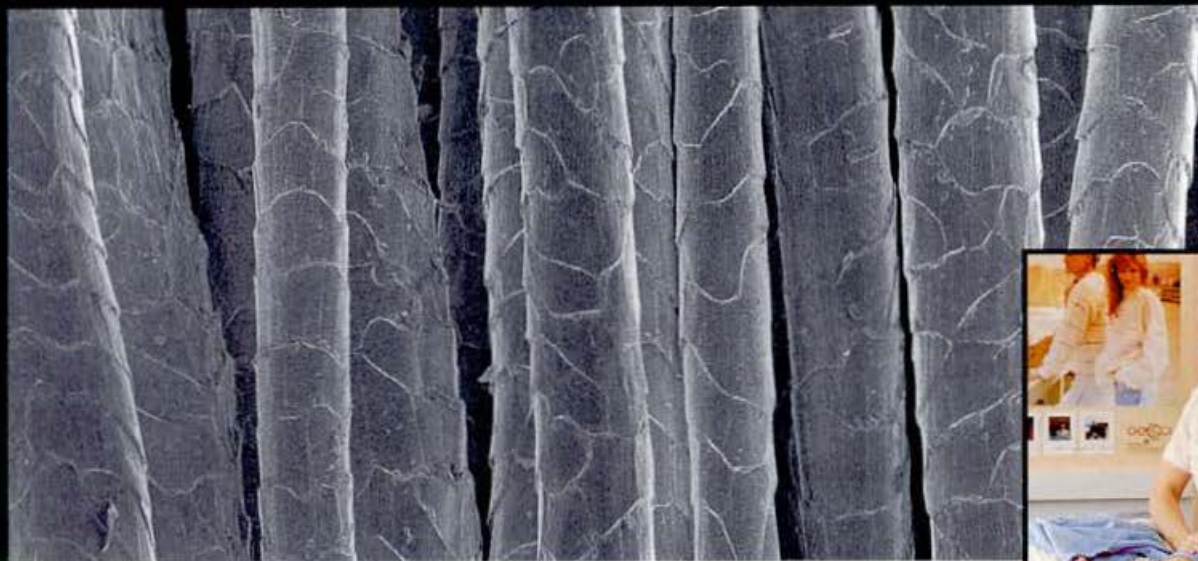


Wool wear goes soft



Wool fibres showing variation between and along fibres.

People can gauge fabric softness simply by pressing garments against the inside of their forearm for a few seconds.



An innovative Australian company has used CSIRO research findings to create a range of soft woollen fabrics specifically for school jumpers.

Manager of Tastex Knitwear in Hobart, Chris Mayne, says the 'Soft Wear' woollen jumpers are virtually guaranteed not to irritate even the most sensitive skin. Tastex Knitwear is a commercial enterprise established by the Society of St Vincent de Paul and employing workers with intellectual disabilities.

Being a natural product, wool comes in a variety of different qualities. Dr Geoffrey Naylor of the CSIRO Division of Wool Technology says the main difference is the thickness of the fibres. This is measured as average fibre diameter in micrometres. Research has shown that the finer qualities are in general more comfortable for next-to-skin wear.

People's skins are also variable in their properties, leading to a range of sensitivities to fabrics. People with soft, thin skin are particularly sensitive. Exercise, which heats and moistens the skin, also makes it softer and more sensitive. Children, because they have soft skin and a great propensity to exercise, are more sensitive to woollen fabrics than adults.

In a few, rare cases where very coarse wool is worn next to very sensitive skin, a reddening may result. Naylor says this is due to a simple mechanical irritation of the skin, not a

chemical effect such as an allergy. As soon as the garment is removed, the effect will go away. He says the line 'I can't wear wool' really means 'I can't wear some very coarse wools next to my very sensitive skin'.

Naylor suggests that people buying woollen garments should simply press the fabric against the inside of their forearm or against their face for a few seconds. If the fabric feels comfortable, it's right for their skin.

It was long assumed that there was some sort of allergy involved, but in 1987 *Ecos* reported on the debunking of this belief based on intriguing research by Dr Bob Mayfield and Ray Gully of the then Division of Textile Industry (now Wool Technology), and Dr Rod Westerman and Dr Paul Kenins of Monash University ('No more prickles!', *Ecos* 53).

Naylor has since refined this work. He began by measuring which kinds of fibres cause discomfort. He found that coarse synthetic fibres such as acrylics and coarse wool fibres (such as that used for carpet and furnishings) cause discomfort, while fine wool felt softer on the skin.

All fabrics have to a greater or lesser extent fibre ends protruding above the fabric surface. During wear these surface fibres are pressed against the skin. The finer fibres tend to bend or buckle, but coarser fibres are able to 'push' sufficiently on the skin to stimulate a nerve ending.

While comparing a range of fabrics

from either wool or synthetic fibres each matched with similar fibre diameters, it was discovered that any discomfort was independent of the type of fibre in the fabric, but heavily dependent on the fibre diameter.

For example, thick acrylic fibres or wool fibres, normally used for carpet, were described as scratchy, rough or itchy if they were used in next-to-skin garments. These findings support the idea that any discomfort is not a 'wool allergy', but a simple mechanical irritation produced by the thicker fibres in a fabric.

Support for this project was provided by Australian woolgrowers and the Australian Government through the Wool Research and Development Corporation.

The Division of Wool Technology can provide a quantitative, scientific evaluation of woollen fabrics. Its SIROLAN-LASERSCAN machine can measure up to 2000 wool fibres in less than a minute, not only determining the average diameter of the fibres, but also revealing the number of thick and thin fibres present.

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