Re: Effect of upper limb, lower limb and combined training on health-related quality of life in COPD.

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ABSTRACT

Objectives: To study the effect of unsupported upper limb and lower limb exercise training and their combined influence on the exercise performance and health-related quality of life in COPD patients. Material and Methods: Thirty patients were randomly assigned to one of the three groups, through block randomization. Of the three groups, group-A received upper limb training, group-B received lower limb training, and group-C received both upper and lower limb training. Patients in group-A, B, and C underwent exercise training five times a week for four weeks. The outcome measures used in the study were unsupported upper limb endurance test (UULEX), Six-Minute Walk Test (6-MWT), and a Chronic Respiratory Questionnaire. Statistical analysis was performed with analysis of variance, Wilcoxon scale, and a Kruskal Wallis one way ANOVA test, and a P value of .05 was used in the study. Conclusion: The combined upper limb and lower limb training group showed a significant improvement in the exercise performance and health-related quality of life. The author provides a section-wise critique of the published paper by Subin et al. Key words: Chronic obstructive pulmonary disease, health-related quality of life, lower limb training, upper limb training, exercise performance.

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Introduction: The authors discussed perfectly the COPD citing its pathophysiological changes, functional limitations of patients, the epidemiology of the disease in the country of origin of the journal where the article was published and the study objective. The authors conducted a search at literature about the dysfunctions and treatments discussed in the article, showing the clinical relevance of the work. The introduction was not extensive, causing the reader to feel motivated to continue reading the paper. Materials and Methods: We were not cited the ethical issues, the approval of the ethical committee and the informed consent from the volunteers needed to conduct an experimental study.
Even when subjects are randomly distributed, it is necessary to ensure that the treatment effect was not distorted by bias in evaluation. This happens by chance that the researcher's beliefs about the effectiveness of certain treatment may unconsciously distort the measure of treatment outcome. The best way to reduce this bias is "blinding" the evaluator, making sure that the person who measured the results did not know which treatment each subject was submitted. 

Procedure: This study suggests treatment effects by recruiting a group of patients measuring the severity of the condition before and after treatment. If volunteers have improved after treatment, it is said that the treatment was effective. This type of study rarely provides evidence that treatment was effective, since you can not say that any improvement was due solely to the treatment. It should be remembered on factors such as natural history, placebo and subjects who reported improvement, only to let the investigators satisfied. The only way to deal with these problems that threaten the validity of the study is through the adoption of a control group. Thus a comparison is made between the outcomes of patients who received treatment and patients who received no treatment. A controlled clinical study showing that subjects who received the treatment were better than the controls is the best evidence that the improvement was due to treatment.  

The criteria were not reported to interrupt the 6-MWT, if necessary, and if individuals were evaluated for cardiac parameters and oximetry. It was not also quoted in the group in which patients were subjected to walking training, what the parameters used for the prescription of training intensity and whether patients were monitored. Such parameters can interfere with the test results. In group C, pointed out that the patients were submitted to both techniques on alternate days, but was not mentioned how was done the rotation. In this kind of study it is necessary to explain in detail all its procedures.

Statistical Analysis: Appropriate statistical formulas were adopted to measure the data and make comparisons proposed by the authors.

Results: To facilitate understanding, the results were presented in tabular format showing the demographic variables, outcome variables and the results obtained before and after treatment. Despite very clear, the tables had errors. In Table 2, in 6MWD of group B, was quoted distance of the group after treatment, when should have been cited the distance the group reached before receiving treatment. When changing the data, can arise a statistically significant difference, producing a bias in the survey.

Based on a relatively small sample and the results obtained, it is necessary to conduct a test of Statistical Power whereas studies with a larger sample have a more precise estimate of effect size by the technique.

Was not cited in the article the occurrence of deleterious effects of the techniques used. Even if these effects occur so infrequently or do not occur and the study has an insufficient sample to detect them, it is necessary to quote the results to the knowledge of the reader.

They mentioned that all three groups showed significant improvement in quality of life. It would be interesting to perform a test of probative value between the groups to see if any treatment effect had greater statistical significance than others in each domain of CRQ.

Discussion: The study is discussed critically and the results are discussed with reference to other important literature. The author presents his views, but they are not exaggerated and were pertinent.

It was reported that two individuals in group B and one in group C, discontinued the proceedings and were not included in the study. Although it is difficult to control, the abstentions should be avoided. The dropouts can seriously distort the findings. The real effect of treatment can be manipulated if it causes the worsening of the subjects and they left the study. At the final evaluation, treatment will appear more
**Critically appraised paper**

effective than would be, increasing the chances of bias in the study. It should be pointed recommendation for future work to elucidate the adverse effects that may occur with the implementation of the techniques used in the study.¹

**References:** The references are clear and have been properly numbered according to order of appearance.

**Overall Considerations:**
Limitations of the study should be considered before judging the results and their clinical implications.

**REFERENCES**

1. Guyatt GH, Sackett DL, Cook DJ. User's guide to the medical literature: II. How to use an article about therapy or prevention: A. Are the results of this study valid? *JAMA* 1993; **270**:2598-2601.

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This article is a critical appraisal of the published paper by Subin et al on Effect of upper limb, lower limb and combined training on health-related quality of life in COPD. *Lung India* 2010;27:4-7.

Authors’ response to this critical appraised paper will be published in the forthcoming issue.