

Effect of therapeutic silk (DermaSilk®) in the treatment of children with atopic eczema. A report of 11 cases in Sweden.

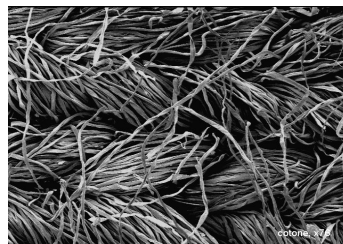
Kent Åke Henricsson, Senior physician and allergologist, Paediatric Clinic, County Hospital, Halmstad; Sven Andræ, Paediatric allergologist, Paediatric and Allergy clinic, Norrköping; Annette Gromell, Nurse, Sachsska Children's Hospital, Stockholm; Rafael Ferrandiz, Ph.D. Product Manager, Medeca Pharma AB

Summary

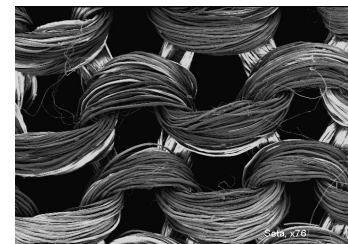
- The effect of DermaSilk was followed-up in 11 children with atopic eczema in Sweden.
- Improvement in symptoms, itching and sleep were observed, as reported by patients, parents and doctors, in 7 cases out of 11.
- The effect of DermaSilk appears as early as 1 or 2 weeks after the beginning of the treatment.
- This Swedish case-report supports the results from previously published studies which showed DermaSilk to be as effective as treatment with cortisone, and therefore a good complement in the treatment of atopic eczema.

Background

- Atopic eczema is an inflammatory disease which increases in prevalence.
- About 20 % of children in Sweden are affected by atopic eczema.
- Infections associated with eczema appear in 9 out of 10 patients [1]. Skin infections worsen the symptoms.
- Many factors aggravate the disease, among them are irritating synthetic and natural textiles.
- When the skin is irritated and inflamed the choice of near-to-skin clothes is important [2,3].
- Natural silk, with round, flat and extremely long fibres, does not irritate the skin. Therefore natural silk is ideal for patients with skin disorders.



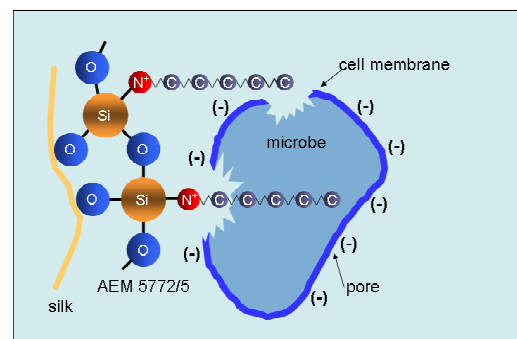
Cotton yarn is made of millions of individual fibres, each no more than 1 to 3 cm long. The short fibres irritate the skin.



The flat and ringed silk fibres are up to 1000 m long. Knitting is soft and does not cause irritation.

DermaSilk

- DermaSilk is a unique combination of silk with the antimicrobial substance AEM 5772/5 (ÆGIS).
- The result is a therapeutic clothing combining the silk properties, which reduce irritation, with a permanent antimicrobial substance reducing bacterial and fungal infections.
- ÆGIS is a quaternary ammonium (long aliphatic chain with lipophilic properties) which is bound to a silane. This substance has been used for many years for preventing infection of hospital operating theatre fabrics [4].
- The antimicrobial substance ÆGIS is permanently bound to the silk fibre.
- ÆGIS acts by physically disrupting the microbe membrane, without involving any chemical process.
- The antimicrobial substance does not transfer from the silk to the skin [5].
- Previously published studies have shown that DermaSilk significantly reduces the severity of the eczema. The improvement can be compared with that achieved with cortisone treatment [3,6,7].
- No side-effects has been reported



The antimicrobial substance AEM 5772/5 is a quaternary ammonium which disrupts the cell membrane of microbes by a physical process.

Subjects and Methods

- 11 cases from 7 paediatric clinics were evaluated from October 2005 until February 2006.
- Parents were instructed, by a simple written protocol, how to use DermaSilk clothing.
- The protocol included a questionnaire for parents or children old enough to answer themselves. Questions about itching, skin inflammation and sleep were included in the questionnaire. There was also place for comments about the treatment.
- The severity of eczema was evaluated by doctors and/or nurses before the treatment with DermaSilk and at a second visit, 1-2 months later. The evaluation was subjective, but was made by the same person who evaluated the eczema at the start of the study.
- The characteristics of the study group are shown in Table 1.
- Four children wore DermaSilk day and night, the rest of them only during the night.

Table 1.

Case no.	Age	Severity of eczema	Type of DermaSilk	Time of treatment (months)	Simultaneous use of cortisone
1	7	Severe	pyjamas, gloves and socks	1 *	No **
2	10	Severe	pyjamas	2,5	No
3	2	Severe	body and panty	2	No **
4	6	Severe	pyjamas	1	Yes
5	8	Severe	pyjamas	1	Yes
6	5	Severe	pyjamas	1,5	Yes
7	5	Severe	pyjamas	1,5	Yes
8	4	Severe	pyjamas	2	Yes
9	2,5	Moderate	body and panty	2 *	No
10	8	Severe	pyjamas	1,5 *	Yes
11	4	Severe	pyjamas	0,5 *	Yes

* Child wore DermaSilk the whole day

** Cortisone treatment stopped while the child was treated with DermaSilk.

Results

- In 7 cases out of 10 an improvement of the child's condition was reported by the parents (Table 2).
- The reduction of the itching and inflammation, as well as the improvement in sleep, appeared within a few weeks after starting using DermaSilk.
- The follow-up made by doctors or nurses demonstrated that eczema improved in 7 cases out of 11. The relief appeared as early as after a few weeks (Table 3). There was not any noticeable improvement in 3 cases, but 2 of those children enjoyed using the pyjamas and one of them reported to feel better after using DermaSilk.
- Parents or children have commented, verbally or in writing, that DermaSilk was very comfortable to use.

Table 2.

Symptom	Improvement	As before	Worst	Result seen after
Itching	7/10	2/10	1/10	1-2 weeks
Sleep	5/10	4/10	1/10	1-2 weeks
Skin inflammation	7/10	2/10	1/10	1-2 weeks

Table 3.

Improvement of eczema	Eczema as before	Worsening of eczema	Follow-up after
7/11	3/11	1/11	1-2 months

References

1. Abeck D, Mempel M. Staphylococcus aureus colonization in atopic dermatitis and its therapeutic implications. Br J Dermatol. 1998 Dec;139 Suppl 53:13-6.
2. Hatch KI, Maibach HI. Textile fiber dermatitis. Contact Dermatitis 1985;12:1-11.
3. Ricci G et al. Clinical effectiveness of a silk fabric in the treatment of atopic dermatitis. British Journal of Dermatology, 2004;150:127-131.
4. Gettings RL, Triplett BL. A new durable antimicrobial finish for textiles. AAATCC Book of papers 1978: 259-261.
5. Mandrioli P. Chemical Test, Consiglio Nazionale delle Ricerche, Istituto di Scienze dell'Atmosfera e del Clima, Bologna, 15 October 2003.
6. Senti G et al. Antimicrobial silk clothing in the treatment of atopic dermatitis proves comparable to topical corticosteroid treatment. Dermatology 2006;213:228-233.
7. Koller DY et al. Action of a silk fabric treated with ÆGIS in children with atopic dermatitis: A 3-month trial. Pediatric Allergy Immunol 2007; D01:10.111 (Online early Articles)

We wish to thank all who actively participated in this case study: The Paediatric Allergy Clinic at Helsingborg Hospital, The Paediatric Clinic at Motala Hospital, The Allergy Centre at Linköping University Hospital, and The Allergy Clinic in Kungsbacka. Many thanks also to all parents and children.