Breathing-compromised openbite

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After .014 NiTi for 5 Months
“Skeletal Openbites”
Hyper-divergent skeletal openbites

- Short post. facial height
- Long ant. facial height
- Increased mandibular plane angle
- Retruded mandible
- Posterior crossbite
“Environment factors influence openbites more than genetics do”

- Habits
  - Digit habits
  - Tongue habits
- Lowered tongue resting position
- Chronic nasal airway obstruction
- Long lasting mouth breathing
Equilibrium Effects on the Dentition

Forces on the dentition are meant to be in equilibrium, that include:

- masticatory effort, swallowing, speaking and breathing

Very heavy & very short  Moderate & short  Light & very short  Very light & long

“Orthodontic force means to disrupt a pathologic equilibrium and results in an equilibrated homeostatic occlusion”

Light force can successfully move teeth if the force is of long enough duration

Force magnitude vs. duration?
If postural change of the tongue lasts long,

- Maxillary arch becomes narrow
- Molars passively super-erupt
- Mandible rotates clock-wise
- Anterior facial height increases
- Overjet increases

Then,

Obstructed airway really causes open bites?

Vig et al.
No clear-cut relationship between **breathing** and **malocclusion**

1. Total nasal obstruction is highly likely alter the pattern of growth and lead to malocclusion in experimental animals and humans
2. But, majority of individuals with the long face have no evident nasal obstruction

Harvold et al., 1972
A constant **posturing** of the tongue / jaw influenced by respiratory needs from a resistant pharynx can affect facial growth pattern

**Controlling Relapse of skeletal openbites**

**Breaking the tie** between breathing inefficiency and malocclusion
Can we cage the tongue, when airway problem exists?

Gender Difference in GG activity in Relation to Airway Resistance in Humans

1. Miniature Balloon
2. Nasal Pressure Change

Pae et al., 2002

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<thead>
<tr>
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<th>Natural Breathing</th>
<th>Balloon-Deflated</th>
<th>Balloon-Inflated</th>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>Upright</td>
<td>0.38</td>
<td>0.40</td>
<td>0.47</td>
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<tr>
<td>Supine</td>
<td>0.42</td>
<td>0.42</td>
<td>0.51</td>
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Case 1

Markedly enlarged lingual tonsils in 16-year old boy
Case 2

Case 3

Progressive or retrogressive?
Thank you and see you on May 6 (Mon) 3:45 pm