



# Healthstuff...

## RECURRENT ANKLE SPRAINS

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**A**nkle sprains are exceedingly common within mountaineering and walking. Following feedback this article is specifically aimed at those who repeatedly sprain their ankle or regularly go over on it.

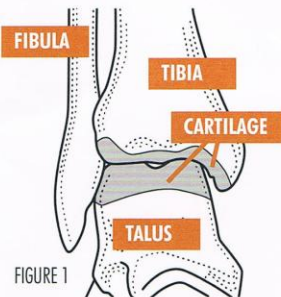


FIGURE 1

A sprain is a rip, tear or complete rupture of the ligament joining two or more bones. Not to be confused with a strain, which is muscular. When a ligament is torn it will heal but it takes time as they do not, generally, have a rich supply of blood – this is why many people say a sprain is worse than a break.

*Having done both, I can state a bad sprain hurts a lot more and takes a longer time to heal but, honestly – I wouldn't want to break my leg again, I wouldn't mind a sprain as much.*

All joints are held together by (in effect) three mechanisms:

- The shape of the structural components (bones, cartilage). The ankle joint is a fairly strong mortice formed by your shin bone (*tibia*) and other leg bone (*fibula*) which articulate with the talus bone [Figure 1]. You can see that the fibula descends lower on the outside of the foot and provides a barrier to the foot everting. The talus

hinges up and down (dorsiflex and plantarflex) and inverts and everts to give you movement at the ankle.

- Supporting structures (ligaments, joint capsule). There are many ligaments but the relevant ones attach between the ankle bones to the talus and other foot bones [Figures 2 & 3]. If you look at the inside of the foot, the *deltoid ligament* is larger and stronger [Figure 3] and further resists eversion of the foot. It is important to note here that ligaments, when injured, do not return to their previous form – scar tissue bridges the gap which means the ligament is longer after the injury than before. This reduces the stability of the joint further.

- Feedback from the joint telling the brain what position the ankle is in. Test yourself: in bare feet stand on your right leg (if you're right handed). Easy? Close your eyes. Still easy? Bend your knee. Now swap feet. What do you find? It is common for right handed people to be more stable on their left leg – their *non-dominant* side – because if you had to kick a ball or pick up your slippers, for example, you would use your right foot. This generally means your left is being used for stability – it is a *learned trait*.

This *active stability* is essential to allow the foot the freedom of movement it needs to work efficiently but to maintain the joint integrity. An injury to the structures that contribute to the *passive stability* of the joint

disrupts this active stability further and increases the likelihood of reoccurrence.

We can give the passive stability of our feet a helping hand (as it were) by strapping and taping and, in the short term, this is a good idea ie. to get off the hill. Figures 4 and 5 shows an effective way to tape a foot that will provide support and limit further damage which is well researched and proven to be effective. Practise it and put one roll of adhesive, non-stretch bandage in your first aid kit and you might save a mountain rescue team a lot of bother one day.

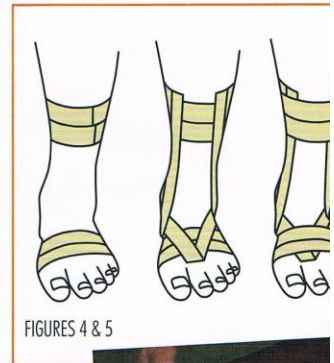
However, in the long term, it is by improving the active stability of our foot that we are going to avoid repetitive spraining. This can be broken into three phases.

### PROPRIOCEPTION PHASE

This phase aims to restore the full level of feeling received from a joint and can begin within a few days of an injury but should continue whenever you go walking. Slowly take your ankle through its full range of movement without any load – wagging your feet if you'd prefer but be specific: plantar and dorsiflex, invert and evert then circular motions. When your ankle is improved, walking or running will contribute to improved feedback through your joint – but let's not get ahead of ourselves.

### BALANCE PHASE

Stand in front of a mirror and test yourself as before. It is important that when you do this your foot is flat on the floor. Progress this exercise by reducing the stability of the surface by standing on your bouldering mat or putting on your climbing shoes. The less 'work' your lower leg has to do shows improved balance and *proprioception*.



### STRENGTH PHASE

This phase is more complex than you think. When injured you may notice a definite wasting of muscles but this can be avoided by early exercising. However a neurological mechanism is in place which limits the chance of injury switching off your muscles when they are moved beyond their safe range. This may result in longer term muscle atrophy which are overcome by moving the muscle through its full range under load for both phases: shortening and lengthening standing with your toes on a step, dropping your heels then stand on tiptoes.

Before entering any exercise following injury it is always wise to consult your local physiotherapist but it is important to remember that you can manage your long term rehabilitation to ensure you return more confidently and securely to steep ground – surely an essential requirement of a Mountain Inst

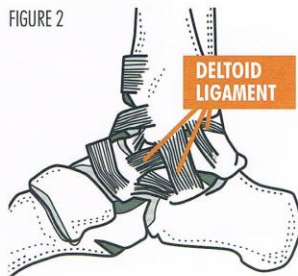


FIGURE 2

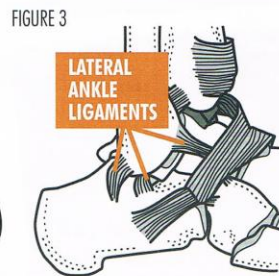


FIGURE 3

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