

get rid of workplace stress

BREATHE  
STRETCH  
& MOVE

Dinah Bradley & Tania Clifton-Smith

# You know how to breathe. Right?

But do you suffer from headaches; shoulder, arm or back discomfort; upset digestion; or sleep problems? Or are you just tired all the time?

If so, you may not be breathing correctly.

We are becoming more sedentary. We think more and use our bodies less — communicating all day with computer screens, becoming so absorbed that our shoulders tense, our breathing changes, we hold our breath too much and, by the end of the day, we're exhausted.

*Breathe, Stretch & Move* includes methods which are designed to break this cycle. They will help you restore energy-efficient breathing and improve your energy levels, productivity and work pace. You will learn to run on natural not nervous energy, and your thought patterns will become calm but alert. You will reduce your stress levels naturally and without drugs.

Dinah Bradley and Tania Clifton-Smith — the queens of calm — are world experts on breathing pattern disorders. As practising physiotherapists they have an in-depth understanding of the physiological and musculoskeletal problems caused by bad breathing. Dinah is the author of *Hyperventilation Syndrome*. Tania is the author of *Breathe to Succeed* and they co-authored *Breathing Works for Asthma*.



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## CHAPTER 3

### how do you score?

EACH TIME YOU TURN THE PAGE STOP AND PLACE ONE HAND ON YOUR UPPER CHEST AND ONE ON YOUR BELLY — CHECK WHERE YOU ARE BREATHING FROM.

*'John, the problem is your breathing — your heart is fine — in fact, your heart is as good as an elite athlete's.' These were the exact words of my GP, and they blew me away because I could not see how something like breathing could cause me so much chest pain and discomfort. To be honest I was not convinced until I was at the clinic and my breathing was assessed. Only then could I understand I was breathing totally the wrong way.*

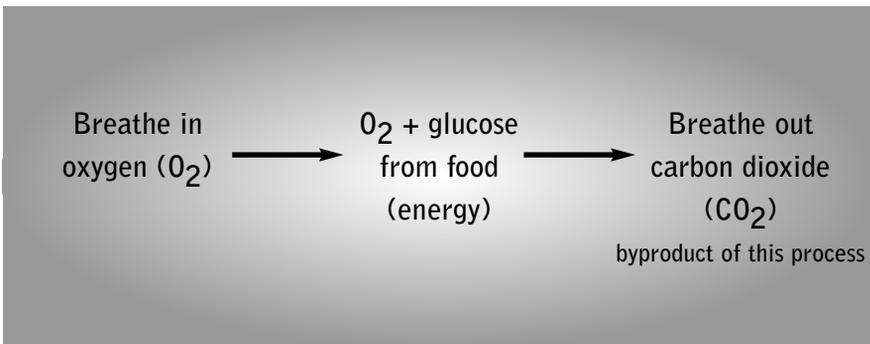
**JOHN, 55, MANAGING DIRECTOR**



#### HE OXYGEN HYPE

Most of us are instinctively hung up on oxygen (O<sub>2</sub>). The perception is that the more breath, the better — 'Just take a big breath.' Well, this is

not so. Big breaths, large breaths, more breaths or even faster breaths at rest will not change the amount of oxygen that is bound to the red blood cells (the oxygen carriers) once they are fully saturated. At rest, oxygen should be at saturation levels of 95 to 98 percent. Our bad breathers often have readings of 100 percent. When they see this, a smile usually comes to their face, as they think they have excellent oxygen levels. In fact, 100 percent oxygen saturation at rest means the blood is fully loaded with oxygen. No matter how much more air you breathe — how big or how fast your breaths — you cannot load the blood with more oxygen — BUT you can shunt out too much carbon dioxide ( $\text{CO}_2$ ).



## WHEN CARBON DIOXIDE LEVELS GO DOWN

Over-breathing can flush out too much carbon dioxide from the blood. The results can cause mayhem. Lowered levels of carbon dioxide can:

- reduce blood flow to the brain, causing brain fog — loss of clarity of thought, poor information processing and reduced perception. In times of high stress the level of blood flow to the brain can be reduced by as much as 50 percent — not ideal at work. Carbon dioxide is the chief governor of blood flow to the brain.
- result in oxygen being tightly bound to the red blood cells, as they hold onto it, saving it for the vital organs and depriving the extremities. This can lead to muscle fatigue, especially if there

is extra demand through activities such as continuous typing or computer work.

- stimulate mast cells to release more histamine — watch out if you are an allergy sufferer or have asthma. The higher levels of histamine in your body increase sensitivity to allergy triggers which equals more sneezing and wheezing!
- affect coronary artery vessels. Some eminent cardiologists believe there is a strong link between heart disease and breathing pattern disorders.
- trigger a state of 'red alert'. Our primitive brain kicks into action with the 'fight or flight' response, releasing adrenaline and other chemicals.
- stimulate the nerve–muscle junction, causing muscles to ready for action and tighten. If no action occurs, these muscles can spasm or cramp.

## **WHY DOES BAD BREATHING OCCUR?**

At times there are organic reasons driving bad breathing. For example, the body has a finite number of red blood cells; you have fewer red blood cells if you are anaemic, which means less oxygen is available in the body. You breathe harder to try to get more oxygen. If you find you become breathless, check with your doctor to rule out conditions such as anaemia or other organic disorders that can lead to bad breathing.

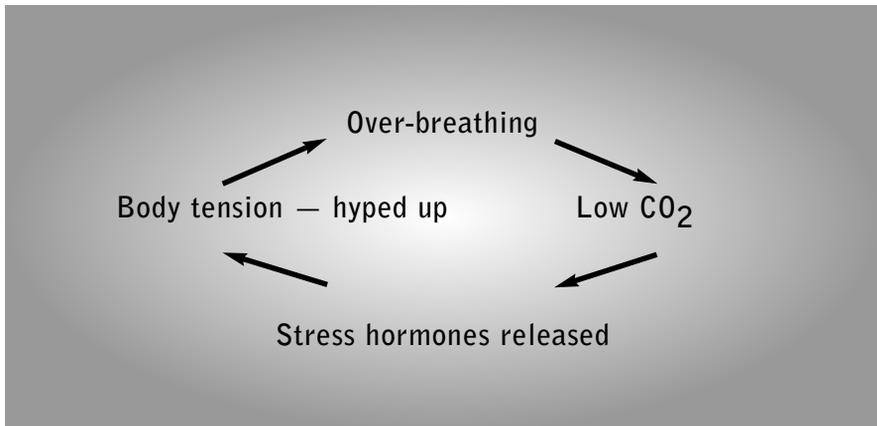
At times, however, bad breathing is purely a habit. At rest an adult will move approximately five litres of air a minute as they breathe. During hard exercise elite rowers have been shown to move up to 230–250 litres of air a minute. In other words, the body has the ability to alter the amount of air moved depending on the demands placed upon it.

Sometimes, however, our brain tells us we are exerting ourselves when in fact we are not, such as in times of acute stress. Our body responds to the call by moving larger volumes of air through the lungs, initiating chest- and even perhaps mouth-breathing — i.e. stressed

breathing. This revs up the body and brain to meet the perceived challenge.

Under normal circumstances the body resets to baseline levels once the event — a pressing deadline, for example, an accident, or a sports event — is over. However, this does not always happen, and it is quite common for the body to grow accustomed to the overdrive and stay revved up. Your breathing is now disproportionate to the activity occurring. To put it simply, you are over-breathing at rest — breathing as if you were sprinting the 100-metre dash, running the New York marathon, or rowing 1000 metres, when you may be just sitting at your desk or driving your car.

Don't be fooled — this can be very subtle, and not obvious to the untrained eye. This in itself creates a stress pattern.



The end result is that you move into the 'red alert' states of the human performance curve. Patients often present exhausted but stimulated — over-breathing has hyped them up and kept them there!

Breathing-pattern disorders can be an occupational hazard — i.e. some professions are more predisposed than others to bad breathing. This applies especially to those who are used to moving large volumes of air, such as rowers, swimmers, elite athletes, singers, or professionals who talk a lot (see chapter 9). What happens is that the individual starts to move the same large amounts of air at rest as they do for their specific skill. **DO NOT BREATHE AT REST AS IF YOU ARE RUNNING THE NEW YORK MARATHON!**

## BAD BREATHING AND THE MUSCLE CONNECTION

- Increased workload
- Poor posture
- Hormones
- Poor diet
- Home stressors
- Static positions
- Menstruation
- Caffeine OD
- Perceived pressure
- Held breath
- Menopause or pregnancy

### BAD BREATHING

#### PHYSIOLOGICAL CHANGES

- CO<sub>2</sub> decreases

- Red alert — body primed for action
- Stimulation of nerve & muscle cells
- Vessel constriction in the extremities and brain
- Decreased blood supply to muscles and brain
- Lowered pain threshold
- Lactic acid build-up

#### MUSCULO-SKELETAL CHANGES

- Decreased abdominal breathing

- Recruitment of upper-chest muscles
- Breathing disproportionate to activity — over-breathing
- Diaphragm movement alters
- Lower rib movement decreases
- Pelvic floor weakens
- Abdominal/back muscle imbalance occurs
- Spine rigidity
- Decreased lymphatic and blood circulation

- Burning back/neck/shoulders/arms
- Total body tension — muscle and spine
- Muscle tension/muscle spasm/overuse/entrapment of nerves and blood vessels

MUSCLE PAIN; MUSCLE FATIGUE; NUMBNESS; PINS AND NEEDLES;  
HEADACHES; JAW, SHOULDER, LOW-BACK PAIN; BLADDER,  
BOWEL, GUT PROBLEMS

## An example of breathing ‘the wrong way’

Let’s consider the case of John, who we met at the beginning of this chapter. John was breathing the wrong way — gut in, chest up, forcing the breath into his upper chest. He was moving large volumes of air, and the joints and muscles in his chest were working much harder than they should. This caused microscopic wear and tear of chest tissues, and the compression of vital arteries and nerves in his arms, resulting in pain and discomfort in the chest wall and arms. Big-bellows breathing was messing up John’s blood chemistry. The end result was a state of red alert and a trip to his doctor with the worry that something sinister was occurring. Why did this happen?

In his fear of middle-age spread John had consciously held in his gut, which prevented belly-breathing and led to an upper-chest breathing pattern. Add to this a couple of busy weeks at work, during which John paid no attention to taking breaks and moving around, resulting in breath holding under pressure. This combination led to a bad habit of chest over-breathing, and in time this habit became the norm.

## How can you tell if you have a problem?

There are a number of symptoms resulting from chest over-breathing. Tick those that apply to you:

Date:

- |                             |                          |                                   |                          |
|-----------------------------|--------------------------|-----------------------------------|--------------------------|
| Shortness of breath         | <input type="checkbox"/> | Chest pain or tightness           | <input type="checkbox"/> |
| Fatigue, tired all the time | <input type="checkbox"/> | Feelings of panic/loss of control | <input type="checkbox"/> |
| Neck, shoulder, arm pain    | <input type="checkbox"/> | Dizziness, detached sensations    | <input type="checkbox"/> |
| Low-back pain               | <input type="checkbox"/> | Busy brain                        | <input type="checkbox"/> |
| General aches and pains     | <input type="checkbox"/> | Pins and needles, numbness        | <input type="checkbox"/> |
| Sighing and yawning         | <input type="checkbox"/> | Gastric reflux, nausea            | <input type="checkbox"/> |
| Poor concentration          | <input type="checkbox"/> | Bladder/bowel problems            | <input type="checkbox"/> |
| Headaches                   | <input type="checkbox"/> | Wind/belching                     | <input type="checkbox"/> |
| Insomnia                    | <input type="checkbox"/> | Fluid retention                   | <input type="checkbox"/> |

## HOW DO YOU BREATHE?

Breathing is the first step to achieving optimal health, energy and vitality. To work out how you breathe, do the following assessment.

### Assessment

Sit down on an upright chair, and place one hand on your stomach and the other on your upper chest, resting the first finger of this hand on your collarbone, with the other fingers resting lightly on your upper-chest wall. Tune in to your breathing pattern. For a few minutes just think about this, feeling the movement and the pattern.



- Are you most comfortable nose- or mouth-breathing?
- Which hand is moving first?
- Which hand is moving most: the upper or the lower?
- Switch from nose- to mouth-breathing and feel the difference in both the resistance and the pattern.
- Try taking a deep breath. Did your stomach draw in, or puff out?
- Did your upper chest lift up or stay still?
- Did you mouth-breathe as well?
- Is the out breath easy?
- Time your breathing for one minute. (Each breath in and out counts as one.)
- Record your score in appendix 1, page 117.

Note: when people are instructed to take a deep breath, they often in fact take a 'big' breath rather than a 'deep' one. Big refers to a large volume; deep means belly-breathing.

The average number of breaths per minute is:

10–14 for adults;

15–25 for children up to nine years old;

40–60 for babies.

We each have our own unique breathing pattern; breathing is not like a metronome — we all vary in rate, volume and rhythm. However, some ways of breathing are far more effective than others — there are good and bad breathing patterns.

<b>GOOD AND BAD BREATHING</b>	
<b>GOOD BREATHING</b>	<b>STRESSED BREATHING</b>
<ul style="list-style-type: none"> <li>• <b>ABDOMINAL</b></li> <li>• <b>NOSE</b></li> <li>• <b>RHYTHMICAL, REGULAR</b></li> <li>• <b>RELAXED PAUSE AT THE END OF EXHALATION</b></li> <li>• <b>NECK, SHOULDERS, CHEST RELAXED</b></li> <li>• <b>GOOD POSTURE — BODY NEUTRAL</b></li> <li>• <b>SPEECH CALM AND CLEAR</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>UPPER CHEST</b></li> <li>• <b>MOUTH</b></li> <li>• <b>BIG SIGHS, FAST, ERRATIC</b></li> <li>• <b>NO RELAXED PAUSE</b></li> <li>• <b>TENSE, TIGHT MUSCLES</b></li> <li>• <b>POOR POSTURE — RIGID, SLOUCHED</b></li> <li>• <b>RAPID, AIR-GULPING SPEECH</b></li> </ul>