

METHODOLOGIES TO STUDY LOW BACK PAIN IN SCHOOLCHILDREN

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Context

Recent studies show that at 16 years old, more than 70% of children have suffered low back pain. The preoccupation worsens if we considered that once this back pain has been suffered in childhood and adolescence, there is an 80% probability that it will re-occur. These numbers indicate the importance of educating our students with correct corporal habits and of developing a correct postural hygiene from the earliest ages, not only in sport activities, also in daily ones.

The causes of these alarming data are various:

- Lack of movement as a result of our technified civilization that produces muscular weakness
- Incorrect positions, unilateral efforts in the work and the daily life
- Psychosomatic upheavals, psychic efforts and stress that lead to muscle structural contractions, that later become deformities
- Erroneous guidelines about movement in daily life requiring an excessive and incorrect effort of the spine and intervertebral discs (inadequate shoes; incorrect techniques in getting up; etc), and
- From 20 years old degenerative process in intervertebral discs begin, that can be reduced with an educated muscular structure (Grotkasten & Kienzerle, 1993).

Project / Partners

The prevalence of back pain in children varies according to the age of the population studied and, particularly, according to the methodology of the studies themselves, viz.:

1. Cross-sectional studies by means of a questionnaire, with or without the participation of an investigator, looking at subjective morbidity
2. Cross-sectional studies based on physical examination of the subjects, to evaluate the measurable morbidity
3. Longitudinal studies (cohort studies) to measure the early incidence of spinal pain.

The main objective of this essay is to show the advantages and disadvantages of different types of cross-sectional studies.

1. Cross-sectional studies by means of a questionnaire

This type has the objective of locating subjects who suffer low back pain, and in the main to determine the associated risk factors. The methodology is based on the information received from subjects. The variables can be diverse, among them: sport practice and frequency; diagnosis of scoliosis; vital prevalence; prevalence in the last week of low back pain; low back pain in bed (during the night, or when getting up); restrictions on daily activity due to back pain; appearance of painful episodes during or at the end of PE classes; appearance of painful episodes or greater intensity of existing ones during menstrual periods; treatments received for low back pain; effects of weighty backpacks on schoolchildren; weight and height of the student, etc.

2. Cross-sectional studies based on physical examination of the subjects

This type is based on physical and exploratory tests with the objective of locating anomalies in the spine, e.g., as a main cause of low back pain. The preoccupation with posture is because anomalies of the spine constitute one of the main causes of medical consultation and adult workers' absenteeism in industrialized countries, and so it is important take into account any deviations of the spine in early childhood as well as in adolescence. The methodology used is of a more objective kind, being based on information received from tests, among others: to detect muscular shortening (hamstring muscles, lumbar muscles, femoral, flexors of hip, etc.); to detect muscular weakness (strength tests); exploration of locomotor apparatus (axis arrows, test Adams/Bending/Shöberg, tests, etc.).

Results

Once both methodologies were analyzed, advantages and disadvantages of each appeared. The most relevant advantages of cross-sectional studies by means of a questionnaire are: the opinion of the subjects is taken into account (their state of well-being or malaise); its application allows studies with large samples; it can lead to a direct future intervention on the risk factors detected. On the other hand, disadvantages could be: the use of non-validated questionnaires causes confusion over results; it serves to locate possible risk factors but does not contribute solutions to the problems found.

In contrast, the most relevant advantages of cross-sectional studies based on physical examination of the subjects are: as it only studies anatomic parameters, it is completely objective. Nevertheless there are some disadvantages: the functionality of the subject is not taken into account; and it does not ensure a reduction in low back pain.

Discussion/Implications

From our point of view, based on our own professional experiences, and having compared the advantages and disadvantages of both methods, we fundamentally show preference for using the cross-sectional studies by means of questionnaires, for one main reason: the functionality of the study. Before initiating an investigation on low back pain, we must consider a question: what do we prefer, a subject with an anatomically perfect spine, but suffering annoyances, or an anatomically incorrect spine but with no annoyance or interference with a normal life?

To decide the second question, we recommend the use of a questionnaire to detect what factors may influence low back pain, and then to help create an action plan to reduce it. To design an action plan we can consider two major areas of intervention: healthful habits and physical aspects of the subject. To the first case the intervention may emphasise aspects like postural education (adopting correct positions in daily life and workplace), healthful habits of life (regular physical exercise, to avoid pernicious habits like smoking), etc. On the other hand, in the physical aspects, and basing the data obtained from tests as previously commented, a programme of specific exercises for improving postural control would take into account strength training for abdominal muscles, hamstrings and iliac stretching, etc.

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