

Shifting Stability Ball Training

By Peter Twist

Over the past 10 years, there has been a significant increase in the use of stability ball fitness programs. Training became more portable, allowing exercise specialists to take clients outdoors and coaches right into their sport environment, on the court or field.

To appreciate the power of stability ball training, you must only understand that your body functions together as a unit. Some muscles must contract to help produce movement, others contract to help balance the body while others contract to stabilize the spine and hold it in a safe neutral position. Still, other muscles will kick in each time your body recognizes a shift in position or to correct an error – such as detecting a loss of balance. Your body is a linked system that works together to coordinate athletic actions like throwing a football and in everyday life too – when squatting and bending over to pick up a baby or lifting a baby overhead to produce a smile.

Stability ball training builds from the core out to the periphery, accommodating your upper and lower body while turning your core into your strength. Most movements are initiated and supported with the core muscles, and this is not just your superficial six-pack muscles; it also includes more important deep abdominal wall muscles that serve to protect your spine and stabilize movement.

While balancing and moving on a ball seems like simple and playful concepts, exercise must be highly structured to define the level-appropriate challenge that allows good posture and technique while overloading strength. It is important to have methods to progress and regress an exercise to modify and customize to each client's ability level.

Shifting the Ball

▶ The BOSU DSL stability ball adds a dynamic load that requires full body, coordinated actions. Controlling a shifting weight outside your midline trains the deceleration and responsiveness properties of muscles, placing emphasis on the core and posterior chain.

▶ The DSL inside the ball provides audible feedback during movement drills. If controlled fluid movement is the objective, the load should remain resting at the bottom of the ball, making no sound. Strong or fast shifts in the ball – such as from side to side across the body – is similar to throwing water out of a bucket, except you get to brake and stop the 'water'. This demands excellent core bracing and effective muscle contractions in the back, shoulders and arms. Muscles must also work to sustain the weighted ball in the air. Rapid shifts back and forth over a shorter range of motion impose perturbations that increase muscle activation around joints. You will learn to judge the strength of the shift and the abruptness of the braking by the tempo and volume of the shifting DSL.

BOSU DSL Stability Balls

DSL stands for Dynamic Stabilizing Load. The DSL inside the ball is a granular substance that provides a stabilizing factor when the ball sits on the ground, a load to lift when the ball is carried up off the ground and a perturbation when the DSL shifts from side to side inside the ball. The BOSU DSL Trainer was invented by David Weck, creator of the BOSU Balance Trainer, an innovator whose training tools helps coaches and exercise practitioners create new exercises.

Ball on the ground:

The load inside the DSL Trainer makes the ball slightly more stable, aiding mastery of new exercises and making them safer. DSL Trainers come with five pounds of load inside the ball. To increase the stabilizing factor, which could be important in rehab settings and with aging clients, five pound funnel pellets are available to add more load to balls. We have a rack of DSL balls with five, 10, 15, 20 and 25 pound stabilizing loads. The increased ground-based stability allows the ball to be used by many individuals and populations that could not otherwise use a regular stability ball, while still providing an unstable top surface and light instability on the ground.

The challenge of recruiting the entire body to perform an exercise will help link the kinetic chain, developing smarter muscles that better communicate with the rest of the body. Integrating instability and reactivity as well as the demand of using multiple muscle groups heightens the metabolic cost, expending more calories. The slow, smooth exercise execution has a similar mental and inward focus and fluidity of movement to that of yoga.

For advanced exercisers interested in heavy strength training, when preparing to lift heavy dumbbells the internal load helps connect the ball to the ground, keeping the ball in place, providing a reliable target to sit on with dumbbells in hand. This produces a safer, more reliable set up for exercises such as a seated dumbbell press. The same effect also helps clients progress to kneeling exercises. From a risk-benefits perspective, we do not allow our clients to stand on the ball, but a kneeling position keeps their feet close to the ground to safely exit the exercise and builds adductor, hip, glute and abdominal strength. A kneeling position is more immediately achievable with the stabilizing load, yet still challenging on top. Progress by selecting balls with less of a stabilizing load and then eventually move to a regular stability ball.

While the stabilizing load helps keep the ball in place before clients load their body onto the ball, once the exercise commences clients still face the unpredictability of an unstable surface. Exercises that integrate strength and movement are more achievable. For example, we do not have many clients ready to jump right into a single leg squat, down to a deep position with chest upright. They need a more moderate progression and procedure. Single leg squats on the DSL ball can be executed right down to a seated position with confidence on the ball position while using the cushioning to help absorb the eccentric phase and provide some momentum for the concentric phase.

Back on two feet, we will sequence exercises combining a squat (to seated), down into a bridge, back up with a sit up and back up to a standing position. Try 15 in a row and note the heart rate response.

Prone hold and push up style exercises become more achievable with a stabilizing load that makes the ball less reactive. Beginners can try push ups, advanced can try jump and load push ups. More aggressive core stability exercises such as the Up Up Down Down exercise (see box below) are achievable by more clients with a stabilizing load.

Up Up Down Down

This is an excellent exercise for trunk and pelvic stability while integrating upper body stability, posterior delt strength and arm strength.



1.) Set up

Begin by getting into a prone plank position on the BOSU DSL ball with your elbows shoulder width apart and bent at 90 degrees. Your forearms should be directly on top of the ball. Your feet should be a little wider than shoulder width apart and your core engaged so that your ankles, knees, hips and shoulders are all in alignment.



2.) Movement

Engage your core and shoulders stabilizers, lead with the right arm by picking up your right arm and placing your right hand on the ball. Now push up and extend your elbow so that it is fully extended. Immediately after, lift your left elbow off and place your left hand where your left elbow was. While doing this movement try to keep your hips from rotating side to side.



3.) Middle Position

In the middle position you should be in a prone plank position with your hands on the ball. Your core musculature of your trunk is engaged to prevent the lower back from sagging.

4.) Finish

Engage your core again, and reverse the movement that got you up here.

Coaching Tips/Progressions

Greater challenge comes with slowing the movement overall, with longer loading phases before adding the next movement.



Wall-Based Shoulder Extension

This exercise focuses on the posterior chain, strengthening the back and posterior delts.

1.) Set up

Stand facing away from a wall, feet shoulder width stance, knees flexed, core set and braced, mid back set, shoulder and elbow flexed to 90 degrees. Rotate at the shoulder so your elbow is level with the shoulder, and press a BOSU DSL Trainer into the wall. A stronger push is needed against a BOSU DSL ball to overcome the load (weight of the ball). Hold for five seconds.

2.) Movement

Moving the arms, torso and feet, rotate around towards the ball so you end up facing the ball, both forearms pressing against the ball.

3.) Finish

Remove the original arm and rotate out away from the ball. Finish facing away from the ball, the new arm/shoulder engaged to hold the ball in place. Hold this arm for five seconds before alternating sides.

Coaching Tips/Progressions

At the five second hold position, maintain neutral posture, avoiding a lumbar arch to compensate for lack of shoulder girdle strength.

Bridge Perturbations

From a bridge position, a second BOSU DSL ball is used for a variety of DSL movements to foster reactive muscle capabilities through the eccentric-concentric responses.



1.) Set up

Assume a supine bridge position atop a ball, feet narrow stance, hips up strong, core set. Hold a BOSU DSL Trainer up over the chest, arms extended.

2.) Movement

Keeping the arms close to full extension, complete small and large circles with fluid, consistent movement so you can hear the DSL flow around in the ball.

Shift the DSL Trainer side to side, moving wider and faster until you accommodate with torso rotation. Listen for the impact of the DSL travelling across the ball, which

you will also feel as you brace for the impact (of the DSL).

Complete a sit up pattern. Sit up and extend the arms in front of your chest. Sit back down (into the supine bridge position), arms out over head. Again, absorb the force of the DSL as it shifts across to the other side of the ball at each end range of motion.

Coaching Tips/Progressions

Begin with smaller ranges of motion and regress by keeping the ball closer to your torso. Progress by selecting a DSL ball with a heavier load.

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Ball off the Ground

When lifting the ball, exercisers incur an additional demand to lift the load against gravity. For stabilizer muscles, this is useful when using the ball against the wall, which requires a more active contraction to not only hold the ball in place or roll the ball, but also press in firmer against the ball relative to the load which wants to drop down to the ground. □

BOSU DSL Stability Ball Training

For more information on DSL training, refer to www.sportconditioning.ca, attend Twist sessions at the next Can-Fit-Pro conference and watch for the second edition of *Strength Ball Training* to be released this fall from Human Kinetic Publishers.



Peter Twist has coached in the NHL for 11 years and is currently a consultant for several NHL players and agents. An exercise physiologist with a MSc and specialization in Coaching Science, Twist has published over 200 papers, authored four books and 11 DVDs on athlete development and delivered lectures to thousands of trainers and coaches internationally. Recognized as a leader in his industry, Twist was honoured with the National Strength & Conditioning Association's 1998 Presidents Award and Can-Fit-Pro 2003 Specialty Presenter of the

Year Award. On a practical level, Twist has trained over 700 professional athletes, including Mark Messier, Pavel Bure, Mike Peca, Alexander Mogilny, Bryan McCabe, Markus Naslund, Trevor Linden, Mattias Ohlund and basketball's Hakeem Olajuwon. Twist is the President & CEO of Twist Conditioning Inc. operating three main divisions: Training and Consulting, Education and Product Wholesale. Twist also has a line of sport conditioning certifications which are delivered by Twist Master Coaches throughout North America. Twist makes his home in North Vancouver, the location of his athlete conditioning centre. For more information on Twist and Can-Fit-Pro certifications please visit www.sportconditioning.ca or www.canfitpro.com.