The Stability Ball: Not Just for Circus Performers Anymore

A n often-underused training tool is the stability ball. Those big balls you see in the gym that resemble beach balls are becoming more and more prevalent in the fitness industry as well as the athletic world. The main effect of these balls is their ability to provide an unstable surface to the exerciser.

We are constantly in need of our stabilizer muscles. The stabilizers are the little muscles that most people do not think about because their use is almost involuntary. We are forced to use our stabilizers every day as we live and move in an environment dictated by three dimensions and gravity. The “core” region is made up of those muscles that help stabilize and coordinate movement between the upper and lower body, all the while providing overall balance. Some of the more easily identifiable core muscles are the abdominals, obliques, and spinal erectors. In general they act to stabilize the body, but specifically they support the spine from all sides.

Subjecting the body to an unstable surface requires additional work from the core region. For example, a beginner-level exercise with a stability ball may be sitting on it, while raising one foot off the ground. It is the core region that must engage isometrically (muscles contract but their lengths do not change) to overcome this added instability caused by the ball, and maintain overall body stability. Now if you keep the foot raised and try to press two dumbbells overhead, the task gets harder.

An intermediate level of difficulty may be kneeling on the ball. This seemingly simple task can be extremely challenging even for people who think they have good balance. Once you can kneel on the ball indefinitely and comfortably, try doing dumbbell curls. As the dumbbells move through their range of motion, the center of gravity of the combined mass of the body and dumbbells constantly changes, requiring rapid responses from the stabilizing muscles.

A more advanced exercise would be kneeling on the ball while throwing a tennis ball with a partner. While the tennis ball might not be heavy enough to move your body, the neural confusion that is caused by having to catch the tennis ball while simultaneously remaining on the stability ball is significant, particularly when you have not attempted this before (remember, balance is almost entirely neural and there is no such thing as too much balance.) Now switch the tennis ball with a medicine ball and the task becomes more difficult for obvious reasons.

Kneeling on the ball, sitting on the ball, and all the exercises associated with these positions are good, but there are also other ways to use the ball. An example is the crunch performed on the ball. The abdominals must contract concentrically and eccentrically as the upper body is raised and lowered, but the stabilizers must also contract to keep you from rolling off the ball. If performed correctly, it appears to be a very effective way to train the midsection. These few examples (along with hundreds of variations) serve to: 1) increase balance, 2) increase strength of the core region (therefore strengthening the support structure of the spine and decreasing the likelihood of future back injuries), and 3) add variety to a workout that probably is dominated by the same old machines and free weights.

Note: Serious injury can result from falling off a stability ball so start with easy, beginning-level exercises and slowly progress as your ability increases. If you have any doubts, either use a spotter who can provide extra stability and catch you if the need arises or do not do the exercise at all.

About the Author

Joe Warpeha, MA, is an exercise physiologist and strength coach and is currently working on his PhD in exercise physiology at the University of Minnesota-Minneapolis. His main area of research is conducted at the St. Paul Heart Clinic and involves left-ventricular dysynchrony in heart failure and its assessment with ECHO tissue Doppler imaging. Joe is also actively involved in vascular biology research at the University of Minnesota, particularly as it relates to endothelial dysfunction. He is an instructor at the University of Minnesota and teaches beginning weight training in addition to the advanced weight training and conditioning class. Joe has certifications from the NSCA, ACSM, USAW, ASEP, and YMCA and is a two-time national bench press champion in the 165-pound class with multiple national and state records to his credit.