

A company based in Cyprus is using textiles to help athletes benefit from far infrared radiation (FIR). In tests so far and on the field of play, the results have been impressive enough to win admirers among elite footballers, cyclists and a Formula 1 team.

Vested interests

Second in the Formula 1 Constructors' world championship last year, the Red Bull Racing team has continued its rise this season, still vying with McLaren for top spot after half of the 2010 races so far. Its drivers, Sebastian Vettel and Mark Webber, have also been regular podium-occupiers and are competing for the top places in the drivers' championship. One of the reasons for this success is the performance, not just of the drivers, but of the pit team and they, in turn, are happy to have had the help of a new type of garment, a special outer garment covering the shoulders and top part of the torso.

The new garments, called FIR-VEST, are the invention of a Cyprus-based company called FIR-TEX. Founders Iwan and Dick Postel have claimed that garments enhanced with their product can improve wearers' circulation, balance and wellbeing despite the stress of Formula 1 racing or of any high-pressured sports environment.

On announcing the development, Iwan Postel said: "FIR-TEX equipped garments can have a dramatic effect on a person's wellbeing and performance and in Formula 1 where split seconds make all the difference. It has huge

A pit-stop for the Red Bull Racing team. This season, the pit team started wearing the FIR-VEST to use far infrared radiation to help keep engineers' performance at a peak.

Red Bull Racing

potential to help people across the world, whatever their need. It is truly a revolutionary breakthrough in proving how clothing can help the human body achieve its potential."

The company has explained that FIR-TEX works by protecting the wearer from electromagnetic radiation and increasing energy, power and endurance by reflecting far infrared rays (FIRs) back into the body. These radiations can be created with a mixture of three or four mineral oxides, activated by the heat of the body, but the Postel brothers have decided to include dozens of oxides in their mix and are now talking about bringing different mixes to market to help wearers address specific problems.

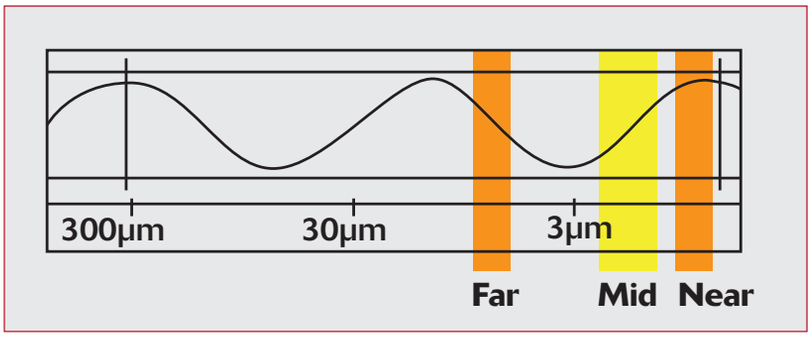
So far, they claim, test results have been positive enough to interest neurologists and the company is about to launch a worldwide scientific test in order to become a medically approved product that will be covered by healthcare insurance companies and become accessible worldwide.

Love of sports

An entrepreneur, originally from Bilthoven in the Netherlands, Iwan Postel says that no matter what new products and projects he goes to work on, he always finds himself looking for applications in sport, for which he has a lifelong love. With FIR-TEX, however, he feels he and his brother have come up with something particularly special and they are determined to keep making progress with the idea in a range of sports, without going too quickly or allowing themselves to become carried away. Before you even enter the company's website, you have to check a box to acknowledge that you understand the Postels are making no 'miracle cure' claims for their product.

The concept had gone through a year of exhaustive tests before launch. In one of the earliest trials, the brothers prepared a collection of shirts, some of which contained their mineral mix and some of which didn't. Through their connections back home in the Netherlands, they convinced a physiotherapist involved with the Dutch Olympic handball squad to try the shirts out. Initial tests among a small group of players during a simple exercise routine revealed that those wearing shirts enhanced with FIR-TEX technology were jumping 8% or 9% higher. Extending the exercise to a wider group of players revealed similar results. "He [the physiotherapist] kept repeating the test," Mr Postel explains, "and no matter how he did it, it came out the same, an impact of nearly 10%."

He refers to the shirts in the collection that had no FIR-TEX as placebos. In this application, the mineral mix causes no perceptible change in the weight of the shirt, so that what he calls "a psychological boost" cannot be presented as a reason for improvements in performance. After this, Dutch Paralympic athlete Monique van der Vorst was next to try the technology out, using a vest similar to the ones the Red Bull pit team is now wearing. Ms van der Vorst competes in cycling events using a handcycle and won a silver medal in the women's time-trial event at the 2008 Summer Paralympics in Beijing. In training, she found that wearing the vest, she was able to give the same performance with a lower heart-rate, making her optimistic about the vest's ability to help her perform better in the field.



Graph showing the infrared region of the electromagnetic spectrum.
NASA

Football explosion

Another athlete to have become a devotee is one of Turkey's most famous and most sough-after footballers, Galatasaray captain, Arda Turan. His club's management is Dutch—Frank Rijkaard, with Johan Neeskens as his assistant—but this wasn't the reason why Arda Turan began wearing the special vest. Towards the end of 2008, the footballer collapsed during a match against Istanbul BB. He was rushed to hospital, but quickly made a full recovery; doctors said his health was fine, but diagnosed cardiac dysrhythmia (irregularities in his heartbeat), brought on by exhaustion. A journalist who had heard about the FIR-VEST mentioned to the player that the garment might be something that would help him avoid a repeat of the incident; Arda Turan tried it out and now insists on wearing it to play. "He would sleep with the vest on if he could," Iwan Postel says. "The FIR-VEST is going to explode in football and we will see the results on the field of play. We will also see players coming back from injury more quickly. Some clubs have a concern because they are under contract to the big sports brands and will only allow their players to wear apparel from those brands, but we are not a competitor and would welcome the chance to work with those brands. The chief executive of adidas, for example, has already had a look at our technology."

Manufacturing base

Mr Postel has ties to Turkey because his wife is from there. It is also close enough to his base in Cyprus for him to have had no trouble setting up a manufacturing operation for the FIR-VEST

there. The procedure sounds fairly straightforward. The manufacturers coat fabric in a solution of the mix of minerals and puncture it with micro-holes to provide breathability. Garments, typically, have an inner layer of untreated fabric and FIR-TEX fabric on the outer layer. The company's Turkish partners are making finished vests, as well as rolls of fabric that other garment manufacturers could use in their apparel products. Separately, a partner in Belgium is working on fabric that could be made into knee or ankle support products as FIR-TEX has also shown great promise in pain-relief applications. The company recommends hand-washing, but the fabric will stand up to machine washing at 30°C if no softener is used. It also has antimicrobial properties to provide some odour management functionality.

Blood tests

The formal launch of the FIR-VEST, featuring the Red Bull team, took place in Turkey during the build-up to the Turkish Grand Prix in May 2010. Shortly before that, Dick Postel found himself stranded in South Africa owing to the travel disruption caused by the eruption of the Eyjafjallajökull volcano in Iceland. His brother suggested that he take advantage of having time on his hands to carry out an exercise they had long wanted to complete, but never got round to. "We wanted to use live blood analysis (LBA) as part of the scientific data we use to present the technology," Iwan Postel says. "We knew it was something Dick could do in South Africa. He went into a clinic and asked the doctor to carry out an LBA on him with the vest, and another without. The doctor could not believe the difference, so we invited her to travel to Istanbul for the launch and talk about what she had seen."

At the launch event, the doctor offered to carry out LBAs on journalists in the hall, live on stage. Live on screen, everyone who was there could see the difference the vest made. The human body is a reservoir of toxins—gases such as sulphur dioxide and carbon dioxide, or metals such as mercury or lead—that can trigger health problems or affect athletic performance. When they meet large water molecules, these toxins can become trapped in the body, blocking blood circulation and impairing energy levels.

Wearable detox

When a 7- to 11-micron FIR wave is applied to the large water molecules, the water begins to vibrate and the vibration reduces the bonds holding the molecules together. The water evaporates, releasing the encapsulated toxins and allowing the body to eliminate them. "When you see the LBAs, before and after the person puts the vest on, it looks like a different person's blood. This is a completely healthy, completely legal way for athletes to balance and clean up their bodies. This can make a big difference. I can't say too much about this yet, but professional cyclists—whose sport has such a bad reputation for substance abuse now—have been trying this out and, without revealing the details, the FIR-VEST has been in use at the 2010 Tour de France."



Galatasaray captain, Arda Turan (yellow boots), wearing the FIR-VEST in a match against Besiktas. The company says the product is on the verge of a football explosion.
FIR-TEX

FIR-TEX's claim is that the vest, which typically weighs around 80 grammes, will start to produce this effect as soon as you put it on; the heat of the body is enough to activate the minerals so that thermal energy from the body is converted into FIRs and reflected back into the body.

As mentioned, the vest also offers protection against the effects of the electromagnetic field (EMF) produced by electronic gadgets including mobile phones. "There are physical movements that are affected by this," Mr Postel says. "Today, if a footballer is playing in front of 60,000 people, all 60,000 are likely to have a mobile phone with them. The same applies to all the electronics in a Formula 1 car. Wear the vest and you will suffer no effect. It's frustrating for us to see football stars at the World Cup wearing wristbands that claim to offer this protection. The wristbands are a pure placebo; they cost a few cents to produce and would be very easy to test, but the manufacturers don't want to carry out any tests. Any wristbands that have been subjected to tests have failed. Players might think they are performing better, but it's impossible to prove that scientifically."

By contrast, FIR-TEX will continue to carry out tests and expand the body of proof it believes it is building up. This is the key, it feels certain, to expanding the success of the product.