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## Technological Progress and Physical Activity

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### Abstract

The time in which we live is called the time of the information revolution and is characterized by a high degree of industrialization, technical progress and automation, which results in a reduction in physical activity, i.e. volume of daily movement activities. Thus, man relies more and more on his intellectual abilities, and less and less on movement. It is for this reason that a person should dedicate himself to daily moderate physical exercise in order to compensate for his daily need for movement. Proper attitude towards physical exercise, as well as the formed habit of exercising in early childhood, are some of the crucial factors that determine whether physical activity in the later stages of life will be an integrated part of life. Only in this way can today's man avoid the consequences of hypokinetic syndrome.

**Keywords:** physical activity, industrial progress, hypokinesia, technological progress

### Introduction

Physical activity is an integral part of human behavior and is key to maintaining health, work ability and mental balance. Physical activity, or inactivity for that matter, can negatively affect health homeostasis, primarily health, quality of life and even social aspects of development (WHO, 2016). Anthropologists are alarmingly warning that today we forget one of the basic human needs – the need to move. Lack of movement and reduced physical activity – hypokinesia, together with obesity, as a consequence of unspent energy that is ingested main-

ly by poor quality “fast” food, and stress, as an unavoidable consequence of a fast lifestyle, are the so-called morphogenic (deadly) Triassic disease of modern civilization. The manifestations of these diseases are visible and worrying. Organs and organ systems are deteriorating, primarily the heart (where the possibility of a heart attack increases) and the lungs (which lose their capacity). In addition, blood vessels lose their elasticity, muscles slack, joints lose mobility, numerous postural deformities appear, and much more. According to the definition of the American College of Sports Medicine (ACSM, 2001), physical activity is any movement of the body that is a consequence of muscle contraction and that leads to energy consumption. It includes a wide range of activities, play, physical (bodily) exercise, competitive sports, but also physical effort during professional activities or while doing household chores, in one word any type of physical work. Physical activity in the form of designed physical exercise has a very positive effect on a person’s psychophysical health. Symptoms of depression, a phenomenon so characteristic of modern society, physical exercise reduces as effectively as psychotherapy. The mechanism of action of physical exercise on the psyche is very simple. It is human nature to react to stressful situations by attacking or fleeing. Technological progress is a part of human civilization’s life that is probably the fastest progressing so far. This is especially visible in the second decade of the 21st century and at the beginning of the third. Almost every person on the planet depends on modern technologies: mobile phones, computers and other modern IT things. Technology is shaping the lives of many people on the planet and there are few who can avoid not reaching for a cell phone at least once an hour to look at something on it. The most vulnerable of all are children, from the preschool age to the teenage years. Although there are benefits to teaching and shaping children, it can have the opposite effect and drastically reduce the quality of life. This is mostly reflected in physical activity.

### **The impact of technological progress on physical activity**

Physical activity is the most important means of improving children’s health (Jin, Yun, Agiovlasis, 2018). Development and improvement of motor abilities, acquisition of motor skills and habits, encouragement of proper development of the organism are under the influence of physical activity. The organized process of physical exercise is an immanent segment of the educational process. Integrated personality development, whether it is cognitive, affective or motor development, cannot flow in a “clockwise direction” if movement is neglected and marginalized. The current lifestyle brings with it a number of negative consequences which result in a reduction in the quality of life. One of the main reasons for the decrease in the quality of life is immobility, and it can be freely said that weight gain is a general phenomenon (Gopinath, Hardy, Baur, Burlutsky,

Mitchell, 2012). Consequently, everyday use of computers has consequences that directly affect the proper growth and development of children (Straker, Coleman, Skoss, Maslen, Burgess-Limerick, Pollock, 2008), as well as the incorrect position of children when sitting (Murphy, Buckle, Stubbs, 2004; Geldhof, Cardon, Bourdeaudhuij, De Clercq, 2007). The way in which parents function faster is also one of the reasons for the reduced quality of life of children, since parents have less and less time to spend with their children. One of the biggest problems of physical inactivity or insufficient physical activity of children is obesity. According to the research (Sisson, Broyles, Baker, Katy-marzyk, 2010), the rate of child weight loss was 18%, which was a difference of 11% compared to the obesity rate three decades earlier.

Excessive and long-lasting hypokinesia is considered by scientists as one of the factors that cause conditions that are characterized by the manifestation of an anxiety reaction. If such conditions last longer, the organism can be exhausted. Sedentary behavior in children is increasingly present. Therefore, there is a need for constant monitoring of obesity rates in preschool children. Obesity in children is increasingly mentioned in the context of the epidemic, because the scale of the presence is increasing. Increased body weight as a “disease of modern man” is increasingly appearing in childhood (Ebbeling, Pawlak, Ludwig, 2002; Dietz, 1998). A very important fact is that regular and systematic physical activity reduces the risk of cardiometabolic diseases in children (Janssen, LeBlanc, 2010). The general trend of inactivity among children is more and more present. In a sample of 39 countries around the world, it was found that children aged 13–15 years spent an average of 2 hours watching television on weekdays (Currie, Zanotti, Morgan, 2012). A fact that is even more worrying is that watching television is not the only form of sedentary behavior. So, we should also take into account the time spent studying, playing games, time spent on a mobile phone, etc. The study (Currie, Zanotti, Morgan, 2012) came up with data indicating that parents also agreed that their children spend too much time watching TV or playing games.

### **Possible solutions to the problem**

The American Academy of Pediatrics has also published studies on how technologies affect children at the earliest age, in the developmental years (years of take-off), and has given some guidelines so that problems can be suppressed. According to these guidelines, parents are advised that preschool children should be with the devices for a maximum of one hour. In addition, because of increased addiction and other things that children are surrounded by on the Internet, they need to monitor the content of what children watch and filter it if necessary.

Adapted and indicated physical activity in current and elementary life, as today’s man leads, is seen as an inseparable part of everyday functioning. Care-

fully selected, and adequately applied, physical activity makes its positive contributions to the anthropological space of man. In childhood, physical activity is a significant factor that affects many aspects of proper growth and development. The involvement of parents in the educational process of a child's growing up is something that can be freely defined as the "imperative of today".

Increasing physical activity during early childhood could increase the likelihood of a general presence of physical activity throughout life, thus reducing the risk of developing any form of chronic disease (Goldfield, Harvey, Grattan, Adamo, 2012). Also, one type of solution is to include as many children as possible in an organized type of exercise, primarily developmental gymnastics. If developmental gymnastics is understood through the reasons for its application, then the following can be defined: Functional reasons, which refer to increasing work ability, initiating physiological processes and improving posture; Health reasons, related to the improvement of general health; Psychological reasons, which refer to the release of psychological tension, emotional load and the improvement of attention. One of the most important reasons for the application of corrective gymnastics is its impact on the motor space of a person, i.e. on motor abilities.

The guidelines mentioned above, published in the article "Media education: What parents can do?" by the American Academy of Pediatrics, state that a child should get into the habit of turning off devices while performing even the simplest physiological tasks such as eating, performing physiological needs, and to involve the parents themselves in some kind of exercise together with the child.

## **Conclusion**

A high degree of industrialization and technological progress de facto affects children's development. Physical inactivity caused by the modern way of life in childhood can be reduced by more active participation of parents in the educational process. By including children in organized types of physical activities, it can prevent the appearance of many pathological conditions in the old stages of life. Raising parental awareness and presenting all the consequences caused by current lifestyles can be important items that contribute to a possible increase in the quality of life.

## **References**

- Currie, C., Zanotti, C., Morgan, A. (eds.) (2012). *Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey*. Copenhagen: WHO.
- Dietz, W.H. (1998). Health consequences of obesity in youth: childhood predictors of adult disease. *Pediatrics*, 101(Supplement 2), 518–525.
- Ebbeling, C.B., Pawlak, D.B., Ludwig, D.S. (2002). Childhood obesity: public-health crisis, common sense cure. *The Lancet*, 360(9331), 473–482.

- Geldhof, E., Cardon, G., De Bourdeaudhuij, I., De Clercq, D. (2007). Back posture education in elementary schoolchildren: a 2-year follow-up study. *European Spine Journal*, 16(6), 841–850.
- Gopinath, B., Hardy, L.L., Baur, L.A., Burlutsky, G., Mitchell, P. (2012). Physical activity and sedentary behaviors and health-related quality of life in adolescents. *Pediatrics*, 130(1), e167–e174.
- Goldfield, G.S., Harvey, A., Grattan, K., Adamo, K.B. (2012). Physical activity promotion in the preschool years: a critical period to intervene. *International journal of environmental research and public health*, 9(4), 1326–1342.
- Janssen, I., LeBlanc, A.G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *International Journal of Behavioral Nutrition and Physical Activity*, 7(1), 1–16.
- Jin, J., Yun, J., Agiovlasitis, S. (2018). Impact of enjoyment on physical activity and health among children with disabilities in schools. *Disability and health journal*, 11(1), 14–19.
- Murphy, S., Buckle, P., Stubbs, D. (2004). Classroom posture and self-reported back and neck pain in schoolchildren. *Applied Ergonomics*, 35(2), 113–120.
- Sisson, S., Broyles, S., Baker, B., Katymarzyk, P. (2010). Screen time, physical activity, and overweight in U.S. Youth: *National Survey of Children's Health 2003*, 309–311.
- Straker, L.M., Coleman, J., Skoss, R., Maslen, B.A., Burgess-Limerick, R., Pollock, C.M. (2008). A comparison of posture and muscle activity during tablet computer, desktop computer and paper use by young children. *Ergonomics*, 51(4), 540–555.
- WHO (2016). *Report of the commission on ending childhood obesity*.