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FRESH OUT OF F*CKS... HOW TO STOP CARING

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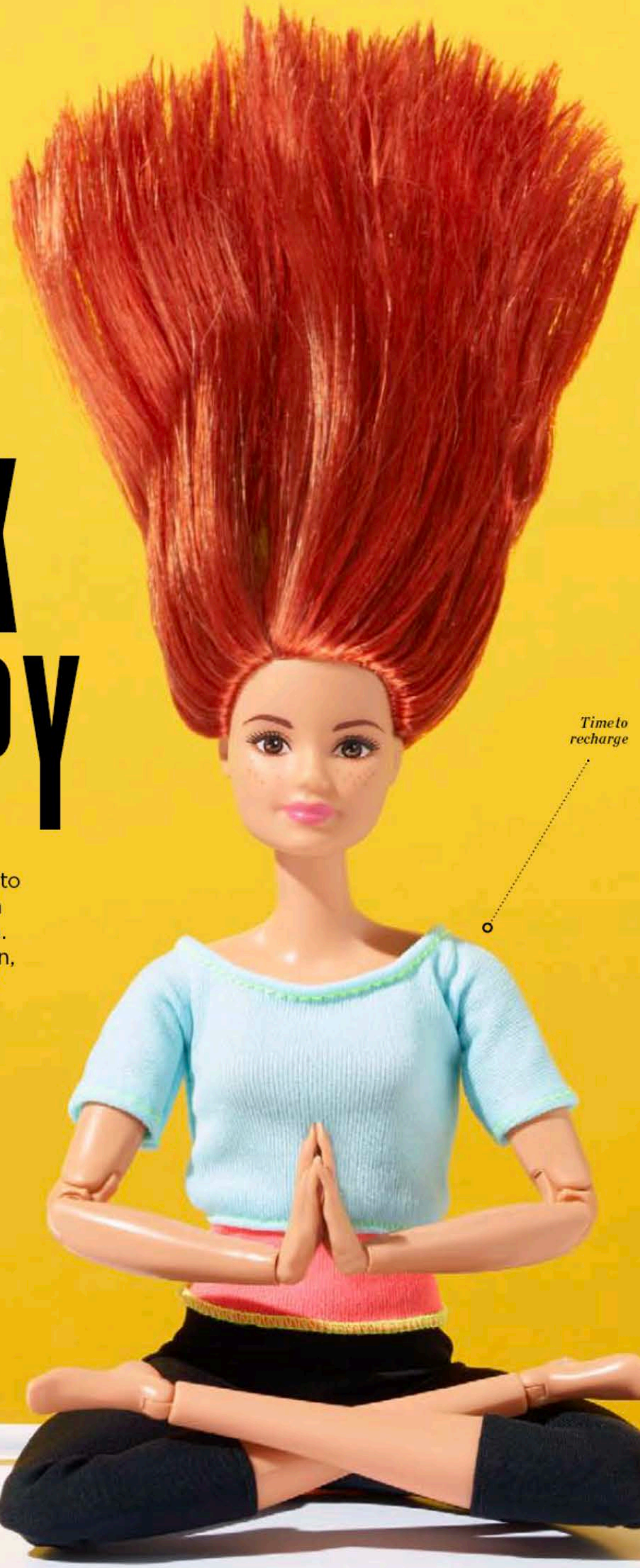
SHOCK THERAPY

Technology can now enable you to hack the benefits of meditation to support better mental health. Is this next-gen wellness in action, or does it mean you're actually missing the point?

WORDS **AMY ABRAHAMS**



Photography | MITCH PAYNE

Much like completing a triathlon or perfecting liquid eyeliner, meditation takes practice. 'To achieve the longer-term effects of meditation, such as improved quality of sleep and a general feeling of calm, most research follows participants over a number of weeks – that's how long it takes to do it effectively enough to embed new habits and reap the rewards,' says Dr Audrey Tang, a chartered psychologist and author of *The Leader's Guide To Mindfulness* (£14.99, FT Publishing). 'With my clients, it tends to take about four consecutive weeks with a dedicated weekly two-hour mindfulness session before they start reporting changes.' The benefits are proven; studies have found meditation to reduce the physiological markers of stress and lessen symptoms of anxiety and depression, with one study published in *The Lancet* finding mindfulness meditation treatment to be as effective in preventing the recurrence of depressive periods as medication. It's evidence compelling enough to convince you to put the hours in. And yet, new technology promises to get you there faster via – bear with – a mild electric shock.

Transcranial direct current stimulation (tDCS) describes the process of manipulating brain activity via levels of current – now it's being used as a meditation aid to fast-track users to a deeper meditative state. 'What experienced meditators share is an ability to quieten the mind and bring attention back to the object of focus,' says Dr Bashar Badran, the neuroscientist who first used the technique in the context of meditation. 'This usually takes years to achieve, and it means that people often start meditation, fail to see any quick benefits and quit.' This is where tDCS comes in. 'By shutting down distracting thoughts [how can I get out of that dinner thing?], e-meditation helps to induce and accelerate a meditative state. I see it not as a replacement for the conventional kind, but rather a modern-day tool to simplify and accelerate personal practice.'

ELECTRIC FEEL

tDCS has an impressive CV. While it was first developed for use in neurological conditions such as Parkinson's disease, in the years since, studies have explored its use in conditions as wide-ranging as schizophrenia and tinnitus, and reviews of the available evidence so far conclude that tDCS could reliably improve symptoms in depression, addiction and fibromyalgia.

Elsewhere, scientists have posited the role of tDCS in modifying behaviour, accelerating learning and boosting performance in a task, plus, the US army is investigating the potential of tDCS to enhance the performance of soldiers during times of fatigue. How, then, can it promise so much for so many things? 'It was developed to manipulate brain activity,' says Dr Nick Davis, a senior lecturer at Manchester Metropolitan University who's worked with tDCS for 10 years. 'So it's potentially a good treatment for conditions where we have some understanding of the brain circuits that are going wrong. For example, one cause of tinnitus is abnormal activity in the auditory areas of the brain, so there's been some success in using tDCS to change this activity and reduce symptoms.' It's thought to boost performance in much the same way. When you're engaged in a task, parts of your brain become more or less active. So if there's a brain region involved in doing maths (calculating the cost of a wedding via social media stalking, for example) you could improve your ability at the time by boosting activity in that region. To grasp how it works, allow us a brief return to year eight physics. 'It's a simple electric circuit, usually using between one and two milliamps of current – you have a battery with a positive end and a negative end, and two wires, and you put someone's head between the wires,' Dr Davis explains. If that calls to mind a Bart Simpson joke gone wrong, the reality is rather more impressive. 'We think that when electricity passes across the head, some of it accumulates on the surface of the brain and that seems to change brain activity. If you put the positive electrode over the brain area you're interested in, it seems to raise activity in that area; put the negative electrode over that area and it seems to suppress activity.' Companies have attempted to leverage tDCS with varying degrees of success. One device was called Focus: aimed at gamers, it promised to help users eliminate distractions and focus (see what they did there?) on the task at hand. But it was an inability to focus on a task far more mindful that led Dr Badran to wonder if tDCS could work in a wellness context.

CREATING A BUZZ

'I'd tried various types of meditation for a few months without much progress,' Dr Badran recalls. 'Sitting still for 20 to 30 minutes was difficult enough, let alone attempting not to fixate on the flood of thoughts that came to mind.' That 'flood of thoughts' is known in scientific circles as rumination, and it's about as useful in the context of meditation as an umbrella is to cooking a risotto. Neuroimaging studies on the brains of experienced meditators reveal low levels of activity in an area of the brain called the default mode network. It's the area that's active when you're contemplating the meaning of life while wondering when baby showers became a thing. A 20-year career spent exploring the benefits of brain stimulation as a means of treating neuropsychiatric disorders led Dr Badran to wonder if tDCS could change activity in certain brain regions to help fast-track users to a deep meditative state, the likes of which it takes some people years to achieve. He started using an FDA-cleared constant-current stimulation device to see whether it could help to silence his thoughts. 'The effect was profound. It rapidly quietened my mind and put me into a thoughtless and timeless state where 20 minutes felt like two.'

'The effect was profound. It rapidly quietened my mind and put me into a thoughtless state'

Buoyed by results on his own practice, Dr Badran worked with a neuropsychiatrist colleague, Dr Baron Short, to conduct two initial trials. In the first, they recruited 15 volunteers with no prior experience of meditation to take

part in a 20-minute mindfulness meditation. In three sessions, over the course of three weeks, participants received tDCS at one or two milliamps or a placebo treatment that mimicked the sensation of tDCS on the skin, reporting on their mood before and after each session. The tDCS increased self-reported feelings of calmness and decreased feelings of restlessness, compared with the placebo condition – findings backed up by the results of a second trial, which found that tDCS reduced mind-wandering by 36% and acute stress by 75%. And this could have implications beyond meditation. When researchers at the University of British Columbia, Canada, set out to test this concept in the context of yoga, they found that tDCS enhanced the ability of experienced yogis to reach a state of mindfulness. 'Our method places an electrode over the medial prefrontal cortex (a central node in the default mode network), reducing activity in that area,' Dr Badran explains. 'We also place an electrode over the right insula and superior frontal gyrus: stimulating these regions – both highly active in experienced meditators – increases interoceptive awareness.'

His research has led to the development of Zendo, the first e-meditation device – and it's generating buzz faster than a fictional festival backed by influencers. More than 400 Zendo e-meditation sessions have taken place in the US over the past year. Such is the scale of demand that spaces for e-meditation sessions now have an invitation-only waiting list, with people signing up from over 50 countries. Last November, the world's first week-long e-meditation retreat was held in Vermont, where 30 meditators used the Zendo system twice a day for five consecutive days. Tickets started at $1,200 (over £900) per person.

MCMINDFULNESS

Beyond the hype, some think that advocates are getting ahead of themselves. While side effects – which can include temporary tingling and redness under the electrode pad, headaches and nausea – are minimal, the long-term effects are currently unexplored. 'Technologies such as tDCS seem very promising and relatively safe, in which case, we shouldn't hold back access to something that may be very beneficial,' says Dr Davis. 'But I would urge people to be cautious, and to design studies that help us to understand how tDCS acts on the brain, and how the brain may respond if people use it over a long period of time.'

Incomplete evidence regarding the efficacy of this technology isn't the only reason to proceed with caution. By attempting to hack the benefits of an ancient spiritual practice, are you bastardising it? In a 2017 article for *Time*, social philosopher Roman Krznaric explored whether the growth of secular mindfulness courses, particularly in the corporate world, had led to a concept that's been dubbed 'McMindfulness' – mindfulness without the morals. But Dr Tang firmly believes that bringing the benefits of meditation to the masses can only be a good thing. 'My grandfather was a Buddhist teacher at Seck Kia Eenh Temple in Melaka [in Malaysia],' she says. 'He was a pragmatist – he saw Buddhism as a means of improving life and, as such, would be happy to know that people are benefitting. Technology is the way of the world, and if we can reach people through this means, isn't it better that more benefit?'

Beyond contaminating an ancient practice, is hacking your brain to access the mental-health benefits of meditation akin to cheating? Doesn't the joy of mastering the art of something come from all those failed attempts? To quote a cheesy greetings card, is it about the journey rather than the destination? 'What we call "cheating" really depends on what the goal of the activity is, and whether anyone loses if you win,' says Dr Davis, whose research also considers the ethics of brain stimulation. 'tDCS is like a study aid – you still have to put the effort in, but maybe it's helping you with that effort.' Put like that, it seems tDCS might be to meditation what a double espresso is to a sprint session or a vibrator is to your 'me time' – something to help get you there faster. WH

It seems tDCS might be to meditation what a vibrator is to your 'me time'

She's electric

Photography | LUCKY IF SHARP