

# Comparison of the effects of Buteyko and pranayama breathing techniques on quality of life in patients with asthma - a randomized controlled trial.

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### Abstract

#### **OBJECTIVE:**

To compare two breathing exercises (Buteyko and pranayama) with a control group in patients with asthma.

#### **DESIGN:**

Randomized controlled trial.

#### **SUBJECTS:**

One hundred and twenty subjects were randomized to three groups through block randomization. Subjects with an Asthma Quality of Life Questionnaire score <5.5 participated in the study.

#### **SETTING:**

Outpatient pulmonary medicine department.

#### **INTERVENTIONS:**

Subjects in the Buteyko and pranayama groups were trained for 3-5 days and instructed to practise the exercises for 15 minutes twice daily, and for three months duration. The control group underwent routine pharmacological management during the study period.

#### **OUTCOME MEASURES:**

Asthma Quality of Life Questionnaire, Asthma Control Questionnaire and pulmonary function test.

#### **RESULTS:**

The baseline characteristics were similar in all three groups. Post intervention, the Buteyko group showed better trends of improvement (mean (95% confidence interval), P-value) in total Asthma Quality of Life Questionnaire score than the pranayama (0.47 (-0.008-0.95), P = 0.056) and control groups (0.97 (0.48-1.46), P = 0.0001). In comparison between the pranayama and control groups, pranayama showed significant improvement (0.50 (0.01-0.98), P = 0.042) in total Asthma Quality of Life Questionnaire score.

#### **CONCLUSION:**

The Buteyko group showed better trends of improvement in quality of life and asthma control than the group performing the pranayama breathing exercise.

The current 'British guideline on the management of asthma' (SIGN 153) published in September 2016 states:

“Behavioural programmes centred on breathing exercises and dysfunctional breathing reduction techniques (including physiotherapist-delivered breathing programmes such as the Papworth method, and the Buteyko method) can improve asthma symptoms, quality of life and reduce bronchodilator requirement in adults with asthma, although have little effect on lung function. These techniques involve instruction by a trained therapist in exercises to reduce respiratory rate, minute volume and to promote nasal, diaphragmatic breathing. Trials that include more than five hours of intervention appeared more likely to be effective. They can help patient’s experience of their condition and quality of life although do not affect lung function or airways inflammation. They should ideally be provided as part of integrated medical care. There is currently insufficient evidence relating to other breathing exercise methods, such as yoga breathing.”

This guideline gives behavioural programmes such as the Buteyko Method and the Papworth Method an ‘A’ recommendation. The grade of recommendation relates to the strength of the evidence on which the recommendation is based. An ‘A’ grade is the highest of 4 grades of recommendation. You may access the guideline via the following link:

<https://www.brit-thoracic.org.uk/document-library/clinical-information/asthma/btssign-asthma-guideline-2016>

Although the quotation above, from the guideline, states that programmes such as the Buteyko Method and the Papworth Method “have little effect on lung function”, 4 fairly recent studies in the list at the bottom of this page, have demonstrated that the Buteyko Method did have a significant effect in improving lung function. These studies were: Ravinder et al (2012), Prasanna et al (2015), Hassan et al (2012), and Elnaggara and Shendy (2016). Another study, awaiting publication, that was carried out by researchers at Universidade Federal do Rio Grande do Norte in Brazil, showed that the Buteyko method led to significant improvements in lung function in children with asthma.

The vast majority of the clinical studies that have been carried out on the efficacy of breathing re-education have investigated the Buteyko Method (also known as the Buteyko Breathing Technique).

A total of 16 of the studies listed at the bottom of this page (including 3 of the 4 completed, but yet to be published ones), were randomised controlled trials (RCTs). Of these 16 studies, 15 were on the Buteyko Method/Buteyko Breathing Technique and 1 was on the Papworth Method. A number of the Buteyko studies listed were not RCTs. However, Professor Sir Michael Rawlins, Chair of the Medicines and Healthcare Products Regulatory Agency (UK) has argued that a new approach is needed to analyse clinical evidence. According to Rawlins, randomised controlled trials (RCTs), long regarded at the 'gold standard' of evidence, have been put on an undeserved pedestal. In his view, their appearance at the top of "hierarchies" of evidence is inappropriate; and hierarchies, themselves, are illusory tools for assessing evidence. In his opinion, they should be replaced by a diversity of approaches that involve analysing the totality of the evidence-base.

Before listing the pertinent studies, reviews, and articles, quotations from some of these studies are now provided.

## Quotations from study papers

*"Even though no study has indicated exactly why Buteyko is so effective at controlling asthma, if a drug could show these results, then it is likely that it would be widely used in asthma control." (Hassan et al, 2012)*

*"This study demonstrated that the BBT (Buteyko Breathing Technique) and the TLPT (thoracic lymphatic pump technique) can effectively improve the total serum IgE, the ventilatory function in terms of FVC, FEV<sub>1</sub>, PEF, FEF<sub>25-75%</sub> and FEV<sub>1</sub>/FVC, and C-ACT scores in children with bronchial asthma. However, Buteyko breathing was more significantly effective compared with the TLPT." (Elnaggara, 2016)*

*"The results of this study revealed a significant decrease in asthma daily symptoms, a significant improvement in PEF<sub>R</sub>, and Control pause test in group A (Buteyko Breathing Technique (BBT)), while there was insignificant change in group B (no BBT, just their prescribed medications)."*

*"There was an increase in peak expiratory flow rate (PEFR) with 51% in group A (Buteyko Breathing Technique) and an increase of 3.6% in group B (no BBT, just their prescribed medications)." (Hassan et al, 2012)*

*"There was a statistically significant improvement of daily Asthma Control and PEFR (peak expiratory flow rate) in the group who did the Buteyko breathing exercise for 2 months over the control group". (Prasanna et al, 2015)*

*"Group – Buteyko Breathing Technique (BBT) group-A showed significant improvement in the FEV<sub>1</sub> and PEFR, and a significant decrease in the levels of dyspnea, where PLBE with DE Group – B showed no significant changes in any of the three measurements." (Ravinder et al, 2012)*

*"Buteyko Breathing Technique has given a logical treatment for reversing hyperventilation disorders which is responsible for recurrent asthmatic attack, so it can be concluded that Buteyko Breathing exercise when done regularly and properly can stop or reverse the decline in the lung function and reduce dyspnea in asthmatic patients." (Ravinder et al, 2012)*

*"In addition to reduction in medication there were improvements in measures of quality of life scores, symptom scores, and also reduced number of courses of oral steroids." (McHugh et al, 2006)*

*"In conclusion, we found that those practising the Buteyko breathing technique (BBT) reduced hyperventilation and their use of beta2-agonists. A trend toward reduced inhaled steroid use and better quality of life was observed in these patients without changes in objective measures of airway calibre." (Bowler et al, 1998)*

*"This randomised clinical trial showed that both the Buteyko and control (physiotherapy) interventions produced a favourable outcome in that over 70% of the participants enjoyed asthma control 6 months after completing the intervention. In addition, the subjects in the Buteyko group were able to significantly reduce their daily doses of inhaled corticosteroid." (Cowie et al (2008)*

## List of clinical studies, reviews and articles

In the list of studies, reviews, and articles below, where possible, a link to the study/review/article is provided.

- Adelola OA. et al. 2013, Role of Buteyko Breathing Technique in asthmatics with nasal symptoms, *Clinical Otolaryngology* April; 38(2):190-191  
<http://buteykoclinic.com/wp-content/uploads/2016/11/Buteyko-Hayfever.pdf>
- Austin G. et al. 2009. Buteyko Breathing Technique Reduces Hyperventilation Induced Hypocapnoea and Dyspnoea after Exercise in Asthma, *Pulmonary Rehabilitation* B58 A3409. [Abstract](#)
- Birch M (2012) Clinical Review: Sleep Apnoea – A survey of breathing retraining, *Australian Nursing Journal*, October, Vol 20, No. 4, pp. 40-41, [http://www.buteyko.info/pdf/OSA\\_article\\_2012.pdf](http://www.buteyko.info/pdf/OSA_article_2012.pdf)
- Bowler SD. et al. (1998) Buteyko breathing techniques in asthma: a blinded randomized controlled trial. *MJA*, Dec 7-21; 169 (11-12). [Abstract](#)
- Burges J et al. (2011) Systematic review of the effectiveness of breathing retraining in asthma management, *Expert Rev. Respir. Med.* 5(6), 789–807 <http://buteykoclinic.com/wp-content/uploads/2016/11/Buteyko-Clinic-Trial-Review.pdf>
- Chavda MV and Shah HM. (2016) To compare the efficacy of pursed lip breathing and Buteyko breathing technique to reduce the symptoms of exercise induced asthma in obese children, *International Journal of Current Research*, Vol. 8, Issue 07, pp. 35058-35064 <http://www.journalcra.com/sites/default/files/16028.pdf>
- Cooper S. et al (2003) Effect of Two Breathing Exercises (Buteyko and Pranayama) in asthma: A Randomised Controlled Trial. *Thorax*, Vol. 58, No. 8, pp. 649-659 [Thorax](#)
- Cowie RL et al. 2008 A randomized controlled trial of the Buteyko technique as an adjunct to conventional management of asthma, *Respiratory Medicine*; May; 102(5):726-32. [Full text](#)
- Elnaggara RK and Shendy MA (2016) Efficacy of non-invasive respiratory techniques in the treatment of children with bronchial asthma: a randomized controlled trial, *Bulletin of Faculty of Physical Therapy*, 21:1–10 <http://buteykoclinic.com/wp-content/uploads/2017/02/BullFacPhys-08-feb-2017.pdf>
- Hassan ZM. et al. (2012) Effect of Buteyko breathing technique on patients with bronchial asthma, *Egyptian Journal of Chest Diseases and Tuberculosis*, 61, 235–241. [Full text](#)
- Holloway, EA and West RJ (2007) Integrated breathing and relaxation training (the Papworth method) for adults with asthma in primary care: a randomised controlled trial, *Thorax*, Dec; 62 (12): 1039-1042 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2094294>
- Huidrom K. et al, 2016, Effectiveness of Buteyko breathing technique on respiratory physiological parameters among patients with bronchial asthma, *International Journal of Recent Scientific Research*, Vol. 7, Issue 5, pp. 11328-11331 <http://www.recentscientific.com/sites/default/files/5183.pdf>
- Lina, RC. et al. (2014) Effectiveness of Buteyko Method in Asthma Control and Quality of Life of School-age Children, *academia.edu* [Full text](#)
- McGowan, J. 2003. Health Education: Does the Buteyko Institute Method make a difference? *Thorax* Vol 58, Suppl III, page 28, December. [Abstract](#)
- McHugh P. et al (2003) Buteyko Breathing Technique for Asthma: An Effective Intervention. Vol. 116, No. 1187 [New Zealand Medical Journal](#)
- McHugh P et al (2006) Buteyko breathing technique and asthma in children: a case series, *New Zealand Journal of Medicine*, Vol. 119. No. 1234  
<https://www.asthmacare.ie/pdfs/Buteykochildren.pdf>
- Opat AJ et al. (2000) A clinical trial of the Buteyko Breathing Technique in asthma as taught by a video *Journal Asthma*, 37(7):557-64. [Abstract](#)
- Prasanna KB. et al 2015 Effect of Buteyko breathing exercise in newly diagnosed asthmatic patients *International Journal of Medicine and Public Health*; Jan-Mar, Vol 5, Issue 1 [http://www.ijmedph.org/sites/default/files/IntJMedPublicHealth\\_2015\\_5\\_1\\_77\\_151267.pdf](http://www.ijmedph.org/sites/default/files/IntJMedPublicHealth_2015_5_1_77_151267.pdf)
- Prem V. et al (2013) Comparison of the Effects of Buteyko and Pranayama Breathing Techniques on Quality of Life in Patients with Asthma- A Randomised Controlled Trial. *Clinical Rehabilitation* Vol. 27, No.2, pp.133-141
- Ravinder N. et al. 2012, A Study of effects of Buteyko Breathing Technique on Asthmatic Patients. *Indian Journal of Physiotherapy and Occupational Therapy – An International Journal* 6(2), 224 228  
<http://www.indianjournals.com/ijor.aspx?target=ijor:ijpot&volume=6&issue=4&article=045>
- Ruth A. 2014, The Buteyko breathing technique in effective asthma management *Nursing in General Practice*, 7(2), 14-16. [Full text](#)
- Slader CA. et al (2006) Double Blind Randomised Controlled Trial of Two Different Breathing Techniques in the Management of Asthma. *Thorax* Vol. 61, pp. 651-656.
- Thomas M and Bruton A (2014) Breathing exercises for asthma, *Breathe*, December 1, Vol. 10, No.4 pp 312-322 <http://breathe.ersjournals.com/content/10/4/312>
- Villareal, M C et al. (2014) Effect of Buteyko Method on Asthma Control and Quality of Life of Filipino Adults with Bronchial Asthma, *Journal of Macro Trends in Health and Medicine*, Vol 2, Issue 1 [Full text](#)

## Other Buteyko method studies

'ClinicalTrials.gov', a service of the United States Institutes of Health, currently lists 3 completed but as yet unpublished studies on the Buteyko Method in children with asthma.

Two of these studies were carried out in Brazil and the third was carried out in Germany.

See: <https://clinicaltrials.gov/ct2/results?term=Buteyko&Search=Search>

## **IMPORTANT: Please note:**

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