

CLINICAL REPORT

Adult Atopic Dermatitis Patients and Physical Exercise: A Swedish Questionnaire Study

Sol-Britt LONNE-RAHM¹, Isabelle SUNDSTRÖM¹, Klas NORDLIND¹ and Lars-Magnus ENGSTRÖM²

¹Dermatology and Venereology Unit, Department of Medicine, Solna, Karolinska University Hospital, Stockholm, and ²The Swedish School of Sport and Health Sciences, Stockholm, Sweden

Physical activity promotes health and prevents disease. When patients with atopic dermatitis (AD) undertake exercise, the itch often gets worse due to sweating, and this may reduce their engagement in physical exercise. The aim of this study was to determine the level of physical exercise in patients with AD compared with a control group from a normal population. Our hypothesis was that patients with AD have a lower level of physical exercise due to their skin disease. A total of 110 patients with AD and 196 subjects from a normal population, age range 20–34 years, answered a questionnaire. Eleven patients with AD underwent an in-depth interview. The patients with AD had the same level of physical exercise and attitude to physical exercise as the normal population. Therefore, our hypothesis could not be confirmed. In conclusion, the skin symptoms of AD do not appear to be an obstacle to moderate physical exercise. Key words: atopic dermatitis; adults; physical exercise; questionnaire.

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Sol-Britt Lonne-Rahm, Department of Dermatology, Karolinska University Hospital, Solna, SE-171 76 Stockholm, Sweden. E-mail: Sol-Britt.Lonne-Rahm@karolinska.se

Physical activity is a well-recognized approach to the enhancement of general health (1). Regular physical activity helps people to avoid weight gain and plays a part in increasing well-being (2). Physical inactivity is recognized as a significant, common, and preventable risk factor for conditions such as coronary artery disease, stroke, hypertension, and osteoporosis (3).

Atopic dermatitis (AD) is a common chronic skin disease characterized by dry, itchy skin. AD affects approximately 2% of the adult population worldwide (4). The aetiology of AD is unknown, but it is probably multifactorial, with interactions between several genetic and environmental factors (5, 6).

A common assumption is that people with AD do not exercise because of itching. Yet regular sports may be of adjuvant therapeutic value in patients with AD (7).

Sweating due to cholinergic sweat gland activity predominantly serves thermoregulation, and is triggered, among other factors, by physical stress. Individuals

with AD usually respond to sweating with generalized itching (8). Sweating caused by exercise, fabrics, and hot weather are the most common exacerbations in patients with AD (9). In a study by Williams et al. (9) sweating was the most common exacerbating item for worsening of AD in children. In a study from Singapore (10) the most common aggravating factors in school-children were exercise, heat, and sweating.

In this study we examined whether patients with AD engage in reduced levels of physical activity due to their dermatitis, compared with a control group from a normal population, by studying their exercise habits and attitudes. The research questions, in comparing the patient and control groups, investigated whether there are differences in (i) exercise habits; (ii) motives for exercise; (iii) exercise during childhood and adolescence; and (iv) satisfaction with physical performance.

MATERIALS AND METHODS

Patients and data collection

The study was approved by the ethics board at Karolinska University Hospital, regarding both the patients with AD and the control group.

A questionnaire was sent to 271 consecutive patients in the age range 18–60 years, who had visited the Department of Dermatology, Karolinska University Hospital, Solna during the first half year of 2004, and who had received a diagnosis of AD from a dermatologist who is a specialist in inflammatory skin diseases at our department. The patients had been referred by family doctors due to substantial problems with their AD.

The questionnaire comprised 36 questions; including sub-questions (11). Five of these questions were of special interest for the present study, and were analysed further. These included educational level, exercise level, sports activities during childhood and adolescence, motives for exercise, and satisfaction with their physical performance. The response rate for each given item always reached 95%.

From the patient cohort we selected all those who were between the ages of 20 and 34 years, a total of 110 individuals (72 women and 38 men). The age range 20–34 years constitutes an active period with a minimum of co-morbidities. We then compared these patients with a control group of 196 age- and sex-matched subjects (114 women and 82 men).

The control group comprised participants drawn randomly from the Swedish population and address registry, which includes all people registered as Swedish citizens. They came from 8 (out of 21) geographically defined representative regions of Sweden. The study originally included 1,065 participants (with 79% response) (12).

Previous studies have shown that physical activity is strongly related to age as well as to education (13). In this respect, the patient and control groups were quite comparable; having the same age range (20–34 years) and educational levels. Approximately one-third of both groups had university educations. The data collection was also conducted using in-depth interviews with 11 individuals (1 male and 10 females) with diagnoses of AD (see Appendix S1¹).

Statistical analysis

SPSS version 17 statistical software was used. The differences between the groups regarding the investigated parameters were tested using a χ^2 test, with the level of significance set at $p < 0.05$.

RESULTS

After one reminder about the questionnaire the response rate was 72%.

Physical exercise habits

Defining physical activity as engaging in more strenuous exercise at least once a week, it was found that 56% of the female patient group reported that they were at this level, compared with 50% of the control group. The corresponding proportions among men were 58% and 55%, respectively. Thus, there were no statistically significant differences between the patient and control groups (Table I), although there were some differences regarding maximum effort.

The in-depth interview revealed that the patient group exercised as much as the rest of the population. Many patients avoided swimming and preferred to exercise outside, where they would not become as sweaty (see Appendix S1¹).

We can therefore conclude that there were no differences between the groups, and no differences between women and men in terms of physical activity.

Because there was only a slight difference between the sexes, females and males are presented together in analysing further parameters.

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Table I. Physical exercise habits

Exercise	Women ^a		Men ^b	
	Patient group <i>n</i> = 70 %	Control group <i>n</i> = 114 %	Patient group <i>n</i> = 38 %	Control group <i>n</i> = 81 %
Very little	0	1	3	3
A few walks	7	2	3	6
Everyday exercise	16	21	18	16
Light physical activity at least once a week	21	26	18	20
More strenuous exercise, such as fast walking, at least once a week	36	37	32	18
Regular hard training or competition	20	13	26	37
Total	100	100	100	100

^a $\chi^2 = 6.30$, *df* = 5, $p > 0.05$; ^b $\chi^2 = 3.59$, *df* = 5, $p > 0.05$.

Table II. Sports activities during childhood and adolescence

Activity	Patient group ^a <i>n</i> = 105 %	Control group <i>n</i> = 175 %
Active in a sports club	76	1
Active outside a sports club	9	18
Not active	15	11
Total	100	100

^a $\chi^2 = 4.84$, *df* = 2, $p > 0.05$.

Motivation for exercise

Regarding motivation for exercise there were no differences between the patient and control groups. The most important motives in both groups were: a sense of well-being; to get fit; and the pleasure of exercising. In the interviewed group the patients also confirmed these motives and that sweating did not prevent them from exercising.

Exercise during childhood and adolescence

There were no differences between patient and control groups in terms of sports or recreational habits during childhood and adolescence (Table II). The patients participated in sports clubs during adolescence to the same extent as the control group. Thus, in this respect they appeared to have had a similar experience of physical activity during adolescence, which the interviews also confirmed.

Satisfaction with physical performance

In a self-evaluation question about satisfaction with their physical performance, there were no differences between the groups. Somewhat more than half of the respective groups were not satisfied with their physical performance (Fig. 1).

DISCUSSION

In this study no differences were found between patients with AD and a control cohort regarding exercise

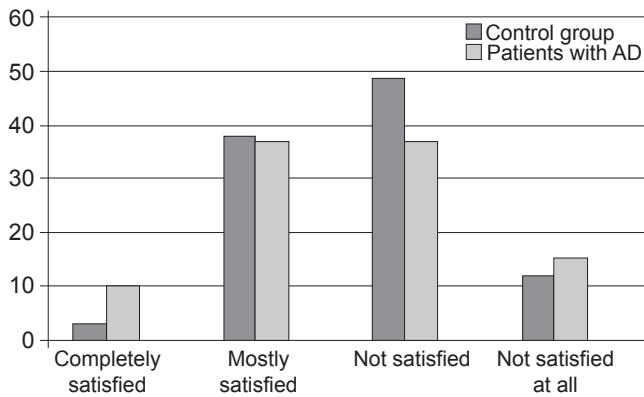


Fig. 1. Satisfaction with physical performance (%).

habits, motives for exercise, exercise during childhood and adolescence, or satisfaction with their physical performance. This was shown in both the questionnaire's responses and the in-depth interviews.

Earlier studies (8, 9) have indicated that exercise and sweating are significant worsening factors for AD symptoms in schoolchildren. Our study indicates that even in that period there is no difference in sports or recreational habits between patients with AD and controls. In our study we have no information about the start of AD in the patients. However, it is likely that the majority of our adult patients had the diagnosis of AD as children.

We hypothesized that the patient population would avoid exercise activities that lead to worsening of their disease. Against this background the results of this study are interesting because they show that a moderate level of exercise is no obstacle for patients with AD.

The fact that the group of patients with AD did not perceive their physical performance differently from the control group also indicated that AD is not an obstacle to an active lifestyle.

This study has some limitations. First, the climate is of importance. The climate may have an impact on the skin barrier and also may affect the type of exercise, in- or outdoors. The Swedish climate is cold and dry for a substantial part of the year. Secondly, the level of exercise activity in the Swedish population is generally rather modest (only approximately 50% of the adult population undertake physical exercise corresponding to at least a brisk walk once a week), which may make it difficult to measure any difference. Testing the patients with AD at a higher level of indoor exercise might have given other results, as many patients prefer to be outdoors when engaging in sports. Another possible limitation is that co-morbidity with asthma or hay fever was not considered. In addition, it may have been of interest to look at specific sport activities. However, such a study would need a substantially increased cohort.

In conclusion, the skin symptoms of AD do not seem to be an obstacle to moderate physical exercise. This information will be of importance to dermatologists and to patients of different ages with AD.

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The authors declare no conflicts of interest.

REFERENCES

- Haskell WL, Lee IM, Pate RR, Powell KE, Blair SN, Franklin BA, et al. Physical activity and public health: updated recommendations for adults from the American College of Sports Medicine and the American Heart Association. *Circulation* 2007; 116: 1081–1093.
- Stear S. Health and fitness series – 1. The importance of physical activity for health. *J Fam Health Care* 2003; 13: 10–13.
- Booth FW, Lees SJ. Fundamental questions about genes, inactivity, and chronic diseases. *Physiol Genomics* 2007; 28: 146–157.
- Leung DYM, Bieber T. Atopic dermatitis. *Lancet* 2003; 361: 151–160.
- Pastar Z, Lipozencic J, Ljubojevic S. Etiopathogenesis of atopic dermatitis – an overview. *Acta Dermatovenerol Croat* 2005; 13: 54–62.
- Morren MA, Przybilla B, Bamelis M, Heykants B, Reynaers A, Degreef H. Atopic dermatitis: triggering factors. *J Am Acad Dermatol* 1994; 31: 467–473.
- Salzer B, Schuch S, Rupprecht M, Hornstein OP. Group sports as adjuvant therapy for patients with atopic eczema. *Hautarzt* 1994; 45: 751–755.
- Stern UM, Salzer B, Schuch S, Hornstein OP. Sex-dependent differences in sweating of normal probands and atopic patients in cardiovascular stress. *Hautarzt* 1998; 49: 209–215.
- Williams JR, Burr ML, Williams HC. Factors influencing atopic dermatitis – a questionnaire survey of schoolchildren's perceptions. *Br J Dermatol* 2004; 150: 1154–1161.
- Tay YK, Kong KH, Khoo L, Goh CL, Giam YC. The prevalence and descriptive epidemiology of atopic dermatitis in Singapore school children. *Br J Dermatol* 2002; 146: 101–106.
- Eklom B, Engström LM, Eklom O. Secular trends of physical fitness in Swedish adults. *Scand J Med Sci Sports* 2007; 17: 267–273.
- Eklom-Bak E, Hellenius ML, Eklom O, Engström LM, Eklom B. Fitness and abdominal obesity are independently associated with cardiovascular risk. *J Int Med* 2009; 266: 547–557.
- Engström L-M. Who is physically active? Culture capital and sports participation from adolescence to middle age – a 38-year follow-up study. *Phys Educ Sports Pedagog* 2008; 13: 319–343.