

Buteyko Method For Children With Asthma And Mouth Breathing: A Randomized Controlled Trial

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RATIONALE: Asthma is one of the most common chronic diseases in childhood with significant morbidity and mortality. Mouth breathing is a breathing disorder with a high prevalence in children. Several non-pharmacological therapies have been widely used in the search for alternative therapies in the treatment of asthma, such as the Buteyko method. The aim of this study was to evaluate the effects of the Buteyko method as a complementary therapy in the treatment of children with asthma and mouth breathing. **METHODS:** Randomized single-blind controlled trial that included 35 children between 7 and 12 years old with mouth breathing and mild to moderate asthma divided into 2 groups (Buteyko and control). The following assessments were performed: anthropometric measures, sleep disorders by the Sleep Disturbance Scale for Children, pulmonary function (spirometry and ventilometry) and symptoms (hospitalization and days off school). Assessments were held in two moments: before and after the three weeks of treatment. Children in the Buteyko group (20 children) underwent 6 group sessions of the Buteyko method twice a week for 3 weeks. A video was provided to encourage children to perform Buteyko daily at home. Control group consisted of 16 children who received, along with their parents and / or guardians, educational interventions on asthma. Data were analyzed using the SPSS 20.0 software with a significance level of 5%. Data normality and the homogeneity of variances were analyzed by the Shapiro-Wilk and Levene test. The two-way analysis of variance verified intragroup and intergroup differences. **RESULTS:** The Buteyko group significantly improved the scores of sleep disorders breathing, disorders of arousal, sleep-wake transition disorders, total score of sleep disorders, forced vital capacity (FVC), peak expiratory flow and forced expiratory flow between 25% and 75% of FVC (FEF_{25-75%}) (Table 1). The Buteyko group also improved sleep-wake transition disorders, total score of sleep, the number of days off school, the ratio of forced expiratory volume in the first second and forced vital capacity FEV₁/FVC (p<0.05) and FEF_{25-75%} (p<0.005) compared to control. **CONCLUSION:** The Buteyko method improved the sleep disorders scores, lung function and reduced the number of school absences in children with asthma and mouth breathing.

Table 1. Analysis of variables in control group and Buteyko group between the initial and final evaluations. Values of mean difference and confidence interval

| Variables | Control Group Initial/Final | p | Buteyko Group Initial/Final | p |
|--------------------------------|--------------------------------|------|--------------------------------|-------|
| DMS | 0.15 (-1.27 - 2.54) | 0.88 | 0.88 (-1.28 - 0.77) | 0.27 |
| SCB | -0.26 (-1.43 - 0.91) | 0.64 | -1.50 (-2.91 - 0.91) | 0.001 |
| DA | -0.26 (-0.89 - 0.37) | 0.37 | -0.78 (-1.22 - 0.16) | 0.01 |
| SWTS | 1.60 (-1.03 - 3.03) | 0.32 | -4.05 (-5.81 - 2.29) | 0.001 |
| DCBS | 1.40 (-0.16 - 2.96) | 0.07 | -1.26 (-2.55 - 0.03) | 0.06 |
| SHY | -0.72 (-2.28 - 0.84) | 0.34 | -0.50 (-1.94 - 0.74) | 0.37 |
| Total score of sleep disorders | 1.28 (-0.28 - 2.84) | 0.07 | -1.34 (-2.75 - 0.07) | 0.001 |
| Mouth volume | 1.36 (-0.61 - 3.31) | 0.17 | 0.86 (-0.81 - 2.53) | 0.29 |
| Vital capacity | 0.83 (-0.36 - 0.43) | 0.84 | -1.45 (-2.45 - 0.55) | 0.001 |
| FVC | 5.83 (-0.08 - 11.95) | 0.03 | 0.71 (-0.92 - 2.37) | 0.001 |
| FEV ₁ | 9.40 (-0.53 - 19.33) | 0.02 | 1.48 (-0.35 - 11.68) | 0.06 |
| PEF | 0.28 (-0.28 - 0.84) | 0.71 | 0.36 (-0.18 - 0.90) | 0.005 |
| FEF _{25-75%} | 0.46 (-0.78 - 0.86) | 0.36 | 0.15 (-0.78 - 0.48) | 0.001 |
| FEV ₁ /FVC | 0.17 (-0.01 - 0.35) | 0.07 | 0.59 (-0.25 - 1.43) | 0.001 |

FEV₁: forced expiratory volume in the first second; FVC: forced vital capacity; PEF: peak expiratory flow; FEF_{25-75%}: forced expiratory flow between 25% and 75% of FVC; FEV₁/FVC: ratio of forced expiratory volume in the first second and forced vital capacity; DMS: disorders of mouth breathing; SCB: sleep-disordered breathing; DA: disorders of arousal; SWTS: sleep-wake transition disorders; DCBS: disorders of excessive nocturnal breathing; SHY: sleep hyperhydrosis.

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