An observational study of physiotherapy for children with asthma
C. Hepworth 1, I. Sinha 2

1 Paediatric Physiotherapy, Alder Hey Children’s NHS Trust, Liverpool, 2 Paediatric Respiratory Consultant, Alder Hey Children’s NHS Trust, Liverpool

Claire.hepworth@alderhey.nhs.uk; I.sinha@liverpool.ac.uk

Background
The aim of this review was to assess the impact of outpatient physiotherapy programs on children with asthma. Physiotherapy focuses on nose breathing and diaphragmatic breathing at rest and with exercise, to improve asthma and breathing control. Our clinical practice is to use these buteyko techniques over 4-6 outpatient sessions. We wanted to assess the impact of this in our asthma population.

There is limited evidence on Buteyko breathing techniques in children with asthma therefore it is important to assess the effectiveness in clinical practice.

Methods
We reviewed case notes of all children with asthma referred to the physiotherapy department over a 12 month period for a structured program of buteyko techniques: diaphragmatic and nose breathing techniques at rest and with activity. The child or parent completed an asthma control test (ACT) and Nijmegen questionnaire (a validated measure of dysfunctional breathing) before and after the program.

We excluded children who dropped out of the program, and sub analysed those whose medication was changed during intervention.

Results
48 children were eligible. 37 of these children had no medication changes during intervention. Of these, 30/37 completed ACT questionnaires. Poor asthma control (ACT 19 or less) was present in 20/30 (67%) children initially, and 10/30 (33%) after the program. Additionally 67% showed a significant improvement in their ACT.

35 of these 37 children completed the Nijmegen scores before and after the program. 18/35 (51%) children had breathing dysfunction (Nijmegen score>20) before and 5/35 (14%) afterwards.

11 of the initial 48 children had medication changes in addition to physiotherapy intervention. 10/11 (91%) had poor asthma control before intervention, and 4/11 (36%) afterwards. Also, dysfunctional breathing was present in 5/11 of these children (45%) before intervention and 1/11 (9%) afterwards.

Conclusion
This study demonstrates that buteyko techniques during outpatient physiotherapy sessions can improve asthma control and improve dysfunctional breathing in children with asthma. An RCT examining a structured outpatient physiotherapy program for children with asthma is warranted.

Results chart

- Poor Asthma Control (Asthma control test) ≤ 19
  - N = 30
  - Before Physiotherapy: 33%
  - After Physiotherapy: 67%

- Poor Breathing dysfunction (Nijmegen score > 20)
  - N = 35
  - Before Physiotherapy: 14%
  - After Physiotherapy: 51%

- Physiotherapy & no medication changes
  - Poor Asthma Control (Asthma control test) ≤ 19
    - N = 11
    - Before physiotherapy: 36%
    - After physiotherapy: 91%

- Poor Breathing dysfunction (Nijmegen score > 20)
  - N = 11
  - Before physiotherapy: 9%
  - After physiotherapy: 45%

- Physiotherapy & medication changes