

**I**F THERE IS A HOLY GRAIL OF FITNESS TO have emerged over the past decade, it has to be the pursuit of core stability – the strengthening, toning and honing of the muscles that wrap around our midribs like a corset. Celebrities including Kate Winslet, Sharon Stone, Gwyneth Paltrow and Beyoncé have swarmed to classes such as Pilates, in which the central message is that the deeply embedded muscles in our trunk must be strong if we are to look good, stand up straight and have bodies that move freely and without pain. They hold the spine in place, we are told, and prevent back pain by allowing us to move as nature intended. Few gym workouts are conducted without the instruction to “engage” the core by pulling in the belly button and sucking in the stomach; we ignore the core at our peril.

But among exercise scientists there is growing dissent about whether the pursuit of a strong core is worthwhile or even safe. Pilates and other classes that concentrate on core strength had been favourites of dancers and gymnasts for years. But they were not to become a fitness phenomenon until the mid-’90s, when a study by Australian scientists researching the causes of back pain produced a groundbreaking discovery.

Professor Paul Hodges, head of human neuroscience at the University of Queensland, attached electrodes to two groups of subjects – one with healthy backs and another with persistent back pain – and got them to do a series of rapid arm raises. His results showed that the brains of the healthy subjects appeared to send signals to a deeply embedded muscle called the transversus abdominis, triggering it to contract and support the spine just before the arms moved. In those with back pain, no such reaction took place, leaving the spine unsupported and vulnerable. Hodges then showed that the same muscle could be strengthened by “sucking in” or “hollowing out” (pulling navel to spine) the stomach during exercises and that the effects seemed to provide some protection against sore backs.

It wasn’t a clear link, and the evidence wasn’t conclusive, but the concept quickly spread beyond physiology laboratories into the gym world, spawning a rapid rise in classes based entirely on this principle. Before long a stable core was lauded as a prerequisite in the fight against back pain and postural problems, and the way to gain a washboard stomach. Without a strong foundation, proponents of core strength argued, our limbs cannot move freely and efficiently, our breathing is hampered and, what’s more, we look awful.

Experts now claim that personal trainers and gym instructors have based an entire industry of exercise classes on evidence that has been grossly misconstrued. “The fitness industry took a piece of information and ran with it,” says Thomas Nesser, assistant professor of physical education at Indiana State Uni-

versity, who has been researching the effect of the boom in Pilates-style activities. “The assumption of ‘if a little is good, then more must be better’ was applied to core training and it was completely blown out of proportion.”

What is overwhelmingly accepted among critics is that too many workouts are entirely dedicated to strengthening the deeply embedded muscles of the core, an approach that can prove futile, particularly when it comes to preventing back pain.

Two years ago, a paper in the *British Journal of Sports Medicine* suggested that the importance of core strength has been overplayed and that, even if there were some truth in the notion put forward by Hodges and his team that a strong transversus abdominis muscle eased a sore back, the likelihood is that attempts to strengthen trunk muscles in the

he says. “What happens is that the muscles are brought closer to the spine, which reduces the stability in the back. It becomes weak and wobbly as you try to move.”

Physiotherapists have reported seeing a growing number of people who have suffered back problems as a result of poor Pilates technique. They tighten their lower backs, stop breathing or drop the pelvic muscles when attempting to “engage the core”, all of which can potentially make back pain worse.

Pete Gladwell, a physiotherapist with Britain’s NHS pain management service, says many experts embraced the “core stability” theory and the concept of Pilates helping back pain, without considering it might be flawed. “The early research compared core stability intervention with GP-led care rather than assessing the best available approaches,”

# Core Promises

Pilates and other core-strength routines have long been touted as the key to good health. But the claims are overinflated – and it’s time they were burst, writes *Peta Bee*

otherwise fit and healthy would probably have little benefit and may even backfire with disastrous consequences.

Stuart McGill, professor of spine biomechanics at the University of Waterloo in Canada, says: “Too much emphasis is placed on working the transversus abdominis and if people follow that advice they are misguided and will not achieve better movement or less pain.”

McGill’s particular concern is the widespread instruction in Pilates, some types of yoga and other classes to “draw in” or “hollow out” the stomach during moves, something he has shown can destabilise the spine by upsetting its alignment.

“In studies we have done, the amount of load the spine could bear was greatly reduced when subjects sucked in their belly buttons,”

Gladwell says. “Almost any type of movement will compare well in that scenario.”

There is doubt, too, that Pilates leads to a more efficient body that moves freely and is less prone to the mechanical ravages of ageing. Professor Nesser recently tried to establish a positive link between good core stability and functional movement – the ability to perform ordinary daily tasks – but failed. He says that “despite the emphasis fitness professionals have placed on functional movement and core training for increased performance, our results suggest otherwise: they should not be the primary emphasis of an exercise program”.

Even in sport, the tide is turning against the view that core strength is essential for improvement. For several years, elite athletes have devoted huge chunks of their training to



developing core stability. But some researchers investigating the benefits of core strength to sports performance have drawn a blank. When Professor Nesser looked at top soccer players, for instance, he found that those with a strong core played no better than those without.

#### Navel gazing

SO WHAT ABOUT ALL THOSE WHO DEVOTE hours to Pilates and improving core strength not to ease their backs or to correct postural imbalance, but to get the lean, toned limbs and torso of the A-listers? Will hours on the Reformer equipment or in mat-based classes provide the body they hanker after? The answer is, not unless they do it in addition to the usual resistance training and endurance activities such as running, cycling and swimming.

According to the American Council on Exercise, a consumer watchdog that commissioned research on the fitness effects of Pilates, a beginner's class did not meet the recommended levels of exertion for improving basic cardio-respiratory fitness. Even advanced Pilates entailed only the same amount of effort required for a steady walk.

"Do not give in to the temptation to dedicate entire workouts to the core," urges Professor Nesser, saying workouts need to focus on exercises that require balance, strength and stability, so squats, dead lifts and standing overhead press moves using weights are ideal.

If you enjoy doing core stability exercise, keep it up, "but don't expect to become immune to injury and don't expect to improve your fitness if that's all you do," says Professor Eyal Lederman, an osteopath and author of a paper entitled *The Myth of Core Stability*.

So where does this leave a generation devoted to honing their midsections? Experts say we have spent too long focusing on a few select muscles. Core strength is important, but only if the rest of your body is in good shape, and it's time for trainers to stand back and view the body as a whole. If you stick with Pilates or core-strengthening classes, make it only once or twice a week. For the rest of the time "do a variety of exercise that you enjoy", says Lederman. The fitness industry seized on the idea of core stability as a simple solution, he says, a silver bullet to improved function and fitness.

Lederman says the past 10 years have been "a lost decade" in that we have wasted time and effort on workouts that needlessly concentrate on the area surrounding our navels. "Someone once told me that it takes 75 years for a medical myth to be erased from public thinking," he says. "We've had the core stability myth for 10 years. There's a long way to go."