

Fitness expert **Dean Hodgkin** reveals how breathing exercises can help to improve your work, rest and play.

Air *conditioning*

Breathing is such a natural process that it can be viewed in the same way as we see polarity all around us. Polarity forms the essence of being, such as night and day, dark and light, sleep and wake, ultimately life and death. Like many other bodily functions, breathing is usually a subconscious process, even when exercising and rate of respiration increases. Introducing a voluntary dimension to breathing enables us to harness various benefits, most notably to reduce feelings of stress and anxiety.

Breathing mechanics

During inhalation the diaphragm contracts and moves downwards; simultaneously the small intercostal muscles pull the ribs up and out which together result in an increase in volume in the thoracic cavity. This in turn causes a decrease in the pressure within the chest and because air naturally flows from areas of high pressure to areas of low pressure, air is drawn in from the atmosphere travelling through the nostrils, throat, larynx and trachea, eventually to the lungs. As the diaphragm and intercostal muscles relax, the rib cage returns to its original size, increasing the pressure within and so forcing the air out.

‘Mastering breathing exercises can improve cardiac function, decrease the effects of stress and improve both mental and physical health.’

The real magic occurs at a microscopic level within tiny air sacks in the lungs called alveoli. This is where oxygen is taken up by the red blood cells and carbon dioxide is off-loaded into the air to be expelled. The oxygenated blood flows through the venules, back to the heart via the pulmonary veins and is then pumped through the systemic arteries to deliver this vital fuel throughout the body. Whilst the medulla is the part of the brain that maintains automatic control of the breathing function, it is the cortex that is linked to voluntary control of self-initiated changes such as before vigorous effort like singing or playing a wind instrument.

When feeling stress, the sympathetic nervous system is stimulated which can lead to tightness in the respiratory muscles. As a result, the chest expansion is restricted and shallow, more rapid breathing occurs. This is sometimes referred to as chest breathing and is inefficient because only the upper part of the lungs are engaged in the process when in fact the lower lobes of the lungs are where there is greater blood flow and so potential for removing toxic carbon dioxide and absorbing more energy-giving oxygen.

Breathing exercises

Whatever your need, try the following techniques and remember that like any other form of exercise, practice makes perfect.

Cleanse

This will help to expel carbon dioxide and release tension in the sinuses. It can be performed in any position at any time. Begin with the mouth gently closed. Inhale deeply, ensuring the tummy rises, then exhale quickly by contracting the diaphragm forcefully to drive air out through the nose. The in breath will therefore be much longer than the out breath. Remember the nostrils serve to filter the incoming air, so focus on the feeling of introducing cleaner, purer air to your system. Repeat several times, keeping a steady rhythm.

Energise

Sit in a comfortable position with the spine straight. Keeping the mouth closed, breathe in and out through the nose only, at a rate of 2-3 per second. To aid the process, picture a bicycle pump being used to inflate a tyre. You should feel effort at the base of the neck, in the chest and in the abdomen. These respiratory muscles will strengthen over time. To avoid the risk of hyperventilation, begin by restricting duration to just 5 seconds, 3 repetitions, and gradually build up in 5 second increments. This is best performed in the mornings.

Strengthen

This can improve endurance, efficiency of the nervous and digestive systems and even give extra courage. With the mouth closed, inhale slowly through the nose. Now close the glottis by lifting the back of the tongue to the roof of your mouth and exhale, again through the nose, but focus on listening to the noise and feeling the vibration that is generated.

Exercise

Holding your breath while working out is clearly not advised. The golden rule is to ‘exhale on the effort’, as this will give extra dynamism to your movements and allow you to perform better, therefore achieving greater results. For example, during a squat, the hardest part of the movement is lifting from the lowered position, so inhale as you bend the knees and sit into the squat position, then actively blow out as you contract the thigh and buttock muscles to return to standing upright. This can be applied to any exercise, remembering to exhale as you lift up the weight (or your own body) against gravity.

Sport

Train your lungs to perform better and

your body to deliver and utilise the oxygen more efficiently by using timing variations. If running, start with a 2:2 ratio, breathing in for 2 strides and out for 2 strides. The aim is to build up to 3:3 and then 4:4. For swimming count the number of breaths you take to get from one end of the pool to the other. Challenge yourself to swim the same length but with fewer breaths. Cyclists should work on trying to increase the number of revolutions for each breath, particularly on uphill stretches.

De-stress

To relax both body and mind, lie on your back and let yourself feel heavy so you literally sink into the bed or floor. Close your eyes and breathe nasally, aiming to take long, slow breaths and trying to fully inflate the lungs rather than simply taking your usual tidal breath, that is only around a third of your capacity. Maintain a comfortably slow rhythm and focus on listening to your in breath. Be aware that nasal breathing will warm the air as it is introduced, so try to feel this warmth being pushed down into your centre and your whole body temperature gently increasing from the inside to out.

Pain relief

Sit in a comfortable, upright position and take a deep breath in through the nose. Hold for a count of 7 then gently exhale through the mouth for a count of 8 and repeat. Try to expel all the air as you breathe out and notice how it engages your deeper abdominal muscles and begins to draw your ribs down towards your hips at the end of the cycle. Aim to block out intruding thoughts and retain your focus on the counts and the feeling of inflating and emptying the entire volume of your lungs.

Concentrate

This can be done at any time, whether sitting, standing or even walking. Choose an empowering word such as ‘succeed’, ‘overcome’ or ‘achieve’. Take a deep breath in and on exhaling silently say the word to yourself and make it last the whole length of the out breath. As other thoughts come into your head, let them drift in, pay fleeting respect to them, but then return your focus to repeating your chosen word to yourself.

Benefits

There exists an abundance of research into breathing exercises and it is clear that mastering them can enhance the parasympathetic nervous system, improve cardiac function, decrease the effects of stress and improve both mental and physical health.