THE INDEPENDENT ON SUNDAY

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It started as a hi-tech relaxation technique for burnt-out executives. Now everyone from schoolchildren to sports stars are discovering the seemingly miraculous benefits of Heartmath. Jerome Burne investigates. Pictures by Jacky Chapman

Is this the cure for Stress?

Two months ago, a visitor to The Holt School in Wokingham – an all-girls comprehensive with good exam results – might have encountered a rather unusual sight. Ninety girls – the entire lower sixth – sitting silently in a large room breathing to a slightly unusual rhythm – five seconds in, five seconds out. A little while later the girls could be seen being encouraged to relive a time when they felt happy or loving and then to conjure up that memory while doing the breathing.

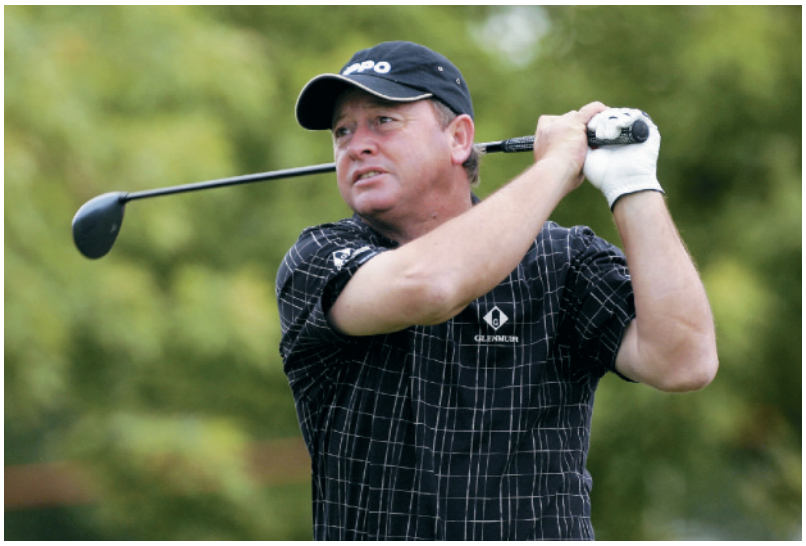
These exercises would not have seemed out of place in a medieval nunnery – in fact the breathing rhythm is the same one you slip into when reciting religious mantras such as Ave Maria – but in a modern school with GCSE and A levels looming? In fact if you are a parent whose child is sitting exams this term, you may wish they had been learning these ancient techniques, combined with the late-20th-century digital twist of laptop and software, in a package known as Heartmath. It is now being used in half a dozen schools around the country with what seem to be impressive results. Soon one of the key questions at parents' evenings may no longer be: "Do you have good IT facilities?" but "Do you teach Heartmath?"

And it is not just schools that are experimenting with the technique. Already thousands of executives have been trained in it and now subtly alter their breathing just before a tricky meeting; sports-people such as golfers use it to help their focus at crucial moments, while some psychologists believe that it could be a cheap, non-pharmaceutical tool to help with anxiety and mild depression. There is even speculation that it might not only give you a key leadership skill, but also fight off the ravages of ageing.

One energetic convert is Susanne Richards, head-mistress of The Holt. "The girls have so many exams these days that anything that might help them get through it without panicking has got to be worth a try," she says. Richards encountered Heartmath in the holidays last year. "It was brilliant," she enthuses. "I used to have a golf handicap of 10 and afterwards it dropped to two." In fact, she was so sold on it that the following term she offered her staff the chance to get trained. "About 25 did it and some reported real improvements in handling stress. Several also said their insomnia got much better."

The most obvious feature distinguishing Heartmath from apparently similar techniques such as relaxation or meditation is a sensor clipped to your finger that records a pattern in your heart beat known as "heart rate variability" or HRV, which we'll

come to later. Data from the sensor is fed into a computer program and then you can watch those jagged lines endlessly scrolling across the screen – think heart monitor in a medical soap. Watching how your interested in what's going on when you try to control stress." Sold on the potential of Heartmath as she is, Richards is quite rightly putting it on trial. Before they started the training, the girls did a computerised series of tests on such psychological features as attention, working memory and reaction times. "We are going to test them again later in the year when they've learnt it to evaluate how big an effect it has had."



In the swing: Ryder Cup captain Ian Woosnam (left) says Heartmath helps his game, while pupils at Holt School are encouraged to try the technique to ease exam anxiety (below)

'I saw it all the time in business – people at the top slipping into robotic behaviour under stress, functioning less creatively'

While Richards regarded the effect of Heartmath on her golf as an unexpected bonus, for golfer Ian Woosnam, Ryder Cup captain, it is obviously key. He also reports that it has benefited his sleep – a long term problem because of jet-lag – and improved the way he handles stress. "I don't get nearly so wound up as I used to do when I'm reviewing a match in the hotel afterwards," he says. But he's still working up to using it on the course; he wants to get it absolutely right first. What's really worrying him is a speech he has to make in the autumn. "I'm petrified at the prospect. I'm pinning my hopes on Heartmath."

If the technique can help with such day-to-day tensions, it might very well benefit people with slightly more serious psychological issues. At Blackburn With Darwen Primary Care Trust they are currently trying out Heartmath as a possible treatment for people diagnosed with anxiety or mild depression.

So what exactly is this system that seems to have applications in so many different areas, and how does it work? It was originally created about 10 years ago by a group of Californian blue-sky thinkers who saw that an electronic medical device that measured heart rate variability – and was regularly used in hospitals to predict the survival chances of babies in the womb and heart-attack victims – could be used as an effective tool to improve people's performance.

"Until quite recently Heartmath training in the UK was nearly all done in for industry clients," says Chris Sawicki, director of the resource management firm Hunter Kane, whose offices are in Wokingham near Reading. "We've trained about 8,000 executives in multinationals such as BP and Unilever because they find it helps them to think more effectively and creatively under pressure.

"If you were to be hooked up to a Heartmath monitor when you were feeling panicky and anxious, maybe facing a deadline you couldn't meet, the data from your sensor would look erratic and disorganised; peaks and troughs with no discernible pattern. Then as you began to breathe regularly, focusing on positive emotions, a rhythm would begin to emerge from the march of the lines; ideally they would begin to look like a slightly tilted picket fence."

"The readout doesn't just look disorganised, you actually function in a far less creative and effective way when the stress is building up," says Clive Hyland, until recently the CEO of an IT company who now also works with Hunter Kane. "I saw it all the time in business – people at the top slipping into limited, robotic behaviour under stress." This shutting down is an instinctive, hardwired response designed to focus all our energies on the narrow task of getting out of trouble.

Unfortunately for executives and school children, one function that shuts down is the area of the brain involved in planning, remembering and creativity. "When people go into survival mode, they just keep doing what they know," Hyland says. "They find it hard to think clearly; they forget stuff." The report that came back from the stressed executives suggested that Heartmath gave them a tool to avoid mentally freezing when the going got tough.

That all fits with the claims that it makes you sleep better, allows you to avoid getting wound up and even improves your golf swing. But it still doesn't explain how it makes such a difference. Why do people feel calmer? What's the link between breathing and feeling happy? And what about having a more rhythmic heart beat?

"There's a long religious tradition of using breathing and meditation to change your psychological state," says Sawicki. "A study published a couple of years back in the British Medical Journal found that reciting a religious mantra such as Ave Maria brings your blood pressure and breathing rhythms into sync and that that in turn affects the balance between the two arms of your nervous system – the activating sympathetic one and the relaxing parasympathetic. The process of switching between the two takes place in the heart and is known as heart rate variability."

Faced with an exam, a deadline or a match-winning putt, the first part of your brain to respond is the one that governs the emotions and is called the amygdala. It sends out a signal that might loosely be translated as "Alert! Alert!" which fires off another message to a small gland sitting on top of your kidneys that in turn triggers the release of a hormone called adrenaline and another stress chemical called cortisone. All this activity is governed by the sympathetic nervous system and what we feel as a result are those familiar signs of stress – fluttering in the stomach, faster heart beat, shallower breathing and so on – all of which are part of an ancient

system designed to help us and most other animals deal with danger fast and more or less unthinkingly.

The way chanting and breathing changes it is by bringing the parasympathetic system back into the picture. What the Heartmath sensor is actually measuring and showing you on the screen is the HRV – how efficiently your heart is switching between action and relaxation. A regular rhythmic switching is healthy and that's what shows up as the "picket fence" on the screen. It's known as having a high HRV. The sign that clinicians watch out for in hospitals is a low HRV; that means you are stuck in one arm or the other of the nervous system, which is not healthy. If you've had a heart attack and you have low HRV, your chances of surviving are much poorer.

"If I was to go into a boardroom and suggest that everyone start up a religious chant," says Sawicki "I'd probably get laughed out of the building. But they are intrigued when I ask them to change their breathing and combine it with remembering strong, positive emotions, especially when they can watch the immediate effect it's having on the activity of their heart on a computer screen ."

It's this attention to the physiology of stress – what is actually going on in the body when you feel all tensed up and what changes when you start to feel more in control – that distinguishes Heartmath from other, similar systems. "We have made some surprising discoveries," says Bruce Cryer, executive director at the Institute of Heartmath in Boulder Creek, California, "We've found the heart provides the physical link between feeling frustrated and angry or anxious and getting ill. We can actually measure the way negative feelings change the electrical frequencies in the heart in a way that makes illness more likely and clear thinking more difficult."

This is what ties positive emotions in there along with breathing. An article published in the American Journal of Cardiology a couple of years ago found that emotions of love and feeling appreciated can actually change a person's HRV, shifting it into a more relaxed state and – this is the crucial bit – sending a message back up to the brain saying that you don't need to shut down the cortex anymore; it's OK to start thinking again. One up for the poets, who had always located love in the heart.

So for a number of years the team at Hunter Kane had been focused on producing good feelings in the boardroom, but of course people are bad at handling stress much further down the social ladder as well, such as in the school in Lambeth in London that Sawicki was invited to, where kids go when the other school won't take them. What he saw made him realise just how many other people could benefit. "These were really troubled kids," he says. "Just containing them was a challenge, let alone teaching them anything. We took in some computers and let them see how they could affect their heart rate.

"The headmaster had warned that we probably had an hour tops before they got bored, but three hours later we were still there. The great bit was afterwards when we heard one of the kids say: "You really pissed me off, if I it wasn't for Heartmath I'd have smacked you." And so the idea was born that maybe education, with stress levels in classrooms approaching board-room levels, might also benefit from Heartmath.

One of the first schools to appreciate the possibilities was Plessington Catholic High School Technology College in the Wirral. "At the beginning of last year we tried it out with some sixth-formers," says Tony Lloyd, a psychotherapist and the school's student support services manager. "It worked so well that we are now training all the children with challenging behaviour who need learning support."

One anxious Plessington pupil, now a Heartmath fan, is the then-deputy head girl Lindsey Furlong, "I hated exams because they always made me feel really nervous. I also wanted to drive but lessons seemed too alarming." Learning the technique properly took her about 20 minutes a day for a month, but then she was amazed. "I was dreading doing my Art A level, which is pretty stressful, but I used the HRV technique at the beginning and I really enjoyed it. It was the best exam I've ever done." And she's learnt to drive.

Like the Holt School, Plessington is running before-and-after tests on the children to measure the effect of Heartmath. "The results so far are way above expectations," says Lloyd. "There has certainly been a drop in oppositional behaviour, but we will have to wait until the end of project before we get the cognitive results." The research is being done by Professor Keith Wesnes of Northumbria University. A few years ago he ran a small trial comparing two ways of improving memory. One group learned the Heartmath techniques, while the other were given a herbal combination of ginseng and ginkgo biloba, said to boost memory. While the performance of the herbal group went up by 12 per cent, the Heartmath group improved by double that.

And breathe... A pupil at Holt School perfects the Heartmath method, which involves controlled breathing and positive thinking

If the new round of tests produces the expected results we could be seeing something new in education. Traditionally schools have relied on variations of the stick-and-carrot method; more recently Ritalin-type drugs have been used to temporarily change the state of particularly difficult children, but it's far from a cure. However, Lloyd believes that Heartmath holds out the hope of something far more valuable. "If we had a simple technique that we could pass on to 11-year-olds who were having problems so they enjoyed school more and coped better in class, wouldn't that be fantastic?"

But how does the Heartmath approach look to an academic whose job it is to study stress in the work-place and to investigate ways of handling it? "The science behind Heartmath is intriguing," says Doctor Yardley Jones a consultant in occupational medicine at Chelsea

and Westminster hospital. "There's lots of evidence that positive emotions can help you function better and even live longer; it's also clear that getting the heart and the breathing synched up has an effect on your feelings and how well you make decisions."

No one is seriously suggesting – not yet anyway – that learning Heartmath is a recipe for longevity, but the notion that, by learning to change your physiology in a more positive direction, you might become healthier makes obvious sense. What makes it a bit more than a fantasy is that a hormone whose production is linked with HRV caused great excitement some years ago as a possible anti-ageing pill. Called DHEA, it has rather fallen out of fashion, though you can still get it on the internet.

DHEA is the building block for all the other hormones, such as oestrogen and testosterone, and levels decline precipitously as we get older. Various small studies have found that taking supplements of DHEA make people less depressed, slimmer and less likely to have heart disease. HRV boosts production because DHEA balances the stress hormone cortisol – the one that floods the body when we are stressed – that in the long term can be damaging. When you switch on the relaxation response and push up your HRV rate with Heartmath, you also raise your DHEA levels.

Another highly speculative effect of Heartmath is that it could make you more of a leader. Yardley Jones points out that it allows people to mimic certain leadership qualities. "Leaders seem to have a special ability to function well under stress," he says. "There must be some sort of physiology underpinning that and it could well be the cardiac coherence that HRV training helps to bring about."

Of course sceptics are right to point out that much of this is pretty speculative; a few small trials showing only some effects on a relatively small number of people. But it's never been tested on a large scale; there are few proper double-blind trials and it would be quite easy to do one with a fake monitor and the wrong sort of breathing, for instance. Some people almost certainly benefit more than others and we don't know who they are. And so on.

But what is really remarkable about Heartmath is not that it requires more research, which it undoubtedly does, but that its use is still considered to be rather unusual. Because at the end of the day it is a practical device that combines ancient knowledge and modern physiology to improve the way people handle stress and negative emotions. Assuming it works, and it obviously does – brilliantly for some people – what could be more useful than that?

The reason it isn't already in schools and doctor's surgeries is down to our pharmaceutical fixation; the notion that drugs are the key to handling unpleasant mental states – beta-blockers for anxious performers, anti-depressant SSRIs for people who are worried and amphetamine-related drugs for difficult children. It's also the reason why very little has been spent on testing it. Jamie Oliver has already shown that it's possible to make kids healthier and better behaved by eating properly; combining that with better breathing and sunny thoughts seems a really good idea.

For more information, visit www.heartmath.com

About Hunter Kane:

Hunter Kane is one of the UK's leading companies delivering performance improvement and stress-management programmes, and has trained more than 7,000 people in Peak Performance - incorporating HeartMath technology - in the last six years. Its corporate programmes have been delivered throughout Europe, Asia, the Middle East, Africa, Latin America and the USA. Hunter Kane is the exclusive licensee of HeartMath in the UK.

About HeartMath:

HeartMath LLC is a cutting edge performance enhancement firm providing a range of unique programs, products and technologies designed to boost performance, health and well-being while dramatically reducing stress. HeartMath research studies have been published in peer-reviewed medical journals and HeartMath has earned global recognition for its scientifically-validated techniques and health-enhancing proprietary technology. Their award-winning products are sold in more than 50 countries; they train more than 50,000 people per year around the world and their programs are delivered through partners in the UK (Hunter Kane), the Netherlands, France, Sweden, Australia, and Korea. Major clients include BP, Unilever, NASA, Boeing, and major educational and health care institutions in the US and UK.

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