EFFECT OF SCHOOL PHYSICAL EDUCATION PROGRAM ON LOW-BACK PAIN FREQUENCY IN ELEMENTARY AND SECONDARY SCHOOLCHILDREN.

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INTRODUCTION

Recent surveys report a high prevalence of low back pain in children and adolescents that increases with age. Decreased muscle flexibility and trunk strength have been postulated as risk factors for low back pain.

OBJECTIVE

To evaluate the efficacy of a 32-week school physical education program on low-back pain in elementary and secondary schoolchildren.

METHODS

Subjects

Forty-one elementary school children (fifth-grade, mean age of 10.27 ± 0.31 years) and 43 secondary school adolescents (two-grade, mean age of 13.46 ± 0.68 years) were assigned to control (n = 40) or intervention group (n = 44). All schools were public schools with similar curricula.

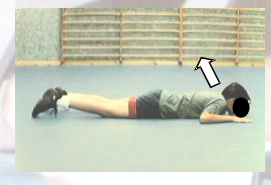
Procedures

Intervention subjects were involved in organised physical education program administered by school teachers that included 5 minutes of hamstrings stretching maintaining the spine in a neutral position, 5 minutes of endurance strength of the abdominal (curl-ups and isometric side support) and lumbar (lumbar extension and bridge) muscles and 5 minutes of learning activities for anterior and posterior pelvic tilt during the two-weekly school physical education classes over 32 weeks.

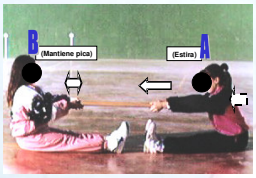
The control group was not subjected to the organized program.

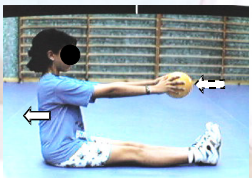
Abdominal exercises

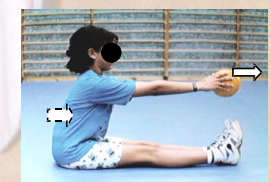
Lumbar exercises



Hamstrings stretching







Postural activities (anterior and posterior pelvic tilt)

Disability from low back pain was assessed before and after the program. Low back pain was defined as pain in the area from below the ribs to the hips. The subjects and their parents were asked with a questionnaire prior and after the program if they had any low back pain at the past month. Month frequency was defined as the occurrence of pain or discomfort, continuous or recurrent, at some point in the past month.

Pain intensity was recorded using a visual analogue scale (VAS).

ANALYSIS

The Mann-Whitney U test was used to compare the intensity of low back pain between groups. The frequencies of low back pain between groups were compared using the chi-squared test.

RESULTS

We found a decrease of low back pain frequency in the intervention group and an increase in the control group ($\chi 2 = 4.43$, $p < 0.05$) (Figure 1). For pain intensity no significant differences were found.

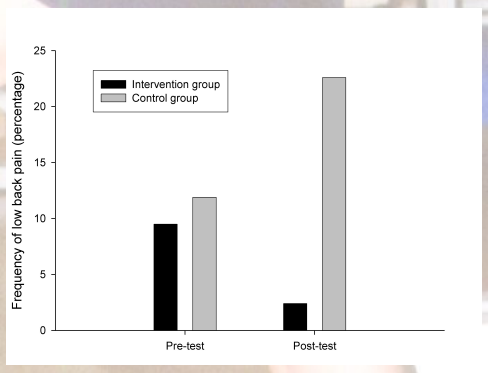


Figure 1. Frequency of low-bak pain in intervention and control groups.

CONCLUSIONS.

The children and adolescents who were subjected to the program showed a reduction of low back pain frequency after following the school physical education program, while for the controls group we found a tendency toward rising frequency of low back pain.

IMPLICATIONS

These findings should alert education professionals to the need for specific health promotion programs in schools for prevent low back pain. This observation may have important practical implications in designing school curricula, with more attention on spine health.