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PHYSICAL FITNESS LEVELS OF YOUTH AT PRACTICAL ELEMENTARY SCHOOL AND AT REGULAR ELEMENTARY SCHOOL

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SUMMARY

In connection with the more frequent hypokinetic lifestyles and the declining fitness of children, the aim of our research was to assess and compare the fitness of 60 pupils at practical elementary school and 60 pupils at regular elementary school aged 14–15. Seven motor tests were used to this end – "deep forward bend", "standing long jump", "press-ups", "repeated sit-ups", "60 m run", "1500 m run" (for boys)/"800 m run" (for girls). As we expected, lower fitness levels were proven among pupils at practical elementary school, with the exception of the performance of girls in the "deep forward bend" test and "60 m run". As far as inter-sex differences are concerned, boys always achieved better results, with the exception of the flexibility test in both sets of children and the "60 m run" among pupils at practical elementary school. The biggest difference between boys' and girls' performance was found in the "standing long jump" in both sets of children.

A not entirely obvious but to some extent alarming approximation of performances in selected motor tests can be observed – we attribute this not to the improving fitness of pupils at practical elementary school but rather to the declining fitness of pupils at regular elementary school. This is particularly evident among girls. When the two sets of children are compared overall, the children's performances were most similar in the flexibility test, while there were big differences in the dynamic endurance and strength tests.

Key words: intellectual disability, mental handicap, motor abilities, motor performance, motor tests, special schools

INTRODUCTION

The present-day lifestyle, combined with the increasing psycho-social stress and the minimal time for pursuing healthy living, are being reflected more and more in increased incidence of civilisational illnesses that are also linked to declining resilience, performance and fitness in the population, including children, unfortunately. In children with specific needs, and concretely children with intellectual disabilities (ID), particularly thorough

attention must be paid to this alarming fact, as they often require extra assistance and increased motivation to do exercise.

Most of the children in the group with ID have mild ID, who as a rule attend practical elementary schools (PES). In recent years, though, we have started to come across pupils in these educational institutions who have below-average mental capacities, or even average capacity, and who for some reason or other performed badly at regular elementary school (RES). Some of the children may be mentally ill or have nervous disorders, with specific learning and behavioural disorders, autistic features, and sometimes a combination of disorders; a significant number comes from a deprived socio-cultural environment.

Modern civilisation increasingly needs individuals who can perform well enough to keep up with the perfection of technology, but as the future work process of PES-leavers, or children with mild ID, usually focus on manual work, they also need to be fit to succeed. Regular fitness testing of children and young people with ID should focus on monitoring their physical and motor development and preventing health risks associated with this population segment's largely hypokinetic lifestyle (Balster & Sommer, 1992; Beunen et al., 1990; Doll-Tepper, 1987; Eichstaedt & Lavay, 1992; Fallon, 1992; Fernhall, 1993; Fox & Rotatori, 1982; Horvat & Franklin, 2001; Kelly, Rimmer, & Ness, 1986; Kerkhoff, 1982; Latto & Norrice, 1989; Lorenzi, Horvat, & Pellegrini, 1999; Pitetti, 2002; Pitetti, Yarmer, & Fernhall, 2001; Rimmer, Braddock, & Fujiura, 1994; Schraag, 1988). Fundamental data about the condition and development tendencies of the fitness of children and young people can also serve as an impetus for regulatory interventions in physical education in schools.

We already possess enough relatively empirical research examining differences in the fitness and motor performance of children with mild ID and intact children of the same age (Asmussen, 1973; Beunen et al., 1990; Bös, 1987; Fernhall, Tymeson, & Webster, 1988; Horvat, Croce, & Pitetti, 1998; Horvat et al., 1996; Londeree & Johnson, 1974; Möser, 1970; Ocklenburg, 1978; Pitteti & Yarmer, 2002; Pitetti, Yarmer, & Fernhall, 2001; Rarick, 1973; Rarick, 1981; Rarick, Widdop, & Broadhead, 1970; Sengstock, 1966). Most of the studies were done abroad. In the Czech Republic there has been relatively little research into the motor abilities of children with mild ID/children at PES (Čepčiansky, 1974; Chudá, 1988; Chudá, 1992; Karásková, 1987; Karásková & Pavlík, 2002; Lejčarová, 2010; Lejčarová & Tilinger, 2002), even though an assessment of pupils' fitness is one of the parameters of the quality of the educational effect of physical education at PES.

The principal objective of our study should therefore be to assess the fitness of 14–15 year old PES pupils in selected motor tests and to compare that with the intact population of the same age, i.e. pupils at RES.

Based on a study of the expert literature, our own previous research and our practical experience with physical education among PES pupils we expect to find lower fitness levels than in pupils at RES. This fact is of course not solely influenced by the reduced intellectual faculties of PES pupils and the associated specific impacts on motor abilities; it is above all influenced by a lack of will and the pupils' significant lack of participation in extramural exercise. Regrettably, this growing trend does not just affect children with mild ID/PES pupils – it can be observed among intact children, which is undoubtedly resulting in the gap between the two sets of children being closed somewhat. We were therefore

interested to see how big the difference between PES and RES pupils would be. It is possible that the differences will continue to shrink in the future, partly because, for example, compulsory physical education at PES runs to three hours a week and at RES to just two hours a week as a rule.

METHOD

Participants

The survey sample at the PES consisted of 60 pupils (30 boys and 30 girls) from the 7th to the 9th grade aged 14 to 15, and at RES 60 pupils (30 boys and 30 girls) of the same age. Both schools are located in the same municipality in the district of Sokolov (Karlovarský Region). Inclusion criteria for all participants were: the same age category, absence of serious somatic impairment, and ability to follow motor test instructions. An informed consent was provided to the school principals and parents or primary caregivers of these children.

Measurements

Seven tests[1] with minimal demands on motor skills were used to assess their fitness: *Deep Forward Bend* (from a standing position, legs slightly apart); *Standing Long Jump*; *Press-ups* (for 60 seconds); *Repeated Sit-ups* (for 60 seconds); *60 m Run*; *1500 m Run* (for boys)/*800 m Run* (for girls) (Měkota et al., 2002).

To ensure that the results were objective, testing was conducted at both types of schools in the period May–June 2010 always upon agreement with the management of each school. It took place in school 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. Each individual test was carried out separately during one physical education teaching unit (lesson), to ensure that pupils would not be exhausted and that the results of the other tests would not be distorted due to fatigue. In case a student was absent, he or she would be tested on a different day.

A 10-minute warm-up, which was not allowed to cause fatigue, always preceded the measuring itself. The testing was conducted by one of the authors, to guarantee its objectivity and uniformity and to reduce to a minimum the possibility of the examiner making an accidental error in measurement. Basic objective conditions, i.e., temperatures that were neither too high nor too low, relative calm (no wind), dry and hard terrain, and so on, were always observed during testing. The pupils were interested and involved and, for the most part, cooperated well with the examiner.

[1] 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.

Data analysis

Basic descriptive statistical characteristics were used to assess the standard and similarity of the groups' performances in motor tests: arithmetic mean (M), standard deviation (SD), range (R). Significant differences in the variables under scrutiny between the two samples were ascertained using *Cohen's d* (Kromrey et al., 2007).

RESULTS

Part of results is desribed related to test order.

In the *Deep Forward Bend* test boys from PES recorded the worst scores of all the groups under scrutiny (Table 1). Almost 50% had great difficulty performing this movement task without bending their knees and not one boy was able to touch the mat (14 RES boys could touch the mat). The best results were achieved by PES girls. Although RES girls came very close to their results, they were worse at touching the mat – 14 RES girls managed to touch the mat, compared to 19 PES girls. Taken overall, however, the pupils' results were not particularly favourable given that maintaining flexibility of the joints is important for achieving full functional health. Flexibility is not a health problem for younger individuals, but can be in more advanced ages.

Table 1. Comparison of differences in performance in the *Deep Forward Bend* test among PES and RES children.

	Deep Forward Bend						
	n	M	SD	R	x_{max}	x_{min}	d
PES boys	30	8.41	4.55	10	2	12	0.20
RES boys	30	7.33	6.28	10	0	10	
PES girls	30	5.30	3.62	7	0	7	0.14
RES girls	30	5.82	3.84	7	0	7	

Note: M, SD, R, x_{max}, x_{min} are given in centimetres.

The differences between PES and RES boys in performance in the *Standing Long Jump* test were more pronounced (d = 0.57); the differences between girls were very small, however (Table 2).

Table 2. Comparison of differences in performance in the *Standing Long Jump* test among PES and RES children.

	Standing Long Jump						
	n	M	SD	R	x_{max}	x_{min}	d
PES boys	30	163.10	19.17	75	187	112	0.57
RES boys	30	174.05	19.33	60	205	145	
PES girls	30	119.02	20.42	81	153	72	0.10
RES girls	30	121.04	19.29	73	158	85	

Note: M, SD, R, x_{max}, x_{min} are given in centimetres.

The largest substantive differences in the performances of PES and RES children were found in the *Press-ups* test (Table 3) and *Repeated Sit-ups* (Table 4). It is worth mentioning the enormous difference in the maximum scores achieved in the press-ups test, which was 53 *Press-ups* in the case of boys. We attribute the worse performance by PES children in these two tests of endurance in low motivation and reduced willpower as well as in lower strength capabilities.

Table 3. Comparison of differences in performance in the *Press-ups* test among PES and RES children.

	Press-ups						
	n	M	SD	R	x_{max}	x_{min}	d
PES boys	30	15.01	5.82	17	21	4	**1.15**
RES boys	30	38.03	17.33	60	73	13	
PES girls	30	9.02	1.45	5	12	7	**2.23**
RES girls	30	22.01	7.82	27	37	10	

Note: M, SD, R, x_{max}, x_{min} are given in number of repetitions.

Table 4. Comparison of differences in performance in the *Repeated Sit-ups* test among PES and RES children.

	Repeated Sit-ups						
	n	M	SD	R	x_{max}	x_{min}	d
PES boys	30	23.12	7.53	28	42	14	**1.82**
RES boys	30	38.13	8.92	40	51	11	
PES girls	30	17.20	6.50	23	31	8	**1.97**
RES girls	30	29.25	5.69	27	47	20	

M, SD, R, x_{max}, x_{min} are given in number of cycles.

Relatively large substantive differences between PES and RES boys were also found in the speed test *60 m Run* (d = 0.85). Conversely, the performances by girls were almost the same, with PES girls surprisingly achieving better times (Table 5), better even than those of PES boys (as regards average times).

Table 5. Comparison of differences in performance in the *60 m Run* test among PES and RES children.

	60 m Run						
	n	M	SD	R	x_{max}	x_{min}	d
PES boys	30	10.64	1.32	4.84	8.88	13.72	**0.85**
RES boys	30	9.52	1.30	4.40	8.00	12.40	
PES girls	30	10.59	1.33	4.90	8.79	13.69	0.02
RES girls	30	10.61	1.22	5.50	8.90	14.40	

Note: M, SD, R, x_{max}, x_{min} are given in seconds.

As in the running speed test, in the endurance run much greater differences were found between the groups of boys (d = 1.15) than between the groups of girls (d = 0.02) (Table 6).

A thorough assessment, however, must take into account the number of pupils that completed the course. Seven boys and three girls from PES did not complete the *1500 m Run/800 m Run*. This fact means that the data used for comparative purposes do not represent the entire spectrum of performance by PES children, merely the results of the better-performing groups.

The big differences between the minimum and maximum values scored both by PES boys (a difference of almost 4 minutes) and RES boys (difference of over 5.5 minutes). We found that potential failure causes the PES boys to lose all motivation, whereas girls are more motivated by this situation.

Table 6. Comparison of differences in performance in the *1500 m Run/800 m Run* test among PES and RES children.

	1500 m Run/800 m Run						
	n	M	SD	R	x_{max}	x_{min}	d
PES boys	23	9.12	2.00	3.94	7.22	11.16	**1.15**
RES boys	30	7.01	1.69	5.57	5.00	10.57	
PES girls	27	4.09	1.67	2.82	3.31	6.13	0.02
RES girls	30	4.07	0.77	3.00	3.04	6.04	

Note: M, SD, R, x_{max}, x_{min} are given in minutes.

Table 7 provides an overview of the differences in each pupil's performance in all seven motor tests from the point of view of assessing substantive significance.

Table 7. Substantive significance of differences in motor indicator values in the RES and PES samples.

Motor test	Boys		Girls	
	Difference	d	Difference	d
Deep forward bend	small	0.20	small*	0.14
Standing long jump	medium	0.57	small	0.10
Press-ups	large	**1.15**	large	**2.23**
Repeated sit-ups	large	**1.82**	large	**1.97**
60 m run	large	**0.85**	small*	0.02
1500 m run/800 m run	large	**1.15**	small	0.02

Note: * better test performance achieved by the PES sample (based on simple comparison of the arithmetic mean of samples' scores).

To get a complete picture of both samples of pupils the motor indicators (with the exception of the running endurance test because of the different lengths of the courses for boys and girls) were scrutinised in terms of gender as well. The better results were always achieved at this age by boys; with the exception of the flexibility test in the case of both

groups and in the *60 m Run* in the case of PES children, where the substantive significance of the difference was slight, however (Table 8). The performances of boys and girls were closest in the running speed test (in the PES sample) and in the *Deep Forward Bend* test (in the RES sample. Conversely, in both samples the biggest differences between boys and girls were found in the *Standing Long Jump* test.

Table 8. Substantive significance of differences in motor indicator values in the RES and PES samples, differentiated by gender.

Motor test	RES		PES	
	Difference	d	Difference	d
Deep forward bend	small*	0.29	medium*	0.75
Standing long jump	large	**2.74**	large	**2.22**
Press-ups	large	**1.19**	large	**1.42**
Repeated sit-ups	large	**1.19**	large	**0.85**
60 m run	large	**0.87**	small*	0.04

Note: * better test performance achieved by girls (based on simple comparison of the arithmetic mean of girls' and boys' scores)

DISCUSSION

With regard to gender, the overall comparison of PES and RES children reveal a not entirely obvious but to some extent alarming similarity in the performances in selected motor tests, which is evidently not a consequence of the improving fitness of PES children but of the declining performance of RES children. This is particularly evident among girls, where the substantive significance of differences in performance was generally small. In the tests *Deep Forward Bend* and *60 m Run* PES girls achieved on average better results even than the RES girls. When the samples were compared overall, the most evenly balanced performances were recorded in the flexibility test. By contrast, we can observe huge differences (d = 1.15–2.23) between the PES and RES samples in the *Press-ups* and *Sit-ups* tests, i.e. in tests of the dynamic endurance and strength capability of the muscles of the arms, shoulders, abdomen, hips and lower back. Besides individual strength, the problem for the majority of PES children/children with mild ID consists in an insufficient ability to exert the maximum strength and in their lower motivation and perseverance to complete the task (Sudgen & Keogh, 1990), which was reflected in growing unpleasant feelings of tiredness from the accumulation of lactic acid in the worked muscles.

Due to the fact that the structure of the problem being addressed, the age category of the probands, the data collection techniques used and processing methods applied are often different, it is very difficult or even impossible to compare our findings with similar studies (see Introduction).

Karásková & Pavlík (2002) made a similar assessment of selected physical fitness indicators among PES children in pre-puberty compared with RES children of the same age, and compared the results with a survey done 15 years earlier. The research indicated a

stagnating and in some cases declining physical fitness standard among the present-day schoolchildren, mainly in endurance capabilities, which is certainly linked to the general decline in cardiorespiratory endurance throughout the population of children (Bouchard, Blair, & Haskel, 2007).

Judging the fitness of schoolchildren solely on the basis of their performance in specific tests does not reveal the internal and external factors which this performance is dependent on and which moreover have different valence between different children as a result of individual differences. When balancing the results it is therefore necessary to attempt a detailed analysis of the factors and conditions the motor performance of the children are based in, i.e. to mention possible causes for their reduced fitness; these causes are to some extent mutually linked and mutually interact.

The reasons for the reduced fitness and motor performance of PES children are as diverse as the reasons for their disability and are partially identical to them. As a number of factors are at work here, it is rare to be able to attribute the children's motor deficiencies to a single cause.

Among the factors that may have a negative impact on the fitness of PES children are the specifics of their physical characteristics and organic factors, specifics related to their mental and emotional make-up, cognitive shortcomings and insufficient conditions of the environment, including the physical education process at PES (for more details see Lejčarová, 2010).

We believe that motivation plays a major role in the performance (not just motor performance) of PES pupils/children with mild ID. In general, the question of appropriate and standard motivation is the weakest link in testing motor abilities in people (Čelikovský, Blahuš, & Kovář, 1973). Children with mild ID are tied mainly to external motivation and as a rule we find that they externalise the reasons for failure, i.e. the attribute it more often to chance rather than their own abilities (Van der Schoot, Geist, & Bauer, 1990). They are less motivated to perform than intact children. Among them there is a larger proportion of those who expect to fail and fear failing (Pavlovkin, 1988). Internal motivation is possible only to a reduced extent: it is expressed rather in an endeavour to satisfy the need to interact with people and thus gain attention and recognition from adults. Motivating these children often depends on a specific person or material and social rewards (Van der Schoot, Geist, & Bauer, 1990).

The performance of children with mild ID is supported more by success than failure. After a success, performance is almost without exception found to improve or the previously achieved performance is at least maintained. These children then perform new tasks happily and with greater effort, as a rule. Conversely, failure is followed usually by deteriorating performance and reduced willingness to expend effort (Van der Schoot, Geist, & Bauer, 1990); we observed this phenomenon in tests requiring endurance.

Willpower also plays a significant role in the achievement of maximum performance among PES children/children with mild ID. Weak willpower (Klauss, 2000; Langer, 1996; Lauth, 2000; Müller, 2001) means that they respond worse to initial failure when performing particularly difficult movement tasks; they refuse to continue activities linked to greater effort; they are more vulnerable to feelings of tiredness and laziness. They also lack the ability for "self-sacrifice" and outdoing themselves, perseverance and stamina, trying to achieve something (Lejčarová, 2009). These children are characterised by a lack

of initiative, an inability to control their actions, to overcome the smallest obstacles and to keep at an activity for a prolonged period of time, a focus on material and short-term goals of action (Langer, 1996), and low tolerance of frustration. As far as the decision-making phase is concerned, they usually give quick preference to a currently more attractive motive; in an act requiring willpower, i.e. trying to achieve a goal, especially if long-term, the difficulty they have controlling themselves and the fact they are easily distracted by other current motives remains a problem (Vágnerová, 1993).

According to Švarcová (2003) willpower training is a very complicated and long-term process, and a process the further development of a child with mild ID is to some extent dependent on. Without effort of will the child cannot perform even the simplest tasks and thus cannot develop, above all in the mental sphere but also in terms of socialisation.

Based on our own experiences from similar research with 9–11 year old PES children (Lejčarová, 2010) we have to say that, viewed overall, in the older age category (14–15) we observed a lower level of motivation and volitional effort in endurance tests than among the young children. This fact is doubtless linked to the period of puberty our research sample is in. Some children, boys in particular, very rarely obeyed the teacher's authority when the teacher was trying to motivate them to complete a test.

The law of uneven development (Čelikovský et al., 1977) is manifested particularly strongly during the period of puberty. Considerable differences emerge in the physical and motor development both of PES children and between PES and RES children – the very pronounced differences between the minimum and maximum scores achieved by children in certain motor tests bear this out (see Results). All the growth imbalances and functional disharmonies in the organism and a pubescent child influence his/her motor ability. In certain individuals (especially those that do not take part in regular exercise) there is a considerable deterioration in motor abilities, which is reflected mainly in worse dexterity and agility. However, in many boys and girls only negligible or no negative impacts on motor ability can be observed during puberty. These are mainly individuals who regularly took part in intense exercise activities in the prepubescent period and continue with these activities during puberty. Regular training means that there is sometimes no deterioration in motor abilities and performance even improves (Čelikovský et al., 1977; Měkota & Novosad, 2005). As we found in our research with 153 9–11 year old PES children (Lejčarová, 2009), however, their participation in extramural exercise activities is very low: 16 pupils take part in sports activities put on by the school and only three pupils (boys) did sport in sports clubs in their free time. Jakubec (2005) reached similar conclusions, finding in a question-based survey of 147 schoolchildren of 8th and 9th grade from eight practical elementary schools (then called special schools) in the Czech Republic that only 6% regularly take part in exercise activities in school and 7.5% of pupils (again only boys) attended some sports club regularly. In a study of children from 7th to 9th grade in special schools Karásková (1993) confirmed that they participate less in organized extramural exercise activities than RES pupils.

In view of the emotional imbalance and heightened sensitivity that accompanies puberty, there is often less willingness to take part in exercise and undergo physical exertion during this period. According to Hátlová (2009), regular exercise has a positive benefit during this period deriving from the improvement of the skills and intellectual requisites for tackling situations that sports activities give rise to, in the development of endurance and

will, and also in social situations where an individual must subordinate himself to the interests of a group.

Exercise is an utterly natural need. It follows, then, that if a pubescent child is brought up to do exercise from a very young age, it is forced to deal with various situations, which is a primary contribution towards better development of thought processes. The child intuitively tackles problems associated with movement and strain, which puts in place the right conditions for easier learning of movement tasks in later life (Galloway, 2007). Development movement activities among children with ID therefore also has an influence on discovery activity and dexterity for manual work (Kvapilík & Černá, 1990), which is linked to the possibility of social integration and work. In children with ID it is necessary to pay attention responsibly to exercise activities throughout their lives, and particularly during childhood. Unfortunately, physical education in school is the only active exercise done by children with mild ID/PES pupils.

As far as inter-sex differences in the standard of pupils' motor performance and fitness are concerned, the differences in the motor performance of boys and girls increase in favour of boys at this age (Čelikovský et al., 1990; Komeštík, 1995; Měkota & Novosad, 2005). According to Čelikovský et al. (1977), the different muscle mass, the external environment and the entire upbringing system (e.g. girls having different interests) already has an increasing influence on motor abilities during puberty. Měkota (1979) adds that the bisexual differences derive not just from the different biological preconditions but, as a rule, from lower motivation, training and experience with exercise.

It has been found (Karásková, 1987; Londeree & Johnson, 1974; Möser, 1970; Rarick, 1981; Rarick, Widdop, & Broadhead, 1970) that inter-sex differences in motor abilities, especially fitness-related ability, among children with mild ID/PES children are not significantly different from inter-sex differences in the intact population. In our research the size of the differences (measured by the d index) was similar when both samples were compared, with the exception of the running speed test, where PES girls performed better than RES girls, though the substantive difference was almost negligible (Table 8). Similarly, better results were achieved by girls in the *Deep Forward Bend* test (although the substantive significance of the difference was small in the case of RES children) – in joint flexibility girls are on average better predisposed from the point of anatomical and physiological perspectives than boys (Čelikovský, 1977). By contrast Rarick, Dobbins (1972, in Bauer, Pellens, Van der Schoot, 1981) and Krebs (1995) state that boys with mild ID have a greater flexibility than girls with mild ID almost without exception (the authors did not mention the age bracket this claim applies to, however).

LIMITS 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 PES/children with ID than among pupils of RES (Wegener, 1976; Karásková, 1987), primarily among children with a tendency to anxiety and neuroticism. The type and nature of the movement task plays an important role too, 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. PES pupils 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 PES pupils and RES pupils; 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

We are aware that the research sample cannot be regarded as sufficiently representative and that it would be appropriate to confirm the formulated conclusions on a bigger research sample. The research conducted proved that PES pupils have an overall lower level of physical fitness than RES pupils. Only in tests *Deep Forward Bend* and *60 m Run* were PES girls able to surpass their peers from RES in average performance, although the substantive significance of differences in performance was very small (d = 0.14; 0.02). When the samples were compared overall, the most evenly balanced performances were recorded just in the flexibility test (d = 0.20 in boys; 0.14 in girls). By contrast, large differences (d = 1.15–2.23) in tests of the dynamic endurance and strength capability (*Press-ups*, *Repeated Sit-ups*) and in the running endurance test (in boys), where maximum performance also requires willpower and motivation above all else, can be observed between PES and RES pupils. In tests where children with mild ID, i.e., PES pupils, are not handicapped by poor volition and decreased motivation, a not entirely obvious but to some extent alarming similarity in the motor performances can be registered, which is evidently not a consequence of the improving fitness of PES children but of the declining performance of RES children. This fact is particularly evident among girls, where the substantive significance of differences in performance was small (d = 0.02–0.10).

If we look at the results of earlier studies of a similar focus (e.g. Čepčianský, 1974; Chudá, 1988; Karásková, 1987; Lejčarová & Tilinger, 2002) we reach the conclusion that

the performance levels of RES children are beginning to converge with those of PES children.

The condition and changes in the fitness of both PES and RES children cannot be regarded as favourable. They certainly do not correspond to the positive changes expected from the introduction of "framework" or school education programmes, the popularisation of exercise activities, developmental acceleration, positive nutrition changes etc. This finding will more likely be down to the passivity of schoolchildren, linked to their non-participation in extramural exercise activities and the present-day general reluctance to perform sport rather than genetic dispositions.

To conclude we would like to emphasise that one of the ways to improve the motor performance and fitness of schoolchildren is to make school physical education classes more effective and motivate the children to perform exercise. Throughout life it is important to be active regardless of fitness levels. Greater fitness is a required result but the accent must be on promoting behaviour comprising movement activities. All children can be successful in that regard.

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TĚLESNÁ ZDATNOST ŽÁKŮ ZÁKLADNÍ ŠKOLY PRAKTICKÉ A ŽÁKŮ BĚŽNÉ ZÁKLADNÍ ŠKOLY

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SOUHRN

V souvislosti s častějším hypokinetickým způsobem života a klesající výkonností a fyzickou zdatností dětské populace bylo cílem našeho výzkumu zhodnotit a porovnat úroveň fyzické zdatnosti 60 žáků základní školy praktické a 60 žáků běžné základní školy ve věku 14–15 let. Celkem bylo k tomuto účelu použito sedm motorických testů („Hluboký předklon“, „Skok daleký z místa“, „Kliky ve vzporu ležmo“, „Leh-sed opakovaně“, „Běh na 60 m“, „Běh na 1500 m“ – chlapci, „Běh na 800 m“ – dívky). Nižší úroveň fyzické zdatnosti byla dle našeho předpokladu prokázána u žáků základní školy praktické, s výjimkou výkonů v testech „Hluboký předklon“ a „Běh na 60 metrů“ u dívek. Co se týče intersexuálních rozdílů, lepších výsledků dosáhli vždy chlapci, vyjma testu flexibility u obou souborů a testu „Běh na 60 m“ u dětí ze základní školy praktické. Největší diference mezi výkony chlapců a děvčat byly u obou souborů shodně zjištěny v testu „Skok daleký z místa“. Lze sledovat ne zcela zjevné, ovšem do jisté míry alarmující přibližování výkonů ve vybraných motorických testech, což přičítáme nikoli rostoucí fyzické zdatnosti žáků základní školy praktické, nýbrž spíše snižující se výkonnosti žáků běžné základní školy. Patrný je tento stav zejména u dívek, kde věcná významnost rozdílů ve výkonech dosahovala zpravidla malé hodnoty. V celkové komparaci souborů se výkony žáků nejvíce přibližovaly v testu flexibility, zatímco v testech dynamických vytrvalostně-silových schopností byly rozdíly velké.

Klíčová slova: intelektové postižení, mentální handicap, motorické schopnosti, motorická výkonnost, motorické testy, speciální školství

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