

# Newsletter

January 2008

## Balancing the benefits

Instructors swear by the fitness ball, but new research on the popular tool has mixed results

Jill Barker  
Times Colonist, November 26, 2007

Are exercises done on a fitness ball superior to those done without? According to most fitness instructors and personal trainers, the answer is yes. Yet more and more studies are suggesting that the current trend of replacing traditional exercises for those done on the ball may have been done in haste.



A study by Stuart McGill of the University of Waterloo was one of the first to suggest that a fitness ball (also called a Swiss ball or stability ball) beefs up the benefits of a traditional exercise. McGill and his team of researchers compared muscle activity in the trunk during a regular sit-up performed on the floor to one done on a fitness ball.

The results showed twice as much activity in the rectus abdominus (the muscle that runs down the centre of the trunk) and four times as much activity in the obliques (the muscles that run along the sides of the trunk) during sit-ups performed on the ball vs. those done on the floor.

McGill theorized that placing the body on an unstable surface, like a round fitness ball, results in additional muscle recruitment in order to stabilize the body and keep it from falling.

When news of this study started circulating back in 2000, the fitness community concluded that if the ball could make a sit-up more comprehensive, it was bound to do the same for other exercises. And so began the era of the fitness ball.

Today there's hardly an exercise that hasn't been modified to include a fitness ball. Yet more information has come to light showing that, like any other piece of fitness equipment the fitness ball has its limitations.

In a bid to see if McGill's findings could be replicated in other exercises, researchers have been putting the ball to the test. The results are surprising.

Exercises that train the stabilizing muscles of the spine don't seem to benefit from the addition of a fitness ball. In fact while performing a back extension (lie on your stomach and raise the upper body) and the quadruped (on you hands and knees with the opposite arm and leg lifted and extended) more muscles fired off the ball than on the ball.

"For a young, healthy population, there does not appear to be a training advantage to performing entry-level back extension and single leg extension exercises on an exercise ball vs. a mat," said a 2006 study published in the *Journal of Manipulative and Physiological Therapeutics*.

Mixed results were found with upper-body exercises performed while sitting on the ball vs. sitting on an exercise bench. Bicep curls, overhead presses, tricep extensions and lateral raises were all studied. So was a chest press performed with a ball under the shoulder blades and a curl-up with the ball under the lower back.

"Replacing an exercise bench with a Swiss ball is not a guarantee for increased trunk muscle activation during upper-body strength exercises," said researcher Gregory Lehman in a 2005 article in *Dynamic Medicine*.

Also interesting is that the results varied considerably between subjects performing the same exercise, which prompted Lehman to state, "There does not appear to be a consistent, generalized response to the addition of a Swiss ball."

Similar results were found when comparing push-ups on the ball to push-ups on an exercise bench. Little or no difference was found in the muscle activity of the shoulder while performing a push-up on or off the ball.

What researchers are discovering is that not all muscles or all exercises respond the same to the addition of an exercise ball. Plus, some subjects activated more muscles than others while performing the same exercise, which left researchers wondering if some subjects were better than others in their ability to respond to the challenges of exercising on a ball.

Before you discard your fitness ball altogether, it's important to understand that a ball has more uses than taking an exercise up a notch. In fact, one of its selling features should be its ability to do the opposite. For those who find certain exercises difficult to accomplish due to weakness or injury, in the case of a back extension for example, the addition of a fitness ball can make the exercise that much easier. In fact, one of the ball's first uses was as a rehab tool.

Also, the goal of a fitness ball isn't always to recruit more muscle fibres. Used properly, the ball can help improve balance and proprioception (the body's ability to know where it is in space), both valuable skills for athletes.

Finally, if you use a fitness ball because it's an inexpensive and portable exercise tool, then go ahead and continue. Just be aware that like any other piece of fitness equipment, its benefits aren't all encompassing. Some exercises may benefit from the use of a ball and some may not. If fun and convenience are what you're after, the ball is hard to beat, but old-fashioned exercises done on the floor aren't quite ready to be put out to pasture.