

Questioning the ball

Experts divided on effectiveness of Swiss Ball in training

For years, fitness professionals have been extolling the virtues of the fitness ball (also known as a Swiss ball). So strong has their belief in it been that they have modified traditional exercises, like squats, push ups and planks, to be performed on the ball.

The ball's popularity is based on a study that claimed a curl-up performed on a fitness ball activated more abdominal muscles than the same exercise done without the ball.

The study's author theorized that more muscle recruitment was needed to balance the body on an unstable surface. Before you knew it, exercisers everywhere were working out on a fitness ball in hopes of strengthening more of their core muscles.



The effectiveness of the fitness ball, however, has been questioned as far back as 2005, when a study reported that basic entry-level exercises done on the ball (a back extension -- lie on your stomach over the ball and raise the upper body -- and the quadruped -- get on your hands and knees over a ball and lift the opposite arm and leg) elicited less muscle activity than the same exercises done without the ball.

But trainers have been hesitant to give up the fitness ball, still believing that it delivers more bang for the buck than exercises done on a stable surface. And even if some of the simpler exercises don't deliver quite as promised, surely more challenging ball exercises can be counted on to deliver a core workout intense enough to elicit results.

The theory has recently been put to the test by a couple of researchers from the University of Western Sydney in Australia and the University of Auckland in New Zealand. Paul Marshall and Imtiaz Desai placed electrodes designed to quantify muscle activity on 14 fit study subjects who performed a series of advanced fitness ball exercises.

Surprisingly, only one of the exercises elicited enough muscle activity to improve muscular endurance. None of the exercises was intense enough to improve strength.

Also noteworthy is that the only fitness ball exercise deemed worthy enough to improve muscular endurance was also the most complicated to teach and perform.

The Roll requires the exerciser to lie with the ball under the upper back and the hands linked together and positioned on the chest. Keeping the body rigid, the exerciser rolls to the right while the ball moves to the left. The right leg moves underneath the supporting left leg as the exerciser continues rolling until he is face down over the ball.

The exerciser slowly returns to the starting position, performing the whole exercise again, but this time moving in the opposite direction.

Add this finding to other studies that have discovered fitness ball training has no effect on runners looking to improve performance, posture and technique, and little benefit when substituted as a weight bench -- performing a bench press on an exercise ball diminishes the training stimulus to the targeted muscles by as much as 59.6 per cent -- and it's easy to see why it's time to question whether ball exercises are worth doing.

"Recent intervention studies have not found significant positive evidence to recommend use of the Swiss ball over other modalities of exercise," Marshall and Desai said in the June 2010 edition of the *Journal of Strength and Conditioning Research*.

This jibes with other studies questioning the value of unstable surface training, which includes tools like the BOSU and balance board.

There is little research to support the theory that any of the benefits of unstable surface training will transfer to sports or the activities of everyday life.

Does that mean fitness ball training is a waste of time?

It depends on your goals. If improved strength is what you're after, lifting heavier weights on a stable surface will better realize your goals. That includes improved core strength.

Performing traditional exercises like squats, deadlifts and arm raises on a mat with a weight that sufficiently challenges the muscles will provide adequate stimulus to improve core strength.

And since these exercises are simpler to perform than the challenging and often complex fitness ball exercises, chances are typical exercisers can achieve their goals without having to learn how to balance on a ball or any other unstable surface.

"Coaches should be advised to learn, and then prescribe, large conventional multi-joint exercises for the greater benefits they provide rather than use complicated circus-like movements on a Swiss ball," said Marshall and Desai.

That being said, the authors acknowledge the novelty that fitness balls add to a workout. And physiotherapists are still on track when using an unstable surface like the BOSU to rehab an injured knee or ankle.

So, as long as exercisers and trainers understand the limited benefits of exercises performed on unstable surfaces, the addition of a fitness ball or any other piece of stability equipment can provide a welcome change of pace.