

Wool & Skin

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Skin is the body's largest organ. Our research shows that wool garments work with the layer of air between skin and garment to manage humidity (sweat) and keep wearers comfortable.

Wool fibres are the most hygroscopic of the common apparel fibres. Wool can absorb and release 50% more moisture vapour than cotton, and 30 times as much as polyester.

Wool Bedding Recognised as Asthma and Allergy Friendly

The independent, international certification body Allergy Standards Limited (ASL) has officially recognised Merino wool bedding products as 'asthma and allergy friendly.'

Citing peer-reviewed research which assessed the impact of wearing superfine Merino wool garments next to the skin for those with the most sensitive skin, including eczema, ASL found "a growing body of evidence to suggest that high-quality, fine Merino wool is non-irritant and of low risk to those with sensitive skin."¹

15–18.5 μm

Superfine Merino Wool



15 μm \uparrow

Wool fibre diameters

40 μm

$\leq 17.5 \mu\text{m}$ Superfine Merino wool garments used in the studies demonstrating AD symptom improvement

Wool is not an allergen

The ASL certification also relies on a major study by an expert group of allergists, immunologists and dermatologists which reviewed 100 years of medical research and concluded there is no evidence that wool is an allergen.²

What the reviewers found, however, was proof that when skin irritation is caused by fabric, this is due to the ends of coarse fibres protruding from the fabric. It is not a result of the fibre used. Skin irritation can be caused as readily by coarse synthetic fibres as natural ones.

Moreover, the researchers noted that allergens previously applied during textile processing are minimally present in wool garments today given current industry practices. Because of this research, the role of wool fibre diameter is better understood.

Studies have consistently shown that wearing superfine Merino wool garments with a mean fibre diameter $\leq 17.5 \mu\text{m}$ for at least 6 hours/day for 6 weeks lessens the severity and symptoms of conditions such as atopic dermatitis (AD) and eczema.³⁻⁵

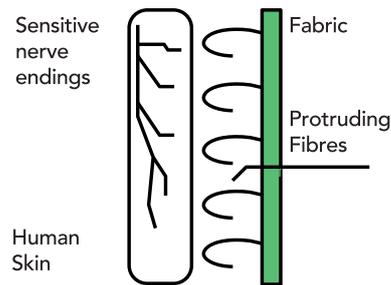
Patients reported significant reductions in symptoms of itchy, scratchy and painful skin⁴ and that bleeding, weeping/oozing, flaking and dry or rough skin decreased.⁴

Fibre Ends and Fabric

Fabric is composed of fibres. A prickle sensation can occur when the ends of fibres within a fabric press against the skin, triggering nerve receptors. These sensations are not specific to wool fibres. Fabric made of any fibre can cause the sensation.

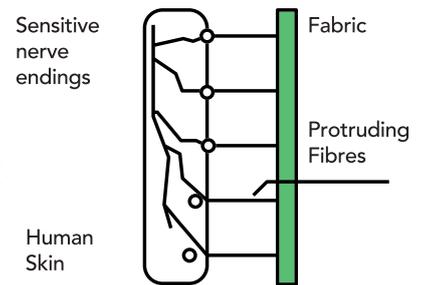
This graphic shows how the ends of coarser fibres trigger the nerve endings known as nociceptors. The nociceptor sends an electrical signal to the brain. If the brain receives enough of these signals from the same area of the skin, it interprets them as "prickle".

Superfine/ultrafine Merino fibres



Superfine/ultrafine Merino fibres bend easily, causing minimal or no skin irritation.

Coarse fibres



Coarse fibres have less tendency to bend, causing skin irritation.

New Solutions for Symptoms of Atopic Dermatitis

Atopic dermatitis is a common chronic inflammatory skin condition that affects up to 28% of infants.⁵ AD causes intense itch, sleep deprivation and can impact quality of life.^{7,8}

There is no cure for AD and current management focuses on frequent use of emollients and topical steroids along with irritant avoidance.⁸ Importantly, the evolving body of research led by the wool industry, funded by IWTO Member Australian Wool Innovation, leads to new solutions for those who suffer with AD.

The studies show that wearing superfine Merino wool base-layer apparel is associated with significant improvements in AD as seen in clinical scoring tools including SCORAD, EASI and ADSI. These translate into equally significant improvements in quality of life scores (e.g. IDQOL and DLQI) in both children and adults.

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