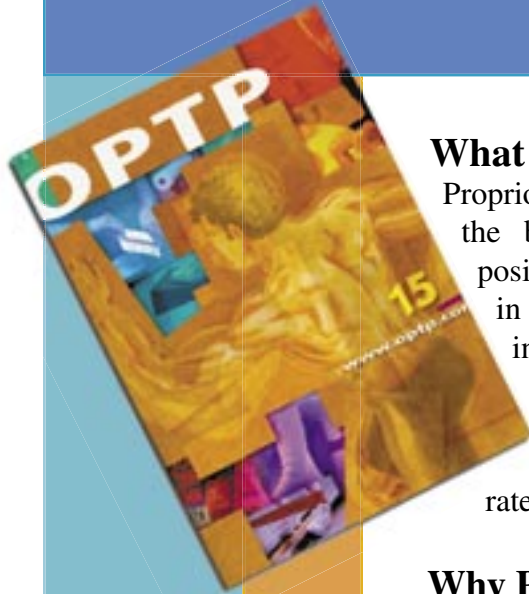


Using Proprioception for Rehabilitation and Training

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OPTP Newsletter

The Conservative Care Specialists

What is Proprioception?

Proprioception can be defined as the body's ability to sense joint position, movement and changes in equilibrium. Proprioception includes both static position sense (the conscious orientation of one body part to another, and dynamic position sense) the rate and direction of movement.

Why Proprioceptive Training?

Proprioceptive training is used with rehabilitation clients and athletes to maximize prevention of injury and/or functional restoration. It also enhances movement analysis.

Rehabilitation

Any type of injury, such as a sprained ankle or low back pain, can disrupt proprioception or position sense. Injury can cause direct or indirect changes in sensory information provided by the mechanoreceptors that reduce or cause the loss of proprioceptive input to the joint. The loss or change in proprioception can cause a deactivation of the neuromuscular pathway that can produce deficient or uncoordinated muscle group activation. In order to correct this, proprioceptive training may be used to improve mechanoreceptor activation.

One exercise that is used to increase back proprioception is performed supine on two foam rollers.

Lie on back with knees bent. Roll back onto one roller. Place second roller under back parallel to first. The rollers should be on each side of the spine. Raise one arm overhead while lifting opposite knee. Repeat with the opposite side.

Through proprioceptive exercises like this, one can become more conscious of their sensory motor skills.

Training

By including proprioceptive exercises in a training program, an athlete can minimize the chance for injury and improve performance. One way of doing that is through balance training. A popular progressive balance training method uses three exercise tools to increase proprioception. These tools are the Uniplane Rocker, Wooden Wobble and the Janda Exercise Sandals.

The first exercise tool is the Uniplane Rocker (Figure 1) which provides sensory motor challenge in two planes. Some exercises that can be done on the Uniplane Rocker to increase proprioception are:

- Standing on the Uniplane Rocker with two feet (Shown in Figure 1)
- Semi-squats
- Standing on one foot
- Lunges
- Close eyes while on the Uniplane Rocker



Figure 1

Once balance is achieved with the Uniplane Rocker, progress to the Wooden Wobble (Figure 2). The same exercises can be used with the Wooden Wobble's multi-planes.



Figure 2

The final tool in progressive balance training is the Janda Exercise Sandals (Figure 3). Using Janda's "short foot" technique, the sandals introduce instability while walking. This is done by taking small steps. Chris Hirth MS, LPT, ATC-L from the University of North Carolina explains, "We have used the exercise sandals in the rehabilitation of a variety of lower extremity injuries. The exercise sandals allow us to enhance proprioception in our injured athletes in a closed kinetic chain functional manner that allows them to move versus static standing."



Figure 3

Besides the Janda Sandals, the 2 Trac is a useful tool for increasing proprioception through balance training. Exercises, such as the Pitcher's

Stance (Figure 4) will give an athlete a more accurate throw.

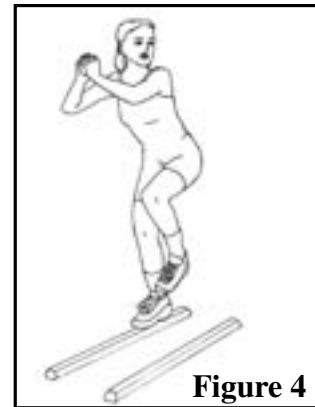


Figure 4

Place the 2-Trac flat side down and parallel to each other. Stand with one foot on each section of the 2-Trac and wind up as if you are going to pitch a ball.

Whether you are an athlete, rehabilitating from an injury or just want to increase your balance, proprioceptive training is a valuable tool. For more information on products and publications noted, please contact:

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