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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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 χ² 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.

Table I. Physical exercise habits

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

χ²=6.30, df=5, p > 0.05; χ²=3.59, df=5, p > 0.05.

Table II. Sports activities during childhood and adolescence

<table>
<thead>
<tr>
<th>Activity</th>
<th>Patient group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active in a sports club</td>
<td>76</td>
<td>1</td>
</tr>
<tr>
<td>Active outside a sports club</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Not active</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

χ²=4.84, df=2, p > 0.05.

DISCUSSION
In this study no differences were found between patients with AD and a control cohort regarding exercise habits and motivation for exercise.
Atopic dermatitis and exercise

Atopic dermatitis and exercise 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