

ORAL PRESENTATION

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Airway function in adults with mild-to-moderate scoliosis treated in adolescence with specific physical exercises. An ongoing, case-control study

M Plaszewski^{1*}, R Nowobilski², P Kowalski³, J Terech⁴, M Cieslinski¹, I Cieslinski¹

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Background

Scoliosis can lead to a decrease in total lung capacity (TLC) and alterations in maximal flow – volume curves, associated with structural deformities and curve magnitude, but also with chronicity of the problem and respiratory muscle inefficiency [1-4]. However, evidence confirming the assumption of beneficial, long lasting influence of scoliosis specific exercise on respiratory function is lacking.

Purpose

We aimed to analyze respiratory function in adults with history of participation in a scoliosis – specific exercise program, in comparison to normative values and to age-matched subjects, with reference to confounders: smoking and physical activity.

Materials and methods

Maximal flow-volume curves, ventilatory parameters (vital capacity - VC, forced VC in exertion and in insertion = FVCin and FVCex) and TLC values were analyzed in 25 adults (22 females), who attended in adolescence (from 1984 to 1995, at initial age of 11 - 13) the Centre of Corrective and Compensatory Gymnastics, Bielsko-Biala, Poland. The WHO General Physical Activity Questionnaire was also completed. The non-parametric rang Kruskal-Wallis ANOVA was performed among subgroups with moderate and mild scoliosis (>40° Cobb, n=3; 25-39°, n=2; 10-24°, n=20, respectively) and compared to 17 age-matched normal controls (11 females).

Results

Generally, scoliotic subjects did not differ significantly from controls and normal values. However, FVCin was below normal values ($x=86.4\%$ in 10-24° Cobb), VC and TLC means differed nonsignificantly ($p=.070$ and $p=.074$, respectively).

Conclusion

In general, the results suggest satisfactory lung functioning, but FVCin analysis indicates inspiratory inefficiency, regardless severity of the deformation.

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Author details

¹University School of Physical Education, Warsaw, Poland, Faculty of Physical Education in Biala Podlaska, Poland. ²Department of Medicine, Jagiellonian University School of Medicine, Cracow, Poland. ³Higher School of Administration, Bielsko-Biala, Poland. ⁴Complex Hospital for Tuberculosis and Pulmonary Diseases, Bystra Slaska, Poland.

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¹University School of Physical Education, Warsaw, Poland, Faculty of Physical Education in Biala Podlaska, Poland
Full list of author information is available at the end of the article