



## Physical Education and School Sport in Liechtenstein

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### Abstract

*Sport carries great significance in Liechtenstein and is considered to be an important social and leisure time activity. From the 35'000 residents over a third is engaged in sports clubs. In the context of the lifestyle of the upcoming generation, physical education (PE) at school is of a particular biographical significance in addition to the sports clubs. In the environment of mandatory PE classes the children and youths accumulate not only multi-faceted physical, exercise and social experience; they are at the same time obliged to participate in a minimum amount of weekly physical activities. These aspects are taking on increasing significance in the light of the current development trends in the physical and health status of adolescents (e.g. increasingly poor posture, motoric deficiencies, overweight). School sports projects are consequently promoted generously by the country. With this background, the present contribution presents an insight into the current status of PE and school sports in Liechtenstein and some current projects are presented.*

*Key words: physical education, Liechtenstein.*

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### Introduction

Physical education (PE) in Liechtenstein has been a tradition continuing for over 100 years. In spite of the legal basis legislated in the year 1897 [8] little heed was ascribed to the subject in the early years; the implementation was dependent on the weather conditions and the already limited number of hours (two times 30 minutes or one hour weekly) was not allowed to cut into other elementary subjects. In addition, the gymnastics period was only introduced in the fourth school year and then only for boys. The primary objective of the lesson was physical toughening using military marching and formations as well as strengthening exercises using iron bars, tug-of-war ropes, and hand balls.

Since that time, the education landscape in Liechtenstein<sup>1</sup> has changed radically as a result of a complete restructuring of the education system as well as the development of an

infrastructure, and thus the requirements framework for physical education (PE) has improved. The introduction of the Swiss teaching manuals in 1942<sup>2</sup>, the erection of purpose-built sports facilities since the 1950's as well as the appointment of professional teachers for the subject are a few of the corner stones for the modernization of school sporting activities.

### Legal basis of PE teaching

Today the content and extent of mandatory PE is regulated by various legal ordinances [9–13]. The teaching schedule is defined for all school grades and subjects within an overall teaching plan [14]. According to this legal requirement all grades in the mandatory schooling must have three hours of PE weekly. Exceptions are found in the 6<sup>th</sup> and 9<sup>th</sup> grades where the number of hours for PE is defined as four and two periods, respectively. Within the framework of the PE at the primary level (grades 1 to 5) a double swimming period is alternated in a two-week

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<sup>1</sup> In Liechtenstein the length of mandatory schooling is nine years, i.e. five years primary school and four years secondary school. Primary school starts at the age of seven, secondary school at the age of 12 years in general.

<sup>2</sup> In the currently-used Swiss teaching manuals dating from 1996, PE is understood as being an integral part of a fully developed personality [1].

cycle. From the 10<sup>th</sup> to the 12<sup>th</sup> grade (secondary level II) the students attend two PE periods weekly. With reference to the number of students per PE class, the legal index is prescribed as a minimum of 10 and a maximum of 20 students. The mandatory number of lessons per week given by the PE teacher at the primary level is 29 periods, 28 at the secondary level I, and 25 at the secondary level II [10]. On attaining the age of 55 years, teachers have a right to age relief. The extent of this relief depends on the current as well as the average level of activity during the last 10 years of service. Retirement age is reached with 64 years.

Swimming education at primary level covers between 16 and 39 periods per year. The classes are taught by the class teacher generally. If the class size is greater than 12 students, a swimming instructor can be appointed additionally. The teacher must be lifesaving certified, or have completed the training required to teach a swimming lessons in a primary school.

### Professional requirements for a PE teacher

According to the legal requirements, the appointment of a teacher in Liechtenstein requires a completed minimum three year training course, with diploma, from a training college which conforms to the requirements of the Swiss Conference of Directors of Education (EDK) or fulfills those laid down in Austria [10, 11]. At the primary level, PE lessons are led mainly by the grade teachers, whereas professional PE teachers are appointed at the secondary level. At the present time there are 37 PE teachers serving in Liechtenstein schools; these are in the age range 24–55 years, on average 41.9 years. Of these, 51% completed their training in Switzerland, 27% in Austria, 16% in Germany and 5% in Eastern Europe. The majority (32%) hold a federal Swiss PE teacher diploma I (secondary level I), 19% a university teaching diploma, 16% a German diploma as sports/gymnastics teacher, 14% hold the federal Swiss PE teacher diploma II (secondary level II) or an Austrian teaching diploma for secondary schools, respectively – figure 1.

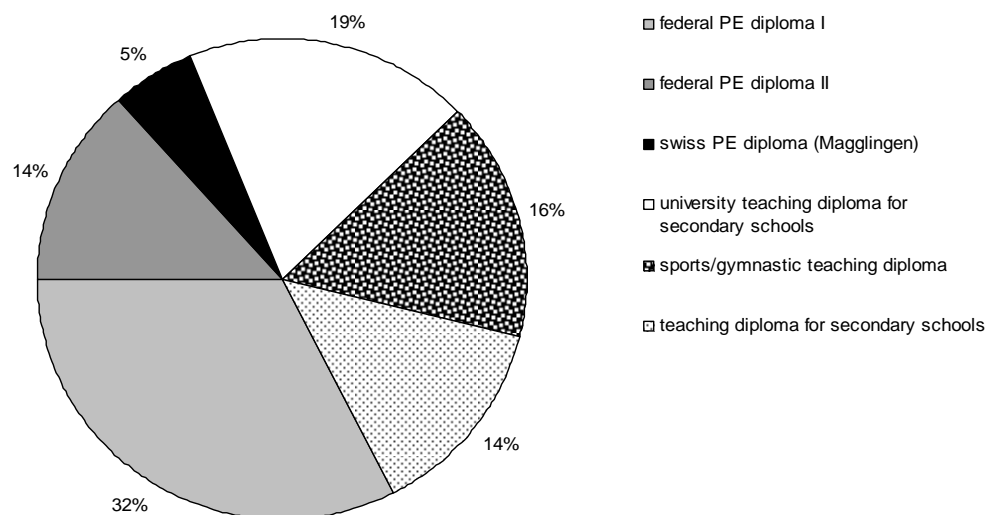


Figure 1. Professional qualifications of PE teachers in Liechtenstein (N = 37)

## Popularity from students' viewpoint

As part of two cross-sectional studies at secondary school levels I and II in the years 1999 and 2005, adolescents in the age ranges from 11 to 20 years were surveyed about their exercise habits and their evaluation of free-time and school sports activities [4]. As shown in table 1, PE periods were rated as their favorite subject by just under a third (31.9%) of those surveyed. Further, an extension would be welcomed

by 32% (1999) and 44.3% (2005), respectively. Overall, in both studies a significantly higher value was placed on the subject by male adolescents than by the girls (chi-square test,  $p < .001$ ). Conspicuous is the general loss of importance with increasing age, particularly amongst the girls in the year 1999 ( $p < .001$ ) as well as the boys in 2005 ( $p < .05$ ).

Table 1. Sports as favorite subject (Sec. I + II), differentiated according to sex and age groups (%)

Study	All	Boys				Girls			
		11-13	14-15	16-20	total	11-13	14-15	16-20	total
1999 (N = 661)	31.0	46.5	35.2	38.0	37.7	48.4	20.6	21.4	25.5
2005 (N = 682)	32.7	52.3	33.3	25.4	37.9	30.7	30.9	16.5	27.5
<b>All (N = 1343)</b>	<b>31.9</b>	<b>50.7</b>	<b>34.2</b>	<b>33.1</b>	<b>37.8</b>	<b>36.9</b>	<b>24.9</b>	<b>19.2</b>	<b>26.5</b>

As the results of a further country-wide survey show [5], school PE is rated more highly at the end of primary school (table 2). Sports/swimming is the favorite subject for half of all the girls, here there are distinct differences shown between the sexes ( $p < .001$ ): whereas sports is the

dominant favorite subject amongst boys with 62%, preferences are more widely distributed amongst the girls. Technical and visually-oriented subjects are relatively highly weighted. Sports/swimming is evaluated as the favorite subject in all the national groups.

Table 2. Sports as favorite subject (5<sup>th</sup> grade, N = 313), differentiated by gender and nationality (%)

Subject	Total	Gender		Nationality		
		girls	boys	FL	CH, A, D	Other
Sports / Swimming	<b>51.4</b>	40.6	62.0	50.9	60.0	46.2
Technical / visual orientation	<b>18.8</b>	29.7	8.2	20.5	12.5	15.4
Math	<b>15.7</b>	11.0	20.3	16.7	7.5	17.9
German	<b>6.7</b>	9.7	3.8	5.1	7.5	15.4
Other	<b>7.3</b>	9.0	5.7	6.8	12.5	5.1
%	<b>100</b>	100	100	100	100	100

Chi-square-test

$p < .001$

n.s.

## Motor fitness of primary students

Although motor results and standard data are available in our neighboring countries for all school grades, a systematic check of motor fitness in Liechtenstein was only carried out until recently at the end of primary school (5<sup>th</sup> grade) [5]. A total of 313 children were tested in this national study in the sense of a study on completing

school. The motor abilities were operationalized with the Munich Fitness Test (MFT), a standardized test procedure which offers sex- and age-specific norm values. The tests were performed in two regular gym lessons and included six items, covering the following central aspects of motor fitness: coordination (ball bouncing and goal throwing), strength (jump&reach, bent-arm hang), flexibility

(stand&reach) and anaerobic capacity (step test).

In general, the primary students (figure 2) demonstrated a satisfactory, if poorer, proficiency than their age group in the averages from Germany. The majority (58.1%) completed the test with satisfactory to good results, 41.9% with a satisfactory result, but no-one with a rating of poor or very good. Some 5.8% were evaluated as needing supportive action (T value  $\leq 40$  points in overall average). This result is primarily the result of motor deficiencies in exercises requiring a high degree of coordinative competence as well as flexibility. In ball bouncing and goal throwing every

fourth or fifth students demonstrated an inadequate proficiency. A thought-provoking finding is that 43.1% were not capable of doing a forward roll correctly, and 29.1% could not use a jump rope. Flexibility and extensibility of the retral musculature were also below average: 47.6% of all pu-pils could not reach down to the level of the soles of their feet. In contrast, above average in the comparison, were the results in the strength assessment (bent-arm hang and jump& reach), whereas the endurance test (step test) results corresponded to average.

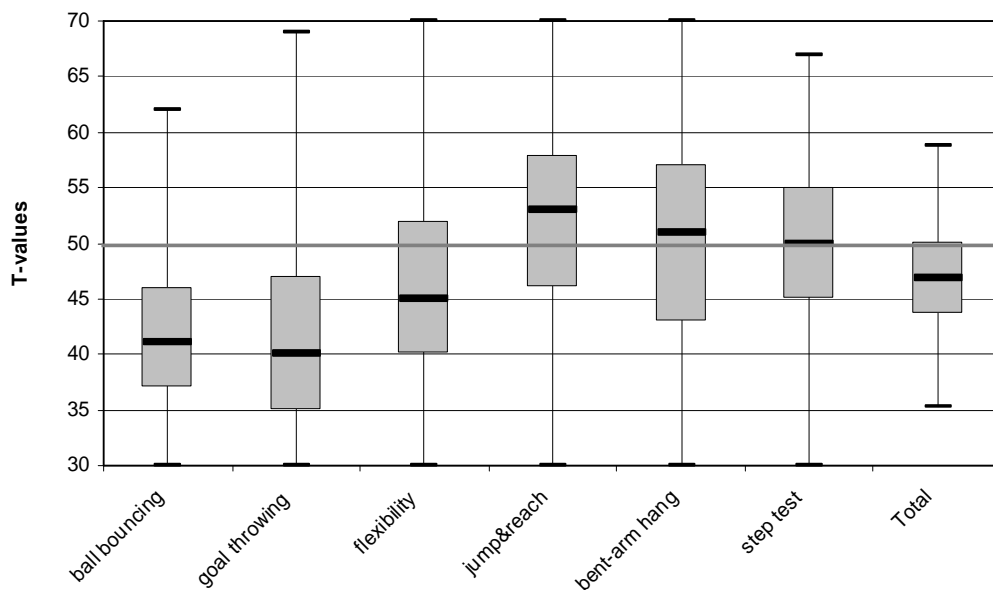


Figure 2. Boxplot of motor fitness (5<sup>th</sup> grade, N = 313) in comparison with German average (grey line)

## Posture gymnastics

Early recognition and prevention of possible muscular misbalance and orthopedic problems (spinal column, leg or foot abnormalities) is made possible through the Health Department which organizes a serial examination of the 1<sup>st</sup> and 3<sup>rd</sup> classes of the primary school. Based on the by-law governing school health care from the year 1981 [7], this check of the musco-skeletal system and postural coordination is carried out by

trained physiotherapists at the actual school location. If evidence of postural weakness and motor deficiency is found the children needing treatment are invited through their parents to voluntary posture gymnastics. According to the results from the investigations made over the last ten years (table 3), in Liechtenstein on average 21.4% of primary school children show postural weakness, and participation in posture gymnastics was recommended.

Table 3. Prevalence of detected muscular misbalances (%) in Liechtensteinian primary school children, 2001–2010

Year	Observed children (N)			Endangered posture <sup>a</sup> (%)		
	Total	1 <sup>st</sup> grade	3 <sup>rd</sup> grade	Total	1 <sup>st</sup> grade	3 <sup>rd</sup> grade
2001/02	667	327	340	24.4	27.2	21.8
2003/04	811	414	397	18.9	17.1	20.7
2005/06	842	392	450	21.1	19.6	22.4
2007/08	782	383	399	21.0	18.5	21.8
2009/10	730	341	389	22.1	22.0	22.1
<b>All</b>	<b>3'832</b>	<b>1'857</b>	<b>1'975</b>	<b>21.4</b>	<b>20.9</b>	<b>21.8</b>

<sup>a</sup> special posture gymnastics recommended

Posture gymnastics is carried out in a playful manner under the leadership of a trained gymnastics teacher where the musculature is strengthened, the spinal column made more mobile, and the coordinative capability and physical well-being are enhanced. In addition, the children are taught exercises which they can practice at home. Posture gymnastics takes place in small mixed-age groups. At the end of primary school all children who took part in the gymnastics course are give a final examination. On the strength of this final diagnosis, any further course of action is coordinated with the parents.

### Current PE projects

The general overview of the current vocational field of PE teachers in Liechtenstein is concluded by reviewing some selected PE projects where PE teachers make a significant contribution.

### Voluntary school sports and competitions

Voluntary school sports were introduced at the secondary level in year 1982 and then provisionally at the primary level in the school year 2006/2007 as a part of a pilot project. The objective of this voluntary option was to offer the students an opportunity for additional exercise in daily school life on the one hand, and access to extra-curricular sporting opportunities on the other. These introductory options were carried out by trained sports teachers or by teachers with training in a specific type of sporting activity (e.g. as a volley ball trainer). From 1991/1992 to the present time, an average of 11 courses per year with 137 participants has

been implemented. In total in the last 19 years 243 courses with 2'919 participants have taken place.

Voluntary sports are supplemented by national, regional and international school sports competitions. Working with the PE teachers, Liechtenstein sports clubs organize annual school sports championships in athletics, swimming, mat-hand ball, soccer, uni-hockey, basketball, dancing/acrobatics and beach volleyball. In addition, Liechtenstein teams take regularly part in various sports in the Swiss school sports day as well as in the international school sports competitions of the ISF (Internationals School Sporting Federation).

### Sports school in Liechtenstein

In the school year 2004/2005 a "Sports School Liechtenstein" project was started at the se-condary school in Schaan. This has the aim of of-fering special conditions to youths who are striving for a career in competitive or elite sports so that they can graduate with education and training appropriate to their career objective. By adjusting the curriculum and class schedules and offering academic opportunities such as remedial teaching, the school permits Liechtenstein cadre athletes the opportunity to have regular orderly training twice daily under the control of a club trainer in spite of their academic burden. Further, the com-petition schedule of the student is taken into consideration during the planning of the study schedule. In August 2007, this opportunity was extended to the upper grades of the Liechtenstein gymnasium. The sports school should be optimized further through structural modifications on the part of school and clubs,

simplifying the selection process, as well as the assessment of the sports school at the Liechtenstein gymnasium.

### **MiniGames 2010**

The Olympic Games for small European countries will take place in Liechtenstein in June 2011. These are to be carried out according to the regulations of the corresponding international sporting associations and the Charter of the Olympic Games. With some 1'600 athletes, support personnel and functionaries together with 800 volunteers, this will be the largest sporting event ever organized in Liechtenstein. The Liechtenstein PE teachers have taken this major event as a model and, one year beforehand, are organizing the "Secondary School Olympic Games". In this event each school will represent a country participating in the MiniGames. The students are to compete in a total of nine sports and will attempt to win medals for their "country" or school. This sports competition is to be held with opening and closing ceremonies carried out in the Olympic spirit. The 1'600 secondary students are thus to be given the opportunity to live out and experience the Olympic ideal.

### **Conclusions**

A great deal has been achieved in the 113 years of Liechtenstein school sports. Against the backdrop of the current process of education development and the related topic of education standards and measures for quality assurance, the objectives and content of PE teaching is currently also being subjected to review. In the context of this reorganization of the education system, PE has now primarily to substantiate its

significance and educational function in the educational canon, weigh possible adjustments and to reposition itself accordingly. In view of the dangerous tendency of making PE an instrument of "universal therapy" [3] against any and all exposures to health risk and pressure symptoms of the next generation, this decision on its positioning is a difficult tight-rope act. PE is not in a position to resolve all problems found in the context of the lifestyle of today's adolescents [2]. Selecting arguments for legitimating must as a consequence be done very carefully. Within an integrated education development and its interdisciplinary implementation, PE can nevertheless make a substantial contribution to strengthening physical awareness and a healthier lifestyle amongst children and adolescents [6]. Together with the home and club sports, the school counts as the central setting for promoting exercise and, at the same time, as an important socializing facility for developing an awareness for health amongst adolescents. Then again, the high importance of PE in Liechtenstein must be seen against the satisfactory fitness results achieved by the end of primary school for students with clear motor deficiencies. Even though in our society increasingly more children are evidently reducing the extent of their exercise in daily routine [6], the question i.a. obtrudes as to what extent school PE has co-responsibility for the current physical fitness of our children, if possible also for the practical implementation of school sports (primarily for the effective time and intensity of exercising). A critical evaluation of the quality of PE at all school levels in Liechtenstein would therefore be of considerable interest.

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