BIO - MEDICAL SUBJECTS TEACHING IN PREPARATION OF PHYSICAL EDUCATION PEDAGOGUES

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ABSTRACT

The process of biological and medical subjects teaching at Comenius University - Faculty of physical education and sports in Bratislava – Slovakia was analyzed in terms of quality and quantity. We compared the number of subjects, the number of lessons well as the number of credits (expressing the difficulty of individual subjects) with prior periods as well as with the state in certain surrounding countries. According to the results of questionnaire most students find Anatomy, Functional anatomy and Physiology very important subjects and the number of credits of all subjects sufficient. Half of students think that the number of lessons is too low (except of Biochemistry). Physiology is considered to be most interesting and Anatomy most difficult subject. Most students admit that they devote little time to the preparation of the bio-medical subjects.

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Key words: physical education and sports, biological and medical subjects

INTRODUCTION

The health aspect is becoming increasingly important worldwide. So the role of the teacher of physical education is important also in relation to health state of population. This is a constantly deteriorating due to improper lifestyle, especially the lack of physical activity. It is indubitable, that future teachers and coaches have to get the knowledge about the human body and the function of the organs and systems in rest and in loading as well. Only then they will be able to contribute to the improvement of the relationship of children and youth to physical activity, improvement of the level of health and functional status and increased performance without risk of accidents and damage of health.

The aim of the study was to extend knowledge about education of the biological and medical subjects in preparation of future pedagogues in the field of physical education and sports.

Specifically, we wanted to summarize and analyze historical aspects of biological and medical subjects teaching in comparison with the present state, to compare the teaching of biological and medical subjects in Slovakia, Poland and Latvia, and to find out the views of Slovak students on the quantitative and qualitative aspects of biological and medical subjects teaching.

METHODS

Hundred fifty three students of Faculty of physical education and sports Comenius University in Bratislava, Slovakia, were enrolled into study.

Questionnaire. The questions concern the students´ opinions of the biological and medical subjects' education. Methods of percent relation analysis were used to statistical analysis of empiric data from questionnaire. Statistical significance was set 0.01 and 0.05 probability level by χ^2. Analysis of study programs from the yearbooks of Faculties of Physical Education and Sports in Bratislava and yearbooks of the same faculties in Wroclaw and Riga was done.

RESULTS AND DISCUSSION

In the end of 40ies of the 20th century the education program of biological and medical subjects was same for the students of Pharmacy, Medicine and Physical education. Later the Faculty of physical education and sports took over the education of those subjects for the students of this faculty. The structure and the extent of those subjects were gradually changed. When comparing the development of teaching bio-medical subjects from the 70s of last century we can say that the best situation was in the seventies and eighties. With regard to Anatomy, the number of teaching hours in subsequent years declined, and it was not until 2010. Since 2000, however, the subject Functional anatomy has been added, but at the expense of reducing hours of basic Anatomy. Since 2010, the time allocated to the subject Functional anatomy increased and today Anatomy is taught three hours a week and Functional anatomy 2 hours per week. *Physiology* In the 70s of last century, the number of hours compared to today's state twice (8 hours for students coaching direction). In subsequent years, the number of hours gradually decreased to the current situation - 2 hours per week (from year 2007). *Exercise Physiology* Situation is similar to that in teaching the subject Physiology. The current state is 2 hours per week (from year 2000) *Biochemistry* while till 2005 Biochemistry was taught in all fields of study, later was canceled this subject in some study programs. Currently Biochemistry is taught in all programs except study program for teachers. How benefits can be assessed introduction of curriculum Sport and Health as well as the fact that in recent accreditation of the program there were added other important bio-medical subjects: egg. Epidemiology of diseases from lack of movement, Clinical nutrition, Clinical exercise physiology and Diseases from lack of movement.

Comparison with the state in certain surrounding countries

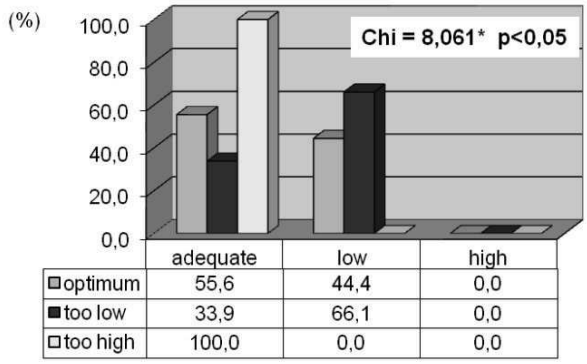
As regards the subject Anatomy and Functional anatomy respectively, in Slovakia the situation is better than in Latvia and Poland. In the area of teaching Biochemistry courses the best situation is in Latvia, where there are taught two courses of Biochemistry and Biochemistry of sport, total 50 hours per year. The same is true in physiological subjects, there are taught in Latvia three such a subjects and time planned for a year is one-third higher than in Poland and Slovakia. In Poland, students have a choice of other bio-medical subjects, which are not taught in Slovakia. Some of those subjects are beginning to teach also in our faculty in the new accredited program Sport and health.

The most important results from analysis of inquiry:

1. The vast majority - 67 % of respondents attended secondary school before entering the faculty.
2. The vast majority - 66 % have had on secondary school subjects of Biology within a reasonable range. More than one-fifth of respondents (21 %) but have had not all such a subjects.
3. Anatomy, Functional anatomy and Physiology considered by most respondents (92-96 %) for essential items. A part of respondents (3%) considered Exercise physiology as redundant object, which can be considered striking.
4. The largest proportion of respondents considered adequate the number of credits, but relatively large proportion of it is considered too low.
5. Two percents of respondents considered the number of lessons of Exercise physiology as too high.
6. The most interesting subject was identified Physiology (85 % of students). Eighteen percent of respondents considered Biochemistry unattractive.

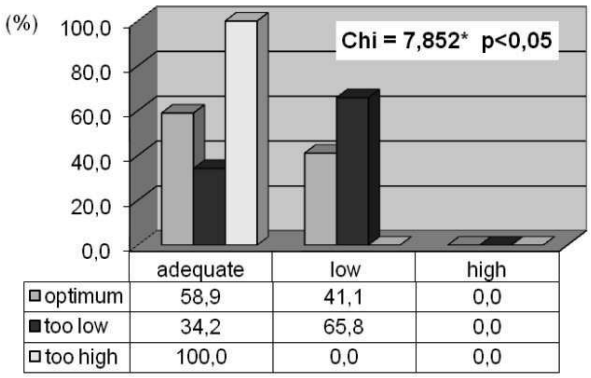
7. The largest proportion of students (81%, 59 % respectively) identified Anatomy and Functional anatomy as a difficult subject.
8. The worst marks (D and E) among all subjects were in the subject of Anatomy (71 %).
9. The lack of study materials called the largest proportion of respondents as the biggest problem associated with the study of Physiology. Own unwillingness to pay enough attention to a study presented most students in subjects Anatomy, Functional anatomy and Biochemistry.

A significant relationship between subjective perception of the adequacy of the number of hours (lessons) and credits allocated to each subject was found in subjects Anatomy (fig. 1), Functional anatomy (fig. 2), Physiology (fig. 3) and Exercise physiology (fig. 4). The part of those who considered the number of credits for adequate, consider the number of hours for low as well as those who rated number of credits and hours to be too low.



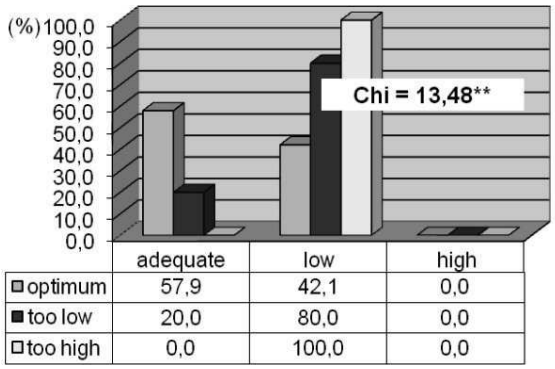
	adequate	low	high
optimum	55,6	44,4	0,0
too low	33,9	66,1	0,0
too high	100,0	0,0	0,0

Fig.1
Students' opinions on the credits subsidy of Anatomy in terms of the number of lessons



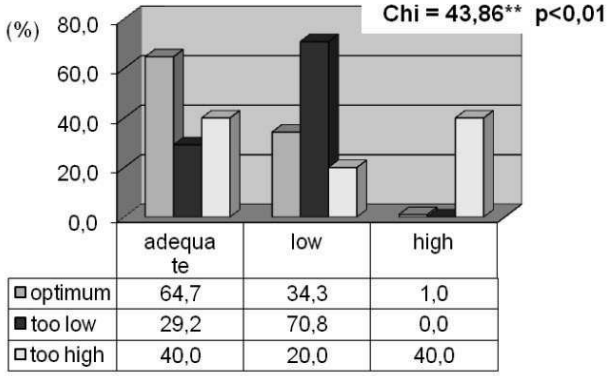
	adequate	low	high
optimum	58,9	41,1	0,0
too low	34,2	65,8	0,0
too high	100,0	0,0	0,0

Fig. 2
Students' opinions on the credits subsidy of Functional anatomy in terms of the number of lessons



	adequate	low	high
optimum	57,9	42,1	0,0
too low	20,0	80,0	0,0
too high	0,0	100,0	0,0

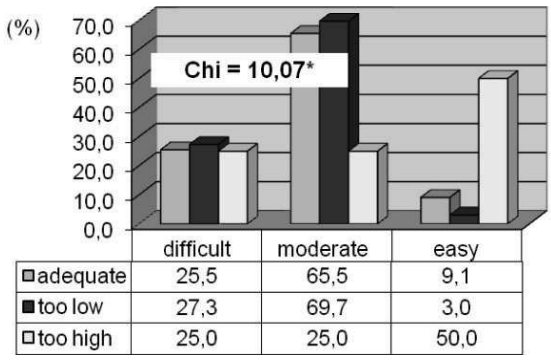
Fig. 3
Students' opinions on the credits subsidy of Physiology i n terms of the number of lessons



	adequate	low	high
optimum	64,7	34,3	1,0
too low	29,2	70,8	0,0
too high	40,0	20,0	40,0

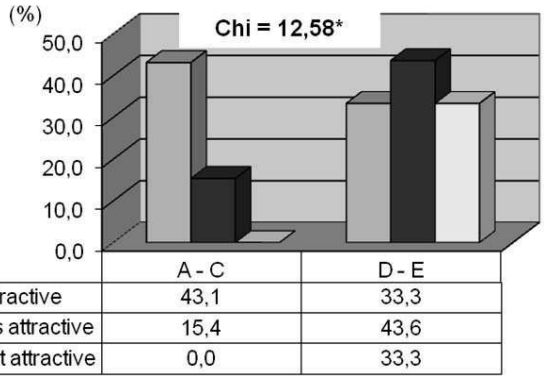
Fig. 4
Students' opinions on the credits subsidy of Physiology of exercise in terms of the number of lessons

A significant relationship between subjective perception of the adequacy of the number of credits allocated to each subject and subjectively perceived difficulty was found only in the subject Biochemistry (fig. 5). Factual relationship, however, was observed in subjects Anatomy, Functional anatomy, Physiology and Exercise physiology.



	difficult	moderate	easy
adequate	25,5	65,5	9,1
too low	27,3	69,7	3,0
too high	25,0	25,0	50,0

Fig. 5
Students' opinions on the credits subsidy of Biochemistry in terms of difficulty of the subject



	A - C	D - E
attractive	43,1	33,3
les attractive	15,4	43,6
not attractive	0,0	33,3

Fig. 6
Students' opinions on the attractiveness of Functional anatomy in terms of final exam results

In assessing the relationship between the extents of biological subjects teaching in secondary school was not found significant relationships. Significant relationship between subjective views on the subject attractiveness and result of final exam was found only in Functional anatomy. Those subjects, who considered the subject interesting, have better grades (fig. 6).

CONCLUSION

When comparing the development of teaching bio-medical subjects from the 70s of last century we can say that the best situation was in the seventies and eighties. Later there was a reduction in the number of teaching hours in several bio - medical subjects. A comparative analysis shows that the time allocated bio - medical subjects in Slovakia in comparison with neighboring countries is lower, with the exception of Anatomy .

How benefits can be assessed introduction of curriculum Sport and Health as well as the fact that in recent accreditation of the program there were added other important bio-medical subjects: egg. Epidemiology of diseases from lack of movement, Clinical nutrition, Clinical exercise physiology and Diseases from lack of movement.

Students are aware of the relationship between the intensity of the subjects and the number of credits and thus required maintain or increase the number of credits. Previous experience with these subjects in secondary school does not affect the results of final exam. The results of final exam are obviously influenced by other factors as attractiveness of subjects.

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