Buteyko Breathing Technique Reduces Hyperventilation–Induced Hypocapnoea and Dyspnoea after Exercise in Asthma.

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**Introduction**

In Asthma, hyperventilation during and after exercise can increase the work of breathing and dyspnoea delaying recovery and leading to a worsening of asthma control. The Buteyko Breathing Technique (BBT) is gaining support as a complementary therapy to improve asthma control. Although the original hypothesis suggested that the BBT works by increasing carbon–dioxide (CO2) levels, research to date is yet to demonstrate this phenomenon.

**Study Design**

We conducted a randomised, controlled trial exploring a 5–week course of BBT on post–exercise end–tidal CO2 (EtCO2) and dyspnoea versus conventional therapy. Subjects underwent treadmill exercise testing to a symptom–limited maximum at baseline, 1 & 6 weeks.

**Results**

Of 32 subjects enrolled, 20 (15 female) completed the study (9 BBT vs 11 controls). Mean(SD) age was 48(15)yrs, BMI 28(5.6)kgm\(^{-2}\), FEV1 89 (24.7)%pred. EtCO2 (mmHg) and Borg Breathlessness score at 5min post–exercise were significantly improved with BBT, \(*p <0.05\) (Repeated meas gen linear model).

**Impact of BBT on EtCO2 and Breathlessness scores**

<table>
<thead>
<tr>
<th></th>
<th>EtCO2 peak exerc</th>
<th>EtCO2 1.5 mins post exerc</th>
<th>EtCO2 2.5 mins post exerc</th>
<th>Exerc time (mins)</th>
<th>Borg breathlessness 5 mins post exerc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>35(4) vs 35(4)</td>
<td>38(6) vs 38(5)</td>
<td>35(5) vs 36(5)</td>
<td>5(3) vs 7(4)</td>
<td>0.8(0.8) vs 1.7(1.1)</td>
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<tr>
<td>1st week post</td>
<td>47(6) vs 40(3)</td>
<td>43(5) vs 36(4)</td>
<td>40(4) vs 34(4)</td>
<td>5(3) vs 6(3)</td>
<td>0.6(0.7) vs 1.5(0.7)</td>
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<tr>
<td>6 weeks post</td>
<td>46(8) vs 40(6)</td>
<td>43(4) vs 36(5)</td>
<td>39(5) vs 35(5)</td>
<td>7(4) vs 7(3)</td>
<td>1(1.3) vs 1.5(1.1)</td>
</tr>
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</table>

\(*p<0.05\); Mean (SDev); BBT vs Controls

**Conclusion**

Our study demonstrated the hypothesised physiology of BBT, improving hyperventilation induced hypocapnoea and breathlessness, following maximal exercise. By teaching patients to reduce hypernoea of breathing (the rate & depth), BBT may reduce asthma symptoms and improve exercise tolerance and control.

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