fizjoterapia polska

POLISH JOURNAL OF PHYSIOTHERAPY

OFICJALNE PISMO POLSKIEGO TOWARZYSTWA FIZJOTERAPII

THE OFFICIAL JOURNAL OF THE POLISH SOCIETY OF PHYSIOTHERAPY

NR 5/2022 (22) KWARTALNIK ISSN 1642-0136

Application of non-invasive brain stimulation with the use of repetitive transcranial magnetic stimulation or transcranial direct current stimulation in the treatment of dysphagia following an ischemic stroke

Zastosowanie nieinwazyjnej stymulacji mózgu z wykorzystaniem przezczaszkowej stymulacji magnetycznej lub przezczaszkowej stymulacji prądem stałym w terapii dysfagii w następstwie udaru niedokrwiennego mózgu

Aktywność fizyczna i czynniki ryzyka u osób z pęcherzem nadreaktywnym

Physical activity and risk factors in subjects with overactive bladder

mindray
healthcare within reach

ULTRASONOGRAFIA W FIZJOTERAPII

Autoryzowani dystrybutorzy

Mar-Med

+48 22 853 14 11

info@mar-med.pl

Ado-Med

+48 32 770 68 29

adomed@adomed.pl

MAR-MED
OD 1995 ROKU

ADO-MED®
APARATURA MEDYCZNA

Zawód Fizjoterapeuty dobrze chroniony

Poczuj się bezpiecznie

INTER Fizjoterapeuci
Dedykowany Pakiet Ubezpieczeń

Zaufaj rozwiązaniom sprawdzonym w branży medycznej.
Wykup dedykowany pakiet ubezpieczeń INTER Fizjoterapeuci, który zapewni Ci:

- ochronę finansową na wypadek roszczeń pacjentów – NOWE UBEZPIECZENIE OBOWIĄZKOWE OC
- ubezpieczenie wynajmowanego sprzętu fizjoterapeutycznego
- profesjonalną pomoc radców prawnych i zwrot kosztów obsługi prawnej
- odszkodowanie w przypadku fizycznej agresji pacjenta
- ochronę finansową związaną z naruszeniem praw pacjenta
- odszkodowanie w przypadku nieszczęśliwego wypadku

Nasza oferta była konsultowana ze stowarzyszeniami zrzeszającymi fizjoterapeutów tak, aby najskuteczniej chronić i wspierać Ciebie oraz Twoich pacjentów.

► Skontaktuj się ze swoim agentem i skorzystaj z wyjątkowej oferty!

Towarzystwo Ubezpieczeń INTER Polska S.A.
Al. Jerozolimskie 142 B
02-305 Warszawa

www.interpolska.pl

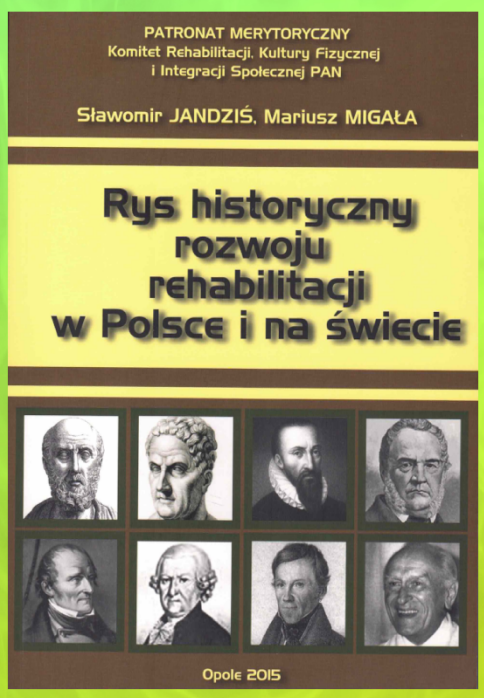
inter UBEZPIECZENIA

fizjoterapia polska

STUDIO

sklep internetowy: www.djstudio.shop.pl

w sklepie dostępne między innymi:
·archiwalne numery Fizjoterapii Polskiej w wersji papierowej
·artykuły w wersji elektronicznej
·książki poświęcone fizjoterapii
·prenumerata Fizjoterapii Polskiej



KALMED
Iwona Renz, Poznań

ARTROMOT®
WYŁĄCZNY PRZEDSTAWICIEL
WWW.KALMED.COM.PL

DJO GLOBAL

SPRZEDAŻ I WYPOŻYCZALNIA ZMOTORYZOWANYCH SZYN CPM ARTROMOT®

Nowoczesna rehabilitacja CPM stawu kolanowego, biodrowego, łokciowego, barkowego, skokowego, nadgarstka oraz stawów palców dłoni i kciuka.

ARTROMOT-H

ARTROMOT-F

ARTROSTIM
FOCUS PLUS

ARTROMOT-K1 ARTROMOT-SP3 ARTROMOT-S3 ARTROMOT-E2

Najnowsze konstrukcje ARTROMOT zapewniają ruch bierny stawów w zgodzie z koncepcją PNF (Proprioceptive Neuromuscular Facilitation).

KALMED Iwona Renz
ul. Wilczak 3
61-623 Poznań
www.kalmed.com.pl

tel. 61 828 06 86
faks 61 828 06 87
kom. 601 64 02 23, 601 647 877
kalmed@kalmed.com.pl

Serwis i całodobowa
pomoc techniczna:
tel. 501 483 637
service@kalmed.com.pl

NOWOŚĆ W OFERCIE

ASTAR.

PhysioGo.Lite SONO

NIEWIELKIE URZĄDZENIE
EFEKTYWNA **TERAPIA ULTRADŹWIĘKOWA**

Zaawansowana technologia firmy Astar to gwarancja niezawodności i precyzyjności parametrów. Urządzenie, dzięki gotowym programom terapeutycznym, pomaga osiągać fizjoterapeucie możliwie najlepsze efekty działania fal ultradźwiękowych.

Głowica SnG to bezobsługowe akcesorium o dużej powierzchni czoła (17,3 cm^2 lub 34,5 cm^2 w zależności od wybranego trybu działania). Znajduje zastosowanie w klasycznej terapii ultradźwiękami, fonoferezie, terapii LIPUS i zabiegach skojarzonych (w połączeniu z elektroterapią).

wsparcie merytoryczne
www.fizjotechnologia.com

ul. Świt 33
43-382 Bielsko-Biała

t +48 33 829 24 40
astarmed@astar.eu

www.astar.pl

POLSKI PRODUKT WYBIERASZ I WSPIERASZ

mindray
healthcare within reach

ULTRASONOGRAFIA

W FIZJOTERAPII

Autoryzowani dystrybutorzy

Mar-Med

+48 22 853 14 11

info@mar-med.pl

Ado-Med

+48 32 770 68 29

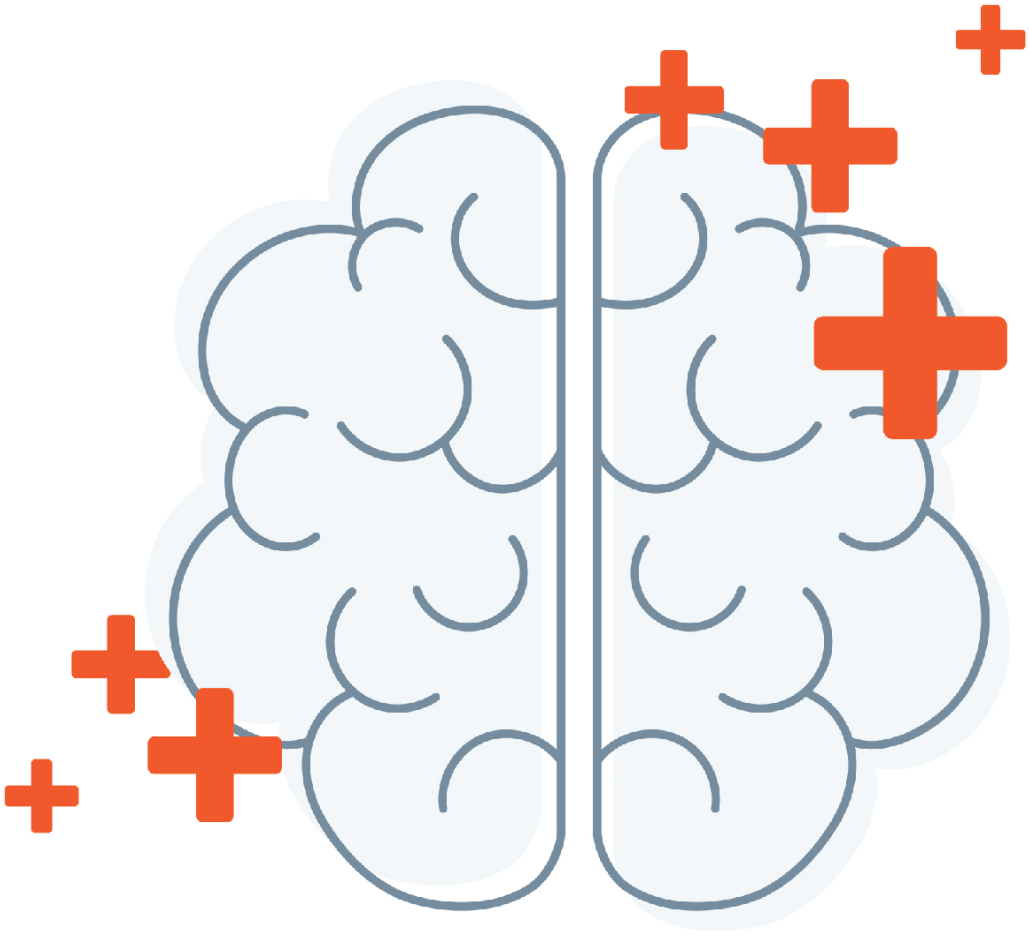
adomed@adomed.pl

MAR-MED
OD 1995 ROKU

ADO-MED®
APARATURA MEDYCZNA

POMAGAMY ODZYSKAĆ SPRAWNOŚĆ PO UDARACH I URAZACH MÓZGU

Program Po Urazie Głowy realizowany przez ogólnopolską Fundację Moc Pomocy to kompleksowe wsparcie dla osób, które doznały urazu głowy w wyniku wypadku lub przeszły udar mózgu. Program wspiera także rodziny osób, które doznały urazu i nie są w stanie samodzielnie podejmować działań na drodze do sprawności.



W ramach programu oferujemy pacjentom:

- Opiekę Menadżera Rehabilitacji
- Pozyskanie funduszy na rehabilitację i zakup sprzętu
- Wsparcie psychologiczne
- Konsultacje specjalistów
- Rehabilitację neurologiczną w ośrodkach na terenie kraju
- Pomoc w doborze zaopatrzenia
- Wsparcie w likwidacji barier architektonicznych

Masz pytanie odnośnie programu. Napisz do nas lub skontaktuj się telefonicznie z naszymi menadżerami rehabilitacji:

+48 881 035 005
lub +48 793 003 695

biuro@pourazieglowy.pl
www.pourazieglowy.pl

Dr. Comfort®

Nowy wymiar wygody.

Obuwie profilaktyczno-zdrowotne o atrakcyjnym wzornictwie

NAGRODA POLSKIEGO TOWARZYSTWA REHABILITACJI

ACCEPTED
AMERICAN PODIATRIC MEDICAL ASSOCIATION

APROBATA AMERYKAŃSKIEGO MEDYCZNEGO STOWARZYSZENIA PODIATRYCZNEGO

CE WYRÓB MEDYCZNY

Miękki, wyścielany kołnierz cholewki
Minimalizuje podrażnienia

Stabilny, wzmocniony i wyścielany zapiętek
Zapewnia silniejsze wsparcie łuku podłużnego stopy

Wyścielany język
Zmniejsza tarcie i ulepsza dopasowanie

Lekka konstrukcja
Zmniejsza codzienne zmęczenie

Antypoślizgowa, wytrzymała podeszwa o lekkiej konstrukcji
Zwiększa przyczepność, amortyzuje i odciąża stopy

Zwiększona szerokość i głębokość w obrębie palców i przodostopia
Minimalizuje ucisk i zapobiega urazom

Wysoka jakkość materiałów - oddychające siatki i naturalne skóry
Dostosowują się do stopy, utrzymują je w suchości i zapobiegają przegrzewaniu

Ochronna przestrzeń na palce - brak szwów w rejonie przodostopia
Minimalizuje możliwość zranień

Trzy rozmiary szerokości

Podwyższona tęgość

Zwiększona przestrzeń na palce

WSKAZANIA

• haluksy • wkładki specjalistyczne • palce młotkowate, szponiaste • cukrzyca (stopa cukrzycowa) • reumatoidalne zapalenie stawów • bóle pięty i podeszwy stopy (zapalenie rozcięgna podeszwowego - ostroga piętowa) • płaskostopie (stopa poprzecznie płaska) • bóle pleców • wysokie podbicie • praca stojąca • nerwiak Mortona • obrzęk limfatyczny • opatrunki • ortezy i bandaże • obrzęki • modzele • protezy • odciski • urazy wpływające na ścięgna, mięśnie i kości (np. ścięgno Achillesa) • wrastające paznokcie

KALMED
Iwona Renz, Poznań

ul. Wilczak 3
61-623 Poznań
tel. 61 828 06 86
fax. 61 828 06 87
kom. 601 640 223, 601 647 877
e-mail: kalmed@kalmed.com.pl
www.kalmed.com.pl

www.butydlazdrowia.pl

www.dr-comfort.pl

fizjoterapia polska
nr 5/2022 (22)

The occurence of postural disorders and muscular imbalance in children from urban and rural environment

Występowanie wad postawy i dysbalansu mięśniowego u dzieci ze środowiska miejskiego i wiejskiego

Eva Lukáčová[A,B,C], Gabriela Škrečková[C,E,F], Lucia Demjanovič Kendrová[C,D]

University of Prešov, Faculty of Health Care, Department of Physiotherapy, Prešov, Slovakia

Abstract

Background. Postural examination is considered to be one of the most important parts of the general examination and is therefore the basis for correct diagnosis and determining preventive measures or appropriate treatment procedures.

Objective. The aim of the study was to evaluate the functional status of school-aged children.

Methods: The study was carried out at selected primary schools in Slovakia, we examined 453 children. We assessed the quality of the postural system according to Thomas Klein´s evaluation, modified by Mayer, the presence of shortened and weakened muscles according to Janda. The following measurements were used to assess the range of motion of the spine: Otto's inclination and reclination distance, Schober's distance, Stibor's distance and Thomayer's distance.

Results. A statistically significant difference was found in the examination of gluteal muscles strength l.dx. ($p = 0.03$), gluteal muscles l.sin. ($p \leq 0.001$), with the children from urban environment having, on average, lower muscle strength. Statistically significant differences were found in the evaluation of m. trapesiusl.dx. at significance level $p = 0.04$, m. trapesiusl.sin. at the level of significance $p \leq 0,001$, with higher average values found in children from the urban environment.

Conclusion. Children from countryside show better postural outcomes and exhibit fewer postural disturbances than children from city backgrounds.

Key words:

school age, postural disorders, muscular imbalance

Streszczenie

Wprowadzenie. Badanie posturalne uważane jest za jedną z najważniejszych części badania ogólnego i dlatego stanowi podstawę do postawienia prawidłowej diagnozy oraz ustalenia działań zapobiegawczych lub właściwego postępowania leczniczego.

Cel. Celem pracy była ocena stanu funkcjonalnego dzieci w wieku szkolnym.

Metody: Badanie przeprowadzono w wybranych szkołach podstawowych na Słowacji. Przebadano 453 dzieci. Jakość układu posturalnego oceniono według oceny Thomasa Kleina, zmodyfikowanej przez Mayera, a obecność skróconych i osłabionych mięśni według Jandy. Do oceny zakresu ruchomości kręgosłupa wykorzystano następujące pomiary: test Otta, test Schobera, test Stibora i test Thomayera.

Wyniki. Istotną statystycznie różnicę stwierdzono w badaniu siły mięśni pośladkowych l.dx. ($p = 0,03$), mięśni pośladkowych l.sin. ($p \leq 0,001$), przy czym dzieci ze środowiska miejskiego miały średnio niższą siłę mięśniową. Istotne statystycznie różnice stwierdzono w ocenie m.in. mięśni trapezowych l.dx. na poziomie istotności $p = 0,04$, mięśni trapezowych l.sin. na poziomie istotności $p \leq 0,000$, przy czym wyższe średnie wartości stwierdzono u dzieci ze środowiska miejskiego.

Wniosek. Dzieci ze środowiska wiejskiego mają lepsze wyniki posturalne i wykazują mniej zaburzeń postawy niż dzieci ze środowisk miejskich.

Słowa kluczowe:

wiek szkolny, zaburzenia postawy, dysbalans mięśniowy

doi.org/10.56984/8ZG20Az2j

Introduction

The development of motor activity in human is always individual, dynamic and complex process. It begins with the birth of a child and it should physiologically carry on until the age of 12 or not later than the 18th month of life. Each part of ontogeny has its substantiation and forms the basis for further physical ability [1]. During the postural ontogeny, individual postural and locomotory skills are developed, which, after fixation, change into conditioned reflexes, they automate and create stereotypes and settled motor patterns [2]. In the early development of a human, motor patterns developed gradually according to maturation of the central nervous system. They influence the morphological development of the skeleton of the spine, chest, nasal joints and affect the whole posture. Posture is a specific body function, and it can be shown that there is a link between incorrect posture and functional disorders of the musculoskeletal system [3]. In humans, a certain degree of asymmetry in body proportions is considered the norm and not the exception [4]. As postural changes resulting from static loading are a public health problem, we include them among the predisposing factors for the development of degenerative changes of the spine in adulthood [5]. The creation of the upright posture of the body in humans has led to great structural changes in spine curvature, pelvic shape, shape and joint status as well as in functioning and unison of muscles. Correct posture is essential for the optimal function of internal organs [6]. The pre-school age is considered to be crucial in creating a proper body posture when the stabilization of the postural system and the upright posture of the body are developed [7]. Postural impairment (incorrect body posture) is included in the so-called postural disorders. Molnárová [8] emphasizes two complex causes of postural impairments. Endogenous, which are not fully explained. Exogenous, which are very closely related to the changed lifestyle.

If overstressed static muscles that have tendency to hypertonia are shortened and unstressed dynamic muscles that have tendency to hypotonia weaken, there is a muscle imbalance. The initial position in the joints is changed (their centre is impaired), the tension of the ligaments and muscular fascia changes, which makes the movement slower, more incoherent, and much more difficult for the body. The whole process results in weariness and later to the damage of functional units in the locomotive system. Imbalance often leads to functional disorders - blockages, which is primarily demonstrated in functional disorders of the spine [9, 10]. The concept of functional disorders was introduced by Professor Lewit. They make up the largest group of vertebrogenic disorders and they are also the most common source of pain. This is a joint, muscle and soft tissue dysfunction. The changes or disturbances of the structure of the locomotive system are not present with these disorders, but with duration, it can be the basis for structural changes [11]. Faulty posture in children is most often assessed by a deviation of the spine in one of its reference axes, while the first signs of deviation of the spine shape and posture may already appear at the beginning of the preschool period (3–6 years of age) [12, 13].

Postural problems in school-age children are among the most common health problems in this age group [14]. The most common functional disorders in children include, according to Lewitt, acute cervical myalgia, various types of headaches, including migraines, cervical blocks, scoliosis and sacroiliacal shift is also common [15]. The phases of childhood and adolescence correspond to the periods during which young individuals attend a school setting. Here, they spend long time in sitting, usually in incorrect static posture, inappropriate ergonomic conditions, and this is also results in the development of postural errors [16]. Posture in children depends on factors such as age, gender, race, somatic structure of bone joints and muscles, mental state, the preferred lifestyle and sports [17, 18]. Investigations into the occurrence of static postural changes help to understand the risk factors for spinal dysfunction. Early detection of static postural changes should be one of the goals in prevention in children and adolescents because of the rapid growth in these age groups [19]. There are several methods and procedures for diagnosing and evaluating correct posture in preschool and younger school-aged children, who also define possible deviations from the norms [20–23].

The aim of the research was to asses the effect of the environment in which the children live on the postural impairments, among the children in older school-age. We focused on the relation with the body posture, the mobility of the spine and the occurrence of shortened and weakened muscle groups.

Methods

The research was carried out at 2 selected primary schools in rural and urban environment in Slovakia. The examination of the children was carried out with the consent of the legal representatives. We examined a total of 453 children between the age of 13-15 years. The sample consisted of 197 children from the rural environment of 75 girls, 122 boys and 256 children from the urban environment of 148 girls and 108 boys. All standard measurements were performed in given postures and positions with the use of individual equipment and instruments intended for that purpose. As a research method, we used standardized clinical examinations intended for the assessment of specific points of functional aspects in children. The procedures and methodologies somatoscopic and somatometric used in practice. Anamnestic data included date of birth, gender, residence. To assess the posture, we have chosen the method based on subjective evaluation, with precisely defined degrees of deviations: Postural standards according to Klein and Thomas, modified by Mayer. This method is based on the visual evaluation of the body posture. Body posture and the symmetry in its various areas are marked with numbers ranging from 1 to 4. The higher the number ascribed to the assessed body parts, the greater the aberration from the norm. Body posture is divided into 4 ratings, excellent (1), good (2), flaccid (3), bad (4). The assessment includes head and trunk posture, chest shape, abdominal shape, pelvis inclination, overall spine curvature, shoulder height and position of shoulder blades. By adding together the obtained points from individual areas, we can get, from the minimum values (up to 5 points) that indicate perfect body posture up to the maximum (20 points), indicating poor body posture [24]. To asses the spine mobility, we used the following measures: Ott's inclination and reclining distance (thoracic region of the spine), Schober's distance (lumbar region of the

doi.org/10.56984/8ZG20Az2j

spine), Stibor´s and Thomayer´s distance (thoracic and lumbar region of the spine). In the examination of shortened muscles [25]. We focused on these selected muscles and muscle groups: we tested both sides m. trapezius, mm. pectorales, hip flexors, knee flexors, and we assessed the presence and degree of shortening of paravertebral muscles. We proceeded from the standard assessment where: 0 – indicates that the muscle is not shortened, 1 – means small muscle shortening, 2 – means a big shortening of the muscle. During the examination of weakened muscles, we followed the muscular test according to Janda. We evaluated the degree of weakness in shoulder blade adductors, neck flexor (arcuate neck flection), straight abdominal muscles and both sides of m. gluteus maximus, we progressed in a standard way from 3. to 5. degree of the muscular resistance testing guidelines. For the purposes of statistical processing, we used Student´s t-test for two independent selections. Statistical significance of $p < 0.05$, $p < 0.01$, $p < 0.001$ was considered significant for all calculations.

Results

Table 1 lists the average body height and weight values. The boys from the urban environment were, on average higher (172.29) than boys from the rural environment (169.24). On the contrary, the girls from the rural environment were, on average higher (165.48) than the girls from the urban environment (162.98). The body weight in boys did not differ significantly, in the average values of 62.43 urban environment, 62.06 rural environment. For girls from the urban environment, the average values were 55.24 and from the rural environment 54.40 kg.

Tab 1 lists the average body height and weight values in children [26]

Sample characteristics		Height [cm] average	Height [cm] SD	Weight [kg] average	Weight [kg] SD
UE	boys	172.29	± 7.971	62.43	± 11.074
	girls	162.98	± 6.066	55.24	± 10.445
RE	boys	169.24	± 5.847	62.06	± 8.22
	girls	165.48	± 13.904	54.40	± 16.146

RE – rural environment, UE – urban environment

We monitored the influence of environment in which children live (urban, rural) for basic somatic characteristics. Table 2 shows the statistical significance assessed by the t-test between the environment in which children live and different parameters of the body posture. Statistically significant differences between groups are in head posture and trunk ($p \leq 0.001$), chest shape ($p \leq 0.001$), abdomen shape and pelvis inclination ($p = 0.011$), the overall curvature of the spine ($p \leq 0.001$), position of lower limbs ($p \leq 0.001$) and overall body posture ($p \leq 0.001$). Children from urban environment reached, on average, higher values in all assessed parameters, indicating a bigger deviations in the overall body posture, but also in the assessed parameters of individual parts of postural standards.

Tab 1 lists the average body height and weight values in children [26]

Rated segment	Envr.	N	Mean	SD	Std.Error Mean	t	p
BP 1	urban	255	2.6392	± 0.781	0.04889	3.206	**0.001**
	rural	198	2.3990	± 0.804	0.05717		**p < 0.001**
BP 2	urban	255	2.6824	± 0.724	0.04536	4.490	**0.000**
	rural	198	2.3687	± 0.754	0.05361		**p < 0.001**
BP 3	urban	255	2.6980	± 0.788	0.04935	2.544	**0.011**
	rural	198	2.5051	± 0.817	0.05806		**p < 0.05**
BP 4	urban	255	3.0000	± 0.784	0.04908	5.227	**0.000**
	rural	198	2.5909	± 0.878	0.06240		**p < 0.001**
BP 5	urban	255	2.7961	± 0.735	0.04606	1.909	**0.057**
	rural	198	2.6515	± 0.875	0.06221		**p > 0.05**
BP total	urban	255	3.1569	± 0.633	0.03963	4.564	**0.000**
	rural	198	2.8889	± 0.603	0.04283		**p < 0.001**
BP 6	urban	255	2.8235	± 0.724	0.04532	5.148	**0.000**
	rural	198	2.4646	± 0.751	0.05341		**p < 0.001**

BP 1 – head and trunk posture, BP 2 – chest shape, BP 3 – abdomen shape and pelvis inclination, BP 4 – overall spine curvature, BP 5 – shoulder height and position of shoulder blades, BP 6 – position of lower limbs, BP total – overall body posture, Envr. – environment

doi.org/10.56984/8ZG20Az2j

The evaluation on the mobility of lumbar region of the spine (Schober) showed a significant difference between groups at significance level $p \leq 0.001$, on average, children from the urban environment reached higher mobility values. The evaluation on the mobility range according to the Stibor´s test found that the difference was statistically significant at significance level of $p \leq 0.001$. Higher average values were registered in children from the urban environment. Statistically significant was also the difference in the Thomayer´s test at significance level $p = 0.016$, with children from the urban environment achieving lower values, which is desirable in this test.

Statistically significant differences were found in the evaluation of m. trapezius l.dx. at significance level $p = 0.038$, m. trapezius l.sin. at significance level $p \leq 0.001$, while higher average values of shortening were registered in children from the urban environment. Statistically significant differences were registered in comparison of KK bilat. flexors at significance level $p \leq 0.001$. The average values in the degree of shortening were higher in children from the rural environment.

Statistically significant difference in the evaluation of shoulder blades abductors at significance level $p \leq 0.001$ was found by the t-test, when we monitored the impact of the environment in which children live on the degree of muscle weakness. Average values indicate higher weakness in children from the rural environment. Statistically significant difference was found in the examination of gluteal muscles strength l.dx. ($p = 0.025$), gluteal muscles l.sin. ($p \leq 0.001$), showing that the children from the urban environment had, on average, lower muscle strength.

Discusion

Based on the assessment of basic anthropometric indicators, we found that boys from the urban environment had an average body height of 172.29 cm and boys from the rural environment had 169.24 cm. Girls from rural areas had an average height 165.48 and girls from the urban environment 162.98. The average body weight was 6243 kg for boys from the urban environment, 62.06 for boys from the rural environment. For girls from the urban environment, the average weight values were 55.24 and 54.40 kg for girls from the rural environment. Mucha and Nowak claimed in the research carried out in 2007 in Poland, on a sample of 597 children, of whom 305 girls and 292 boys, that girls from the rural environment reached higher body height than girls from the urban environment. Statistically significant differences were registered in boys whereas higher body height came from boys living in bigger city environment [28].

The research showed statistically significant differences between groups in head and trunk posture, chest shape, abdomen shape and pelvis inclination, the overall curvature of the spine, position of lower limbs and overall body posture. Children from the urban environment reached, on average, higher values in all assessed parameters, indicating a bigger deviation in individual components of the body posture.

Significant differences have been recorded in assessing the lumbar region mobility of the spine. Higher average values of the mobility range were present in children from the urban environment, but according to the Thomayer´s test, children from the urban environment reached lower values, which are desirable. Statistically significant differences were found in the contracture of m. trapesius bilat., while higher average values were recorded in children from the urban environment, flexors KK bilat., where the average values in the degree of contracture were higher in children from the rural environment. In regard to the muscle strength, we found a statistically significant difference in assessing shoulder blades abductors l. dx., average values indicate considerable impairment in children from the rural environment, gluteal muscles l. dx. bilat., with children from the urban environment having on average lower muscle strength. Posluszny et al in their study to evaluated the predominance of postural disorders in the sagittal plane and to compare the types of posture with respect to physical activity of the investigated children in Polkowice. The investigated group consisted of 2398 children aged 7 to 11 years. Posture was measured by photogrammetric method using Moiré model. In boys, kyphotic and balanced postures were predominant, while in girls lordotic and balanced types were more frequent [29]. The aim of the research of Yang et al. was to investigate the prevalence of incorrect posture in Chinese children and adolescents. A total of 595,057 students were assessed; the overall prevalence of incorrect posture in children and adolescents was 65.3%. Girls had a higher prevalence of incorrect posture than boys [30]. A Polish study assessing posture deviations in 293 children from cities and countryside, using a photogrammetric method based on the projection moiré effect, showed significant differences in the withdrawal of the lower scapular angles and parameters assessing pelvic posture [31]. Other previous studies have shown that 34–50% of children and adolescents have various degrees of incorrect posture [32, 33].

Conclusion

A characteristic feature of a person of modern times should be optimal physical condition, which is influenced by the correct posture, the functionality of the musculoskeletal system and the development of motor skills, all these aspects are formed at a young age, which is natural for every child to be constantly active throughout the day [34]. Gradually, as children enter school, movement changes to more frequent staying in static positions. As Boržíková and Lenková state, one of the possible causes of adult back pain is their hypokinesis already at school age [35]. Postural examination forms the basis in diagnosis and involves static and dynamic observation of the child. It is considered to be one of the most important parts of the general examination and is therefore the basis for correct diagnosis and the basis for determining preventive measures or appropriate treatment procedures.

Adres do korespondencji / Corresponding author

Gabriela Škrečková

e-mail: gabriela.skreckova@unipo.sk

doi.org/10.56984/8ZG20Az2j

Piśmiennictwo/ References

1. Adolph KE, Franchak JM. The development of motor behavior. WIREs Cognitive Science 2017;8(1-2). John Wiley: e1430.
2. Assaiante C, Mallau S, Viel S et al. Development of Postural Control in Healthy Children: A Functional Approach. Neural Plasticity 12. Hindawi Publishing Corporation: 523497.
3. Scoppa F, Capra R, Gallamini M et al. Clinical stabilometry standardization: Basic definitions – Acquisition interval – Sampling frequency. Gait & Posture 2013; 37(2): 290-292.
4. Al-Eisa E, Egan, Wassersug R. Fluctuating asymmetry and low back pain. Evolution and Human Behavior 2004;25(1): 31-37.
5. De Vitta A, Martinez MG, Piza NT et al. Prevalência e fatores associados à dor lombar em escolares. Cadernos de Saúde Pública 2011;27(8): 1520-1528.
6. Yu CW, Sung RY, So R et al. Energy expenditure and physical activity of obese children: cross-sectional study. Hong Kong medical journal = Xianggang yi xue za zhi, 2002; 8 5, 313-7.
7. Molinini RM, Koziol NA, Marcinowski EC et al.Early motor skills predict the developmental trajectory of problem solving in young children with motor delays. Developmental Psychobiology 63(6). John Wiley: 2021; Vol. 63, No. 6. e22123.
8. Molnárová M. Postura- význam, diagnostika a poruchy. Rehabilitácia, 2009; 66(4), 195-205.
9. Nosko M, Razumeyko N, Iermakov SS et al. Correction of 6 to 10-Year-Old Schoolchildren Postures Using Muscular-Tonic Imbalance Indicators. Journal of physical education and sport. 2016; 16, 988.
10. Varga R. Developmental kinesiology and functional disorders of spine within the scope of rehabilitation care. Rehabilitácia: odborný časopis pre otázky liečebnej, pracovnej, psychosociálnej a výchovnej rehabilitácie 2008; 45(2).
11. Ľorková, N. Rehabilitation and functional disorders of cervical spine]. Rehabilitácia, 2009;46(3), 135-138.
12. Maciałczyk-Paprocka K, Stawińska-Witoszyńska B, Kotwick et al. Prevalence of incorrect body posture in children and adolescents with overweight and obesity. European Journal of Pediatrics, 2017; 176(5), 563-572.
13. Rusnák R, Kolarová M, Aštaryová I et al. Screening and Early Identification of Spinal Deformities and Posture in 311 Children: Results from 16 Districts in Slovakia. Rehabilitation Research And Practice, 2019; 4758386-4758386.
14. Latalski M, Bylina J, Fatyga M, Repko M, Filipovic M, Jarosz MJ, et al. Risk factors of postural defects in children at school age. Annals Of Agricultural And Environmental Medicine, 2013;20(3), 583-587.
15. Lewit K, Manipulační léčba v myoskeletální medicíně. 4. přeprac. a rozšíř. vyd. Praha: Česká lékařská společnost J. Ev. Purkyně. 1996. ISBN 3-335-00401-9.
16. Lis AM, Black KM, Korn H et al. Association between sitting and occupational LBP. European Spine Journal: Official Publication of The European Spine Society And The European Section Of The Cervical Spine Research Society, 2007;16(2), 283-298.
17. Sedrez JA, Zaniratti Da RosaMI, Noll M et al. Risk factors associated with structural postural changes in the spinal column of children and adolescents. Revista Paulista De Pediatria. 2015;33(1), 72-81.
18. Wyszyńska J, Podgórska-Bednarz J, Drzał-Grabiec J et al. Analysis of Relationship between the Body Mass Composition and Physical Activity with Body Posture in Children. Biomed Research International 2016;1851670.
19. Sedrez JA, da Rosa MIZ, Noll M et al. Risk factors associated with structural postural changes in the spinal column of children and adolescents. Revista paulista de pediatria: orgao oficial da Sociedade de Pediatria de Sao Paulo 33(1). Sociedade de Pediatria de São Paulo: 2015;72-81.
20. Kasperczyk T. Wady postawy ciała: diagnostyka i leczenie (5th ed.). Kasper. Poland. 2002.
21. Singla D, Veqar Z. Methods of postural assessment used for sports persons. Journal Of Clinical and Diagnostic Research: Jcdr, 2014;8(4), LE01-LE4.
22. Van Niekerk SM, Louw Q, Vaughan C et al. Photographic measurement of upper-body sitting posture of high school students: a reliability and validity study. Bmc Musculoskeletal Disorders, 2008;9, 113-113.
23. Wong WY, Wong MS. Detecting spinal posture change in sitting positions with tri-axial accelerometers. Gait & posture, 2008;27(1), 168–171.
24. Haladová E, Nechvátalová L. Vyšetřovací metody hybného systému (3th. ed.). Národní centrum ošetřovatelství a nelékařských zdravotnických oborů. Slovakia. 2010.
25. Janda V. Svalové funkční testy. Praha: Grada. Czech Republik. 2004.
26. Martin R, Saller K. Lehrbuch der Antropologie. Band 1. Stuttgard-Gustav Fischer Verlang. 1957.
27. Mayer K. Hodnocení držení těla mládeže metodou postojových standardů a výsledky její aplikace v tělovýchovné praxi. Acta. Chir. Orthop. Traumat. čech., 1978; 45, č. 3, s. 202-207.
28. Mucha D. a Nowak S. 2008. Klasyfikacja, rozwój i ocena ruchów czlowieka. Politechnika Radomska, Wydawnictwo. ISSN 1642-5278. 468 s.
29. Posluszny P, Pokrywka J, Fugiel J. Prevelance of postural disorders in children from Copper Basin In Poland (Częstość wad postawy ciała u dzieci z Zagłębia Miedziowego). Fizjoterapia, 2011;19, 3-10.
30. Yang L, Lu X, Yan B et al. Prevalence of Incorrect Posture among Children and Adolescents: Finding from a Large Population-Based Study in China. Iscience, 2020;23(5), 101043-101043.
31. Drzał-Grabiec J, Snela S. The influence of rural environment on body posture. Annals Of Agricultural and Environmental Medicine, 2012;19(4), 846-850.
32. Motylewski S, Zientala A, Pawlicka-Lisowska A et al. Assessment of body posture in 12- and 13-year-olds attending primary schools in Pabianice. Polski merkuriusz lekarski: organ Polskiego Towarzystwa Lekarskiego, 2015;39(234), 368–371.
33. Mahlknecht JF. The prevalence of postural disorders in children and adolescents: a cross sectional study. Zeitschrift Fur Orthopadie Und Unfallchirurgie, 2007;145(3), 338-342.
34. Lizis S, Škrečková G. Physical activity of people representing various age groups, with particular emphasis on the inhabitants of Poland and Slovakia. Fizjoterapia Polska 2022; 22(3); 24-28
35. Boržíková I, Lenková R. Pohybový režim adolescentov - jeho objem a štruktúra. Sborník příspěvků mezinárodního semináře Pedagogické kinantropologie. University of Ostrava. 2009; Vol. 1, pp. 18-23.

doi.org/10.56984/8ZG20Az2j