FOOTWEAR TECHNOLOGY: ON RUNNING

Swiss company On has come up with a footwear technology that absorbs both vertical and horizontal forces on the foot while running. On was the overall winner of this year's ispo BrandNew Awards presented by Advansa ThermoºCool at the most recent edition of the sporting goods event exhibition in Munich in early February.



"Is that a cloud under my feet?" The sole design of the On shoe.
ispo

Running on clouds

Everyone has been talking about 3D since the launch of James Cameron's animated adventure film Avatar in 2009. More and more films and television programmes are now being made using 3D technology, helping viewers to really "get into" the world they are seeing on the screen. However, Swiss firm On's decision to use 3D technology in its debut footwear range was motivated by a much more practical objective: to protect the wearer while he or she runs and to make the running experience a more comfortable and enjoyable one—almost like running on clouds.

The company was founded by three friends and sport enthusiasts: Caspar Coppetti, David Allemann and Olivier Bernhard. Professional triathlete Mr Bernhard, who is a three-times

world champion and six-time Ironman winner, came across the technology when it was still in the development phase. He met the Swiss engineer who was developing it and agreed to test it. "Olivier ran thousands and thousands of kilometres testing and improving the shoe, finally bringing the innovation from the drawing board to the road," says the company.

Mr Bernhard's athletic career was seriously threatened by injury for some time but using the shoe, he claims, has really helped him to overcome this. Although it is new to the market, he has been using the advanced trainer for some time and says he has definitely felt the benefits.

Protective power

According to On, its CloudTec technology offers wearers a completely new running sensation. The shoe's sole features 13 hollow circular rubber elements designed to train neglected muscle groups as well as relaxing tensions while the wearer runs. "As your foot impacts the ground with forward momentum, the element absorbs the shock by folding back, effectively allowing your foot to softly glide with every step," the company explains. "After landing, the element locks together and is fully firm for the push-off."

At the same time, the shoes are designed to activate the postural muscles so that runners do not need the guidance and control aides associated with conventional running shoes. "Today's running shoes are built to stabilise, guide and control the foot in its movement. The negative effect is that your postural muscles become lazy and even degenerate," says On. A better support system, the engineer behind the technology decided, would be a shoe that activates the wearer's postural muscles and involves them actively in the motion of each cycle of each step taken.

The company claims the end result is a much lighter and more focused running experience, and that, after just a few steps, the body is able to reach its optimal performance state. The reason for this, it states, is that the shoe absorbs vertical forces on the runner's body, as conventional cushioning systems do, but it also absorbs the horizontal forces, which, according to the developers, cause the most serious damage to muscle cells, tendons, ligaments and joints. The idea was to build a running shoe that would enable the runner to land as softly as on sand, but to push off as if they were running in track shoes.

A recent test undertaken by the Swiss Federal Laboratories for Materials Testing and Research showed that CloudTec was able to reduce the impact of running on muscles and joints by 25-30%. "A field test with more than 2,000 runners provided real-life evidence in the very positive feedback of athletes," says Mr Allemann, who added that these initial test results would soon be corroborated by a biomechanical study.



Olivier Bernhard (left), David Allemann (centre) and Caspar Coppetti (right), collect their ispo BrandNew Award.

ispo

Performance elements

However, the technology is not all about protection: it is also about improving performance. The way this works is that the external CloudTec elements lock together after impact and become rigid, offering a better push off and helping to convert the forces created on impact into forward momentum. The benefits of this are best felt when running on hard surfaces, the Zurich-based company claims. "A fast-paced one-hour run feels like a leisurely jog on a forest trail because the musculature does not tighten up and thus experiences less fatigue," it says.

"Similar to barefoot-running, On activates the postural musculature through a controlled instability that is experienced in the split-second when the 13 CloudTec elements close on impact," explains Mr Allemann. "However, On is offering the advantages of barefoot running without its downsides. Running barefoot is not a realistic option for most people, except for short training sessions on forgiving surfaces. On is offering activation combined with intelligent cushioning that is superior to traditional running shoes."

Speaking at ispo, Dr Coppetti explained: "It is a simple but functional shock element." The rubber element absorbs the shock and makes the wearer feel as if he or she is gliding. However, seeing and hearing about the technology is not enough, "you need to get into the shoe", he says. "It offers a completely new sensation."

On believes there has been very little true innovation in the last 15 years, claiming a lot of the hype surrounding 'new' developments is based on marketing and gimmicks. "On is going in the opposite direction," the company states. "Running 'On' stimulates the body, lets you run easier and discover more."