The Ankle Sprain and it's Relation to the Rest of the Body

Have you ever sprained your ankle? If so, did you get it looked at by a professional (GP, physio, osteopath, chiropractor)? Did they explain what has happened? Were you given exercises to do? Are you curious as to the knock on effects that an ankle sprain can have? We have seen several patients come through our clinic rooms complaining of pains in all areas of the body, hip, back, neck, shoulder and are never surprised during our assessment to find that they have previously incurred a sprained ankle. If you would like to know how the ankle relates to the rest of the body, please read on.

In most people's lifetimes they will do some kind of sprain to their ankle structures. The normal mechanism of this injury is that the foot rolls outwards putting stress through the outside of the ankle and the momentum carries the body over the ankle, thereby damaging the structures that are designed to prevent exactly that movement. Most people would term this 'rolling their ankle'. Medically it is referred to as a lateral ankle sprain. In the medical fraternity, this sprain is then graded as one of the following (the higher the grade, the longer the period of time likely needed for rehabilitation):

Grade 1 – Mild, minimal loss of structural integrity, no abnormal motion, little or no swelling, localised tenderness, minimal or no bruising

Grade 2 – Moderate, significant structural weakening, some abnormal motion, marked bruising and swelling, often associated with haemarthrosis and joint effusion.

Grade 3 – Severe, loss of structural integrity, marked abnormal motion, significant bruising which may track away from area, definite haemarthrosis if capsule remains intact.

(Norris – Sports Injuries 2007).

The result of this injury is damage to the structures of the lateral ankle, including the ligaments (anterior talofibular ligament ATFL and the Cacaneofibular ligament CFL, anterior tibiofibular ligament) and the muscular and fascial connections around the outside of the ankle. Fascia is a connective tissue found through the body system, it is akin to the silver film that you see around beef joints where the muscular tissue of the meat is encased in a sheath. This sheath is fascia. For more information please see our fascia information package.

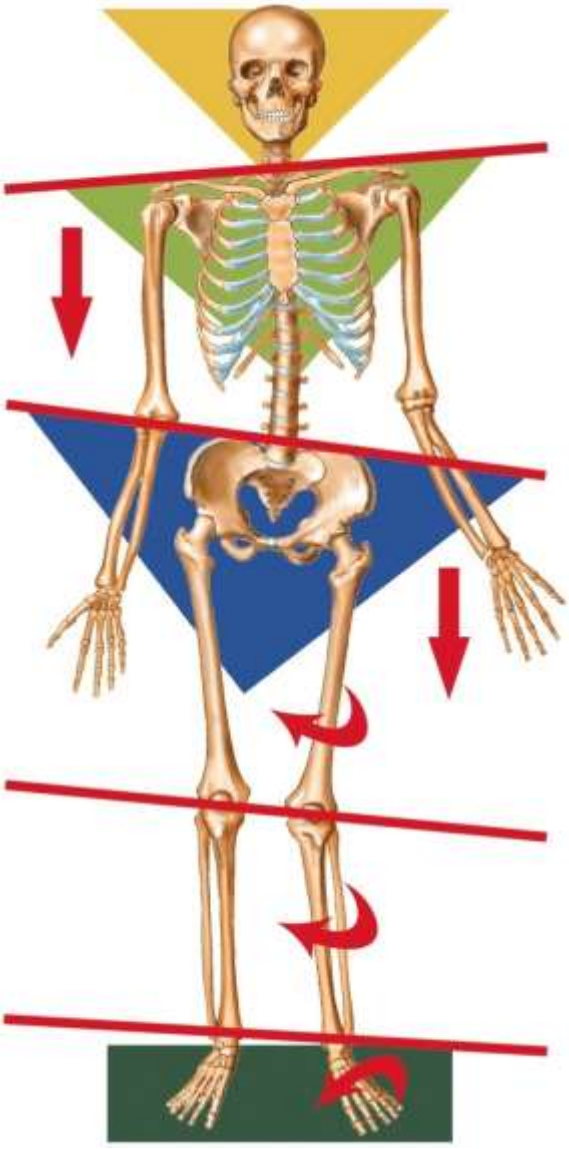
The immediate response to an acute injury is the PRICE approach. Information on what to do in the case of an acute injury can be found on our website. In a nutshell, you Protect the injured area (bracing it if necessary), Rest it (stop using the joint involved), Ice it (this helps with the pain as well as constricting the blood vessels to decrease the swelling), Compress it (to create an external pressure on the blood vessels such that fluid does not leak in to the damaged area therefore decreasing swelling) and Elevate it (using gravity to decrease the blood flow to the area and again minimising swelling).

Now, the typical approach to assessment and treatment of the sprained ankle is to move the joint through the movement it has available (eg until it is painful or until the body structures naturally stop the movement) in all directions and to then test the 'strength' of the muscles controlling these movement directions. Once 'weaknesses' are discovered an exercise programme of 'strengthening' begins. Note that several words are in inverted commas. What is actually being tested is the activation of the muscles that create movement at the ankle, whether they are responding normally to conscious efforts to contract them and whether they have the correct biomechanics in place to use levers to exert the force that they are intending to. The general finding is that of a 'weakness' of the muscles that turn to foot outwards (the everter muscles or the peroneus longus and brevis). A 'strengthening' regime is then given for you to do, often involving a large elastic band and a review appointment is organised.

Multiple problems occur with a 'sprained ankle' in our experience. There is of course damage to the structures that prevent rolling of the ankle, but once damaged, these structures allow the bones of the foot to move in to positions that they are not normally in, thereby altering the force direction of muscles when they contract. This certainly contributes to the phenomenon of the muscles appearing 'weak' (added to the fact that these muscles will have been strained as well). If the bones are not helped to return to the correct position, the muscles learn to work in a new way to stabilise the area, often overworking to protect the outside of the ankle joint. If we take our standard approach ('strengthening' the everter muscles) then we are compounding this newly learned movement. At this point I should point out that the 'strengthening' regime is in inverted commas because again it is a muscle activation exercise that encourages the brain to use the muscle more.

So, what we have is a bony system that is no longer held in the correct positions for the muscles to exert a force along the normal lines that they would normally act, and a regime asking you to try to increase the activation of these muscles. The muscles are already likely to have increased their activity level as a reaction to the injury and are being asked to increase what they are doing in a mechanically disadvantaged position. This is a good time to introduce my new favourite picture pinched from a runner's blog in the US.

I like this picture. It doesn't show what is likely to happen exactly but it gets somewhere close. This person has damaged their left ankle. The foot is no longer held



in the position that is most effective due to damage to the structures as detailed above. Their foot actually slides forwards under the shin bone and often turns out and flattens slightly (partly due to the increased activity of the everters whose job it is to roll the foot inwards – remember in the traditional rehabilitation techniques, these are being encouraged to work more). The body then compensates via a series of rotations in the lower leg as shown in the diagram. The leg rotates inwards, in turn making the muscles that rotate the leg outwards overwork, they cause a twist or torsion in the pelvis, causing a sideways shift and rotation of the low spine which necessitates a shift and rotation in the opposite direction of the upper spine in order that you can continue to look straight ahead! If the ankle hasn't been rehabilitated properly following a strain, these systems are allowed to fail continuously and it is no surprise to us that a back pain, shoulder pain, even arm pain manifests as a result. Keep an eye on our website for video uploads of these biomechanical changes in action. Watch the videos and see if you recognise any of the compensations in yourself!

When we assess any problem, the Bodymechanics team look across the whole of the body in order to find the root cause of movement compensation. Get in touch and book an assessment via the website (www.thebodymechancis.co.uk) or call today (01932 25 3500) to arrange to see one of our specialist practitioners. We look forward to hearing from you.

Thanks for reading!

The Bodymechanics Team.

www.thebodymechanics.co.uk