Ques No.	Yes	Can't Tell	No	Comments
1	✓			<p>This study has a clearly focused question, specifically looking at:</p> <p>Population: Patients with stable, mild to moderate COPD who satisfied the following criteria: long history of smoking and moderate to severe, chronic dyspnoea; clinically stable condition and with no other disease that may cause dyspnoea</p> <p>Intervention: Pulmonary Rehabilitation Program which consisted of education, breathing retraining, leisure walking, unsupported arm exercise and arm training with arm ergometer</p> <p>Outcomes: pulmonary function tests, exercise capacity, exercise dyspnoea and arm effort</p>
2			✓	<p>This is a controlled study in which subjects completed a 6-week non-intervention period followed by a 6-week pulmonary rehabilitation program. The subjects acted as their own controls. Having a separate group which will serve as a control and then randomly allocating subjects to groups would have been a better approach for this study. However, it is still worth continuing this study as it can raise helpful information about the use of arm exercises in improving function among COPD patients.</p>
3		✓		<p>In this study, there was no need to allocate subjects to control and intervention group as the subjects already acted as their own controls. As such, it would be important to look for changes in the characteristics of patients (anthropometric and lung function data) measured immediately before the control period and after the control period (before ATP). If there is no significant change in this period, then this condition will just be similar to having two separate groups, control and intervention, with homogenous baseline characteristics.</p> <p>The study mentioned that data did not change during this period.</p>
4			✓	<p>It would be impossible to blind patients and therapists in this study. There may be a slim chance of detection bias because assessors were not blinded.</p>
5	✓			<p>All participants were followed up and included in the analysis of data.</p>
6	✓			<p>Data on the different outcomes were measured and collected in the same way and at the same time of day for all participants.</p>
7		✓		<p>A power calculation was not carried out. Therefore, it will be difficult to say whether or not the number of participants in this study was adequate.</p>



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Ques No.	Yes	Can't Tell	No	Comments
8				<p>Data to compare the effects of pulmonary rehabilitation program and the non-intervention period were presented using mean <math>\pm</math> SD. T-test was used to analyse measurements made before and after the arm training program. After analysis, it was found out that Arm Training Program causes:</p> <ul style="list-style-type: none"> <li>• A significant increase in exercise capacity</li> <li>• No change in the relationship of exercise dyspnoea and arm effort with minute ventilation and inspiratory capacity and of inspiratory capacity with oxygen uptake</li> <li>• At a standardised work rate, minute ventilation, exercise dyspnoea and arm significantly decreased, while the decrease in inspiratory capacity was significantly less than before the arm training program</li> <li>• At standardised minute ventilation, exercise dyspnoea and arm effort decreased significantly</li> </ul> <p>Bottom line results: Arm training program increases arm endurance, modulates dynamic hyperinflation and reduces symptoms.</p>
9				<p>This study presented p-values to detect significant differences between groups. The small sample size, however, limited the power of the results from this study.</p>
10		✓		<p>Whilst this study considered the most important outcomes, it may have limited generalisability and applicability because of the small sample size. Even though there were a small number of patients, the benefits of using arm training program cannot be disregarded especially because there was no reported adverse reaction during performance of the therapy.</p>