Non pharmacological approaches to asthma: Physiotherapy

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Introduction

- Good breathing control
- Buteyko therapy & research
- How to clear the nose effectively
- Managing dry, irritating cough
- Exercise
- Relaxation
## Good and poor breathing

<table>
<thead>
<tr>
<th>Good breathing</th>
<th>Poor breathing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slow</td>
<td>Fast</td>
</tr>
<tr>
<td>Mouth closed</td>
<td>Mouth open</td>
</tr>
<tr>
<td>Quiet</td>
<td>Noisy</td>
</tr>
<tr>
<td>Relaxed</td>
<td>Upper chest rises, neck muscles active</td>
</tr>
<tr>
<td>Relatively shallow</td>
<td>Large volume of air in &amp; out</td>
</tr>
<tr>
<td>Pauses after expiration</td>
<td>No pauses between breaths</td>
</tr>
<tr>
<td>Stomach rises on inspiration</td>
<td>Stomach pulled in during inspiration</td>
</tr>
<tr>
<td>Expiration is longer</td>
<td>Inspiration is longer</td>
</tr>
</tbody>
</table>

*Buteyko, 2015*
Diaphragm movement

As the diaphragm contracts, it moves downwards and lowers the pressure in the lung cavity, drawing fresh air in.

As the diaphragm relaxes, it moves upwards and increases the pressure in the lung cavity, forcing used air out.

Diaphragm
Fatigue resistant
Affected by posture and position
Konstantin Butyeko

‘Breathing control exercises’

- Dr Butyeko observed ill patients had high respiratory rates
- Improve breathing, improve illness
- First study taught Butyeko to children with asthma
- State Medical system approved Butyeko

‘Butyeko is a holistic, non pharmacological adjunct to treating asthma with the main aim to ‘improve quality of life’ (Butyeko Breathing Association)’

(Butyeko, 2015)
Buteyko & Research

- Reduced $\beta_2$ agonist usage
  (Bowler et al, 1998; McHugh et al, 2003; Opat et al, 2009; Cooper et al, 2003)

- Improved quality of life
  (Opat et al, 2009; Burgess et al, 2011)

- Reduce asthma symptoms
  (Cooper et al, 2003; Hassan et al, 2012)

Recommended in the BTS guidelines for adults with asthma (BTS, 2009 & 2014) 1++ classification

But these are all in adults...
Buteyko & children

One case series in 8 children with asthma

- Reduced $\beta_2$ agonist usage
- Reduced asthma symptoms
- Reduced courses of oral steroids
- Reduced Inhaled corticosteroid (dropped down gradually)
- Reduced days missed off school

(Mugh et al, 2006)
Buteyko basics

- Based on the principle that people with asthma over breathe
- 5 sessions for 1 hour of breathing exercises at rest & with activity
- Many exercises i.e. mini pauses

(Buteyko, 2015)
Complications of a blocked nose

Many children with asthma mouth breathe (Venetikdou et al, 1993)

- Breathlessness
- Mouth breathing
- Bronchospasm
- Inflammation upper airways
- Blocked nose
- Coughing repeatedly
- Dry, dirty air in larger volume
- More turbulence in airways
- Irritates already sensitized airways

(Buteyko, 2015)
Nose must be cleared first

- Nose filters, warm, moisten the air
  (Amitrano & Tortora, 2012)

- Produces nitric oxide that can kill bacteria and viruses
  (Honl, 2013)

- Asthmatics often switch from nose to mouth breathing at lower flow rates
  (Hallani et al, 2008)
Clear the nose

- Nodding 10 times
- Tipping 3–6 times
- Hold & blow 6 times
- Advanced nose clearance
- Alternate nostril breathing

- Apply small piece of tape to the mouth (over 8 years with supervision)
- Sinus nasal irrigation
- Consider obstruction in nose i.e. Polyps

(Buteyko, 2015)
Managing Cough

Coughing dries, irritates & inflames the airways
To control dry, tickly cough (not for productive coughs)

- Hand over mouth
  - Swallow
  - Stop coughing (internal)
  - Small breaths for 30 seconds
- Repeat as needed

(Buteyko, 2015)
Case study – video

- Teenage boy
- Asthma
- Frequent hospital admissions
- Poor breathing control at rest and with exercise
- Taught nose breathing and breathing control at rest and with exercise
- Excellent response
Cycle of asthma and exercise

Reduced self confidence → Dislike breathlessness on activity

More breathless on less activity → Avoid exercise

Reduced fitness

(Williams et al, 2008)
Many asthmatics feel that normal breathlessness is an asthma symptom \citep{goodwin2004} 

Factors that make exercise in asthma harder

- High pollen/trigger
- Mouth breathing—is is normal?
- Poor breathing control
- Poor asthma control
- Poor fitness levels
- Modern lifestyle
- Fear of asthma attack
- Long continual exercise
- Cold/dry air

\citep{buteyko2015}
Promote exercise

- The benefits of good asthma & breathing control...

- Encourage children with asthma to exercise, ensuring good breathing and asthma control
Physio assessment

- Spirometry before exercise
- Exercise
  - what brings on these symptoms
- Observation
- Spirometry post exercise
Limitations to exercise

- Poor asthma control
- Poor breathing control
- Panicking (from parent or patient)
- Combination of factors
- Education
Education with exercise

- Drink enough water
- Differentiate between asthma symptoms and normal breathlessness
- Teaching to control breathing
  - If mouth breathing, stop and regain breathing control
  - Exercise comfortably without provoking symptoms
  - Exercise 30 minutes every day *(asthma UK, 2015)*
  - Gain confidence exercising at school/home
Case study – education with exercise

- 16 year old girl
- Mum concerned dropping oxygen with exercise
- Stopped exercising

Assessment
- Open mouth breathing throughout
- Poor fitness levels
- No bronchoconstriction
- Sats 97% in air post exercise

Treatment
- Breathing control emphasised with exercise
- Reassured family
Relaxation

Stress causes increased respiratory rate as part of flight or fight response

- Over-breathing
  - Relaxed breathing in buteyko
  - Deep muscle relaxation
  - Identify own relaxation – music, read
  - Postural/stretching exercises – yoga/ tai chi
  - Important to find time to relax
Summary

- Many non-pharmacological treatments for children with asthma
- Individual approach
- Treatment underpinned by Buteyko theory ‘holistic’
- Importance of clearing the nose, breathing control at rest and with activity & relaxation
Please refer children with asthma to physiotherapy
Questions?
References

References


- Thomas, M et al. The prevalence of dysfunctional breathing in adults in the community with and without asthma. Primary Care Respiratory Journal (2005), Vol. 14, 2 pp.78–82


- Traister, RS et al. A retrospective analysis comparing subjects with isolated and coexistent vocal cord dysfunction and asthma. Allergy Asthma Proc.
