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Title: The effects of breathing exercises in adults with asthma: A systematic review

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Body: Background: Breathing exercises are used as a complementary therapy to the pharmacological treatment of asthma. Aim: To assess the evidence for the efficacy of breathing exercises in the treatment of adult patients with asthma. Methods: This is a Cochrane systematic review with meta-analysis. Trials were searched for in the Cochrane Library, MEDLINE, EMBASE, PsycINFO, CINAHL and AMED. Trial registers were also consulted. The types of studies were randomised controlled trials. Comparison was made with a control group receiving asthma education or with an inactive control group. Two reviewers independently extracted data and assessed trials quality. The Review Manager software was used for data analysis using the fixed-effect model. Continuous outcomes were expressed as mean difference with a confidence interval of 95%. The I² statistic was implemented with a value over 50% as a substantial level of heterogeneity. Results: 13 studies involving 846 patients are included in the review. The following outcomes were measured: quality of life, asthma symptoms, number of acute exacerbations and lung function. Due to substantial heterogeneity found among the studies, meta-analysis was only possible for asthma symptoms. This meta-analysis was performed with two studies and showed a significant difference favoring breathing exercises. The assessment of risk of bias was impaired due to incomplete reporting of methodological aspects of most of the included trials. Conclusions: There is no conclusive evidence in this review to support or refute the efficacy of breathing exercises in the treatment of adult patients with asthma. Attention needs to be paid on good reporting and high quality study design in the future.