

## CORRECTION OF BEHAVIOR DISORDERS IN INTEGRATED CHILDREN THROUGH PHYSICAL ACTIVITIES

Erika CHOVANOVÁ

*Department of Sports Educology and Humanistics,  
Faculty of Sports, University of Prešov, Prešov, Slovakia*

---

### Keywords:

- Forms of movement.
- Integration.
- Attention Deficit Hyperactivity Disorder (ADHD).
- Conduct problems.

### Abstract:

The author presents the results of an experimental study designed to integrate children diagnosed with ADHD and with behavior disorders into educational process. The author also describes the potential of the experimental factor administered to integrate children with behavior disorders and to correct such disorders. As for the experiment, children participated in physical activities within forms of physical activities and popularity of physical activities during physical education classes. The results showed that behavior in particular dimensions improved. The behavior of integrated students improved leading to correction of behavior disorders based on data collected via NICHQ Vanderbilt ADHD Diagnostic Rating Scale and Strengths and Difficulties Questionnaire (SDQ – Svk). At present, this issue is scientifically investigated within VEGA project 1/0769/13 *'Efficiency of specific exercise reeducation procedures designed to correct hyperkinetic disorders of prepubertal children'*.

---

### INTRODUCTION

Compensatory and recovery functions of physical activities in relation to physical and mental health also manifest in form of subjective feelings experienced following exercise in form of comfort, or even euphoria. Physical activities significantly contribute to reduction of mental stress, anxiety, depressive mood by suppressing negative emotions. Physical activity positively affects not only health, but also helps to cope with stress [14]. The effects of physical activity on health have been reported by a variety of studies showing that physical activities not only promotes health, but also enhances self-respect, affects morals and social development especially in problematic groups of children diagnosed with learning difficulties [12].

Physical activities are classified into organized and non-organized including habitual physical activity. Such activity includes manipulative games, sports, and movement from place to another applied in form of controlled or uncontrolled physical activity performed either at school or out of school. School environment is characterized by various forms of physical activities performed before classes, during classes, during school breaks, during the school club time or at physical education classes [13].

When educating integrated children innovative trends related to physical activities should be sought. Treatment of disorder symptoms through physical activities represents an unusual eventuality of how to use the basic need of children for movement and at the same time for stimulation of integrated children diagnosed with a hyperkinetic disorder which many times requires correction [1]. Physical activities have significant effect on integrated children (ADHD – hyperkinetic children, students with behavior disorders), because such activities develop self-control and reduce impulsivity [2]. The benefits of physical activities such as

following the principles of fair play are recommended to be applied with children [3, 7, 8, 9, 10, 11].

Most beneficial activities to be performed by integrated children diagnosed with behavior disorders are those based on alternation of tension and relaxation, breathing and relaxation exercises, and also activities developing fine motor skills and coordination. Among the most recommended games are games during which children touch each other, i.e. tactile games. These games reduce aggressiveness and tension by helping to build mutual understanding and relationships among children [5]. To affect hyperactivity and attention disorders it is recommended not to force children to behave well as they exert a great deal of effort to do so being left with no energy to focus on other more important activities. Interesting are mental relaxation techniques based on movement, body work, and breathing exercises to achieve overall relaxation and relief from tension [16].

Psychomotor skills of children diagnosed with a hyperkinetic disorder or ADHD especially benefit from relaxation through movement. Such children should have enough chances to run freely, if they like. Thus, children perform free movements that resemble an ideal form of relaxation by using movement when participating in movement games and rhythmic exercises [6]. Practice has confirmed that sports activities have positive effect especially on patients diagnosed with ADHD (*hyperkinetic children*) – relaxation exercises help to reduce impulsivity and team sports games enhance self-discipline. *Behavior disorders* – team games improve self-discipline, which makes students more disciplined. *Emotional instability* – through sports games students integrate into a group [11].

## THE AIM OF THE WORK

**The aim of the study** was to extend knowledge about correction of behavior disorders present in integrated children through physical activities and to determine popularity of various forms of physical activities and popularity of physical activities with students. We have formulated the following hypothesis: The effect of specific forms of physical activities and physical activities popular with children diagnosed with behavior disorders will contribute to correction of behavior disorders in integrated students with ADHD.

## THE MATERIAL AND THE METHODOLOGY

The study was supported by grant project VEGA 1/0769/13 '*Efficiency of specific exercise reeducation procedures designed to correct hyperkinetic disorders in prepubertal children*'. The research was carried out during 2014/2015 school year. The sample consisted of 66 teachers working at first degree of elementary schools located in Prešov and its surroundings. A randomly selected sample of 137 integrated students aged 6 to 10 years attending elementary schools participated in the study. Of these were 27 girls (mean age 7.75 years,  $SD = 2.25$ ) and 110 boys (mean age 7.08 years,  $SD = 2.88$ ). Students volunteered to participate in the study and data collection was anonymous. The questionnaire response rate was 100 percent. Students were included in the study upon parental written consent. Data were collected by investigators at particular schools upon mutual agreement with school principals and particular class teachers at each of the elementary schools.

### *Description and justification of methods used*

Vanderbilt ADHD Diagnostic Teacher Rating Scale, VADTRS is a diagnostic tool used by teachers to identify children with ADHD [15]. The advantage of the rating scale is comprehensibility of items, easy administration and clear scoring.

Psychometric properties of the scale administered abroad are considered to be good and the scale reliability ranges from  $\alpha = 0.79$  for depression and anxiety scales, up to  $\alpha = 0.91$  for the symptoms scale [4, 15].

To evaluate the collected data differences in relative frequencies between boys and girls were compared upon determination of popular forms of physical activities and popular physical activities.

## RESULTS

Both boys and girls provided data about popularity of physical activities before classes, during classes, during breaks, in the school club and at physical education classes. Boys and girls preferred to perform activities *During classes* (100%). Boys were more interested in performing physical activities *Before classes* than girls. Girls showed more interest in performing physical activities *During breaks* (see Table 1).

**Table 1.** Popularity of physical activities with boys and girls

	Boys		Girls	
	n	%	n	%
<b>Before classes</b>	94	85	22	80.65
<b>During classes</b>	110	100	27	100
<b>During breaks</b>	83	75.85	24	89.18
<b>In the school club</b>	99	90.08	23	86.08
<b>Physical education classes</b>	94	85.69	22	83.69

Regarding popularity of particular activities and physical activities (see Table 2) basic locomotor skills and nonlocomotor movement skills were preferred by boys, followed by sports games and psychomotor games. Contrary to boys, these activities were the most popular with girls with creative and esthetic physical activities being second most popular. Significant differences between genders in particular physical activities are presented in Table 2.

**Table 2.** Popularity of physical activities with boys and girls at physical education classes

	Boys		Girls		signif.
	n	%	n	%	
<b>Basic locomotor skill and nonlocomotor movement skills</b>	110	100	23	89.22	2.12*
<b>Manipulative, movement and preparatory sports games</b>	97	87.75	20	75.36	2.23*
<b>Creative and esthetic physical activities</b>	95	86.38	25	96.38	2.14*
<b>Psychomotor exercises and games</b>	94	85.44	26	99.44	3.75**

Within the educational experiment data were collected about students diagnosed with ADHD syndrome and a behavior disorder. Highest score was recorded for *classroom behavior* (relationships with peers, respecting the teacher, disrupting class, assignment completion), for *hyperactivity*, and for *inattention*, respectively. Tables 3 and 4 show that scores significantly improved upon participation in physical activities, where the behavior score decreased to the greatest degree.

**Table 3.** Vanderbilt ADHD Diagnostic Rating Scale NICHQ

	Pre-testing	Post-testing
<b>Inattention</b>	2.8	1.5
<b>Hyperactivity</b>	2.7	1.3
<b>Oppositional conduct disorder</b>	1.6	0.8
<b>Anxiety/depression</b>	0.9	0.4
<b>Classroom behavior</b>	4.5	2.3

Strengths and difficulties questionnaire provided information about students in five dimensions. Highest score was recorded for *hyperactivity* dimension, which is deviant from normal scores. Students did not achieve normal scores in *conduct problems* dimension. Normal scores were observed in dimensions *peer problems* and *prosocial behavior*. Scores achieved in particular dimensions **did not improve significantly** due to effect of physical activities. It should be noted that hyperactivity and conduct problems scores **decreased**.

**Table 4.** Strengths and difficulties questionnaire (SDQ-Svk)

	Pre-testing	Post-testing
<b>Emotional symptoms</b>	4.77	4.03
<b>Conduct problems</b>	5.39	3.37
<b>Hyperactivity</b>	8.14	7.42
<b>Peer problems</b>	4.56	3.57
<b>Prosocial behavior</b>	5.62	5.71

## CONCLUSIONS

The study deals with problems present in children suffering with a behavior disorder, hyperactivity and impulsivity – ADHD. Data revealed popularity of particular forms of physical activity and popularity of physical activities. Basic locomotor skills and nonlocomotor movement skills, manipulative, movement and preparatory sports games, creative and esthetic physical activities and psychomotor exercises and games had positive effect on the correction of behavior disorders diagnosed in prepubertal integrated children. Inattention, peer relationships, disrupting class and respecting teachers improved.

## Practical implications

- To implement physical activities into educational process.
- To strengthen inter-subject relations.
- To respect child's personality and interests.
- To assign short, easy and performable tasks.
- Not to discuss about the appropriateness of behavior, but to expressly establish rules to be followed.

## REFERENCES

1. Barkley, R. A. (2006) *Attention deficit hyperactivity disorder: a handbook for diagnosis and treatment*. New York: Guilford Press.
2. Borová, B. et al. (2000) *Cvičíme s malými dětmi*. Praha: Portál.
3. Chovanová, E. (2014) 'The effect of manipulative, movement and preparatory sports games on correction of behavior disorders in integrated elementary school pupils with ADHD', *Kultura Fizyczna*, 13 (2), pp. 145-156.

4. Dubayová, T., Chovanová, E. (2013) 'Vanderbiltova posudzovacia škála - možnosť diagnostikovania žiaka s ADHD učiteľom a rodičom', *Špeciálny pedagóg: časopis pre špeciálno-pedagogickú teóriu a prax*, 2 (2), pp. 59-62.
5. Hermanová, S. (1994) *Psychomotorické hry*. Praha: Portál.
6. Kavale, K. A., Steven, R. F., Hill, M. W. (1999) 'Interventions for oppositional defiant disorder and conduct disorder in the schools'. In H. C. Quay, A. E. Hogan (Eds.) *Handbook of Disruptive Behavior Disorders*. New York: Kluwer Academic/Plenum Publishers, pp. 441-454.
7. Lenková, R. (2013) 'Vplyv pohybových aktivít s náplňou aerobik a cvičenia na fitloptách na životný štýl a zdravie vysokoškoláčok', *Antropologicko – psychologicko – sociálne aspekty podpory zdravia a výchovy ke zdraviu*. Olomouc: Univerzita Palackého, pp. 228-238.
8. Lenková R. (2014) 'Prínos tanečných rekreačných aktivít pre zdravie', *Acta Facultatis exercitationis corporis universitatis Presoviensis No. 1*. Prešov: Prešovská univerzita v Prešove, Fakulta športu, pp. 69-76.
9. Majherová, M. (2010) 'Normy rovnováhových schopností pre žiakov mladšieho školského veku', *Pohyb človeka - základní a sportovní motorika, diagnostika a analýza. Sborník příspěvků z mezinárodní vědecké konference*. Ostrava: Ostravská univerzita, Pedagogická fakulta, pp. 113-117.
10. Majherová, M. (2011) 'Edukačné modely zdravého životného štýlu na základných školách', *Zborník Rekreačný šport, zdravie, kvalita života*. Košice: UPJŠ Košice, pp. 189-196.
11. Nitrai, D. (2008) 'Vplyv pohybovej terapie na pacientov DPL – Hráň', *Psychiatria pre prax*, (9) 5, pp. 245-247.
12. Novotná, N. et al. (2009) *Programy v pohybovom režime žiakov mladšieho školského veku banskobystrického regiónu ako determinant ich zdravia*. Banská Bystrica: UMB v Banskej Bystrici.
13. Sigmund, E., Sigmundová, D. (2011) *Pohybová aktivita pro podporu zdraví dětí a mládeže*. Olomouc: Univerzita Palackého v Olomouci.
14. Strýček, P. (2010) *Vliv typu bydlení na pohybovou aktivitu vybrané skupiny obyvatel města Olomouce*: Diplomová práce. Olomouc: Univerzita Palackého v Olomouci, Fakulta tělesné kultury.
15. Wolraich et al. (2003) 'Psychometric properties of the Vanderbilt ADHD Diagnostic Parent Rating Scale in a Referred Population', *Journal of Pediatric Psychology*, 28 (8), pp. 559-568.
16. Žáčková, H., Jucovičová, D. (2001) *Metody práce s dětmi s LMD (ADHD, ADD) – především pro rodiče a vychovatele*. Praha: D + H.