

A thing about understanding postural defects

Authors' Contribution:

- ☑ **A** Study Design
- 📁 **B** Data Collection
- 📊 **C** Statistical Analysis
- 📄 **D** Manuscript Preparation
- 🏆 **E** Funds Collection

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Abstract

The premise for writing this communication was the difficulty of students in systematizing their knowledge of the main issues of postural defects. Therefore, the authors made an attempt to make postural defects more understandable. Reference was made to basic relevant concepts from the terminology of the physical culture sciences that are commonly misinterpreted. Consequently, the concepts of postural defects were discussed according to a utilitarian value system. This material is a contribution to the social discussion on postural defects in the 21st century.

Keywords: performance • physical activity • physical culture

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Physical culture – the entirety of behaviours carried out according to the rules and norms of behaviour accepted in a given social environment and aimed at the care of a person's health, improving their posture, proper psychophysical development, and the results of these behaviours. There are five forms of participation in physical culture: physical education, physiotherapy, recreation, sport, and tourism [13].

Physical activity – noun exercise and general movement that a person carries out as part of their daily routine [14].

Performance – noun the level at which a player or athlete performs their activity, either in relation to others or in relation to personal goals or standards [14].

Valgus (deformity) – noun the position or state in which a bone or a body part is bent or twisted outward from the midline of the body [14].

Hallux valgus – displacement of the big toe toward the other toes. It is also called a bunion [15, p. 293].

This essay was deliberately not divided into sections

Postural defects are a significant health problem today. Rapid changes in the human environment determined by technological progress are having a decidedly negative impact on us. The rapid pace of civilisational change determines the lifestyle, which results in a decrease in physical activity. This phenomenon is already visible in the youngest children. The problem is that people, in their defence-adaptation mechanisms, are not able to keep up with the dynamics of civilisational change, of which the observable evidence is a noticeable disturbance in human physical posture. The effect of such an interaction is deviations from the correct posture. The physical posture of a human being is understood as a motor habit formed on a specific morphological and functional basis and related to the daily activities of a given individual. It is an expression of the physical and mental state of the individual. Therefore, it is an indicator of the mechanical capacity of the kinetic sense, muscular balance, and neuromuscular coordination [1].

At a younger school age, the first critical period for a child's physical posture occurs. It is associated with a change in lifestyle, with the transition from a lot of freedom of movement to sitting for several hours at school, often under inappropriate conditions. Postural defects, and especially the frequency of their occurrence in the school environment, can be considered a social problem. The causes of defects and their dynamics are diverse. Regardless of the causes that trigger postural defects, most of which are beyond our control, there are external environmental factors. Therefore, understanding the importance of these factors will be crucial for the course of postural defects [2].

Restricted physical activity and a sedentary lifestyle are among the causes of postural defects. The balance of the muscular system is disturbed, muscles are weakened, ligaments are stretched and incorrect posture becomes a habit. However, it is important to mention that it is very difficult to define a person's posture pattern, as it is an individual and variable characteristic. Terms such as 'correct posture', 'faulty posture', and 'postural defects' are the definition of the problem described. A correct posture is one that occurs in sufficiently high percentages to be considered

characteristic of a given age class or period of ontogeny, and at the same time is characteristic of healthy children with correct physical and mental development and motor capacity. Therefore, a correct posture is in accordance with the dynamics of development of a healthy person of a certain sex in a given period of ontogeny. It ensures a harmonious functioning of the organism with an optimum of performance [3].

Furthermore, normal posture can be understood as the harmonious and effortless alignment of the individual postural elements in relation to the long axis of the body [4]. Furthermore, it occurs frequently enough to be considered a characteristic of a population. It is an attribute of healthy individuals with normal physical and mental development [5]. But it is also the shape of the body resulting from the structure and the habitual positioning of its various parts, which is conducive to basic bodily functions [6].

Therefore, in good posture, individual body sections maintain harmony in their mutual alignment, ensuring smooth movement and stability of support with the least expenditure of energy. Any change in the alignment of one section in relation to the other induces feedback in the other sections. An increase in cervical lordosis leads to a compensatory increase in thoracic kyphosis and lumbar lordosis. As a result of the increased thoracic kyphosis, the ribs become more oblique, the rib cage flattens out and the abdominal muscles relax. The causes of postural disorders and their effects on the musculoskeletal system cause a sort of a 'chain reaction' and the damage adds up [7].

On the other hand, deviations from the correct posture are those which the pupil can remove on his/her own if they are brought to his/her attention, and those which cannot be removed at all or are removed with difficulty by appropriate means. The former are classified as postural errors, the latter as postural defects. The boundary between errors and defects is very blurred, and therefore we must take heed of something which is a prerequisite for effective prevention: that even the smallest oversight by caregivers can perpetuate postural errors by causing changes in bones, joints, and muscles and turn into a defect. Therefore, postural defects are fixed changes in the skeletal system, i.e. abnormalities in the spatial shape of the body [8].

Above all, it is a deviation from the generally accepted characteristics of normal posture, appropriate for a given age category, sex, and type of build. Postural defects can be divided into simple and complex. Simple postural defects are sometimes referred to as postural errors. Structural changes and various deformities within the musculoskeletal system are referred to as malformations [9]. Therefore, we will refer to postural errors as individual deviations from normal posture that do not change the shape of the spine. But other deviations from normal posture that already manifest themselves as changes in spine shape will already be postural defects [10]. In general: faulty postures are phenomena bordering on normal and abnormal postures, with abnormal posture being any abnormality in the way one holds oneself in a standing position, manifesting itself in a body configuration that is different from normal. Therefore, faulty posture is a condition in which there is deformation of the spine, thorax, pelvis, or lower extremities. Thus, a defective posture is characterised by both simple and complex defects [11].

To sum up, the causes of postural defects can be congenital or acquired through past illnesses, sedentary lifestyles, one-sidedness in sitting and performing activities, uneven development of certain muscle groups, incorrect sitting posture, constrictive footwear and clothing, poor choice of toys, psychological causes. Regarding the location of deviations from the norm, postural defects are divided into: spine defects (round back, round-concave back, concave back, flat back, scoliosis – lateral curvature of the spine), chest defects (chicken chest, funnel chest), defects of the lower limbs and feet (valgus knees, splayed knees, club foot, splayed foot, hallux valgus foot, flat feet) [12]. Consequently, the mission of physical culture professionals is related to the prevention and treatment of postural defects and the maintenance of correct posture through physical activity in the broadest sense. The aim here is to care for the health of society through physical education, physiotherapy, sport, tourism, and physical recreation.

REFERENCES

1. Kasperczyk T. Wady postawy ciała – diagnostyka i leczenie. Kraków: Kasper; 2004 [in Polish]
2. Kutzner-Kozińska M, Właźnik K. Gimnastyka korekcyjna dla dzieci 6-10 letnich. Warszawa: Wydawnictwa Szkolne i Pedagogiczne; 1995 [in Polish]
3. Zalewska A, Średzińska K, Kułak W. Postawa ciała a siła mięśniowa u dzieci w wieku szkolnym. Białystok: Wydawnictwo Uniwersytetu w Białymstoku; 2021 [in Polish]
4. Kołodziej J, Kołodziej K, Momola I. Postawa ciała, jej wady i korekcja. Rzeszów: Wydawnictwo Oświatowe FOSZE; 2009 [in Polish]
5. Wilczyński J. Korekcja wad postawy człowieka. Starachowice: Anthropolos; 2005 [in Polish]
6. Kwolek A. Rehabilitacja medyczna. Part 1 and 2. Wrocław: Edra Urban & Partner; 2013 [in Polish]
7. Owczarek S. Atlas ćwiczeń korekcyjnych. Warszawa: Wydawnictwa Szkolne i Pedagogiczne; 2005 [in Polish]
8. Wolański N. Rozwój biologiczny człowieka. Podstawy auksologii, gerontologii i promocji zdrowia. Warszawa: PWN; 2012 [in Polish]
9. Tuzinek S. Postawa ciała, fizjologia, patologia i korekcja. Radom: Politechnika Radomska; 2003 [in Polish]
10. Śliwa W, Śliwa K. Wady postawy ciała i ich ocena. Legnica: Edytor; 2005 [in Polish]
11. Ogonowski A. Diagnostyka w schorzeniach narządu ruchu. In: Kiwerski J, editor. Rehabilitacja Medyczna. Warszawa: Wydawnictwo Lekarskie PZWL; 2005 [in Polish]
12. Zeyland-Malawka E. Klasyfikacja i ocena postawy ciała w modyfikacjach metody Wolańskiego i Nowojorskiego Testu Klasyfikacyjnego. Fizjoterapia 1999; 4: 52-55 [in Polish]
13. Grabowski H. Teoria fizycznej edukacji. Warszawa: Wydawnictwa Szkolne i Pedagogiczne; 1999 [in Polish]
14. Dictionary of Sport and Exercise Science. Over 5,000 Terms Clearly Defined. London: A & B Black; 2006
15. Martin EA, editor. Concise Colour Medical Dictionary. Oxford: Oxford University Press; 1996

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