SPECIFICITY OF THE TRAINING PROCESS FOR DEAF ATHLETES

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Introduction

The Deaflympics is considered the most prestigious international competition for athletes with hearing impairments (deaf). To participate in these games, an athlete's hearing loss must be at least 55 dB, and the use of any hearing devices (hearing aids or cochlear implants) is not permitted during competitions. These strict requirements are aimed at creating equal conditions for all participants. In Deaflympic competitions, the rules generally align with Olympic rules, except that visual aids - light signals, flags, or referee gestures - are used instead of audio signals and commands. Consequently, athletes and coaches must adapt to these unconventional conditions during the training process itself.

The achievement of high results by deaf athletes largely depends on the proper organization of their training and preparation process. Experienced coaches emphasize that the correct approach to communication with athletes with hearing impairments is crucial: the use of sign language (gestures) and other visual means of communication by coaches significantly increases the effectiveness of training. Scientific research also indicates that direct communication through sign language reduces barriers between the coach and the athlete, leading to improved athletic performance. Therefore, the system of training deaf athletes should be rich in communicative adaptations, visual aids, and specialized methodologies. Below, using the examples of four main sports - Greco-Roman wrestling, freestyle wrestling, judo, and taekwondo - the characteristics of working with athletes with hearing impairments, as well as the requirements for their physical and technical preparedness, are theoretically analyzed. Additionally, differences in communication, visual aids, and adaptive approaches in the training process are highlighted, and general conclusions are drawn.

The system of preparing athletes with hearing impairments for high-level competitions is theoretically based on the principles of general sports pedagogy and adaptive physical education. Scientific research shows that hearing impairment itself does not significantly limit physical fitness potential - if the correct methodology is applied, deaf athletes can develop physically at the same level as their hearing peers. For example, in a study on judo conducted by Karakoç (2016), the physical indicators of athletes with hearing and vision impairments were analyzed, and it was found that there were no significant differences between the two groups in indicators such as strength, speed, and endurance. This means that the maximum level of physical fitness for deaf athletes should be as high as for regular athletes.

As we have seen in the examples of sports analyzed above, the system of training athletes with hearing impairments primarily requires an adaptive approach in three main areas: interaction and communication, visual signals and tools, and adapted methodology.

Effective communication between the coach and the athlete is the foundation of high performance. For conveying verbal instructions to deaf athletes, it is preferable for a coach to know sign language. Studies show that if a coach can fluently communicate in sign language, it has a significant positive impact on the athlete's understanding and execution of training. Therefore, in many national teams, coaches learn sign language in special courses or work with interpreters. Additionally, the athlete and coach can develop a personal signal system that they mutually understand (as mentioned above). The crucial point is that the athlete feels their thoughts are being heard and understood - this provides great psychological support. In team training sessions, other hearing athletes should also respect the culture of the deaf community by following rules such as facing the person when speaking plainly (to allow for lip-reading), pronouncing words more clearly, and not speaking from behind. This serves to unite the entire team. Furthermore, coaches and psychologists need to work closely to help deaf athletes overcome certain psychological complexes that may arise due to hearing loss (such as lack of self-confidence or feelings of inability to communicate). It is known that deaf athletes who engage in sports show significantly higher levels of social integration and life satisfaction. Thus, successful sports activities positively impact both their social and personal lives.

Various visual tools are widely used in the process of training deaf athletes. These include light signaling devices (e.g., lights indicating start and stop), flags (e.g., for referee or coach signals), written materials (boards, posters, slides via video projector). For instance, in running and track and field training, a flashing light is used instead of a gunshot as a starting signal. Special signal lamps can be installed in wrestling halls - when time runs out, a red light turns on, and the athletes stop the match upon seeing this. Through such technical means, the deaf athlete's *"hearing"* is facilitated. Training textbooks and manuals can also be adapted for deaf athletes - for example, using more pictures, diagrams, and sequential photographs rather than simple textual explanations. Video analytics is particularly useful: the athlete can watch a video recording of their performance, simultaneously see the coach's recommendations through gestures or subtitles, and understand their mistakes.

The training process for deaf athletes is also based on the principle of continuity and progression. Throughout the year, periods of increasing and decreasing loads, as well as the ratio of general and specialized training, are planned. However, it is natural that there are some differences at each stage. For example, during the initial training stage (for beginner athletes), attention is primarily given to teaching sign language and terminology. The athlete should learn the main signs used in the gym environment (such as "stop," "continue," "finish line," "you won/lost"). Later, they learn to perform simple exercises - here too, the coach explains as much as possible using visual demonstrations. At the specialized training stage (after the

athlete has mastered the basics), as described above for each sport, training in competitive conditions increases: matches, practice competitions, and tactical exercises are conducted solely under visual supervision. In the pre-competition stage, the athlete's functional state is optimized, and psychological confidence is strengthened. At this stage, it is sometimes beneficial to test the athlete outside their usual environment - for example, competing in an unfamiliar place or in front of a small audience - because deaf athletes may briefly struggle to understand signals in a new setting. Therefore, it is necessary to test their skills in various situations. During the competition period, the coach communicates with the athlete in a predetermined manner (for example, only using pre-agreed methods, without introducing unnecessary new elements) and helps the athlete maintain focus.

Various innovative solutions in modern sports are also helping Deaflympic athletes. For example, vibrotactile technologies - special bracelets or belts that send signals via vibration from a distance (for instance, vibrating when time runs out). Or, when preparing for the start, along with a series of lights, an additional vibration signal can be given, which creates a sensitive environment for the athlete. In some studies, light-speed trainers are used to develop athletes' vision - exercises involving quickly pressing buttons in response to flashing lights on a wall (which improves the athlete's peripheral vision and reaction speed). Such devices are especially useful for deaf athletes, as they compensatorily enhance peripheral sensitivity. Coaches also participate in special seminars and training sessions to improve their skills, where they learn methods for working with deaf athletes.

In team sports (such as football and basketball), deaf athletes require a specific coaching approach. However, since the sports in our topic are individual/personal in nature, it is sufficient to briefly mention these aspects: if a deaf athlete is part of a team, the entire team must learn to cooperate using sign language, and game strategies are also implemented through visual cues. The good news is that numerous events and examples demonstrate that athletes with hearing impairments can succeed in teams as well, and their participation does not negatively affect the team - on the contrary, it enhances the inclusive culture among others.

Based on the theoretical analysis, the following conclusions can be drawn:

- For deaf athletes, the competition rules remain almost unchanged - only the method of control is transferred to a visual form. Thus, in every sport, athletes with hearing impairments, like other athletes, must fully understand and be able to comply with technical standards, rules regarding violations, and scoring systems. For example, in judo and wrestling, they also adhere to established weight categories, and the same point and victory rules apply in matches; in taekwondo, the same point system is used for strikes. Only the start, stop, and referee decisions are conveyed through lights, flags, or physical gestures, rather than sound. This requires the athlete to mobilize a high level of attention and visual acuity.
- Coaches working with athletes who have hearing impairments are required to develop new skills. They should be inclined to learn sign language, explain simple words and phrases in the

form accepted in the deaf community, and "speak" with hand gestures, facial expressions, and even their body language. In this regard, specialized training is necessary. Studies show that deaf athletes rated hearing coaches who know sign language as the most suitable model. This means that the hearing coach must be prepared to perform an additional task - the role of interpreter and communicator. The more effective the communication, the smoother the training process and the more comfortable the athlete feels.

- Deaf athletes need to practice more than usual to develop their vision, tactile sensation, and peripheral perception. This is because they lack information obtained through hearing. As a result, they compensate by trying to receive more information through their eyes and skin. Training should incorporate elements such as games that increase visual reaction speed, touch-sensing exercises, and maintaining balance with closed eyes. This enhances their independence not only in competition but also in everyday life. Some scientific studies show that deaf athletes can better control their balance with open eyes compared to hearing athletes (due to stronger reliance on visual input), but they quickly lose balance when their eyes are closed. For this reason, exercises for quick and accurate processing of visual information play a crucial role in their training.

-Correlation between social integration and sports performance: The system of training deaf athletes serves not only for physical exercises but also for their integration into the team. Sport is a convenient way for them to express themselves and integrate into society. According to research, hearing-impaired individuals who regularly engage in sports have significantly higher levels of life satisfaction and self-awareness compared to disabled individuals who do not engage in sports. Thus, through sports, not only medals are won, but human development and self-confidence also increase. From this perspective, coaches and officials should pay attention not only to the psychological state of deaf athletes but also to their role in the team - if the athlete feels like a full-fledged member of the team, their performance will also improve.

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