

Barefoot Running

by Dr Thomas Gan

Barefoot Running has increased in popularity recently, particularly amongst keen recreational level runners. There have been many claims over the benefits of barefoot running such as injury prevention due to a more natural running style. The Internet has helped this phenomenon with a multitude of websites promoting barefoot running. It has even made mainstream media such as this article published in The Sydney Morning Herald in 2009: <http://www.smh.com.au/executive-style/fitness/running-bare-noshoes-movement-gains-a-toehold-20090930-gctm.html>

An important scientific article written by Lieberman et al published in Nature in 2010 makes several key comparisons between the lower limb of barefoot runners (unshod) and runners who wear running shoes (shod). The modern running shoe, as we know it, first came into popularity in the 1970's. The elevated and cushioned heel of this type of shoe made it more comfortable for the shod runner as it allowed them to place the heel first onto the ground before propulsion into the next step. This is known as a *rear foot strike*. For the shod runner, it is postulated that the impact of the step is made below the ankle and this collision force is absorbed up into the body via the kinetic chain (knee, hip, pelvis, back). Barefoot runners, on the other hand, have been shown to strike the ground first on the balls of their feet. This is called *forefoot strike*. Immediately after the strike, the foot has been shown to torque around the ankle. This conversion to rotational energy disperses and reduces the impact, which would have otherwise been transferred up to the body via the kinetic chain. On average, it has been shown that the load experienced in unshod runners is seven times less than that of shod runners. Barefoot or unshod runners also tend to have a shorter stride length, which leads to a higher cadence.

Barefoot running is not without its dangers. There are safety concerns such as glass, stones, nails and other obstacles in the path of barefoot runners causing injury. For this reason, runners wishing to try barefoot running should initially do so on grass or sand. There are also commercial products available on the market, which can protect the sole from injury without compromising on the purported effects of barefoot running.

Although barefoot running has been shown to be more biomechanically efficient, there is still scant high-quality scientific evidence to prove that it reduces or even prevents running injuries. From a medical perspective, more Level I scientific evidence in the form of randomised controlled studies correlating biomechanics and injuries need to be performed before there can be a consensus on barefoot running amongst health professionals. It is the author's advice to look beyond the hype and for individuals to make their own decision on whether barefoot running is suitable.