

# CHARACTERISTICS OF PHYSICAL TRAINING OF PERSONS WITH VISUAL IMPAIRMENT - FROM INSTRUCTION AND WORKOUT TO TRAINING AND COMPETITION

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## SUMMARY

Visual impairment as a congenital condition or acquired state is due to: eye diseases, physical injuries, falls, brain injuries, infections, etc. In relation to the degree of visual impairment, there are blind and low vision persons.

Due to insufficient or non-existent visual information at an early stage of development, children with visual impairment are not aware of their own body and space, therefore they have problems with their own motion. The motor development of children with visual impairment is slow, which manifests through delayed walking, inaptitude, clumsiness, frequent fall and bad coordination. On the other hand, it is possible that the ultimate level of motor abilities of people with visual impairment can be approximate or the same as people without visual impairment.

For an appropriate approach to physical exercise it is necessary to consider the following in a person with visual impairment: the amount and type of vision, physical, functional, health and mental state. The basic characteristics of implementing physical exercises with this population include: adaptation of teaching methods, adaptation of the exercise space and selection of appropriate requisites and equipment.

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The way of acquiring knowledge of the low vision children is visual information (regardless of the poor quality of their reception), and for blind children there are audible and tactile information. A constant, detailed verbal description of motions and movements is necessary in order to explain incomplete visual information and associate it with successive tactile information. An individual-led activity ensures understanding of the person with VI on the required movement. The analytical method is the dominant method during instructions and training.

Sports in which people with visual impairment can participate are: athletics, chess, judo, ninepin bowling, tenpin bowling, shooting, swimming, torball, football 5, golf, showdown, golf, powerlifting, skiing, riding ... IBSA (International Blind Sport Federation) is an international sports organization that takes care of sports of persons with VI and is a member of the IPC (International Paralympic Committee). Competitions involving people with VI include: Paralympic Games, IBSA Games, world, continental, regional and national championships, as well as many international and national tournaments.

**Key words:** visual impairment, instruction, workout, training, competition.

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## PREJUDICE

Since ancient times, blindness has been interpreted in various ways, often controversial ones. It is stereotyped and marked by people without visual impairment. All this has thus affected the acceptance, tolerance and integration of people with visual impairment. Firstly, people with visual impairments have still been treated with certain prejudices related to the degree of their impairment, education and integration into society. However, obsolete perceptions based on fear or ignorance have disappeared. Over time, the belief that blind persons are beggars, evil-doers or that their blindness is a kind of punishment, has been lost. On the other hand, there are other beliefs that the blind have some additional powers and abilities, such as more pronounced senses, especially hearing, the sixth sense or a better sense for estimation. Likewise, the once widespread belief that musical talents and abilities are attributed to the blind exists no longer<sup>1</sup>.

It is widely accepted that all people need to be informed and that full inclusion of the blind is the ultimate goal. Starting from the basic idea of inclusion that all individuals differ from one another, the society should adjust and change in order to meet the needs of all individuals. It is necessary to permanently work

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<sup>1</sup>Maria Papadaki and Mira Tzvetkova-Arsova, "Social attitudes and convictions of persons with normal vision towards people with visual impairment", *Special Education and Rehabilitation* 12 (4) (2013): 488.

on the awareness of members of society towards people with visual impairment, their integration into society through the media, non-governmental and governmental institutions. Frequent contacts with people with disabilities, even with people with visual impairment, develop a positive attitude towards them with majority of population<sup>2</sup>.

## VISUAL IMPAIRMENT - DEFINITION AND CLASSIFICATION

Visual impairment implies partial or complete absence of light recognition, or significant visual impairment with visual acuity in a better eye from 0.05 to 0.3 with correction, even above 0.3, with prognosis of further visual impairment. The smallest number of the blind and persons with visual impairment are in children age, and the largest among seniors<sup>3</sup>. Visual impairment occurs: as a consequence of eye diseases, an innate or acquired condition (caused by physical injuries, falls, brain injuries, infections, toxins, etc.).

People with visual impairment are: the blind and persons with visual impairment.

**Blindness** implies visual impairment varying from complete lack of perception of light, to a certain degree of visual weakness; descriptions and definitions include functional blindness and professional blindness. A blind person has a visual acuity of 0.05 or less at a better eye with correction, and a person whose visual field is limited to a central part of less than 10°, provided the loss of visual acuity is definite and cannot be improved by corrective lenses or pharmacological and surgical treatments;

**Poor sight** implies significant visual impairment with visual acuity at a better eye with a correction ranging from 0.05 to 0.3, as well as above 0.3 with a prognosis of further visual impairment. The condition to classify a person as visually impaired is that the reduction in vision is definite and cannot be improved by corrective lenses or pharmacological and surgical treatments;

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<sup>2</sup>Spela Golubovic, Srdjan Milasinovic and Nina Brkic-Jovanovic, "Social Distance and Attitudes of Students Towards Peers with Disabilities", *Science, Security, Police* 3 (2014): 54.

<sup>3</sup>Marko Aleksandrovic, Bojan Jorgic and Filip Miric *A Holistic Approach to Adaptive Physical Exercise - a Textbook for Students of Master Academic Studies* (Nis: Faculty of Sport and Physical Education of the University in Nis, 2016), 229.

Based on the above criteria, the World Health Organization uses the following classification of all persons with visual impairment and blind persons and classifies them into five categories<sup>4</sup>:

1. first category - persons with visual impairment whose corrected visual acuity in the better eye is between 0.3 and 0.1;
2. Second category - persons with visual impairment whose corrected visual acuity in the better eye is between 0.1 and 0.05;
3. Third category - persons with impaired vision whose corrected visual acuity in the better eye is between 0.05 and 0.02, i.e. whose field of vision, regardless of visual acuity, is reduced by 50 to 100 around the central fixation point;
4. Fourth category - persons with visual impairment whose corrected visual acuity in the better eye is between 0.02 and no sensation of light, i.e. whose visual field, regardless of visual acuity, is reduced to less than 5° of the central fixation point;
5. Fifth category - blind persons with no visible function, i.e. people who do not have the ability to perceive light (amaurosis).

Some of the leading causes of visual impairment include: cataract, diabetic retinopathy, macular degeneration, glaucoma. Some diseases affect primarily the central field of vision (macular degeneration), others the peripheral field of vision (glaucoma), the third group affects both eyes (diabetic retinopathy), and the fourth affects only one eye (cataract). It is common for all of them to affect aspects of visual functioning<sup>5</sup>. The World Health Organization (WHO) points out that uncorrected refractory difficulties<sup>6</sup> are the cause to the appearance of poor to moderate degrees of visual impairment worldwide.

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<sup>4</sup>Tomislav Benjak, Tina Runjic, Ante Bilic-Prcic, "Prevalence of vision disorders in Croatia based on data from the Croatian Register of Persons with Disabilities", *Croatian Journal of Public Health* 9 (2013): 335.

<sup>5</sup>Mary Kay Margolis, Karin Coyne, Tessa Kennedy-Martin, Timothy Baker, Oliver Schein, Dennis A. Revicki, Vision-specific instruments for the assessment of health-related quality of life and visual functioning, *Pharmacoeconomics* 20 (12) (2002): 791.

<sup>6</sup>Jeanette Kallstrand-Eriksson, Amir Baigi, Nina Buer, and Cathrine Hilding, "The perceived vision related quality of life and the risk of falling among community living elderly people", *Scandinavian Journal of Caring Sciences*, 27 (2013): 438.

## NUMBER OF PERSONS WITH VISUAL IMPAIRMENT

In 2010, there were approximately 285 million people with visual impairment (the poor sighted and blind), and 28.2 million in Europe. According to these data, the prevalence of visual impairment amounts to about 4%, and blindness to about 5‰. Targeted epidemiological studies of visual impairment in Europe have shown that there are still many countries where data on prevalence, manifestations of visual impairment in children and the entire population are not available<sup>7</sup>.

## MOTOR DEVELOPMENT OF CHILDREN WITH VISION IMPAIRMENT

Visual impairment reduces the possibility of effective and successful movement, which adversely affects the psychophysical development of the child and leads to an increased risk of illness, reduces the possibility of participating in physical activity and disables the development of motor and functional abilities<sup>8</sup>. Many targeted studies have shown that visual impairment may lead to a low level of participation in physical activity, postural disorders and physical deformities, difficulties in orientation, balance problems and depression<sup>9</sup>.

Visual impairment in children implies a change in the teaching modality. The method of teaching children with disabilities is to a large degree different from the one applied to children with unimpaired vision. With such a child learning by model (imitation) is impossible, thus being largely deprived of spontaneous learning from the environment. Taking into account the fact that 80% of the information is obtained through the eyesight, it evident what percentage of spontaneous learning is possible with children with visual impairment<sup>10</sup>.

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<sup>7</sup>World Health Organisation, *Global data on visual impairments 2010* (Geneva: World Health Organisation, 2012), <http://www.who.int/blindness/GLOBALDATAFINALforweb.pdf> (overtaken on 2. 2. 2018)

<sup>8</sup>Risto Kozomara and Bojan Kozomara, „Causes of blindness in the Republic of Srpska“, *Medicinski pregled*, 63(5-6) (2010): 340.

<sup>9</sup>Tuncay Çolak, Belgin Bamaç, Mense Aydin, Bergün Meriçi Aydin Özbek, “Physical fitness levels of blind and visually impaired goalball team players”, *Isokinetics and Exercise Science*, 12 (2004): 251.

<sup>10</sup>Saeed Ahmadi Barati, Akram Ahmadi Barati, Saeed Gaeenii Mohsen Ghanbarzadeh, „Comparing the effect of combination of mental and physical practices on balance capability of students with vision disorders“, *International Journal of Sport Studies*, 31 (1) (2013): 84.

The motor development of children with visual impairment is slowed down. This is manifested as delayed walking, clumsiness, more frequent falls and poor coordination, particularly eye-hand coordination. Due to insufficient visual information at an early stage of development, children with visual impairment are unaware of their own body and space and thus have problems with their own motion. For a child with visual impairment, the environment has much less stimulating value, since there is no possibility of high-quality visual imitation of other people's movements and the improvement of their own movements (Table 1)

**Table 1.** Comparison of motor development in a good-vision and a blind baby.

<b>Development of motor skills up to two years</b>	<b>Baby with good vision</b>	<b>Blind baby</b>
Raise to hands	around 1 - 5 months	4.5 - 9 months
Standalone sitting for moments	around 4 - 8 months	5 - 9 months
Turning to the back/stomach	around 4 - 10 months	5.5 - 9 months
Standalone sitting	around 5 - 9 months	7 - 9.5 months
Standalone lift up to a sitting position	around 6 - 11 months	9 - 15.5 months
Standing with adherence	around 6 - 12 months	9.5 - 15 months
Walking by hand holding	around 6 - 12 months	8 - 11 months
Standalone standing	around 9 - 16 months	9 - 15.5 months
Independent three-step walk	around 9 - 17 months	11.5 -19 months
Catching visible objects	around 5 - 7 months	/

Targeted research shows that children with disabilities due to their physical and psychosocial limitations are of lower levels of morphology and physical fitness, especially compared to their peers without visual impairment<sup>11,12</sup>.

<sup>11</sup>Lauren Lieberman, „Fitness for Individuals who are Visually Impaired or Deafblind“, *RE: view*, 34(1) (2002): 13.

<sup>12</sup>Aleksandra Grbovic and Bojan Jorgic, „Motor Abilities Of Children with Different Levels of Visual Acuity“, *Facta Universitatis, Series: Physical Education and Sport*, 15(1) (2017): 13.

This is also manifested in adulthood, where athletes with impaired vision still have a distorted balance<sup>13</sup>.

The needs of people with visual impairment for physical exercise are not different from the needs of others, but they differ in the way they are achieved. For an appropriate approach to physical exercises the following should be taken into account:

1. the impairment level and how people with visual impairment can see;
2. their physical, functional and health condition;
3. methods of teaching individuals with visual impairment.

The basic problems in implementation of physical exercise refer to:

1. Adaptation of teaching methods (movement demonstration);
2. Adaptation of the exercise room;
3. Selecting the appropriate equipment and adapting the requisites.

## EARLY STIMULATION

Early intervention is the process of providing information, counseling, education and support for children at an early age. It encompasses a range of necessary medical, psychological, educational and social interventions directed at children with detected developmental disability or belonging to a risk group, as well as their families, to support and encourage their development<sup>14</sup>. It aims at encouraging the sensorimotor, emotional, social and intellectual development of the child. It provides them with an active, successful and independent participation in social life. Children, parents, families and the wider community are involved in early intervention<sup>15</sup>. All this is unambiguously applicable to children with visual impairment. For these reasons it is necessary to establish centres for early intervention in the local community, with special attention to physical exercise.

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<sup>13</sup> Marko Cosic, Goran Kasum, Sasa Radovanovic and Vladimir Korpivica, „Characteristics of the Balance of Persons with Impaired Visual Sense “, Yearbook of the Faculty of Sport and Physical Education, 20, (2014): 81.

<sup>14</sup> Olivera Markovic and Jovan Arsic, "Early Intervention and Treatment of Children with Disabilities", *PONS - Medical Journal*, 8 (4) (2011): 138.

<sup>15</sup> Marta Ljubescic, "Early Intervention in Communication and Linguistic-Speaking Deviations", *Paediatrica Croatica* no. 56 (1) (2012): 202.

## **BARRIERS TO PHYSICAL ACTIVITIES FOR PERSONS WITH IMPAIRED VISION**

It was found that children with low vision show great interest in sports and physical activities which, however, are not sufficiently implemented. Twice less school children with visual impairment are actively engaged in sports compared to children with healthy vision. Moreover, when it comes to recreation, the frequency of using sports grounds and equipment is similar. When engaged in physical activities, the school children with visual impairment often feel hindered or have negative emotions towards physical engagement, and various either subjective or objective problems<sup>16</sup>.

## **GENERAL GUIDELINES FOR WORKING WITH CHILDREN WITH VISUAL IMPAIRMENT**

It has already been stated that 80% of information absorbed comes through the eyesight<sup>17</sup>. Due to visual impairment, children need to have a compensate for the missing information by which they will become familiar and understand the world around them and teach them compensatory skills. The way of learning in children with visual impairment is through visual information (despite the low quality of their reception), while in blind children these include audible and tactile information. Continual and detailed verbal description of movements and motions is crucial for explaining incomplete visual information and associating it with successive tactile information. Individual-led activities ensure children's understanding of the required movement<sup>18</sup>.

The following are the general guidelines for working with children with visual impairment in physical exercises.

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<sup>16</sup>Aleksandra Grbović, "Physical Activity of Visually Impaired Students - Interests and Habits", *Research in Defectology*, (7) (2005): 62.

<sup>17</sup>Saeed Ahmadi Barati, Akram Ahmadi Barati, Saeed Gaeenii Mohsen Ghanbarzadeh, „Comparing the Effect of Combination of Mental and Physical Practices on Balance Capability of Students with Vision Disorders“, *International Journal of Sport Studies*, 31 (1) (2013): 81.

<sup>18</sup>Marko Aleksandrovic, Bojan Jorgic and Filip Miric *Holistic Approach to Adaptive Physical Exercise - Textbook for Students of Master Academic Studies* (Nis: Faculty of Sport and Physical Education of the University in Nis, 2016), 232.

### 1. Student's distance

A child with visual impairment should be allowed to come close enough to hear the explanation better and have visual notice and touch to grasp the demonstrated movement.

### 2. Position of the teacher

This is of great importance for perceiving the demonstrated movement. It is not recommended to stand in front of the window (direct sunlight). Wearing contrasting (bright) clothing with long sleeves is recommended.

### 3. Kinesthetic and audible information

Audible information is based on the assumption that the child can understand the instruction. A large number of children with visual impairment have problems in understanding spatial relationships (location, position, direction, distance, etc.), which makes kinesthetic information a more effective way of learning.

### 4. Demonstration with verbal description

During the demonstration, it is necessary to consistently give precise, clear and concise verbal instructions followed by tactile instructions. For example: How to jump? "Stand on your left foot, lift your right, take off with your left foot." In doing so, it is preferable to use different orientation objects.

### 5. Tactile instructions

Tactile instructions can be done in several ways: tactile modeling and physical guidance.

Tactile modeling is used when a person with visual impairment cannot perceive the movement to be performed, if the verbal instructions are not sufficient or if the already adopted movement needs to be improved. It implies a learning technique where the student touches the coach with his hands or body while performing a certain movement, which provides tactile information about the position of the body and limbs during the activity. This technique is suitable for acquiring static actions. The trainer's movements must be accurate and precise, done at

appropriate speed and pace, to provide the student with a complete picture of the movement.

Physical guidance is used when a person with visual impairment can perceive the movement to be performed. The technique



**Figure 1** - Example of physical orientation

consists of placing the body and limbs of the student in the appropriate position for action and directing the movement in the desired direction and at the desired speed. Physical guidance is performed as a complete assistance or just a touch (on the knee or elbow) to guide the person to the appropriate position.

#### 6. Use the easy-to-difficult principle

An example of this may be learning to catch a ball. The ball is first caught at a short distance with a bounce. Then, the same is done at a greater distance and in the next step, the ball should be caught without bouncing at smaller, and then at greater distances. Preferably use sound balls, first in smaller and then larger size.

### **ADAPTATION OF THE EXERCISING ROOM, EQUIPMENT AND REQUISITES**

The tactile marking of the exercise room limits allows for free movement, provided the person is sure there are no dangers or obstacles such as walls in the exercise room. Changing the texture of the floor (e.g. rubber instead of wooden floor) indicates to the persons that they have gone beyond the boundaries of the playground. A smaller practice area facilitates orientation and enables a better involvement of a child with visual impairment in physical activities.

Adaptations of the requisites in terms of sounds, colours and weights are done for their maximum exploitation and protection of their vision. Balls can be sound-producing, tactile (various materials), soft, light, etc. For example, it is easier to catch a ball if it is not inflated or if placed in a sock. The ball is better seen if Scotch-taped or if replaced by a balloon, it moves more slowly. Sound reinforcement can be done with baskets, nets and players by means of tiny bells, etc.



**Figure 2.** Goalball - Sport adapted for persons with visual impairment and blind people.

## GENERAL GUIDELINES FOR TEACHING WALKING AND RUNNING TO CHILDREN WITH VISUAL IMPAIRMENT

Children with visual impairment require training and individual assistance for proper walking and running. The main problem is the body and head posture and simultaneous movement of arms and legs, with a proper length of steps, pace and rhythm. Training is based on individual analysis of walking techniques, identifying deficiencies and setting specific individual goals.

The following exercises can be given in teaching how to walk: Children walk two to three times at a distance of 40 m to 60 m. This is followed by the analysis of mistakes and rhythmic walking with the teacher. After reaching the correct posture of the body, the tasks become more complicated, for instance: walking along the track 15 cm to 20 cm wide, 20 m in length, with a pace change and recording of lap times, then walking with a change in step length, type, speed, etc. Orientation in space is done by following the sound signal and thus determining distance.

The following forms of adaptation can be used for running:

1. a visible guide,
2. using a rope or wire (in certain direction or in a circle),
3. voice guidance,
4. independent running and running on a track.



**Figure 3.** Types of running adaptations

## BASIC GAMES

In the early intervention stage, games can be a successful means of motor skills development in children with visual impairment. Certainly, these games

must be implemented with certain adjustments. Imitation of the game activity should be related to all aspects of the game<sup>19</sup>.

Children are not aware of dangers in their surroundings, playgrounds and environments in which physical activities are realized, which is a real threat to a child with visual impairment. Therefore, the implementation of physical activities and games should be in the environment the child is familiar with. Areas with earthen or wooden borders will help the child to know where they can move. Also, no objects that might cause child's stumbling should be found in the safe zone while they take part in the game. "For this group of students, teaching of physical education will be much more successful with good lighting, use of audio devices or objects of different textures. It would be helpful for these children to constantly use the same area in which they practice and to which they are well-accustomed. Using guidelines and brightly coloured boundaries can help them be more successful during the physical education class"<sup>20</sup>.

"It is difficult for a child with visual impairment to understand games such as basketball, football, or games that we learn by watching others. For this reason, teaching should be adjusted by introducing sounds. Inserting small bells into the pockets of other children participating in the game as well as the basketball net provides a cheap way to achieve good receiving of information. Therefore, a child with visual impairment can perceive the player's position and knows when a point has been scored. When a child with visual impairment is involved in ball games, it is desirable to use the so-called "sound balls". With such balls children with visual impairment get a notion of the ball movement and position.

Children with visual impairment have a problem to develop skills for playing at the same speed as their peers without visual impairment. The reason for this is the fact that they lack visual images and the ability to see others playing. They are unable to imitate peers and learn through imitation and social activities. From an early age, children with impaired vision should begin to play by themselves, next to others and eventually with others. Time should not be given for children to communicate verbally in order to start playing and participating in various forms of physical games.

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<sup>19</sup>Marko Aleksandrovic, Bojan Jorgic and Filip Miric: *Holistic Approach to Adaptive Physical Exercise - Textbook for Students of Master Academic Studies* (Nis: Faculty of sport and physical education of the university in Nis, 2016), 199.

<sup>20</sup> Lauren Lieberman, „Fitness for individuals who are visually impaired or deafblind“, *RE: view*, 34(1) (2002): 13

## SPORTS IN WHICH PERSONS WITH VISUAL IMPAIRMENT PARTICIPATE

IBSA (International Blind Sports Federation) is an International Sports Organization that takes care of sports of people with visual impairment. It was founded in Paris in 1981 and has been integrated into the International Paralympic Committee (IPC) since its foundation in 1989. IBSA has more than 100 members on all continents. The IBSA goal is organizing sports competitions for people with visual impairment accomplished through the following tasks<sup>21</sup>:

1. establishing friendship among blind athletes;
2. motivating larger number of these people to take part in competitions;
3. establishing universal rules in sports;
4. establishing a register of results.



Figure 4 - Logo of IBSA

IBSA organizes competitions in 16 sports: alpine skiing, athletics, archery, chess, football, goalball, judo, bowling with 9 and 10 chunks, Nordic skiing, weight lifting, shooting, tandem cycling, swimming, torball and showdown<sup>22</sup>.

In Serbia competences for sports in which persons with visual impairment can participate are assigned. Hence, the Paralympic Committee of Serbia is in charge of sports that are in the program of the Paralympic Games, and the

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<sup>21</sup> Marko Aleksandrovic, Bojan Jorgic and Filip Miric: *Holistic Approach to Adaptive Physical Exercise - Textbook for Students of Master Academic Studies* (Nis: Faculty of sport and physical education of the university in Nis, 2016), 118.

<sup>22</sup> Goran Kasum, *Sport of Disabled Persons* (Belgrade: Faculty of Sport and Physical Education, 2015), 173.

National Sports Association of Blind and Athletes with Visual Impairment is in charge of sports that are not in the program of this great sports event.

It should be noted that the classification of people with visual impairment for sports competitions is identical for all sports. There are three classes (B1, B2 and B3) that differ according to the characteristics of the vision (Table 2).

**Table 2.** Review of classes for sport competitions of athletes with visual impairment and related characteristics.

CLASS	VISION ABILITY
B1	Cannot see the light, do not have the ability to recognize objects in any direction or at any distance.
B2	Can see at 2 m what people without visual impairment see at 60 m. The field of vision is less than 50.
B3	Can identify objects between 2 m and 60 m distance. The field of vision between 50 and 200.

## INSTEAD OF CONCLUSION

People with visual impairment have a major handicap in motor learning, because they cannot rely on the sense of sight by which 80% of the information is adopted. During the growth and development of a child with visual impairment, there is a continual delay compared to the peers of typical development. However, timely early intervention, continuous long-term work and the use of adequate teaching methods, equipment and requisites, it is possible to have athletes of similar abilities to athletes without disabilities.

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## **КАРАКТЕРИСТИКЕ ФИЗИЧКОГ ВЕЖБАЊА ОСОБА СА ОШТЕЋЕНИМ ВИДОМ – ОД ИНСТРУКЦИЈЕ И ОБУКЕ ДО ТРЕНИНГА И ТАКМИЧЕЊА**

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### **САЖЕТАК**

Оштећења вида као урођено стање или стечено стање је последица: очних болести, физичких повреда, падова, повреда мозга, инфекција, итд. У односу на степен ОБ постоје следеће и слабовиде особе.

Услед недовољних или непостојећих визуелних информација у раној фази развоја, деца са оштећеним видом нису свесна сопственог тела и простора, због тога имају проблема са самосталним кретањем. Моторни развој деце са оштећеним видом је успорен, што се испољава као касније проходавање, трапаовост, неспретност, чешће падање и лошу координацију. С друге стране, могуће је да се крајњи ниво моторичких способности особа са ОВ може бити приближан или исти са особама без оштећења вида.

За одговарајући приступ физичком вежбању потребно је код особе са оштећењем вида сагледати: количину и начин вида, физичко, функционално, здравствено и ментално стање. Основне карактеристике спровођења физичког вежбања са овом популацијом су: прилагођавање наставних метода, адаптација простора за вежбање и одабир одговарајуће опреме и реквизита.

Путеви сазнања за слабовиду децу су визуелне информација, без обзира на слаб квалитет њиховог пријема, а за слепу децу су аудитивне и тактилне информације. Неопходно је константно, детаљно вербално описивање покрета и кретања ради појашњавања непотпуних визуелних информација и повезивања сукцесивних тактилних информација. Индивидуално вођена активност осигурава разумевање особе са ОВ о траженом кретању. Аналитички метод је доминантан метод током обуке и тренинга.

Спортови у којима особе са оштећеним видом могу да учествују су: атлетика, шах, цудо, куглање са 9 чуњева, куглање са 10 чуњева, стрелаштво, пливање, торбал, фудбал 5, голбал, showdown, голбал, powerlifting, скијање, јахање... IBSA (International Blind Sport Federation) је међународна спортска организација која се брине о спортовима особа са ОВ и члан је Међународног параолимпијског комитета - IPC (International Paralympic Committee). Такмичења на којима учествују особе са ОВ су: параолимпијске игре, IBSA игре, светска, континентална, регионална и национална првенства, као и многи међународни и национални турнири.

**Кључне речи:** оштећење вида, инструкција, обука, тренинг, такмичење.

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## ОСОБЕННОСТИ ФИЗИЧЕСКОЙ ПОДГОТОВКИ ЛИЦ С НАРУШЕНИЯМИ ЗРЕНИЯ - ОТ ПОЯСНЕНИЙ И ОБУЧЕНИЯ ДО ТРЕНИРОВОК И СОРЕВНОВАНИЙ

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### АННОТАЦИЯ

Нарушение зрения как состояние врожденное или приобретенное обусловлено: заболеваниями глаз, физическими травмами, падениями, травмами головного мозга, инфекциями и др. Относительно степени нарушения зрения различают слепых и слабовидящих людей.

Из-за недостаточного получения визуальной информации или отсутствия таковой на ранней стадии развития дети с нарушениями зрения не ощущают своего тела и пространства, поэтому у них проблемы с передвижением.

Развиваются дети с нарушениями зрения в плане двигательной активности медленно, что проявляется в поздно сформированной способности ходить, неуверенной походке, неуклюжести, в частом падении и плохой координации движения. С другой стороны, возможно, что предельный уровень двигательных способностей людей с нарушениями зрения может быть приближенным к нормам людей без нарушений зрения или быть таким, же как у них.

Чтобы правильно подобрать физические упражнения для человека с нарушениями зрения необходимо учитывать его особенности: степень возможности видеть и тип зрения, физическое, функциональное, психическое состояние и здоровье. Основными характеристиками физических упражнений для этой категории населения являются: подбор методов обучения, правильная организация условий для выполнения упражнений и подбор соответствующего комплекса упражнений и оборудования.

Способ познания мира у слабовидящих детей – визуально воспринимаемая информация (не смотря на низкое качество восприятия информации), а для слепых детей – информация, воспринимаемая на слух и посредством тактильных ощущений. Необходимо тщательно подробно словесно описывать процедуру выполнения движения для того, чтобы прояснить информацию, полученную людьми с нарушениями зрения визуально недостаточно полно и распознать информацию, полученную через тактильные ощущения. Индивидуальный подход обеспечивает понимание человеком с нарушениями зрения как необходимо выполнять движение. Аналитический метод является доминирующим при обучении и тренировке. К видам спорта, которыми могут заниматься люди с нарушениями зрения, относятся: легкая атлетика, шахматы, дзюдо, кегли, боулинг, стрельба, плавание, торбол, футбол 5, гольф, пауэрлифтинг, катание на лыжах, верховая езда. IBSA (Международная федерация спорта слепых) – Международная спортивная организация, которая объединяет людей с нарушениями зрения для занятий спортом и является членом IPC (Международного Паралимпийского Комитета). Соревнования с участием людей с нарушениями зрения включают: Паралимпийские игры, игры МСАС, мировые, континентальные, региональные и национальные чемпионаты, а также международные и национальные турниры.

**Ключевые слова:** нарушения зрения, пояснение, обучение, тренировка, соревнование.

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