





THE POWER OF THE *breath*

While the practices of meditation and deep breathing have been around for thousands of years, scientists have only recently begun to document their positive impacts. And it's timely, because in a world where stress is ubiquitous, the need for calm has never been more pressing and the science has never been more convincing. TARA THORNE writes.

Modern scientific findings are proving what ancient mystics knew thousands of years ago: when used regularly, meditation and deep breathing can significantly enhance our overall health and wellbeing. What's even more exciting is that science is now proving that these practices have a very real impact on our stress responses, as scientific literature continues to document the physiological changes that occur when we practise meditation and deep breathing.

Due to their many health benefits, these techniques are fast becoming part of holistic and functional health professionals' protocols for achieving and maintaining optimal wellness – which is good news, since it's needed, now, more than ever. At no other period in history has stress been as pervasive as it is today. In a world where

days feel shorter, work loads consistently increase and our daily tasks seem never ending, a simple practice such as meditation can set us on the path to reclaiming our breath, which ultimately helps us journey into wellness.

A look at the basics

While there are numerous forms of meditation, they all share a common goal: to quieten the internal chatter of the mind and create a sense of peace, calm and tranquility in order to enhance both mental and physical wellbeing.

Of particular interest in today's society is mindfulness meditation – also known as insight meditation – which has its roots in *vipassana*, one of India's most ancient forms of meditation. This particular style – which

focuses on non-judgmental awareness of sensations, feelings and state of mind – appeals to a wide range of people from various cultures and religions, and it’s now one of the most popular meditation techniques practised in the West.

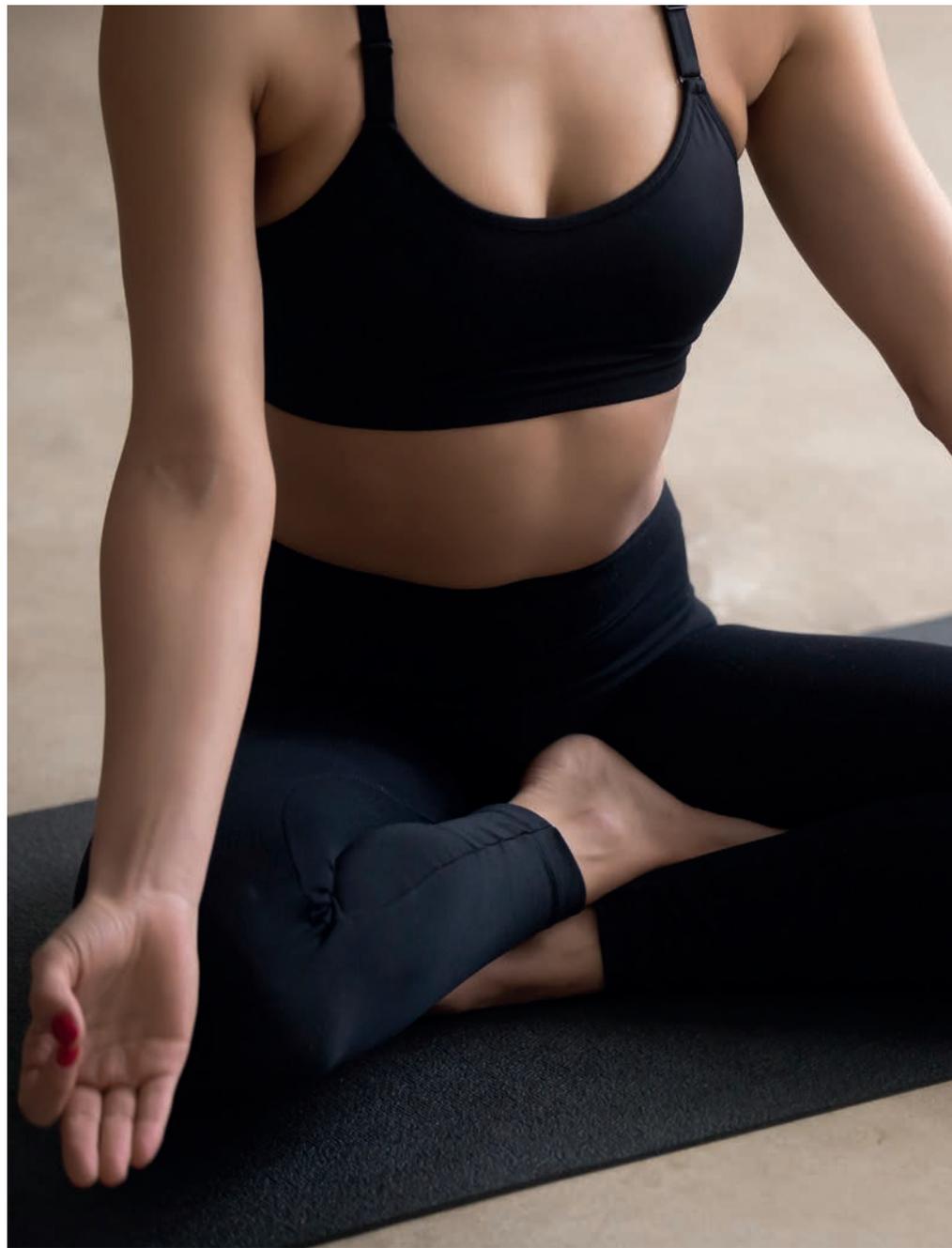
Similarly, deep breathing exercises are becoming known for their powerful stress reducing benefits. Deep breathing helps us to instantly balance our sympathetic [fight or flight] nervous system with our parasympathetic [rest and digest] response. It’s a very powerful stress reduction tool you can implement in any place, at any time, for free. Ever feel your breath quicken and become shallow when you’re stressed? Or perhaps you even hold your breath periodically throughout your busy day? These are all symptoms of an activated fight or flight system, and increased stress in the body.

Diaphragmatic breathing – which is also referred to as abdominal and belly breathing – is probably the most commonly known breathing technique in the West. This type of deep breath work allows you to fully fill your lungs as the lower belly rises, which is something people seldom do frequently.

The practice of pranayama

Other forms of breath work include *pranayama* techniques that are popular in yoga circles. Pranayama is a Sanskrit word that has its origins in Indian yogic culture, and it literally translates to ‘the control of breath’ as *prana* means breath and *ayama* means control.

There are many different forms of pranayama breathing, but some of the more popular techniques include breath of fire and single nostril breathing, or alternate nostril breathing. Breath of fire is a breath that is said to be cleansing and energising. Powered by abdominal contractions, breath of fire participants rhythmically breathe with equal emphasis on the inhalation as they do on the exhalation with no breath being deeper than a sniff. It’s practised by pumping the naval aggressively in and out toward the spine, exhaling as the belly pumps toward the spine and inhaling as the belly pumps out away



from the spine. It is performed through the nostrils with both the mouth and eyes shut.

Alternate nostril breathing is thought to harmonise the two hemispheres of the brain, resulting in physical, mental and emotional wellbeing. In order to practise this breath, participants block one nostril with their thumb as they inhale and exhale out the other and then switch between nostrils, blocking the other with their ring finger and inhaling

and exhaling again through this opposite nostril then repeating the process.

What the science says

If you ask any yogi whether meditation and breath work calm the body and the mind, you’ll undoubtedly get a resounding ‘yes’ and indeed, science is proving these advantages to be true. Research has shown that the benefits include increased immune function, decreased



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pain, increased happiness, decreased ruminative thinking, lower levels of cortisol, decreased anxiety, increased attention and decreased stress. These are some of the myriad of reasons why meditation is fast becoming a first-line of defense to enhance mental health for so many people.

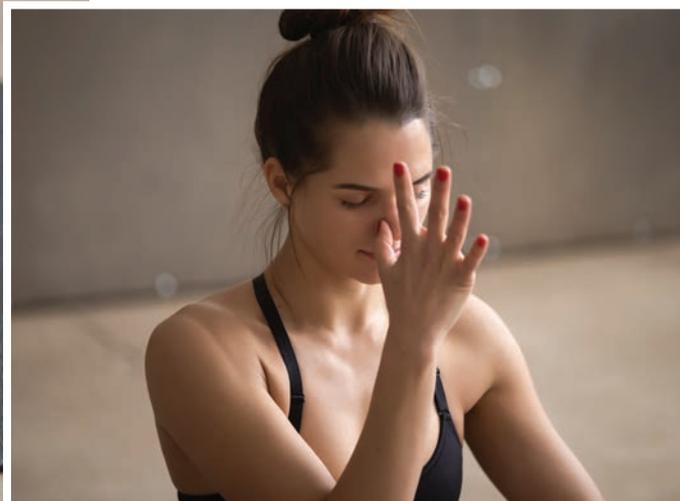
One study, performed by Harvard-affiliate researchers at Massachusetts General Hospital, showed that just eight weeks of mindfulness meditation, for an

average of 27 minutes per day, rebuilt grey matter in the brain.

Two weeks before the study commenced, researchers assessed the magnetic resonance images (MRI) of the brains of 16 participants. After the eight weeks of daily mindfulness meditation practice, researchers took the same MRI images and upon analysis, they found increased grey matter density in the hippocampus. The hippocampus is important for learning and memory

and also plays a role in structures associated with self-awareness, compassion, and introspection.

The participants also experienced a reduction in stress, which the researchers correlated with decreased grey matter density in the amygdala, a part of the brain known to play an important role in anxiety and stress. What was most astounding is that none of these brain changes were seen in the control group who weren't practicing the daily meditation.



Benefits of deep breathing

As for deep breathing, we know that it activates the parasympathetic nervous system, which allows our body to experience the benefits of reduced blood pressure, increased respiratory strength and endurance and improved attention. But how does this occur?

Our heart rate is primarily modified by the parasympathetic nervous system through the vagus nerve. When you inhale, blood is drawn from the heart to the lungs. This creates a relative deficit of blood throughout the rest of the body and so the heart kicks into gear to compensate by increasing heart rate and pushing more blood to the body. An increase in heart rate is made possible by a decrease in parasympathetic nervous system activity (so when we don't breathe deeply or when we hold our breath we are decreasing the time we spend in our rest and digest state).



Conversely, when you exhale, the blood returns to your body from your lungs and the heart slows as the parasympathetic nervous state is switched on. The lungs also contain slow adapting pulmonary stretch receptors (SARs). SARs are activated when the lungs expand when you breathe in. This causes a signal that suppresses the sympathetic nervous system as well. By slowing our breathing, we allow more time for our body to synchronise these two mechanisms, which essentially increases the time spent in parasympathetic mode, which is what we want in order to reduce and better handle stress.

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Finding calm

Taking time out of your busy day to breathe deeply can do wonders for your overall sense of calm. Moreover, implementing a daily meditation

practice, even for just five to 10 minutes, can dramatically help anyone who's suffering from anxiety, depression, or symptoms related to being overly stressed.

We are fortunate that today we have access to apps such HeartMath and headspace and devices such as Muse that are making these stress reduction techniques easier to implement than ever before. So when it comes to fighting against the sometimes overwhelming demands of modern day life, meditation and deep breathing are viable options that are free and simple to implement, but have very real and deep benefits to our overall health, happiness and wellbeing. ■



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