

Sprained ankle injury avoidance and recovery exercises

These exercises can help you recover from that most common of [sports injuries](#) - a sprained ankle

Take any sport you choose - rugby, football, cricket, sprinting, whatever - and a sprained ankle will be the most common injury. Few athletes haven't suffered from one at some time or other in their career.

Sprained ankles are 'double trouble': they can be extremely painful, and they often curtail training or competing at key times of the year. Worst of all, even after you've 'recovered' from an [ankle sprain](#), your ankle is temporarily weaker than normal, and thus you're at a higher risk of sustaining another sprain - or even a more serious [ankle injury](#). What should you do to re-build your ankle after a sprain?

Surprisingly enough, the answer is to use a balance board. Balance-board work can improve your overall coordination and thus take excessive strain off your ankles and help you move more efficiently. A balance board can also increase the active strength of the muscles in your ankles, as well as your feet and legs, dramatically lowering your risk of [injury](#). In addition, balance-board routines can upgrade the mobility and flexibility of your ankles (as well as your feet, shins, and calves), further decreasing injury risk and leading to more powerful push-offs and longer strides whenever you move vigorously during your sporting activity. While you strengthen your ankles, you'll also give your performances a boost.

Not just ankle sprains

Best of all, balance-board routines are good for other injuries, too. Although balance boards are not especially popular among athletes, balance-board training has been used for decades by [sports-medicine](#) specialists to rehabilitate and treat a wide range of injuries to the foot, ankle, shin, calf, knee, hip and trunk. These injuries include (in addition to ankle sprains) Achilles tendonitis, Achilles-tendon ruptures (post-surgery), shin splints, calf strains, ACL tears and ruptures, hamstring maladies, and low-back problems. Boards are also utilized frequently by patients who have undergone [hip-replacement](#) surgery, as well as by individuals who have gone under the knife to repair a troublesome back.

Even though balance boards have historically been used primarily in a therapeutic setting, they have recently become more popular with serious athletes as a training tool. As balance boards have squeezed their way into the training arena, the line between balance-board [rehabilitation](#) therapy and balance-board training has become increasingly fuzzy, as therapists and coaches have begun to borrow techniques and methods from each other. Among athletes who use boards, the current thinking is: 'If they are good for rehabilitation

from injury, they are probably good for prevention of injury, too, and thus might help me train more consistently'. Among [physical therapists](#) and other sports-medicine specialists, the thought is: 'If athletes are using balance boards in certain ways, those techniques should also be good for patients who need to restore functional strength'.

For individuals who engage in a sport that requires a fair amount of running, a primary area of concern - from both an injury-prevention and training standpoint - would be the structures of the foot, ankle, and lower part of the leg (including the muscles, tendons, ligaments, bones, and cartilage in those areas). These structures are under constant stress during running and undergo considerable (and repeated) loading even during short runs, with a force equal to two and a-half to three times one's [body weight](#) passing through the body parts with each step. Athletes have become increasingly aware that they need to shore up the strength of the lower parts of their legs, and they are also beginning to realize that if they can strengthen and more effectively coordinate the actions of their feet, ankles, shins and calves, they will be able to develop more explosive and powerful push-offs and thus longer strides, leading to potential gains in performance.

Exercises with a balance board are especially effective at improving the strength, mobility, flexibility, and elasticity of the muscles, tendons and ligaments which run between the knees and toes. These structures include the intrinsic muscles of the feet, the plantar fasciae, the plantar and dorsi-flexors of the ankle, and the Achilles tendons. All of these anatomical components help to stabilize and control the foot and lower part of the leg during the foot strike portion of the gait cycle and in particular govern and coordinate 'pronation' - the natural inward movement and rotation that occurs at the ankle immediately after the foot hits the ground. Balance-board exercises mimic what happens to the muscles, tendons, and ligaments of the feet, ankles, and lower legs during running - and thus fortify them for the stresses they must endure.

What kind of balance board is best?

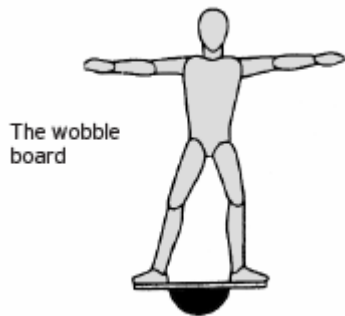
Balance boards are made in two general configurations. The first type - the 'rocker board' - has a platform on which you stand and a rectangular strip of wood on the bottom of the platform. The strip on the bottom runs the entire length of the platform (12-16 inches) and is typically half to one inch wide and half an inch high. Instability - and thus an increased demand for coordinating force production by the muscles of the feet, ankles and legs - is created by placing this strip on the ground and standing on top of the platform. Obviously, the direction of instability can be varied from front-to-back or side-to-side, depending on how you position your foot relative to the wooden strip, but that is all you can do with a rocker board, and thus instability can really be created in just one plane of motion.

Rocker boards are most useful for beginning and intermediate-level balance-board trainers. For best results, they should allow for 10 to 15 degrees of motion (i.e., incline/decline of the

platform surface).

The second type of board - the 'wobble board' - has a wooden (or plastic) half-sphere on the bottom of the platform and thus provides instability in multiple planes of motion. Since the true motion of the ankle joint during the act of running can never be described as a simple flop forward or backward or a simple roll to the inside or outside (the only motions permitted by rocker boards), it's clear that wobble boards provide much more specific training for runners (i.e., they mimic joint movements much more effectively) and are considerably more beneficial than rocker boards.

The wobble board



The half-sphere beneath a wobble-board platform can vary in size from a-half to two inches high. For two-footed wobble-board exercises, the feet are placed on opposite sides of the platform with the half-sphere in the middle. For exercises on one foot, the weight-bearing foot is placed in the centre of the platform, directly over the half-sphere. Wobble boards are most useful for intermediate and advanced balance-board trainers and should allow for 15 to 20 degrees of motion (incline/decline of the platform surface) in all planes for best results.

Balance-board exercises

The exercises described below are great for improving your strength, coordination, and flexibility, but they are by no means the only exertions that can be carried out with a balance board. Ultimately, you can use your own creativity to design and implement additional practical and exciting exercises with the balance board.

Beginning Exercises

(Carried out on a wooden floor or very firm, carpeted surface using a square rocker board):

1. The two-leg stand and balance with instability from side to side. The rocker strip should

run from front to back, parallel to the direction of your feet, with one foot on each side of the strip. Simply hold your position for 30 seconds without letting the edges of the board touch the ground.

2. The two-leg stand and balance with instability from front to back. This time, the rocker strip runs from side to side, perpendicular to the direction of your feet. Complete the exercise by simply holding a balance position for 30 seconds, without touching the edges of the board to the ground.

Both of these exercises develop balance and coordination of the entire body - the feet, ankles, legs, hips, trunk, neck and head. They also enhance the so-called 'grip strength' of the feet and toes, which will allow for progression into more difficult balance-board exercises.

3. Side-to-side edge taps. Position the rocker board so that the rocker strip is running from front to back, parallel to your feet, which creates side-to-side instability. Then, slowly and deliberately touch or 'tap' the lateral edges of the platform to the ground (left edge, then right edge, left, right, etc.) for about one minute. This range-of-motion and strength exercise should be done under full control, without rapid swings of the board from side to side.

4. Front-to-back edge taps. Position the rocker board so that the rocker strip underneath the platform is running from side to side, perpendicular to your feet, and then slowly and deliberately touch or 'tap' the front and back edges of the platform to the ground (front edge, then back edge, front, back, etc.) for approximately one minute. Once again, perform this exercise with smooth, rhythmic movements, without sudden jerks of the platform.

Both tapping exercises develop gripping strength in the feet and toes and augment the mobility and flexibility of the ankles and feet. Compared to the first two exercises, these tapping routines have a much more pronounced strengthening and mobilizing effect on both the plantar fasciae and Achilles tendons due to their dynamic (as opposed to static) nature.

Intermediate exercises

Using a square rocker board placed on a wooden floor or firm carpet, carry out the four exercises described above, but this time on only one foot at a time (first the left foot, then the right). Working on one foot at a time effectively doubles the work load of your muscles, magnifying strength development, and also makes the exercises much more specific to running.

If these intermediate, one-footed exercises are initially too difficult for you to perform without losing your balance, simply place the toe of your opposite (non-weight bearing) foot on the ground six to ten inches behind the balance board. This should allow you to perform the exercise more effectively as you make the transition to one-footed exertions.

Advanced exercises

For these routines, use a round wobble board on a wooden floor or firm, carpeted surface.

1. Side-to-side edge taps. Place one foot directly in the middle of the platform, and note that your board is unstable in all directions (planes). Slowly and deliberately touch or 'tap' the lateral edges of the platform to the ground (left edge, right edge, left, right, etc.) for about one minute. Maintain full control at all times, avoiding hasty motions of the balance board. If the exercise is too difficult at first, place the toes of your other foot on the ground behind the wobble board for better balance. Once the minute is up, repeat the exercise on the opposite foot.

2. Front-to-back edge taps These are just like the side-to-side exercise, except that you are touching the front edge of the balance board to the floor, then the back edge, etc. Do it for a minute on your left foot and then for a minute on your right.

3. Edge circles. Place your left foot in the centre of the wobble board, and then slowly and deliberately touch the edge of the platform to the floor, rotating this 'edge touch' in a clockwise fashion so that an edge of the platform is in contact with the floor at all times. The actual motion must be very slow and controlled to gain full benefit from the exercise and should be performed for one minute without stopping. As before, place the opposite foot on the ground behind you, if a full one-leg balance proves too challenging. Once you have rotated for one minute on one foot, change to the other.

4. Counter-clockwise edge circles. These are the same as the edge circles, except that you are now rolling the edge along in a counter-clockwise direction.

These advanced balance-board exercises develop coordination, balance, strength, and mobility in the muscles of the feet, ankles, legs, hips, and trunk. They are part of a progression which began with the simple, single-plane exercises (the beginning and intermediate ones) and serve to specifically increase the functional strength and elasticity of the key muscles used during running. The advanced exercises require a high degree of body awareness, and as a result, they must be practiced on a regular basis. Fortunately, they don't take so long to carry out; the advanced exercises, for example, can be completed in five minutes or less. Since the motor skills needed to do them well require repeated exposure for optimal development, it's best to do them at least four to five times a week.

Very advanced balance-board exercises

5. The one-leg squat with balance board. This unique exercise strongly develops the

quadriceps and gluteals, with a complimentary boost to the hamstrings, as it upgrades strength and improves coordination in your feet, ankles, shins, and calves. To complete one-leg squats in the correct way with a balance board, stand with your left foot forward, on the centre of the board, and your right leg and foot extended straight back, with your feet about one shin-length apart. To see if you have the right distance, try squatting down by flexing your left knee and lowering your trunk; as you do so, your right knee should be not far from your left heel. Your feet should be hip-width apart from side to side. Place the toes of the right foot on a block, aerobics platform, or small step which is approximately six inches high. Almost all your weight should be directed through the heel of the left foot, the one which is perched on the balance board. 'Bend' your left leg (i.e., flex your left hip and left knee) and lower your body until your left knee reaches an angle of about 90 degrees between the thigh and lower leg. Return to the starting position, maintaining upright posture with the trunk and holding your hands at your sides. Complete about eight reps, and then shift over to the other leg. After a brief rest, complete eight more reps with each leg. As your coordination and strength improve over time, you may increase the number of reps and sets.

6. 'Running' on the balance board. Stand upright with your left foot in the centre of the balance board and your right foot off the ground and balance board; your right leg should be flexed at the knee, as though your right leg were swinging forward during the 'swing' phase of the gait cycle. Then, perform a 'posterior pelvic tilt' by tightening your buttocks, contracting your abdominals, and curling your pelvis 'under'. The posterior pelvic tilt is sometimes referred to as 'tucking your tail'; you can think of it as moving the bottom of your pelvic girdle forward and the top slightly backwards. Your head and neck should be in a neutral position and aligned with your upper body. Your arms should be relaxed but flexed at the elbows, as they would be during running. Maintain this basic position throughout the exercise. Simply move your arms forward in an alternating pattern (first right, then left), returning your right arm to your side as your left swings forward, and vice-versa. Both arms should be in constant motion, without pause, and the overall arm and shoulder action should simulate what happens to your arms and shoulders when you run (as you get more coordinated, you may exaggerate the arm swings, taking your arms through a broader range of motion than would be characteristic of running). Repeat the exercise continuously for 30 seconds, and then shift over to your other foot. Over time, you may increase the speed of arm movement, but stay under control at all times. It's also appropriate to progress to three sets of this exercise, instead of just one.

As an extension of this exercise, you may hold dumbbells at your sides with your palms facing in towards your body, and then alternately 'curl' each arm until the dumbbell is in front of your shoulder. The curling action should be rhythmic, and your arms should be moving at all times (raise the right arm at the same time that you are lowering the left arm and vice-versa). Maintain a stable posture throughout the exercise. At first, the dumbbells

should be very light, but you can progress to 'bells which produce significant fatigue after about 15 reps. Use a cadence of one arm curl (up and down) about every two seconds, , and start with two sets of 15 to 20 repetitions (resting momentarily between sets), before progressing to three or four sets as your strength and coordination improve.

The worst is yet to come!

7. Balance-Board core torture. Lie down, stretching out in a prone position (with face and belly downward), with full body weight supported only by your forearms and toes. The 'catch' is that your forearms should be resting on either side of the centre of the balance board! In this position, your elbows should be almost directly below your shoulders. Your forearms are resting on the board, pointed straight ahead (parallel to the line made by your body). Your toes (and feet) are about shoulder-width apart, and your toes are the only part of your lower body which are in contact the ground (your toes are not on a balance board, at least not yet!). Your whole body is supported only by your forearms and toes.

'Tuck' your pelvis, as you did with the running-on-the-balance-board exertion. This basically means rotating your pelvic girdle by pushing the lower part of your pelvic area toward the ground while the upper part of the pelvis rotates away from the ground. Your hip area doesn't actually come any closer to the ground (your whole body should be in a fairly straight line from your toes up to your shoulders).

A. Hold this basic position (body supported only on forearms and toes, pelvis tucked) for 15 seconds, and then lift your right leg off the ground and hold it there (roughly parallel with the ground) for 15 seconds (your body will now be supported by your two forearms on the balance board - and the toes of your left foot, which are on the ground). Return to the starting position.

B. Next, lift your left leg in the air and hold it parallel with the ground for 15 seconds, before returning it to the starting position. Your body weight will be supported only by your forearms and the toes of your right foot.

C. Return to the basic starting position, hold it for 15 seconds, and take a one-minute break. Then, repeats steps A through C. However, once you've completed the second series, stay in the basic position, supported on forearms and toes only, for at least one more minute. Maintain an absolutely straight body posture for the entire period. Then, complete five to 10 'Chinese press-ups' (they're like regular press-ups, except instead of supporting your upper body with the palms of your hands, the support is provided by the forearms on the balance board). Try to keep your body fairly linear as you move your torso up and down, bringing your chest down close to the balance board and then back up to the basic position. Now, flip over so that your back is facing the ground, and lift your body off the ground by

supporting full body weight with only the heels of your feet and your forearms on the balance board. Once again, try to keep your body in a fairly linear position, and remember to tuck your pelvis! Follow the same movement pattern outlined above (lifting first your left leg, and then the right), using roughly the same time periods. It's also fun to do more than just lift your appendages. For example, you can bring a knee toward your chest or swing your leg from side to side to increase the 'loading' and [stress](#) on your core muscles and shoulders. The entire sequence outlined above can then be carried out with your toes on the balance board and your forearms on the floor. In this case, the toes of your feet would be positioned on either side of the centre of the board, and you would raise one arm at a time, rather than one leg. Obviously, the balance-board-core-torture activity does not mimic the posture or biomechanics of running, but it is devastatingly effective at improving your whole-body strength and coordination. You'll find it very challenging!!

Final points

Here are six essential points about balance-board training:

(1) Before starting any of the balance-board routines, **warm up** for ten minutes by performing light jogging, stretching, and range-of-motion activities for the trunk, low back, hips, quadriceps, hamstrings, calves, Achilles tendons, shins and feet. As you carry out the exercises, maintain an upright posture with your trunk at all times, and use smooth, controlled movements - not out-of-control jerks. Devote the first few weeks of your balance-board program to developing coordination and technique; don't worry about racking up lots of reps. As your skill at carrying out the exercises improves over time, increase your movement speed, while maintaining balance and posture.

(2) Remember to perform all balance-board exercises when you are relatively free from fatigue. For optimal results, balance and coordination exercises require that the nervous system be fairly well rested. Somewhat surprisingly, a fine time to do balance-board work is immediately prior to a speed workout, since the balance-board routines seem to 'wake up' the nervous system and prepare it for intense activity.

(3) Since the 'action position' for all athletic activities, including running, incorporates a certain amount of knee flexion, rather than straight legs, be sure to carry out all balance-board exercises with your knee(s) slightly flexed.

(4) At the very beginning of your balance-board training, if you are having trouble with coordination, you can stabilize yourself by placing the toes of the opposite (non-weight bearing) foot on the ground behind you during any single-leg exercises. However, do not use your hands for stabilization, as this largely defeats the purpose of the balance-board activities.

(5) It's important to remember that you can increase the difficulty of any balance-board exercise by holding dumbbells in your hands - and by performing the exercises with your eyes closed. Closing your eyes removes visual cues and particularly enhances your kinesthetic sense, i.e., your ability to accurately judge the position of your body in space. This increased awareness can help you improve your coordination and efficiency of movement.

(6) Don't begin your balance-board routines until you have recovered from your sprained ankle (or other injury) and your doctor has given you his/her okay. Use the balance board frequently during training to lower the risk of future injury.

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