

# Healus, running with a bounce

**F**or the past 24 years, Adri Hartveld has worked for the UK's National Health Service as a chartered physiotherapist helping to prevent injuries. He is also an international marathon runner who has competed in hundreds of events for over 30 years and, at the age of 45, is still competing. He therefore knows a great deal about running and the types of injury that can occur. His work has also included research into biomechanics at Keele and Staffordshire Universities in the UK with the object of preventing all-too-common sporting injuries.

While he is the first to admit that the fitter you are the better you will perform as a runner, he has been looking more closely at how shoes can influence your action and how they might be developed to reduce strain and injury. He has been quietly working away on his own ideas for the past seven years and using himself as a test bed. What he has developed is a revolutionary heel-less running shoe that he claims reduces impact forces by approximately 50% and allows you to run with a 'bounce' rather than a 'bang'.

## Background

Running is a convenient, low cost activity that promotes both physical and mental health. In western countries such as the UK, a good 12% of the population runs. In every year one out of every two runners also sustains an over-use injury leading to pain in the feet, ankles, knees, thighs, hips and/or lower back. The biggest cause in all of these is excessive heel impact.

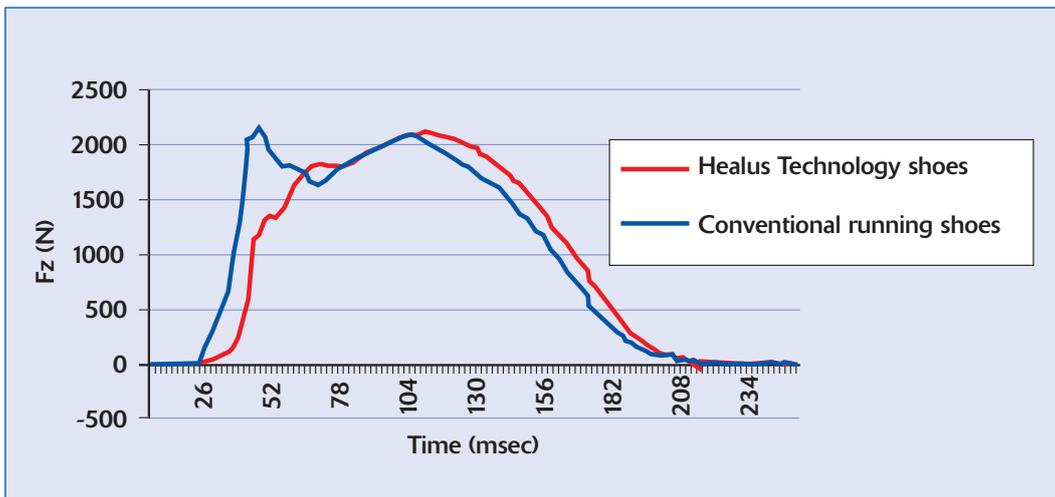
During his research on human movement and injury prevention, the most significant discovery Hartveld made was the lack of effectiveness of heeled running shoes. This is because runners respond to the conventional running shoe by striking the ground more on their heels, hence the bang. When using his own shoes, Hartveld says that he apparently looks more bouncy and his stride is definitely less noisy than that of other runners. "Whilst they are banging, I am bouncing, so I last longer," he jokes.

To prove this, during late summer 2005, Hartveld competed in five races within the space



*Adri Hartveld.*

*All photos: Healus*



*Shoe effects on vertical ground reaction forces whilst running.*

of eight days and won the over 45's veteran category in all five. "That much running and training makes you fit, but I wouldn't have been able to do so much without the special shoes. They give me more protection so I didn't have sore legs after I'd run so many miles. They also helped me to run faster down steep paths and were very stable on twisty paths."

He also won the Wolverhampton City Marathon at the age of 45 from a field of 1,500, most of whom were far younger. To top it all, he won the race despite being sent off-course for half a mile at the 15 mile mark. OK, so he maintains his fitness by running 70 miles per week, but even so, this was some achievement.

### The theory

So what is it that Hartveld appears to have done that the giant brands have not? The core idea is to reduce the physical stress on body tissue during dynamic movements such as running and jumping. Strong forces are needed to propel the body during these activities, however, if the loading rate of such forces is too high for the individual concerned and they are applied for long periods of time, the connective tissue inflames and breaks down leading to injury.

Healus technology sets out to provide what Hartveld calls Force Transmission, which reduces the loading rate of the ground reaction force (shock) when the foot comes into contact with the ground. These stresses are transferred across the shoe to the ball of the foot for propulsion and, unlike most other shoe technology, it facilitates the person's natural movement strategies for absorbing shocks and so optimises their performance.

### The practice

The Healus running shoe sole is designed to reproduce these requirements. It is also heavily patented and therefore, for the time being, it is not possible to go into specific constructional details. However, some basic information is available and the overall impact of the design can be seen from a computer-generated image.

The first thing to catch the eye is that there is no

heel. This is said to be essential to the concept as it changes the point of impact on the foot and makes it that much easier to transfer the forces forward. The second is that the shoe is slanted forward and it is this feature which Hartveld says ensures that the force of the body's weight decelerates over a greater distance.

The internal construction has not yet been revealed, but initial impact force with the ground is absorbed through a cellular material called Helix VA that works like the body's own connective tissue in the muscles, collagen. This force is transmitted forward—via a hard internal structure based on natural fibres—to the ball of the foot where it assists take-off in the next stride. Coupled with the heel-less concept, this is said to offer the runner an enhanced sense of movement and a faster bodily response.

### The future

Here is something different for once, not just another gimmick or variation on an existing technology, but something that appears to be completely original. It also appears to work if Hartveld's own running is taken as evidence. He feels he has a winning concept but, at the same time, he is only too aware of how difficult it will be to break into the huge sports market and indeed just how expensive it will be. He has been given a start by the Enterprise Fellowship Scheme run by Staffordshire University, but now needs to attract serious investment in financial, production and marketing terms.

WSA will watch the progress of this project with interest and hopes to be able to report in more detail on its future development in a later issue. 🌐



*Prototype Healus running shoe.*