

Current evidence on the effects of Merino wool on healthy skin and atopic dermatitis

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Introduction

Clothing affects skin temperature and local humidity, and may cause irritation. Despite the importance of these factors on atopic dermatitis (AD), there are very few studies on the effects of clothing on AD. Many dermatologists continue to advise patients with AD to avoid wool, based on older studies that used coarse fibres.¹⁻³ Fibre processing and production has evolved over the past 60 years. An evidence-based approach to clothing advice for AD is much needed.

Objective

To review historical allergenicity/irritancy concerns about wool and investigate contemporary superfine Merino wool clothing in the management AD.

Methodology

Date: 1919–2019

“textiles/wool”

“irritant/contact dermatitis”

“immediate hypersensitivity”

“itch”

“delayed hypersensitivity”

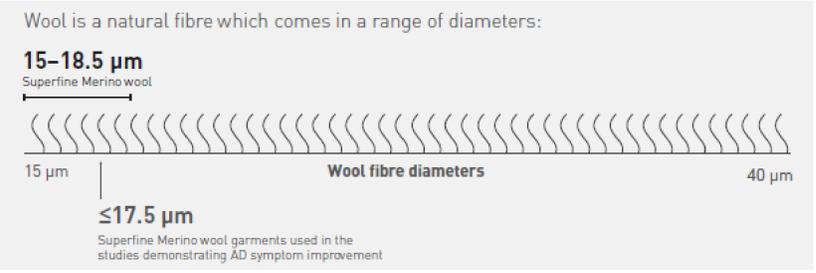
- MEDLINE and Google Scholar were used to identify publications for the last 100 years
- Searches were conducted to find publications combining terms for textiles/wool with terms for immediate hypersensitivity, delayed hypersensitivity, atopic dermatitis, itch and irritant / contact dermatitis

Results: Contemporary superfine Merino wool shows potential beneficial effects in the management of AD, in three prospective studies published to date.

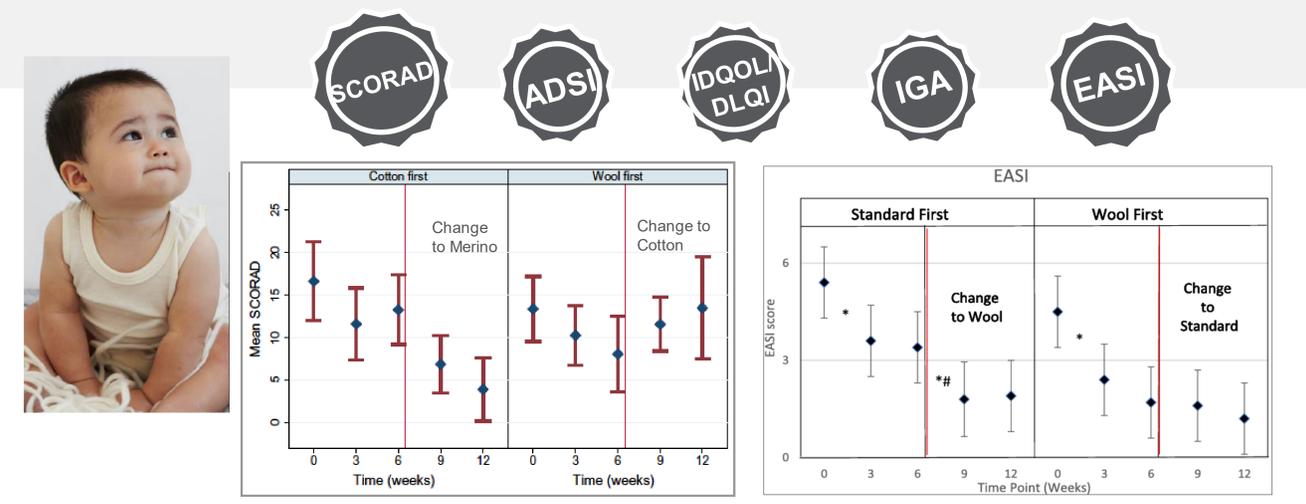
The reasons for this may relate to:⁴⁻⁷

- Merino wool's ability to transfer more moisture vapour and heat vs. other common fibre types
- The fibres' fine mean diameter of $\leq 17.5 \mu\text{m}$

NB: Lanolin is not found in significant amounts in modern processed wool garments.



Merino wool is associated with significant reductions in AD severity vs. standard clothing, with reductions in multiple clinical scores:⁸⁻¹⁰



11 publications

describing wool-fibre-induced type 1 (n=5) and type IV (n=6) hypersensitivity

Evidence to date does not support the notion that wool is an allergen, or that wool fibre causes cutaneous allergic reactions.

The two most reliable studies found no evidence of sensitisation to wool fibres

3 publications

describing the effect of base layer superfine merino wool wear on AD⁸⁻¹⁰

- One uncontrolled 'before and after' study⁸
- Two randomised controlled crossover cohorts^{9,10}

- N=29: Aged >6 to <25 years⁸
- N=39: Aged 0–3 years⁹
- N=50: Aged >5 to <66 years¹⁰

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Abbreviations: ADSI, Atopic Dermatitis Severity Index; DLQI, Dermatology Life Quality Index; EASI, Eczema Area and Severity Index; IGA, Investigator's Global Assessment; IQOL, Infants' Dermatitis Quality of Life Index. SCORAD, SCORing Atopic Dermatitis.
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