

Textile developers itching to alleviate sensitive skin

Skin irritations are on the rise, with increases in allergies and in air pollution among the most likely causes. Figures textile manufacturer Lenzing has compiled suggest 50% of women and 40% of men report itching and redness on their skin as a result of sweating. If you make fabric for sports and activewear, this is worth bearing in mind.

It's a competitive market, and if you have yarn that can alleviate these uncomfortable symptoms instead of causing them, you ought to be able to turn it to your advantage.

Of interest to the wider textile marketplace, Lenzing's figures suggest 17% of babies in Germany and as many as 25% in the United Kingdom these days have skin problems, including psoriasis and neurodermatitis, i.e. atopic dermatitis.

According to the company's vice president for textiles, Fritz Weninger, Lenzing has invested time and money over many years to carry out studies to see if its Tencel fibre could help. Encouraged by recent results, it has since launched a formal 'sensitive skin' project.

The main result of the research it has done so far is that Tencel—produced naturally from wood-fibre—not only causes less irritation but improves the condition of psoriasis- and dermatitis-sufferers. It absorbs moisture more effectively than other materials, including cotton (50% more than cotton, in fact) and releases it as vapour in warm temperatures. Lenzing holds that 'heat regulation' and 'moisture transportation' are among the inherent qualities of Tencel.

Keeping the skin cool is one important way of reducing rashes and redness, but better management of moisture is also a good way to combat the bacteria that can cause more serious skin conditions to flare up.

Lenzing's merchandise manager for northern

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Europe, Sylvia Happel, has been leading the 'sensitive skin' project. She says bacteria growth can be ten times higher with cotton, and up to 2,000 times higher with synthetic fibres, than with Tencel. "Sportswear is going to be a very big and very important market for this," she insists. "It's important to feel as comfortable as possible when you're exercising."

The argument here is that people who find that exercise exacerbates a skin condition may turn to Tencel. Lenzing is confident sportswear made from the fibre will prove popular—at some levels it may even enhance performance.

"All sportswear comes into the picture here," says Mr. Weninger, "including work-out apparel for the gym. Puma and adidas are both interested, with extra comfort being the big attraction for them."

For different reasons, clothing and bedding that alleviates symptoms among children ought to prove popular too. Here, Fritz Weninger openly admits to having a vested interest away from the world of work: one of his children has a serious dust-mite allergy and suffered for years, especially in summer, from swollen eyes, breathing difficulties, lack of sleep and so on. He has witnessed at close quarters the benefit to his son of using Tencel sheets, pillowcases, duvet covers and pyjamas.

He says, "There has been a great difference. These items are in the same price range as similar ones made of high quality cotton, but, believe me, when it's your child I think you reach the point at which you will do anything to solve the problem."

"And the problem is a global one, because of climate change and because of the way we heat and furnish our homes now. When I was a child, in Austria, there were definitely fewer problems of this kind, but we would wake up some mornings and there would be ice on the walls, inside the room, and the temperature would be minus-ten degrees, so the dust-mites had no chance."

Testing Tencel

The company recognised the need some time ago to subject this, and the experience of a few other families, to some proper academic analysis. It has been working with a number of universities and medical institutions around the world to put its theory to the test.

About 30 children with dermatitis and psoriasis, aged between two and twelve, took part in one of the first studies, on Lenzing's home territory in Austria, but under the supervision of Professor Thomas Diepgen of the University of Heidelberg in Germany. They wore clothes made from Tencel and elastane for four weeks in summer and four weeks in winter. The children themselves said they preferred the new



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material, especially for sleepwear. Professor Diepgen concluded that 93% of the patients taking part said the Tencel clothes felt smooth and cool next to their skin, and 89% reported better heat regulation than they were used to with non-Tencel garments.

Similar but separate studies in the USA, Japan and Korea are ongoing at the moment, with adults who have sensitive skin taking part in a comparative test of underwear and bedding made from either 100% cotton or 100% Tencel.

One exercise that has already ended involved sensitive skin patients in Spain, under the supervision of Dr. Antonio Torrelo, head of Medicine at the Niño Jesús children's hospital in Madrid. Children's clothing manufacturer Cambrass produced special sleep-suits with a high proportion of Tencel (the mix was 67% Tencel and 33% cotton) for the purposes of the study. Dr. Torello's conclusion was that the clothes provided measurable support in his treatment of these patients. The children in this case were often too young to give their own views, but 70% of the parents involved said the sleep-suits alleviated the symptoms.

Taking parents' involvement one step further, a children's clothes designer in Taiwan, Florence Liu, began incorporating Tencel into clothing for her own daughter, a neurodermatitis sufferer. She set up a blog to give parents in a similar position a platform for discussing how best to help their children, and has begun to make her Tencel-based creations available more widely.

Harnessing nature

Tests carried out by companies such as Lenzing on sufferers of these disorders have far wider reaching implications for the industry as a whole. Germany's SeaCell GmbH decided to use neurodermatitis patients to test its fibres, not only with the aim of easing the symptoms of this painful and frustrating complaint, but also because sufferers of this skin disorder are particularly suitable for finding out whether and how a product can affect the skin in general. Due to the fact that sufferers have extremely sensitive skin and react strongly to environmental influences, even minimal changes to the physiological balance are easy to detect, which can then be studied and carried over into the wider textile arena.

SeaCell has worked hard to research the health benefits of its products which combine the cellulose fibre Lyocell with seaweed, and all of its inherent health promoting minerals, vitamins, and amino acids. Produced in two forms, SeaCell Pure and SeaCell Active, the latter of which has the added anti-microbial properties of silver, the company truly believes in the health benefits offered by its fibres, and rightly so.

Scientists, led by Priv. Doz. Dr. med. habil. J. W. Fluhr, at the Dermatology Laboratory at the University of Jena in Germany conducted an

18-month study on the effects of SeaCell's Active fibres on the skin of neurodermatitis patients in 2006. Some 40 neurodermatitis patients took part in the research which involved some participants wearing long-sleeved SeaCell Active t-shirts for three months, both day and night, whilst another group wore normal cotton shirts.

The results were convincing as SeaCell's Active fibres were shown to reduce the skin's exposure to the bacteria staphylococcus aureus (*s. aureus*), a primary trigger for acute attacks of neurodermatitis, as well as stabilising and improving the natural barrier of the skin. Using a corneometer, scientists working with Dr. Fluhr also discovered that the moisture in the cornea increased, indicating increased hydration in the skin and improved epidermal barrier function which affects the skin's ability to cope with damaging influences. Furthermore, the pH value of the skin, which naturally has an acidic protective layer, was shown to decrease thus indicating improved skin physiology.

With the advances being made in this area of health promoting textiles by companies such as Lenzing and SeaCell, could it soon be the case that, rather than reaching for the moisturiser when we have dry skin, we'll reach for the right t-shirt? 

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ADVANSA or MAPP??**