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EPIDEMIOLOGY OF LOW BACK PAIN IN STUDENTS OF PHYSICAL EDUCATION AND PHYSIOTHERAPY

Key words: sacro-lumbar spine, low back pain syndromes, students.

ABSTRACT

Pain in the sacro-lumbar spine occurs more and more often in young students. This may be caused by their incorrect physical activities. The aim of this study was to examine differences in the prevalence of low back pain between groups of students of physical education and physiotherapy and to determine their state of knowledge on the causes and prophylactics of this particular condition. The research sample consisted of 461 students of both sexes aged 18-25 years, from the Physical Education and Physiotherapy Faculties of University School of Physical Education in Poznań. The study used a questionnaire assessing the percentage of individuals with low back pain, intensity of sensing the pain and knowledge of the condition. The study was continuous and was carried out among freshmen (PE - 130 and Physiotherapy - 135) and senior students (Physical Education - 100 and Physiotherapy - 95). An increased percentage of individuals suffering from spinal pain was observed among the physiotherapy students, which can be most likely explained by the nature of their physical activities. A decreased percentage of individuals suffering from spinal pain was observed in PE students, which proves the correct dosage of physical effort during their university studies. In the course of university studies of physical education, emphasis must be put on application of the knowledge regarding low back pain occurrence, prophylactics and principles of ergonomics.

INTRODUCTION

Pain in the sacro-lumbar spine occurs more and more often in young people. For many years, there has been a predominant view that spinal pain syndromes were characteristic of persons of medium age and older. However, the prevalence of spinal pain is found to increase with age until the age of 50-60 years, which is then followed by a decrease in its intensity and prevalence [2, 13, 18, 21].

In recent years, the percentage of young people (below 25 years of age) suffering from low

back pain increased significantly. It is estimated that this condition affects about 30% of the young [6]. Research results indicate that spinal pain is almost thrice as frequent in the age range of 20-24 years as within the age range of 55-64 years [1]. Pain syndromes start most often between 20 and 29 years of age, and in 11% of cases, even before the age of 20 [5, 16, 4, 3].

Until recently a view that spinal pain syndromes concern persons with limited physical activity with a sedentary lifestyle has been also predominant. Unfortunately, with increasing physical activity, the number of injuries and

overstrains of the low spine increases as well. Studies show that about 60-65% of adults report low back pain [7, 20]. The basic reasons for prevalence of this pain syndrome are related to professional activities. A profession which tends to overburden the spine in static and dynamic conditions is the physiotherapeutic profession. The specificity of physiotherapist's work requires both lifting (e.g. patient's body parts), long-term maintenance of static postures and frequent forward bends. Research shows that 90% of physiotherapists have experienced spinal pain, and 68% of them experienced the first occurrence of pain syndromes between the ages of 20 and 30 [19].

The aims of this study was to examine differences in the prevalence of low back pain between groups of university students of physical education and physiotherapy, and to determine the specifics of faculty curricula with regard to the occurrence of low back pain. An attempt was also made to assess the state of knowledge related to the causes of prevalence of spinal pains and their prophylactics in the above-mentioned groups.

METHODS

Freshmen and senior students of physical education and physiotherapy from the University School of Physical Education in Poznań took part in the study. In total, 461 students of both sexes were examined at the age of 18 to 25 years: 230 students (130 freshmen, 100 seniors) from the physical education department, and 231 (135 freshmen, 95 seniors) from the physiotherapy department. The study lasted from January to May, 2005 and 2009, and was performed on the same group of students.

The study used a questionnaire based on the Oswestry Low Back Pain Disability Questionnaire for examining the degree of disability of patient's functional fitness; Roland Morris Disability Questionnaire and Quebec Disability Scale for assessing daily activities limited due to pain; and the Brief Pain Inventory for determining pain intensity.

On the basis of the questionnaire responses, the prevalence and intensity of spinal pain in freshmen and senior students of physical education and physiotherapy were examined. Also, the students' level of knowledge concerning the causes

of low back pain occurrence, prophylactics and principles of ergonomics was assessed.

RESULTS

The analysis showed that 77% of the examined first-year students of physical education and 69% first-year students of physiotherapy suffered from spinal pain. On the other hand, the study repeated during the fourth year of studies in both departments indicated a decrease in low back pain prevalence among students of physical education (50%), and an increase in the number of students of physiotherapy (87%) (Fig. 1). The scale of intensity of low back pain clearly revealed a decrease in its intensity in physical education students. A reverse trend was noted among the students of physiotherapy (Fig. 2, 3).

The survey revealed that 85% of first-year students of both departments had no knowledge on the causes of low back pain occurrence, prophylactics and ergonomics. On the other hand, 45% of fourth-year students of physical education and 93% students of physiotherapy possess this knowledge. It is a disturbing fact that as many as one half of the students from the physical education department are not able to apply the acquired knowledge. The reverse situation may be observed among the students of physiotherapy, among whom 83% had the necessary knowledge and knew how to apply it, while only 10% could not apply the possessed knowledge (Table 1).

Table 1. The number of students having knowledge on the causes of low back pain occurrence, prophylactics and principles of ergonomics

	I have the knowledge and I can use it	I have the knowledge, but I cannot use it	I do not have this knowledge
First-year students of physical education	6%	9%	85%
Fourth-year students of physical education	39%	16%	45%
First-year students of physiotherapy	9%	6%	85%
Fourth-year students of physiotherapy	83%	10%	7%

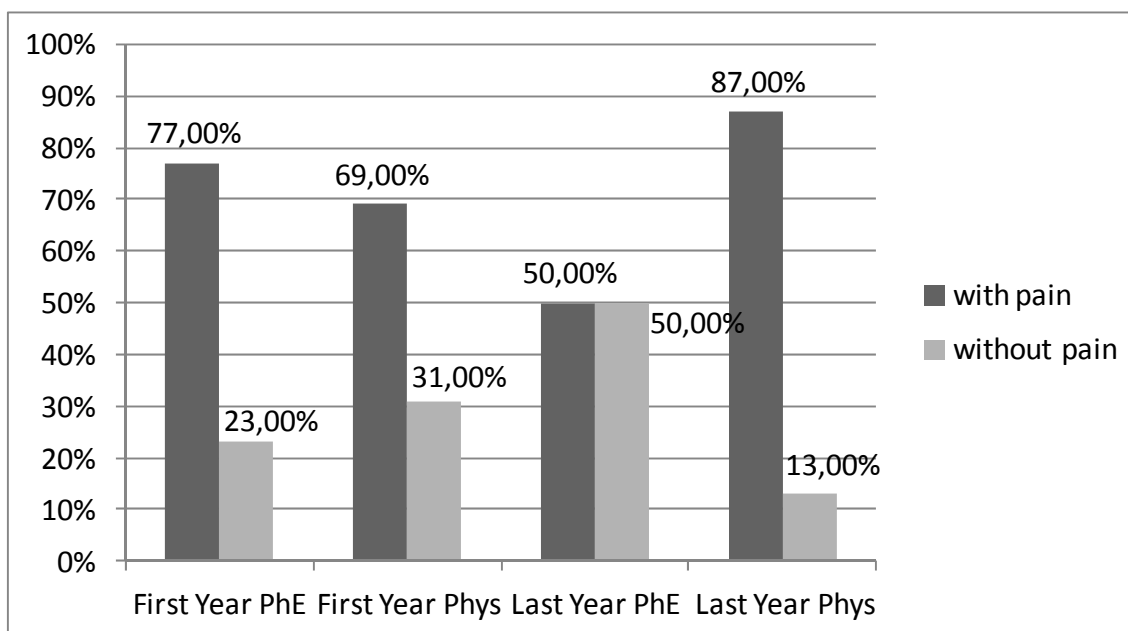
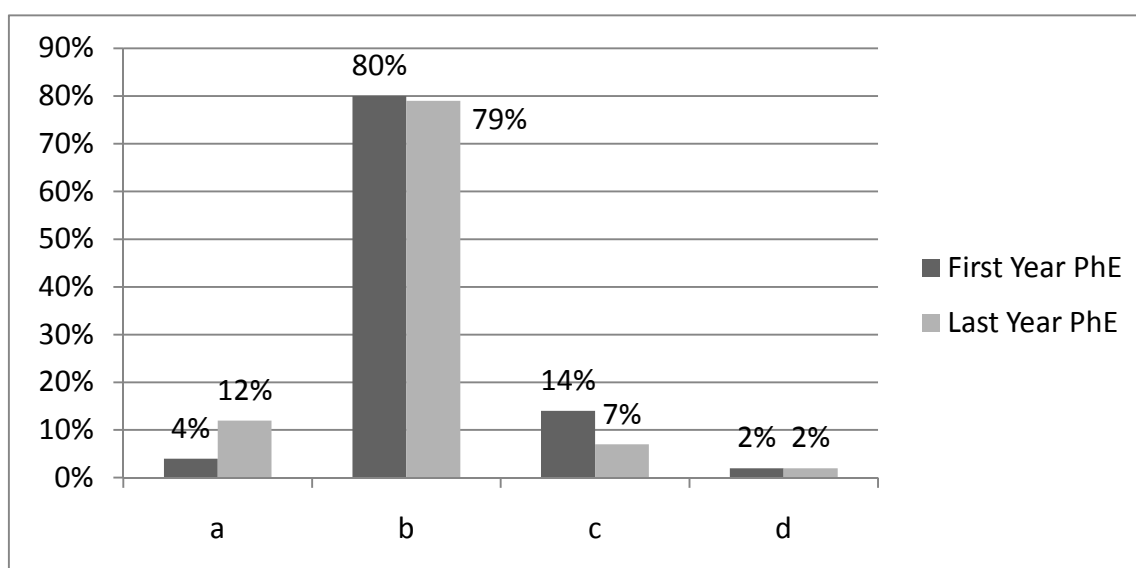
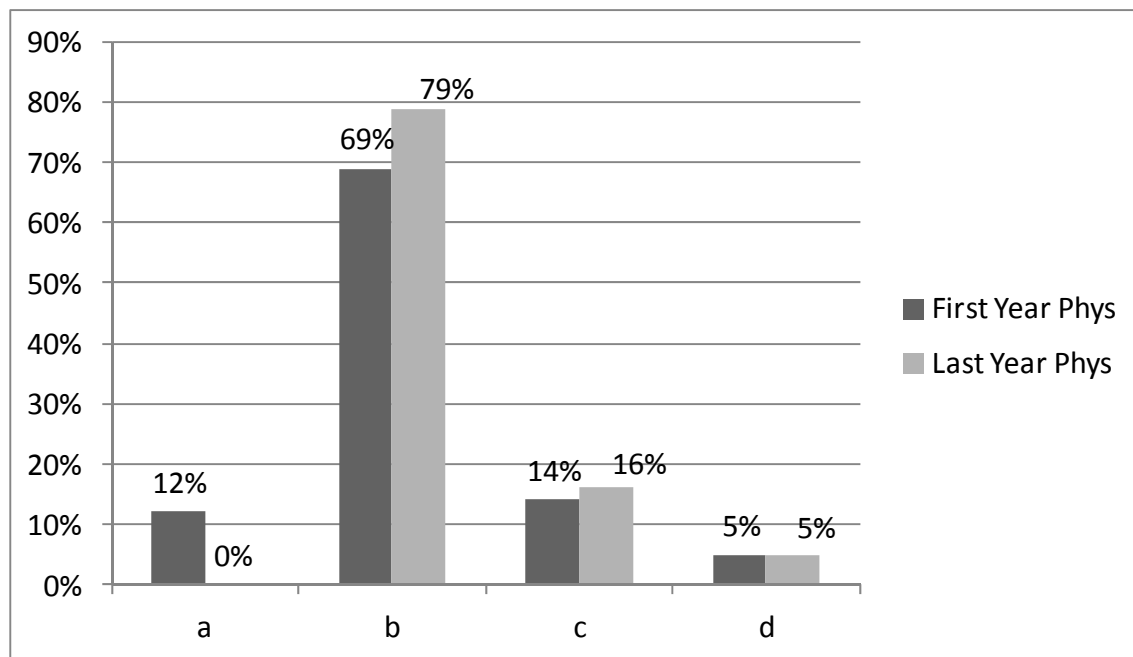


Figure 1. The percentage of first- and fourth-year students of physical education and physiotherapy experiencing low back pains



a – I never experienced spinal pain; b – I suffer from back pain sometimes but it is not intense; c – I suffer from back pain quite often but its intensity is not great; d – I often feel intense pain; PhE- Physical Education Students.

Figure 2. The intensity of low back pain experienced by first-year and fourth-year students of physical education



a – I never experienced spinal pain; b – I suffer from back pain sometimes but it is not intense; c – I suffer from back pain quite often but its intensity is not great; d – I often feel intense pain; Phys – Physiotherapy Students.

Figure 3. The intensity of low back pain experienced by first-year and fourth-year students of physiotherapy

DISCUSSION

There are many reports in literature on the subject of low back pain and its causes. Some authors point to lack of physical activity [12], others focus on excessive axial loads and incorrectly performed physical exercises [10, 11, 17, 8, 15]. According to our observations, both the intensity and the number of individuals declaring pain among physiotherapy students increased in the course of four years of the study from 69% to 87%. This fact may be explained by the students' professional activities consisting of lifting patients, assuming static positions, and in particular, bending forward during classes related to professional subjects. These causes correspond to those found by Gburek [9] and Lisiński and Samborski [19]. A reverse tendency was observed among students of physical education, which can be explained by the fact that properly applied physical efforts during their university studies has a positive impact on the axial organ, decreasing its vulnerability to negative environmental impacts, which is confirmed in literature [14].

Research also shows that incorrectly applied physical effort, which significantly overstrains the

motor apparatus of the spine, may affect degenerative changes within the spine, and in consequence lead to back pains. This is confirmed by statistical data collected from athletes of various sports participating in the 2000 Sydney Olympics [20].

The analysis of data in reference to the knowledge on the subject of low back pain occurrence, prophylactics and ergonomics is paradoxically quite extensive among the physiotherapy graduates in spite of the increased prevalence of this condition in this group, which results from the performance of their professional activities. This is proved by the statistical data from literature, according to which the first low back incidence pain was noted in 68% of professionally active physiotherapists before they were 30 years old [19].

Correctly performed physical exercises were shown to decrease the spinal pain [22]. In order to obtain this effect, a particular emphasis must be put on widening the knowledge and skills in the process of education of prospective PE teachers and sport coaches. The results of our study show that the skills of prospective graduates of physical education departments in application of the

knowledge related to low back pain prevalence, prophylactics and ergonomics are not well developed.

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