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held on June 9th, 2023 by

NGO European Scientific Platform (Vinnytsia, Ukraine)

LLC International Centre Corporative Management (Vienna, Austria)



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USE OF MODERN INFORMATION TECHNOLOGIES IN THE EDUCATIONAL AND TRAINING PROCESS OF SWIMMERS: INNOVATIONS, CHALLENGES AND PROSPECTS

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In the world of sports, modern information technologies are increasingly used to improve the results and training of athletes. Swimming is no exception, and new technologies are revolutionizing this sport [1].

Virtual reality (VR) and virtual simulators. Using VR allows swimmers to have an immersive training experience, creating virtual simulators to improve technique and increase motivation. They can simulate different swimming conditions, including virtual pools and seawater areas with different waves and weather conditions.

Use of sensors to analyze equipment. Modern sensors, built into special suits or devices, allow you to collect data about the movements of the swimmer's body. These data can be used to analyze swimming technique. Thanks to these sensors, coaches and athletes can get objective information about the angle of inclination of the body, pace of movement, time of turns and much more. This allows you to identify flaws and improve swimming efficiency.

Computer programs in the educational and training process of swimmers play an important role in improving swimming technique, strengthening physical training and achieving better results. They provide swimmers and coaches with valuable tools and resources for effective training. Here are some types of computer programs used in swimming:

Video analyzers: These programs allow you to record and analyze video footage from training or competitions. Swimmers can review their videos and identify weaknesses in swimming technique, incorrect movements and other aspects that

need improvement. Coaches can also use these programs to analyze and analyze swimming technique in order to provide feedback and correct mistakes [2].

Training Databases: These programs allow coaches and swimmers to create and store training databases. These may include information on training plans, training results, exercises completed, distance covered, swimming times and speeds. Training databases help coaches track swimmers' progress, set goals, and plan workouts for optimal results.

Specialized training programs: There are a variety of computer programs designed specifically for training swimmers. They may include exercises to improve technique, muscle development, endurance and coordination.

Swimming simulators: These programs allow swimmers to train in a virtual environment that simulates real swimming conditions. They can simulate different types of water bodies, weather conditions, currents and other factors that can affect swimming. Swimming simulators allow swimmers to improve their technique and strategies in conditions that are as close to real life as possible.

Fitness monitoring: Some programs allow swimmers and coaches to monitor fitness. They allow you to record and analyze data on heart rate, oxygen consumption, speed and other swimming parameters. This data can be used to determine optimal loads, control overloads and plan training programs.

Individual Training Programs: Some programs provide the ability to create individual training programs for swimmers based on their needs and goals. They take into account the swimmer's level, fitness, swimming technique strengths and weaknesses to develop an optimal training strategy.

Data analytics and machine learning. Data collected from sensors can be processed using analytical tools and machine learning methods. This makes it possible to make an in-depth analysis of swimming, identify trends and give individual recommendations to improve results.

Mobile apps for training and tracking progress. The development of mobile applications is aimed at facilitating the training of swimmers and tracking their progress. These apps can include training plans, video tutorials, performance statistics, communities to share experiences, and more. They become universal tools for swimmers of different levels.

Challenges and prospects. Although modern information technology has many advantages in swimming, it also presents us with challenges. One of them is the availability of technology for all swimmers regardless of their financial capabilities. In addition, it is necessary to develop standardized approaches to the use of technologies to ensure objectivity and comparability of results [3].

In the future, the use of modern information technologies in swimming will have even greater prospects. It is expected that the development of virtual reality will lead to the creation of even more realistic simulators that will be able to accurately simulate the conditions of various bodies of water and contribute to the improvement of swimming technique. Also, the growth of computing power and machine learning algorithms will facilitate more accurate data analysis and the development of personalized training programs for each swimmer.

Despite the challenges and obstacles, the use of modern information technologies in swimming already shows great potential for improving training,

analyzing technique and achieving better results. Continued research, collaboration between scientists, coaches and athletes, as well as ensuring the availability of technology for all swimmers will be the basis for the further development of this field [1,3].

Modern information technologies have significant potential for use in swimming. Virtual reality, sensors, data analytics and mobile applications help improve athletic training, analyze swimming technique, track progress and provide personalized recommendations to improve results. However, the implementation of these technologies also faces challenges such as accessibility, standardization and protection of personal data.

The use of modern information technologies in swimming opens up new opportunities for training, analysis and achieving high results. These technologies not only improve swimming technique, but also increase the motivation of athletes and create new opportunities for success. Given the challenges and prospects, it is necessary to continue research and cooperation to introduce these technologies into swimming and ensure their successful development in the future.

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