Retailers and brands continue to demand innovation from their fabric and garment suppliers, and clothing that addresses current health concerns stands a good chance of winning approval.

Health–a whole new category for clothing



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The wonders of textile innovation never cease, but companies can usually only afford to turn ideas into prototypes and prototypes into merchandise units if they meet market demand. Few new ideas press more buttons than ones that can claim to improve human health, which appears to be now part of the focus of companies in every part of the textile and finished garment supply chain.

And it seems there's no end to the textile ideas that turn out to have health benefits. Silver in socks and underwear, sensor-enabled apparel to monitor heart activity, and microencapsulation of substances to sooth the skin and the soul have all generated plenty of examples across the industry.

A less well known application involves milkweed, a genus of plant that many farmers have traditionally regarded as a toxic weed and useful only for attracting bees and butterflies. Some growers in the US, however, have begun cultivating milkweed for the soft silky moss it produces, which is finding its way into jacket linings and other fill products—such as in pillows and quilts—for its hypoallergenic qualities.

More than that, a chemist working in a special 'new crops' laboratory for the US Agricultural Research Service (ARS) in Peoria, Illinois, has carried out experiments that suggest that milkweed can also play a role in protecting people from ultraviolet (UV) radiation from the sun.

Rogers E. Harry-O'kuru, the scientist concerned, has been analysing unsaturated oil derived from the seed of common milkweed and has reached the conclusion that the waxes and fatty acids present in the oil have the potential to act as a base for sunscreen products by virtue of a process the ARS has patented, using zinc chloride as a catalyst. These substances can help absorb and scatter the radiation before it penetrates and damages the skin. "We're hoping a stakeholder will become interested in developing the technology further," he says. "The floss does not have intrinsic UV absorbing character, but I understand it is also being considered as a component in woven materials."



Columbia Sportswear's OmniShade technology has gone into clothes that offer an ultraviolet protection factor (UPV) of up to 50, winning for the company a 'Seal of Recommendation' recognition from the US Skin Cancer Foundation.

Columbia Sportswear

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Allergy alert

Hypoallergenic is one of the hot tickets at the moment, and not just because advertisers love the term. They invented it after all, more than 50 years ago. Since then, conditions such as atopic eczema have become hugely more prevalent—cases of this condition have tripled in the US alone since the 1970s and, according to a 2005 paper in scientific journal *The International Archives of Allergy and Immunology*, might now affect as many as 20% of children in industrialised countries.

The word itself suggests only that products so-labelled will cause fewer, or less severe, allergic reactions, which, with so many people susceptible to these health problems now, appears a weak way to try to convince them to invest—'buy these pyjamas and they won't irritate your skin quite as much as the ones you had before'. The human body is a finely balanced work of genius, which is always worth bearing in mind when we decide we're in a position to tell it how to do things.

When you talk to Tadeusz (Ted) Wielgos, technical director of Epic Technology International, he makes exactly this point in comparing his company's technology—which makes fabric rainproof, windproof, breathable and air permeable—and those of providers of antimicrobial functionality based on metals. "They kill bacteria that develop on the fabric, but they also kill the good bacteria that you have on your body, so they alter your natural immune system."

He explains that for bacteria to flourish, they need a warm enough temperature, moisture and nourishment. If garment manufacturers choose to use Epic, bacteria can't develop, he insists, because it absorbs no moisture, but they continue to develop on the body as they always have done.

"Sometimes you hear companies claim that their product only kills 'harmful' bacteria," Ted Wielgos continues. "How does the product know which bacteria are harmful and which are not? When I studied chemistry, I learned that every chemical is potentially hazardous and if we don't have to use chemical treatments, I believe we shouldn't."

Upsetting the natural balance of the planet also has health consequences that the sports and outdoor sector has to attempt to address. This brings us back to UV radiation and the need to protect the skin.

The experiments of Mr Harry-O'kuru on the oil in the seed of the milkweed may seem distant from the mainstream, but you could not level that description at Columbia Sportswear.

For Columbia, one of several highlights in recent collections has been the clothing available under the OmniShade umbrella, which offers wearers protection from UV radiation.



Ted Wielgos, Epic's technical director (left) tests Epic-enabled clothing during a skiing trip to New Zealand with his family. Folds of snow at the cuff of the trouser leg show that the weatherproof, air-permeable and breathable Epic system has stopped moisture from soaking in. In any weather, moisture-free clothes mean no bacteria.

Ted Wielgos/Epic

"The starting point for this was the sport of fishing, in which people spend extremely long hours outdoors exposed to the sun, with the added complication of radiation reflecting off the water," explains European marketing director Antti Kärävä, "but it's something that is relevant for the whole of society now."

For this reason, Columbia's latest collection for Europe (spring 2009) contains 178 styles that offer UV protection, 120 of them with an ultraviolet protection factor of 30 or above; UPF 30 fabric blocks or absorbs 96.7% of UV radiation.

OmniShade has been a success outside of the commercial arena, winning official recognition from the Skin Cancer Foundation in the US. The organisation has granted 'Seal of Recommendation' status to all OmniShade products offering UPF 30, UPF 40 and UPF 50, something Columbia Sportswear is understandably proud of, not least because the foundation tested every style and every fabric separately.

"It's our technology," Mr Kärävä adds. "There are basically three levels of application. It's partly how the fabric is woven, although we know we have to balance that with all the other characteristics, such as a fabric's need to be breathable, lightweight, quick-drying and have a good hand. But with the right weave, you can block UV, and in some products we add absorption or reflective technology on top of that. It's not a gimmick, and it's of huge benefit to masses of people."

He says UV protection feels "like a new category" in the sporting goods business and he feels sure it is going to grow.

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