

# Sensory-motor training

Balance is as important as strength or flexibility to your overall physical fitness. Most injuries occur suddenly when an unexpected force is encountered. A common example is when an ankle is sprained by stepping off a curb you didn't know was there. This illustrates that balance is even more important than strength in injury prevention. How your body responds automatically on a 'reflex' basis tells your health care provider a great deal about your ability to prevent future injuries. In fact, your posture won't easily improve unless balance function is also restored.

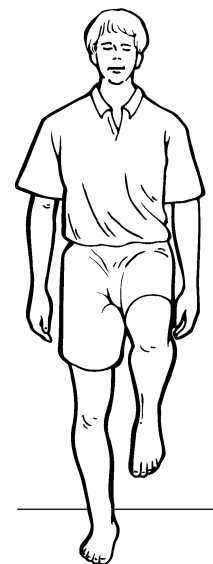
American Indians used to run bare foot in dried out river beds as a treatment for lower back pain. Our posture depends on a large amount and variety of stimulation coming in from the soles of our feet. Yet in the last 100 years we sit more, wear thick soled shoes and walk on flat or carpeted surfaces nearly all the time. A form of sensory deprivation has taken place and this leads to poor balance and fallen arches.

Balance training has been utilized for treating athletes with ankle sprains, children with vestibular (inner ear) problems, chronic knee injuries, elderly individuals with

ataxia (frequent falls), and even lower back pain. Surprisingly, balance training has been shown to improve strength in the thighs and lower legs even more than much more time consuming and intense strength training! Balance has been shown to improve by 200% with just 2 weeks of daily training. Such quick improvement makes balance training both fun and effective.

A simple balance exercise can be performed at home in a doorway. Simply stand on one foot and look straight ahead. While balancing try to grip the floor with your toes. Try to balance on just one foot for 30 seconds without hopping, holding on to anything or putting your other foot down. If you can do this then try it with your eyes closed. Once this is mastered then try it on a less stable surface such as your mattress. If you can't maintain balance for the full 30 seconds then be sure you are performing the simplest balance exercise and perform enough repetitions until the total time balancing is 30 seconds. To be effective you should do this on both feet at least twice a day.

Your health care provider will also train your balance with other tools such as balance boards,



**Fig. 1** Single leg standing balance exercise with eyes closed.

balance sandals and gymnastic balls. Sometimes these will be used for your home program to maximize its effectiveness. For certain conditions — such as ataxia — up to 30 min a day of balance training is required to achieve positive results. However, this may only be required for a few weeks and is expected to improve balance over the long-term even without significant further practice.

**Craig Liebenson DC**  
10474 Santa Monica Blvd., 202 Los Angeles,  
CA 90025, USA

Correspondence to: C. Libenson  
Tel.: +1 310 470 2909; Fax: +1 310 470 3286;  
E-mail: cldc@flash.net

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