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FITNESS LEVELS IN PUPILS AT PRACTICAL ELEMENTARY SCHOOLS[1]

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SUMMARY

Relatively little expert attention is paid to assessing the fitness or motor performance standard of children with mild intellectual disability, or children at special schools, in the Czech Republic. The aim of our research was therefore to ascertain the standard of selected fitness indicators among children attending practical elementary schools and to compare the findings with same-age children at ordinary elementary schools.

Five field motor tests focusing mainly on fitness (*Standing broad jump*, *Repeated sit-ups*, *12-minute run*, *4 × 10 m shuttle run, Sit and reach test*) were conducted on 153 children attending special schools in Prague (age 10.62 ± 0.56 years) and, for comparison, 99 children from ordinary elementary schools (age 10.40 ± 0.57 years).

Compared to their typically developing peers, the fitness of the children from special schools, in other words pupils with mainly mild intellectual disability, was statistically ($p = 0.05$) and substantively (*Cohen's d index*) different. The biggest differences in performance were found in the *Repeated sit-ups* test; the smallest in running tests. The primary reason for this should be sought both in their intellectual disability and the specific attributes associated with it and also in the insufficient standard of external conditions (school, family).

The research results highlight the urgent need to devote due attention and space to the motor abilities of special school pupils, as there is no doubt that even children with mild intellectual disability possess the sufficient prerequisites to develop their movement abilities.

Key words: intellectual disability, special schools, fitness abilities, mental retardation

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INTRODUCTION

One characteristic feature of the present-day lifestyle is a decrease in habitual physical activity and increase in mental exertion, as a result of which we can observe among children a greater incidence of "lifestyle illnesses", i.e. obesity, low physical fitness, resistance and performance, as well as unfavourable effects in psychosocial relations. This phenomenon without any doubt also affects children with intellectual disabilities (ID); here this serious problem must be studied with utmost care and, above all, it must be solved with due effectiveness and responsibility as due to their handicaps these children need help not only in everyday life, but also in their integration into society and, later on, into working life.

Up to now, children with mild ID, or pupils of practical elementary schools (also referred to as special schools), have not received as much attention in the area of motorics as they deserve. That is reflected both in the practice of the physical education process and in the unsatisfactory state of scientific knowledge in this field, which is also linked to the shortage, or absence, of diagnostic tools standardised for this category of the population.

Contemporary civilisation increasingly needs individuals whose excellence enables them to keep pace with the perfection of technology and, seeing that the future work process of those leaving these schools focuses mainly on manual work, a good standard of fitness and motor performance is a precondition of their successfully finding work.

The development of motor skills should be one of the primary goals of physical education, which ought to be integrated into the curriculum of special schools in order to align it more closely with the actual needs of the children attending these educational institutions, which in the Czech Republic are primarily intended for children with mild ID (IQ 69–50). However, there may be individuals with mental and nervous disorders, with specific learning disabilities, minimal brain dysfunctions, behavioural disorders, sometimes combined with multiple defects; a considerable number come from an unstimulating socio-cultural environment.

Incorporating movement activities into the teaching process and, potentially, into the daily and weekly regime of pupils from special schools is not an easy task for the special teachers at these schools, however. They bear all the responsibility for the appropriate choice of goals, methods and resources to match the pupils' specific requirements and the conditions of the environment. However, without regular motor testing, focusing mainly on physical strength or fitness, the outlined objective is unlikely to be achieved, especially with regard to prevention of health risks associated with the predominantly hypokinetic lifestyle of persons with ID (Fox & Rotatori, 1982; Kerkhoff, 1982; Kelly et al., 1986; Doll-Tepper, 1987; Schraag, 1988; Latto & Norrice, 1989; Beunen et al., 1990; Balster & Sommer, 1992; Eichstaedt & Lavay, 1992; Fallon, 1992; Fernhall, 1993; Rimmer et al., 1994; Lorenzi et al., 1999; Horvat & Franklin, 2001; Pitetti et al., 2001; Pitetti, 2002). Test results provide objective information about the standard of each child's physical and motor development; this information can be used to retrospectively assess the efficacy of the applied physical education process and find a way to eliminate any identified shortcomings, thus paving the way for the creation of appropriate movement programmes and improvements in the teaching of physical education at special schools.

There is now a relatively large quantity of empirical research results that identify the differences in the motor performance and fitness of children with mild ID and typically developing (TD) children of the same chronological age (Sengstock, 1966; Möser, 1970; Rarick et al., 1970; Asmussen, 1973; Rarick, 1973; Londeree & Johnson, 1974; Ocklenburg, 1978; Rarick, 1981; Bös,1987; Fernhall et al., 1988; Beunen et al., 1990; Horvat et al., 1996; Horvat et al., 1998; Pitetti et al., 2001; Pitteti & Yarmer, 2002). Most of these studies come from abroad, whereas in the Czech Republic very little attention is paid to assessing the standard of fitness of children with mild ID/children at special schools (Čepčiansky, 1974; Karásková, 1987; Chudá, 1988; Chudá, 1992; Karásková & Pavlík, 2002; Lejčarová & Tilinger, 2004), or the specialist literature on this topic merely provides general information; there are no exact data. In addition, the physical fitness of the entire population is declining, so we were interested to see how big the differences between the performance of children with intellectual disability and intact children we found would be. It is possible that the differences will get smaller in future, for example because compulsory physical education is subsidised for three hours a week at special schools in the Czech Republic and for just two hours at ordinary elementary schools.

The state aim of this study was to determine the fitness standard of children from special schools in selected motor tests and to compare the results with the TD population of the same chronological age.

It was hypothesized that significant differences in the level of fitness would be found among children from special schools and TD pupils of elementary schools. The biggest significant difference would be found in the running stamina test.

METHOD

Participants

A total of 153 pupils from special schools (aged 10.62 ± 0.56 years) were involved in the present study. Pupils were taken from 17 Prague special schools. Inclusion criteria for all participants were: birth year 1991 or 1992, attendance of one of the special schools in the Czech capital Prague, absence of serious somatic impairment, and ability to follow motor test instructions. The pupils' form teachers together with the actual researcher ensured that the last two pupil selection criteria were complied with. An informed consent was provided to the school principals and parents or primary caregivers of these children.

The sample consisted of 92 boys (60%) and 61 girls (4 %). This distribution reflects the really higher proportion of male in such type of special school in the Czech Republic.

For comparison purposes, 99 pupils (53 boys [54%] and 46 girls [46%], 10.40 ± 0.57 years) of three ordinary elementary schools in Prague selected at random also took part in the research (the main selection was drawn from 230 elementary schools).

Measurements

In view of the basic, predominantly fitness-related motor abilities and based on the author's own previous experience of testing (Lejčarová & Tilinger, 2004), the following

four tests[2] were used to assess the level of pupils' fitness: *Standing broad jump* (test of dynamic, explosive power of the legs), *Repeated sit-ups* (test of dynamic, endurance/strength capability of the abdominal muscles and iliopsoas flexors), *12-minute run* (test of long-term running endurance ability), *4 × 10 m shuttle run* (test of running speed ability with change of direction, partly also dexterity).

A *Sit and reach test* was used to assess active joint mobility, flexibility and muscular elasticity, primarily with regard to the spine, lower back and hop joint.

Some pupils could not do all the motor tests owing to permanent health limitations (heart defects, asthma, epilepsy, diabetes) and were therefore not included in the final results in the particular disciplines.

The actual measuring was done by the author to guarantee its objectivity and uniformity. Before each motor test the children were given precise instructions and told the applicable rules. In view of the insufficient ability to concentrate and lower standard of comprehension among children from special schools, often linked to problems understanding oral instructions (whereby the inability to transfer oral instructions into movement stems from, *inter alia*, these children's limited movement experience), it was necessary to aid their comprehension of a specific task with a visual demonstration by the examiner herself, sometimes in the form of imagery, in some cases by tactile assistance.

The testing took place in school classrooms and in gyms and on playing fields where physical education is taught at a particular school, i.e. in conditions the test subjects were very familiar with and used to. The pupils were interested and involved and, for the most part, cooperated well with the examiner. No signs of boredom were registered, which can definitely be ascribed to the diverse range of motor tests and the novelty effect. The new, appropriately presented event, devoid of the monotony, tedium and lack of creativity that typify physical education classes at special schools, and the presence of a new person – the examiner – encouraged the children to activity.

Before the specific motor tests were performed, the children were always given sufficient time to familiarise themselves with them and in some cases practise them.

Data analysis

In order to assess the level and closeness of group performances in individual motor tests arithmetic mean (M), median (Me) and standard deviation (SD) were used. Differences in the variables under scrutiny between the children from special and ordinary elementary schools were ascertained using a two-sample t-test ($\alpha = 5\%$)[3]. We

[2] The motor tests must be at the optimal level of difficulty and must not take up too much time if they are to possess any validity, and their content, i.e. the individual tasks, must be absolutely clear and comprehensible to the children and must not arouse fear, e.g. of heights, fear of apparatus etc. Moreover, selecting appropriate tests is highly fundamental owing to the need to make allowance for the standard of motor ability that is required to perform a specific movement task.

[3] However Sutlive & Ulrich (1998) consider the chosen significance level of $\alpha = 10\%$ as adequate, because field research into the applied movement activities often has to confront problems like an overly small sample of testees, high intra-subject and inter-subject variability, testees' understanding of the tasks, the difficulty of controlling intervening variables and problems with the sensitivity of measurement. Consequently, the authors state that field research cannot be sufficiently cogent to ascertain statistically significant differences at the usual level of $\alpha = 5\%$ or smaller.

opted for one of the four following situations based on an assumption of normality and equality of distributions: 1. normal distribution of data with same variance – classic t-test; 2. normal distribution of data with varying variance – the Aspin-Welch test; 3. non-normal distribution of data with same variance – non-parametric Mann-Whitney test; 4. non-normal distribution of data with non-same variance – the non-parametric Kolmogorov-Smirnov test.

The evaluation of the effect size of the differences of mean performances applied *Cohen's d index* (Kromrey et al., 2007).

RESULTS

In line with our expectations, the standard of all the motor indicators was significantly worse in both statistical and substantive terms in children from special schools. The set of ordinary elementary school children is overall more homogeneous in fitness. The lower variability of special school children's performance in the *12-minute run* test was an exception. A similar phenomenon that was found among the overall sets of children at special and ordinary elementary schools, i.e. statistically significant differences in fitness standard, was observed to correlate to gender in these two sets. Among boys, the most marked differences in performance from the point of view of substantive significance were found in the *Sit and reach test* and *Repeated sit-ups* tests. The least evident differences were found in the *4 × 10 m shuttle run* (see Table 1). Among girls, the biggest differences were found in *Repeated sit-ups* and *Standing broad jump* (see Table 2).

Table 1. Comparison of differences in motor indicators among boys attending practical elementary schools and ordinary schools

School	Indicator	n	M	SD	Me	p-value	d
PES	Standing broad jump	92	126.95	28.67	128*	0.001	0.81
OS		53	147.47	21.96	148*		
PES	Repeated sit-ups	92	23.32	10.64	24.5	<0.001	0.93
OS		53	33.49	11.21	35		
PES	12-minute run	80	1560.75	393.3	1550	<0.001	0.71
OS		51	1844.9	411.28	1740		
PES	4 × 10 shuttle run	88	13.83	1.65	13.55*	<0.001	0.51
OS		53	12.94	1.81	12.5*		
PES	Sit and reach	92	42.88	7.76	44*	<0.001	0.97
OS		53	49.36	5.63	50		

Legend:
* non-normal distribution of data
PES practical elementary schools
OS ordinary schools

Table 2. Comparison of differences in motor indicators among girls attending practical elementary schools and ordinary schools

School	Indicator	n	M	SD	Me	p-value	d
PES	Standing broad jump	61	110.9	27.29	115	<0.001	1.81
OS		46	150.46	16.41	152		
PES	Repeated sit-ups	61	20.21	9.73	21	<0.001	1.91
OS		46	36.07	6.91	37*		
PES	12-minute run	58	1433.1	272.82	1450	<0.001	0.85
OS		42	1695.95	343.36	1695		
PES	4 × 10 shuttle run	59	14.76	2.13	14.4*	<0.001	1.12
OS		46	12.68	1.57	12.45*		
PES	Sit and reach	61	45.33	9.12	47	<0.001	1.25
OS		46	55.07	6.47	55.5		

Legend:
* non-normal distribution of data
PES practical elementary schools
OS ordinary schools

To give a complete picture about the set of children from special schools we also examined the standard of individual motor indicators from the point of view of gender. There was a statistical significance in favour of boys in all fitness tests with the exception of *Repeated sit-ups* and in the flexibility test, where girls achieved better results (see Table 3). There are no fundamental differences between boys and girls in terms of group homogeneity; but the greater differentiation in the standard deviation of averages in the *12-minute run* test should be mentioned.

Table 3. Gender-based comparison of differences in motor indicators among pupils attending practical elementary schools

Gender	Indicator	n	M	SD	Me	p-value	d
Girls	Standing broad jump	61	110.9	27.29	115	<0.001	0.57
Boys		92	126.95	28.67	128*		
Girls	Repeated sit-ups	61	20.21	9.73	21	0.070	0.31
Boys		92	23.32	10.64	24.5		
Girls	12-minute run	58	1433.1	272.82	1450	0.026	0.38
Boys		80	1560.75	393.3	1550		
Girls	4 × 10 shuttle run	59	14.76	2.13	14.4*	0.036	0.49
Boys		88	13.83	1.65	13.55*		
Girls	Sit and reach	61	45.33	9.12	47	0.052	0.29
Boys		92	42.88	7.76	44*		

Legend:
* non-normal distribution of data

We do not find a similarity among the sets of children in motor indicators, as ordinary elementary school girls achieved better results: the difference was statistically significant in the flexibility test, in the other tests (with the exception of *12-minute run*) it was not statistically significant (see Table 4). As far as the group homogeneity of the children from ordinary elementary schools is concerned, the boys' performance in almost all motor tests was more variable than the girls'.

Table 4. Gender-based comparison of differences in motor indicators among pupils attending ordinary schools

Gender	Indicator	n	M	SD	Me	p-value	d
Girls	Standing broad jump	46	150.46	16.41	152	0.286	0.16
Boys		53	147.47	21.96	148*		
Girls	Repeated sit-ups	46	36.07	6.91	37*	0.100	0.28
Boys		53	33.49	11.21	35		
Girls	12-minute run	42	1695.95	343.36	1695	0.065	0.39
Boys		51	1844.9	411.28	1740		
Girls	4 × 10 shuttle run	46	12.68	1.57	12.45*	0.747	0.15
Boys		53	12.94	1.81	12.5*		
Girls	Sit and reach	46	55.07	6.47	55.5	<0.001	0.94
Boys		53	49.36	5.63	50		

Legend:
* non-normal distribution of data

DISCUSSION

The presents study shows that there are significant differences in the level of fitness among pupils from special schools and from ordinary schools. However, the biggest difference in performance between the two groups (in terms of the value of Cohen's coefficient d) was not found in the endurance run as we had expected but in the flexibility test (in the case of boys) and in the Repeated sit-ups test (in the case of girls). By contrast, almost the smallest differences between the two said groups of children were found in the 12-minute run, which is surely linked to the general decline in cardio-respiratory stamina throughout the population of children (Bouchard et al., 2007).

Assessing the pupils' fitness solely on the basis of the value of their performances in specific tests does not reveal the internal and external factors which the performance is dependent on and which, moreover, have different valences in different children in consequence of their individual differences. When balancing out the results of our research it is therefore necessary to attempt a detailed analysis of the factors and conditions underpinning the children's fitness, i.e. to mention the possible causes for their worse fitness, which are to some extent interrelated and influence each other and overlap.

The reasons for the reduced standard of the fitness of children from special schools are as multifarious as the reasons for their disability and are often partly identical to them. As

there are usually several factors at work here, shortcomings in the children's motor abilities can only rarely be ascribed categorically to one specific reason.

The reduced level of fitness in children from special schools cannot be attributed solely to their intellectual disability. This is, in part, determined by the IQ of the pupils and, given the heterogeneity of the sample. We have divided the factors we believe may have a negative influence on the fitness of pupils from special schools into four groups: (1) specific physical characteristics and organic factors; (2) unsatisfactory conditions of the environment; (3) mental and emotional specifics; and (4) cognitive shortcomings. Owing to the restricted scope of the study we will deal with just the first two in greater detail.

Specific physical characteristics and organic factors

Some motor performance and fitness differences between individuals with mild ID and TD individuals can be explained by corporeal factors (Rarick, 1981; Wiegersma et al., 1985; Shephard, 1990; Sherrill, 1998); these may have an impact on an individual's overall health, which can in turn influence corporeal performance. Our research found no significant differences in the basic somatic indicators among children attending special schools and those attending ordinary elementary schools (with the exception of the significantly lower height of girls from special schools compared to girls from ordinary elementary schools), so we do not regard them as particularly relevant when attempting to explain the differences in the standard of fitness in the sets of children.

The special schools set also featured several children with a secondary disability that may have a negative affect on their overall corporeal and motor development. Health constraints prevented these children from performing certain movement tasks, which could distort the set's overall score in the given test.

In children with mild ID a major proportion of deficiencies or faults in motor abilities are linked to organic brain damage (Schilling, 1980). Whereas the coordination shortcomings that are prevalent among the children from special schools may be caused by insufficient movement impulses derived from their environment, by constitution-related, biological and mental factors or because of delayed maturity and minor brain deficiencies, CNS pathological phenomena should always be assumed in the case of coordination difficulties. In both cases, it is mainly dynamic movements requiring strength and explosive movements of the body and limbs that are limited. The often insufficient level of strength-related abilities, most notably "jumping" abilities is pronounced; in our research this is documented by the very high *d* coefficient values indicating considerable differences in performance in *Standing broad jump* between the groups.

It is highly likely that many limitations in the motor abilities of certain children can be attributed to ADHD/ADD. In them, gross motorics are often characterised by development problems (motor infantilism), problems with harmonisation and coordination of movements, problems with rhythmicising movements, performing far more movements than actually necessary for a particular task, and lastly movement memory problems. Overall the children appear clumsy and maladroit. In addition, their mental peculiarities may negatively influence their test performances and also impede their motor learning ability.

Unsatisfactory conditions of the environment

We regard adverse spatial and material conditions for the performance of physical education as another factor that may play a fundamental role in influencing the motor performance and fitness of pupils from special schools. Most special schools in Prague have small, and in some cases very small, gyms with limited room for collective sports and games; but occasionally, usually when special schools are linked to another facility, we can find sufficiently sized gyms. There usually are no suitable outdoor sports fields.

Not enough importance is attached to movement activities by some special schools. Based on our interview with the heads of the facilities, this is also documented by the relatively limited offer of out-of-school movement activities for children from special schools compared to ordinary elementary schools. Wiegersma et al. (1985) state that in some teachers we may even encounter a kind of depression or resignation as regards their pupils' motor learning.

Although sport and movement in general is widely recognised as a very important way to aid the overall development of children with ID, mainly to improve and maintain physical strength, support the overall state of health, develop motor skills and mental functions, influence value structures, improve social competence, and to boost self-confidence, social integration, the active and useful spending of free time etc. (Jantzen, 1981; Vidolovits-Moore, 1982; Vermeer, 1984, 1988; Falkenberg, 1985; Zimmer, 1994; Innenmoser, 1996; Bielefeld, 2000; Sowa, 2000; Born & Stöppler, 2001; Bonfranchi, 2002), overall, physical education is grossly undervalued at special schools.

Altogether, children with mild ID/children from special schools are inactive in their free time (Zielniok, 1971; Kerkhoff, 1982; Doll-Tepper, 1987; Schraag, 1988; Balster & Sommer, 1992; Fernhall, 1993; Horvat & Franklin, 2001), partly because of their limited opportunities to participate in various movement programmes (Shephard, 1990; Eichstaedt & Lavay, 1992; Dunn, 1997; Sherrill, 1998). That results in them having reduced experience of both psycho-motoric and socio-emotional learning (Kluge, 1979; Fediuk, 1990). We think that the main reason for these children's limited involvement in sports clubs is a combination of the influences of the environment they grow up in, some parents' apathy and the poor morale and willpower of the individuals themselves. In particular, children coming from a socially unstimulating environment are as a rule already unfamiliar with the kinds of sports that children can undertake with their parents under "normal circumstances" (skiing, water sports, rambling and walking in the countryside).

Lorenzi et al. (1999) and Horvat & Franklin (2001) also reached the conclusion that children with mild ID are not so active during the school day; but when they take part in integrated activities with their TD peers during breaks and in a less constraining environment (without adult supervision) they are more lively and display higher cardiac frequencies. The authors therefore emphasise the importance of an inclusive, unstructured movement to stimulate these children's movement activities.

Most children from special schools do not seek out regular organised movement activities and only take part in more intensive activities during compulsory physical education at school. Instilling a general relationship to movement among these children is therefore mainly linked to their experience of physical education in schools. People's attitudes are formed on the basis of emotional experiences – i.e. what a child experiences during physical education lessons evokes in him positive or negative attitudes towards

physical activity. Positive attitudes are also dependent on the development of movement confidence (Wall, 1990) that stimulates children to actively take part in sports and seek out new movement activities; negative attitudes result in their rejecting movement activities.

The results of a study by Karásková (1993) show that pupils attending the 7th to 9th grade of special schools have a generally positive attitudes towards physical education and movement activities, but unlike children at ordinary elementary schools they view these activities as something fun and unserious; their opinions are emotionally based rather than rationally substantiated. The personality of the physical education teacher is more important for them; they respect the teacher but expect him to treat them sensitively and fairly. They do not like it when a teacher shouts too much and has no sense of humour, which the author thinks is the result of the feminised teaching staff at special schools. Their daily regime gives them more free time than their TD peers, but they are unable on their own to fill this time with suitable movement activities. The strongest influence on them in this sphere is their friends.

The importance of regular movement activities for children at practical elementary schools is also overlooked by many parents (Graunke & Schmidt, 1983; Karásková, 1993). In families with a low socio-cultural standard, a lack of stimuli, the insufficient attention paid by parents to the child's healthy corporeal development (irregular daily rhythm, unhealthy lifestyle, neglecting care), their negative attitude to sports activities and insufficient attempts to make the child take an interest in sport, unsuitable upbringing style resulting in the child's movement needs being suppressed etc. may be factors worsening the child's motor abilities. Conversely, an over-protective upbringing by parents, mainly of children with more pronounced ID and moreover with secondary deficiencies or problems, may also limit their movement experience.

The insufficient standard of attestation and qualifications of the teachers is an alarming aspect of physical education instruction at practical elementary schools; this has been highlighted for many years, both in the Czech Republic and abroad (Čepčiansky, 1974; Mertens, 1980; Grams, 1981; Graunke & Schmidt, 1983; Bös, 1987; Höhne, 1987; Kábele, 1988; Fediuk, 1990).

LIMITATIONS OF THE STUDY

The testing of the standard of motor abilities, i.e. the performance of movement activity in the given time limit (in a situation of emotional and mental strain) arouses a higher state of anxiety and agitation among pupils from special schools/children with ID than among pupils of ordinary elementary schools (Wegener, 1976; Karásková, 1987), primarily among children with a tendency to anxiety and neuroticism. This phenomenon appears particularly relevant in tests with unusual requirements (Fediuk, 1990). That is because the type and nature of the movement task plays an important role, as performing the task requires different qualities and abilities in the pupil. For example, the results of motor tests requiring a high level of movement coordination, maximum speed of movement or endurance are highly variable owing to the intensity or duration of the activity (Čelikovský, Blahuš & Kovář, 1973). Whilst motivation usually has a negative effect in tests of coordination and speed abilities, the opposite may be the case in endurance tasks.

Besides the said links to emotions, the strong link to the volitional aspect of personality also plays a part in the variability of fitness. Pupils from special schools often do not put in the maximum performance unless they have a very strong motivation; they also have difficulty completing a task that is demanding on endurance. We are aware of the disadvantages of all performance tests, consisting in the fact that the research subjects' motivation may influence the results – if the motivation is not sufficiently high, i.e. the test subjects do not give their best possible performance, the test scores cannot provide conclusive information about the ability under scrutiny.

In addition, the interaction between the tester and the testee is important during the actual testing. One reason for that is that children with mild ID are more likely to achieve the best motor performance and fitness when the tester is a person known to them; that can prevent the distortion of data by emotional and motivational factors (Wegener, 1976). There is therefore no doubt that the results of empirical research are to some degree influenced by motivational factors that can be reflected differently in the fitness of pupils from special schools and pupils from ordinary elementary schools; this can help clarify the frequently published lower standard of motor performance and fitness among the former group, i.e. children with mild ID. Our endeavour was to try to eliminate all the said negative influences so that the results were as objective as possible.

CONCLUSIONS

The research results highlight the urgent need to devote adequate attention to the motorics of children from special schools. The motoric shortcomings identified in children may be considered a barrier to their movement training, as there is no doubt that even children with mild ID have sufficient prerequisites for development of their movement abilities, within the context of their disability. We cannot view these children's low standard of fitness solely from the perspective of their mental insufficiency and the related personality traits; external conditions, e.g. the physical education process in special schools, the family *et al.* should also be taken into account. It has been proved (Solomon & Pangle, 1967; Wright & Cowden, 1986; Gibbons & Bushakra, 1989; Chanias et al., 1998; Krejčí, 1998; Bös et al., 1999; Yilmaz et al., 2002) that regular physical education or a training programme under expert supervision can have a fundamenal affect on the standard of fitness in children and young people with mild ID. However, what we see as the critical aspect of physical education programmes is the children's willingness and ability to integrate movement activities into their lifestyle after these programmes have finished.

Hopefully, this paper will inspire researchers to examine the topic further and using methodologies that overcome some of the limitations affecting our study. For the author, the assessment of selected motor indicators in children attending special schools is merely a starting point for further intended research that will seek to assess the standard of fitness with regard to the aetiology and degree of intellectual disability and monitor its develop longitudinally. This is because if we want to positively influence the motor development of children attending special schools this comprehensive approach to ascertaining their motor skills standard is the only approach possible.

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ÚROVEŇ TĚLESNÉ ZDATNOSTI ŽÁKŮ ZÁKLADNÍCH ŠKOL PRAKTICKÝCH

ALENA LEJČAROVÁ

SOUHRN

V České republice se poměrně málo odborné pozornosti věnuje hodnocení úrovně tělesné zdatnosti či motorické výkonnosti dětí s lehkým intelektovým postižením, resp. žáků základních škol praktických. Cílem našeho šetření bylo tedy zjistit úroveň vybraných ukazatelů tělesné zdatnosti žáků na základních školách praktických a získané hodnoty porovnat se stejně starými žáky běžných základních škol.

U 153 žáků pražských základních škol praktických (věk 10,62 ± 0,56 let) a pro komparaci výsledků také u 99 žáků běžných základních škol (věk 10,40 ± 0,57 let) bylo použito pět terénních motorických testů (*Skok daleký z místa*, *Leh–sed opakovaně*, *Běh po dobu 12 min*, *Člunkový běh 4 × 10 m, Hluboký předklon s dosahováním v sedu snožmo*) zaměřených převážně na kondiční schopnosti.

Tělesná zdatnost žáků základních škol praktických, resp. žáků s převážně lehkým intelektovým postižením je oproti intaktním vrstevníkům statisticky ($p = 0,05$) i věcně rozdílná (*Cohenův index d*). Největší rozdíly ve výkonech byly zaznamenány v testu *Leh–sed opakovaně*, nejmenší v běžeckých testech. Primární příčinu zjištěného stavu je nutno hledat nejen v jejich intelektovém postižení a s ním spojenými specifiky, ale i v nedostatečné úrovni vnějších podmínek (škola, rodina).

Výsledky výzkumu poukazují na naléhavou potřebu věnovat motorice žáků speciálních škol patřičnou pozornost a prostor, neboť není pochyb o tom, že i děti s lehkým intelektovým postižením mají v rámci svého postižení dostatek předpokladů pro rozvoj svých pohybových schopností.

Klíčová slova: intelektové postižení, speciální školy, kondiční schopnosti, mentální retardace

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