Innovations for revolutionary running

Running as both a recreational activity and as a competitive sport appears to be becoming increasingly popular. As more and more people get involved, technical textile, garment and footwear manufacturers are working hard behind the scenes to develop new innovations to boost runners' performance and to improve their comfort levels.

Canadian performance apparel company Sugoi falls into this category. Although it offers a range of products for other activities including biking, triathlon and general outdoor sports, running is one of its main focuses. The company recently launched a new collection for spring-summer 2009, which includes a new high-end RS R series. The company claims this selection contains "highly evolved fabrics" combined with "anatomically optimised 3D patterning, innovative details, strong colours and great designs".

Combating heat stress

According to Sugoi's product manager, Rob Blair, the main problem people face in an aerobic state, for example when running, is heat stress. He lists the symptoms of heat stress as: "Elevated core temperature resulting in dehydration, mineral loss, fatigue and reduced performance (aerobic/anaerobic endurance)." Furthermore, he makes it clear that, contrary to popular opinion, heat stress is not merely an issue during the hot summer months; it can also have a real impact during cold weather. As a result, the company spends a lot of its time and resources in developing ways of managing this effectively.

Mr Blair describes various different methods it uses in its apparel to combat heat stress. The first involves choosing the most suitable fabrics for the job and using them in the right areas of the garment. "Every product designed and built by Sugoi is purposed to perform; that is our fabrics are selected for enhancing performance and comfort, the fabrics are mixed in different panelling/construction arrangements to ensure the body is mapped and the right areas receive the right attention (example – under the arms has ventilation panelling)," he says.

Preventing heat stress, which can occur in winter as well as summer, is one of the main concerns for running apparel manufacturers.

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The next chief concern is thermoregulation. "At the core, Sugoi products are about moving moisture to enhance the body's ability to regulate core temperature through evaporative cooling," he explains. One example of a fabric that does this is the firm's Gobi fabric which uses microfilament yarns knitted into a complex three-dimensional mesh construction to promote air circulation while increasing surface area to accelerate moisture acquisition and vapour transmission. According to Mr Blair the result is "evaporative cooling".

Still to come

Another thing the company is working on, which he claims sets it apart from its rivals, is its autumn 2009 feature fabric FinoCarbon. Weighing just 120 gsm, it combines the moisture management functions of polyester with the anti-bacterial properties of X-Odor fibres to create a high-performance baselayer designed to keep runners warm and dry. Its stretch properties offer greater comfort and 360 degree stretch for added freedom of movement. In terms of construction it is a double jersey. The PTT yarns offer strength and recovery and it is napped on both sides to add softness and thermal insulation.

Sugoi will also be introducing a new comfort system in the autumn, which it describes as a "back to basics approach" involving an integrated layering system. Each garment in the collection will become part of one of four categories: moisture acquisition; insulation; protection; and protection +. In this way the company aims to provide balanced temperature regulation and maximum comfort right from the athlete's skin to the outer layer.

The moisture acquisition layer is designed to actively transfer perspiration without dehydrating the skin, while its insulation garments help to ensure warmth in cold conditions. The protection garments provide protection against the elements allowing air circulation for thermal regulation purposes, while protection + is made from Firewall, a breathable, three-layer, four-way stretch barrier that protects athletes from wind, rain and cold weather.

"Sugoi continues to invest in research and development of innovative fabric technologies that can be utilised into product solutions designed to enhance human performance in an aerobic state," says Mr Blair. He adds that the company is: "Passionate about sport and is continuously researching new innovative technologies to expand the boundaries of human aerobic performance."

Running to the beat

Also passionate about sport are two Italian brands that have joined forces to create what they have described as a "running revolution". According to Way Point, which owns the Outwet brand, the most important aspects of technical apparel for any athlete are comfort and practicality. In order to meet these requirements, the two brands have teamed up to create the Cardio Heartbeat, a new "revolutionary" running vest.

Sugoi's products are designed to regulate core body temperature through clothing that allows evaporative cooling.

Sugoi

The vest uses Dryarn microfibre, made by Italian synthetic fibres, polymers and chemicals company Aquafil. Not only is the microfibre made from 100% recyclable polypropylene, it is said to be the lightest microfibre in the world as well as being water-repellent, thermo-regulatory and breathable. According to Mr Kaya, this is why Outwet chose to team up with Dryarn. He describes Dryarn as: "The ideal partner for any athlete, even those who practise sports in the most extreme exposing the body with high stress and frequent climatic changes." He also points out that successful athletes across many disciplines, including Gustav Thöni, Russell Coutts, Mario Trimeri and Marco Olmo, have tested the microfibre during both training and competition and have provided positive feedback.

Wearers of the heartbeat monitoring vest simply attach a transmitter to the front of the vest inside the mesh, and then sprinkle the electrodes with water. No gel is needed in order to detect heart rate and the vest is said to give runners greater freedom of movement and

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comfort than traditional monitoring straps. The vest comes in one size as it is super stretchy and, according to Way Point, wicks perspiration so that runners can stay dry and comfortable both during and after exercise. For runners, the ability to check their heart rate helps them to control the intensity of their run by exercising at the right level to suit their individual fitness goals. They can adjust the speed at which they run, or the distance, to ensure they are performing at an optimal level.

Way Point has also launched a new top with hidden benefits for runners. Protega Active features special rechargeable molecules containing mineral supplements, for example potassium, magnesium and vitamin C. These supplements are only released when in contact with the skin, so they do not lose their potency if the garment is not used for a period of time and, when they do run out, refills can be bought. According to Mr Kaya, tests carried out by athletes from various sports said that it "decreases the need for drinking, sweating decreases with consequent lowering of body temperature by improving muscle tone, thus more freshness and athlete welfare".

Both Mr Blair and Mr Kaya agree that improving performance and comfort for runners is vital. Whether through mineral-releasing chemicals or using technical textiles that offer moisture management benefits, runners have an incredible selection of products to choose from. However, different techniques will suit different running styles and it is up to the individual to decide which products will really "revolutionise" their running.

Way Point has teamed up with Aquafil to produce the Cardio Heartbeat running vest.

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