



Functional Breathing and How to Support Oral Health and Hygiene

A practical guide to nasal, diaphragmatic breathing, sleep and jaw tension

General information, not medical advice. Based on The Oxygen Advantage and peer-reviewed research.

About this guide

The way you breathe affects more than your lungs. This guide explains how nasal, diaphragm-led breathing (often called functional breathing) can support oral health and hygiene, sleep quality and the stress that drives jaw clenching, and gives simple practices you can start today.

It draws on *The Oxygen Advantage* by Patrick McKeown and on published research. Where the evidence is small or observational, the guide says so. Breathing practice supports good dental and medical care. It does not replace it.

At a glance

Breathe through the nose and from the diaphragm, quietly and slowly. Nose, Slow & Low.

Habitual mouth breathing is linked to a dry mouth and more gum inflammation.

Breathing exercises can support, but not replace, treatment for sleep apnoea.

Stress, poor sleep and teeth clenching can feed each other. Good functional breathing helps ease the cycle.

Start small: three daily check-ins and a few minutes of nose slow and low breathing.

1. Foundations of functional breathing

Functional breathing means breathing the way the body is designed to: through the nose, using the diaphragm, at a quiet, slow and regular rate. Many people drift into over-breathing: frequent mouth breaths, upper-chest movement and regular sighs, even at rest.

Breathing brings air into and out of the lungs. In the lungs oxygen from the air and carbon dioxide from the body are exchanged.

The way we breathe effects the balance of Oxygen and Carbon dioxide in the body. Carbon dioxide (CO₂) is not just waste. It sets the urge to breathe and, through the Bohr effect, helps haemoglobin release oxygen to the tissues improving oxygenation. Over-breathing lowers CO₂, which can narrow blood vessels and feed a feeling of air hunger and anxiety. The Oxygen Advantage approach builds tolerance to CO₂ gradually, so that light, slow breathing feels comfortable.

Nose versus mouth

Nasal breathing	Habitual mouth breathing
• Filters and humidifies the air	• Dries the mouth and throat
• Nitric oxide from the nasal airway aids oxygen uptake	• Bypasses filtering and nitric oxide
• Encourages a slower, diaphragmatic pattern	• Tends to a faster, upper-chest pattern
• Supports a calmer nervous system	• Linked with poorer sleep and oral health

The diaphragm: your primary breathing muscle

The diaphragm is a dome-shaped muscle beneath the lungs and does most of the work of quiet breathing. As you breathe in it flattens and moves down, so the belly and lower ribs expand. When we breathe from the upper chest, the neck and shoulder muscles take over work they were not built for, and neck and jaw tension

often go together. In a trial of healthy adults, eight weeks of diaphragmatic breathing practice was associated with lower cortisol and less negative mood (Ma et al., 2017).

Practice 1: find your diaphragm

- 1 Hands on.** One hand on the upper chest, one on the belly just above the navel.
- 2 Breathe in through the nose softly and quietly.** The lower hand should rise first; the chest barely moves.
- 3 Feel the ribs widen.** With hands on the lower ribs, feel them expand sideways and to the back.
- 4 Long, soft relaxed exhale.** Breathe out shoulders and jaw relaxed. Allow your ribs to soften you're your body.
- 5 Cadence is Key!** Try to slow your breathing in for 4 seconds and out for 6 seconds. Repeat for 2-3 minutes.

Practice 2: your BOLT score

The Body Oxygen Level Test (BOLT) is a simple self-check of breathing efficiency from The Oxygen Advantage. Sit calmly and breathe normally through the nose. After a normal exhale, pinch the nose and time how long until the first definite desire to breathe. Release and resume calm nasal breathing; it should be steady, not gasping. Test on waking, at the same time each day. BOLT is a training measure, not a diagnostic test, and its formal validation is limited.

BOLT score	Typical interpretation
Under 10 seconds	Poor
10 to 20 seconds	Below optimal
20 seconds or more	Good; a sensible first target
40 seconds	Described as ideal in the book

2. Breathing and oral health

Saliva is the mouth's natural defence. It buffers acids, helps remineralise enamel and clears bacteria. Breathing through the mouth, especially at night, dries the mouth and reduces that protection.

- **Dry mouth.** Less saliva means a higher risk of tooth decay and bad breath.
- **Gum inflammation.** Studies report more plaque-related gum inflammation in mouth breathers, even where brushing is similar (Jefferson, 2010).
- **Growing faces.** In children, persistent mouth breathing is associated with narrower palates and bite problems (Harari et al., 2010). Ask your dentist or orthodontist if your child breathes through the mouth at rest.

Strength of evidence

Most of the research on mouth breathing and oral health is observational. The mechanisms are plausible, but trials showing that retraining breathing improves dental outcomes are limited.

Practice: oral-health breathing habits

- 1 Rest position.** Lips together, teeth apart, tongue resting gently on the roof of the mouth.
- 2 Three daily check-ins.** Set phone alarms: is my mouth closed and my breath nasal and quiet?
- 3 Nasal walking.** 10 minutes of easy walking, breathing only through the nose, builds tolerance.
- 4 Know when to refer.** A persistently dry mouth or blocked nose needs a dentist, GP or ENT review.
- 5 Learn More about functional breathing.** There are many reasons why you may find nasal breathing difficult including a history of Asthma or other respiratory disease, pain, anxiety and stress. A MSK Respiratory Physiotherapist can help restore good functional breathing.

3. Breathing and sleep apnoea

Obstructive sleep apnoea (OSA) is repeated collapse of the upper airway during sleep, causing pauses in breathing and fragmented sleep. Nasal obstruction and habitual mouth breathing can make the airway more likely to collapse. Common signs include loud snoring, witnessed pauses in breathing, waking unrefreshed, morning headaches and daytime sleepiness. Diagnosis needs a sleep assessment.

Breathing and orofacial exercises aim to improve nasal breathing and the tone of the airway muscles. A meta-analysis of myofunctional therapy found an average fall of roughly 50% in the apnoea-hypopnoea index in adults (Camacho et al., 2015), although the included studies were small and results vary. Breathwork is best seen as an adjunct to treatments such as CPAP or mandibular devices, not a replacement.

Important

Never stop or replace prescribed sleep apnoea treatment with breathing exercises. If you snore loudly, stop breathing in your sleep or feel very sleepy in the day, ask your GP for a sleep assessment.

Practice: a wind-down for sleep

- 1 Evening.** Keep late meals and alcohol light, and clear a blocked nose gently if you need to.
- 2 In bed.** Five minutes of slow nasal breathing: in for 4 seconds, out for 6.
- 3 Position.** Sleeping on your side often reduces positional snoring and apnoea.
- 4 Mouth taping?** Evidence is limited and low quality. Never use it with a blocked nose or suspected sleep apnoea, and talk to your MSK Respiratory Physiotherapist or GP first.

4. Sleep quality, stress and bruxism

Sleep is where recovery happens. Deep sleep supports growth hormone release, tissue repair and immune function. Sleep also consolidates memory and resets emotional regulation. Animal studies suggest it aids brain waste clearance (Xie et al., 2013), though human evidence is still developing.

Slow, diaphragmatic nasal breathing with a longer exhale shifts the nervous system towards its rest-and-digest state. That lowers arousal at bedtime, eases sleep onset and helps keep breathing steady through the night (Zaccaro et al., 2018; Russo et al., 2017). Practice 1 above, breathing in for 4 seconds and out for 6 seconds is optimal in stimulating the Vagus nerve and assisting calm deep sleep.

The stress, bruxism and sleep loop

Bruxism is repetitive jaw-muscle activity, awake or asleep. The international consensus describes it as a behaviour, not always a disorder (Lobbezoo et al., 2018). Sleep bruxism is closely tied to brief micro-arousals (Lavigne et al., 2003), and psychosocial stress and anxiety are associated with it, as one of several factors (Manfredini and Lobbezoo, 2009).

- Chronic stress raises arousal and encourages shallow, mouth-based breathing, so sleep becomes lighter.
- Lighter sleep brings more micro-arousals and more clenching or grinding.
- Bruxism fragments sleep further and can cause jaw pain, headaches and tooth wear, leading to tiredness and more stress.
- Functional breathing acts at the start of the chain: lower arousal, calmer sleep onset and fewer triggers for the jaw.
- Sleep bruxism can overlap with sleep-disordered breathing. If you also snore or wake unrefreshed, ask for a sleep assessment. A splint protects teeth but does not treat the cause.

Practice: breaking the loop

- 1 Daytime awareness.** Cue on your screen or phone: lips together, teeth apart, jaw loose, tongue up.
- 2 Downshift the stress.** Three times a day, two minutes of slow diaphragmatic nasal breathing: in 4, out 6.
- 3 Evening wind-down.** Five minutes of Nose, Slow & Low breathing in bed. Dim the lights and avoid late screens.
- 4 Screen and protect.** Snoring, morning headache or daytime tiredness: ask for a sleep assessment.

5. Stress, HRV and general health

Slow breathing at around six breaths a minute is close to the resonance frequency used in heart-rate-variability biofeedback (5.5-6.5 BPM) (Lehrer and Gevirtz, 2014). Small trials show that it raises heart-rate variability and vagal activity and lowers short-term anxiety and arousal (Zaccaro et al., 2018). These effects tend to be short-term and the trials are small. Practiced often, slow diaphragmatic breathing can sustain these effects.

Improved vagal tone, HRV and slower breathing can help improve mental and physical performance and support recovery.

6. Putting it into practice

A daily protocol

When	What to do
Morning	Check your BOLT on waking. Two minutes of diaphragmatic nasal breathing.
Daytime	Three check-ins: lips together, teeth apart, tongue up, nasal breath.
Evening	10-minute nasal walk. Wind down, no heavy meals late.
Night	Five minutes of in-4, out-6 breathing in bed. Review BOLT weekly.

A 10-minute guided session

Time	Step
1 min	Sit comfortably, hand on belly, find the diaphragm
2 min	Measure your BOLT
3 min	Diaphragmatic breathing: in for 4, out for 6, nose only
2 min	Optional: gentle breath holds (3-5 seconds) after an exhale, only if you are healthy
2 min	Rest with normal nasal breathing, then recheck your BOLT

Safety first

Skip breath-hold practices if you are pregnant or have epilepsy, a significant heart condition, uncontrolled high blood pressure or a tendency to panic attacks, unless your doctor has advised otherwise. Stop any exercise that makes you dizzy or distressed. See your dentist for jaw pain, tooth wear or persistent dry mouth, and your GP for snoring with pauses in breathing, daytime sleepiness or morning headaches.

Key sources

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