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USING VIRTUAL REALITY IN ATHLETICS TRAINING

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Abstract

Background: Training based on virtual reality has already proven successful in military and aviation. Because it is a visually-kinesthetic learning aid, its utility in sports is certain. The real beauty of sports training based on virtual reality lies in its ability to create real muscle memory through virtual experiences.

Sports profile is the key to developing the self-consciousness the athlete needs to develop emotional intelligence and to understand how behavior and personality influences sport performance.

Establishing the sporting profile builds the self-awareness needed to achieve superior performance. Using it will develop emotional intelligence and help to understand how consistently the best results are achieved as an individual and in relation to others. Sports profiles for athletes' ratings use scientific techniques based on decades of behavioral research and are especially designed for high-performance sports (http://athleteassessments.com/disc-profiles-sport).

The face work aims to use a new, alternative method to improve children's performance at the start of athletic training. In this paper we want to demonstrate that applying the training methods appropriate to each type of personality can achieve equally good results regardless of the dominant function.

Objectives: The objective of the paper is to demonstrate the effectiveness of the virtual reality method for non-sensory researchers, one single child, aged 11-13 years, in improving athletic performance.

Purpose: The aim of the paper is to expose the benefits and the role of virtual training for non - sensors in optimizing athletic performances.

Methods: The methods used are two, the first is the Myers - Briggs Type Indicator - MBTY test, and in the second part we use the virtual reality method with the Oculus glasses in the athletic training.

Conclusions: The use of personality tests contributes to the efficiency of sports training, especially at the level of training athletes.

In this context, the application of psychomotor tests as modern methods that can significantly influence the quality of the training, clearly leads to the improvement of athletic performance in the level of a single child.

Keywords: athletics, Oculus glasses, virtual reality.

Introduction

"The sphere of the psychomotor domain is very broad, with a rich and varied content, in which the analytical elements intertwine with the synthetic ones" (Albu, C., et al., 2006).

"In the process of forming motor skills, the mental image plays an essential role, being influenced by the motor act, which once improved also leads to its improvement. During its evolution, the representation of movements is subject to series of restructurings and organizations, especially at the level of the rhythm and pace of the action, as well as in the information components that regulate the motor act" (Bota, A., 2002).

Although our advanced physiological and technical knowledge has generated tremendous progress and previously undetectable physical performance, there is a significant "gap in knowledge" that develops into another area that is also essential to delivering results. This is the emotional intelligence of coaches and athletes, which represents the understanding of the role played by personality and behavior in human performance and the ability to analyze and consciously adapt behavior to improve performance.

"Emotional intelligence or mental talent is one of the least understood and explored in performance sports. Athlete ratings were created to help coaches, athletes and sports professionals to develop their "mental talent" to realize their full potential. This awareness is achieved through the sport profile" (Epuran, M., 1999).

This research is based on a personality test called MBTI - the abbreviation for the Myers-Briggs Type Indicator, consisting of 70 questions, which finds within the 4 dimensions (Figure 1) Extroversy-Introversy, Intuition-Feeling, Thought-Affectivity, Judgment-Perception, how people's decision-making is formed in

response to their environment, and how people perceive the world and process information. It is important to say that the test does not judge, but examines the influence factors of a person's decision.

An overwhelming percentage of the great contemporary athletes: Lebron James, Usain Bolt, Serena Williams, Magic Johnson, Joe Montana, Steve Nash, Gilberto Godoy belong to the sensory category (that is, those who have the first, extrovert or extraverted sensation).

"It has been found that, although performance in sport is associated with sensitiveness, there are also many athletes with other dominant functions that excel in sports" (Jung, C., 2004).

Organization of the Text

Face research aims to use a new, alternative method to improve children's performance at the start of athletic training.

Statistics show that those with ESTP (Sensory-Thinker) and ESFP (Sensitive-Effective) are the most active in sports. Usain Bolt, Serena Williams, Magic Johnson, Joe Montana, Steve Nash, Gilberto Godoy, are just some examples of athletes with these types of personality.

Through this research, we are asleep to demonstrate that applying the training methods appropriate to each type of personality can achieve equally good results, regardless of the dominant function.

Training based on virtual reality has already proven successful in military and aviation. Because it is a visually-kinesthetic learning aid, its utility in sports is certain. The real beauty of sports training based on virtual reality lies in its ability to create real muscle memory through virtual experiences.

How does a virtual reality system work?

HMD (head-mounted display) is a device, a headset with a screen placed in the eyes, divided into two areas with two distinct displays for each eye.

To this device is added two lenses adjusted according to the distance between the eyes, slightly bending the image so that it is perceived as natural. The screen and lenses are placed on this helmet mounted on the head. Depending on the model of the virtual headset, audio headphones can be easily mounted for even deeper virtual immersion

Results

The purpose of this research is to demonstrate the effectiveness of the virtual reality method for non-sensory researchers, namely children 1, aged 11-13 years, in improving athletic performance.

In this research we proceeded from the following hypothesis: "By acting systematically through the virtual method, we can improve the performance at the level of initiation in athletics, children of 11-13 years of non-sensory type."

The work is based on the premise that not only those with the main sensory function can perform in sports. Subjects: 10 boys in the age group 11-13 years practicing athletics at the initiation level (children 1) at C.S.S. Triumph. We chose this age because then the body image is formed.We applied a number of three control tests: running on a distance of 80 m, 800 m and jumping in length.

The research methods we have used in the first phase required the application of the Myers - Briggs Type Indicator - MBTY test and the virtual reality method with Occulusura glasses.

The Myers-Briggs test, we applied the test at the beginning of the research period, which I interpreted with the help of a psychologist.

Thus, of the 10 subjects, 2 are sensory and 8 non-sensory, according to the table below.

Tabel 1. Type MBTI of the subjects under investigation

Subiecți	Tip MBTI
M.N	ESTP - Senzorial
G.I.	ESFP - Senzorial
A.N.	INTP – Non-senzorial
R.T.	ENFJ – Non-senzorial
P.M.	ENFP – Non-senzorial
C.C.	INFJ – Non-senzorial
B.C.	INTJ – Non-senzorial
A.M	INTP – Non-senzorial

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O.P.	ENFP – Non-senzorial
T.N.	ENFJ – Non-senzorial

The next step was to use Occulus virtual reality glasses when specially selected exercises adapted to the particularities of the working method. Using the Social Run and VR Run program, we trained 4 non-sensory subjects. The others trained under normal conditions 3 times a week. Each program shows a circuit on the athletic track, at various levels of difficulty, to mimic reality as accurately as possible.

We have replaced a classic training with VR glasses training as follows:

1. For the 80m sample:
   - running ankle play locally - 2 x 30s;
   - swelling of the calves under the seat on the seat - 2 x 30s;
   - kneeling upside down - 2 x 30s;
   - swinging the calves forward - 2 x 30s;

2. for the length jump sample:
   - vertical jump with half-width - 2 x 30s;
   - step-by-step jump on the spot - 2 x 30s;
   - changing legs by jumping on the spot - 2 x 30s;
   - length without impulse – 6 x.

3. For the 800 m sample:
   - 3 x 3min running in place;

We made a questionnaire to get the views of the subjects in connection with the Occulus virtual reality glasses experience.

Questionnaire:
1. Learning was easier with VR?
2. Have you had dizziness or unpleasant effects after using glasses?
3. Was it an interesting experience?

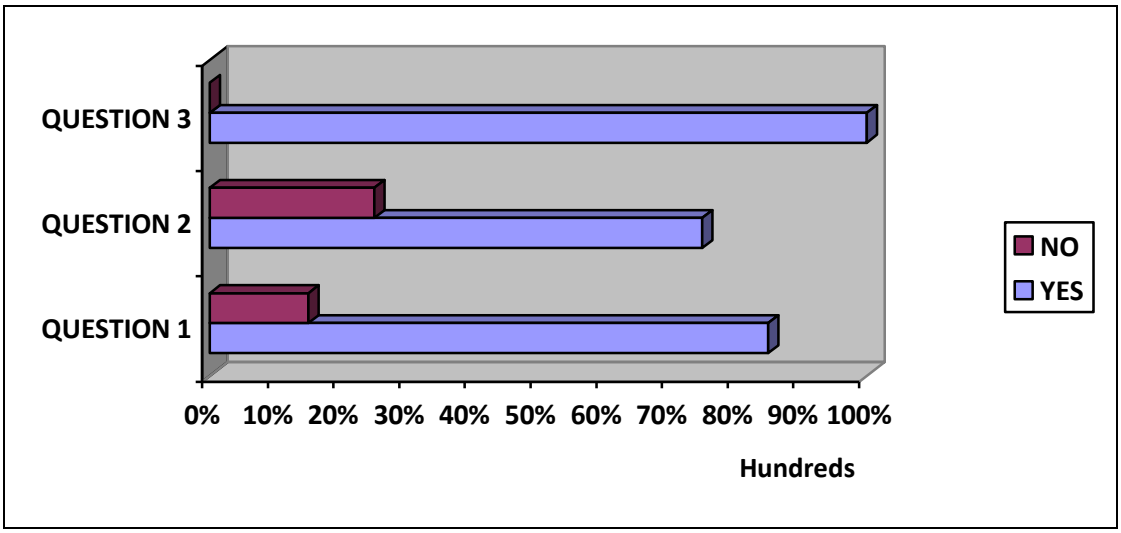

Fig. 1. Investigated subjects answer questions

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Tabel 2. The results of subjects investigated at initial testing and final testing

Group	Subjects	Initial testing			Final testing		
		80 m (sec)	800 m (min)	Long jump (m)	80 m (sec)	800 m (min)	Long jump (m)
Senzorial	M.N.	10,89	2.28.79	4,83	10.68	2.27.84	5,06
	G.I.	10,91	2,29,16	4,69	10,74	2,28,34	4,86
Non-Senzorial 1 NS1	A.N.	12,64	2,35,71	4,32	12,52	2,35,22	4,45
	R.T.	12,01	2,41,64	4,11	11,97	2,40.98	4,36
	P.M.	12,47	2,38,30	4,29	12,38	2,37,79	4,35
	C.C.	11,89	2,47,85	3,85	10,54	2,47,22	4,25
Non- Senzorial 2 NS2	B.C.	12,56	2,39,16	4,38	12,10	2,38,05	4,75
	A.M.	12,66	2,42,66	4,25	12,15	2,41,71	4,73
	O.P.	11,79	2,40,31	4,21	11,19	2,39,33	4,61
	T.N.	12,10	2,36,27	4,14	11,56	2,35,38	4,58

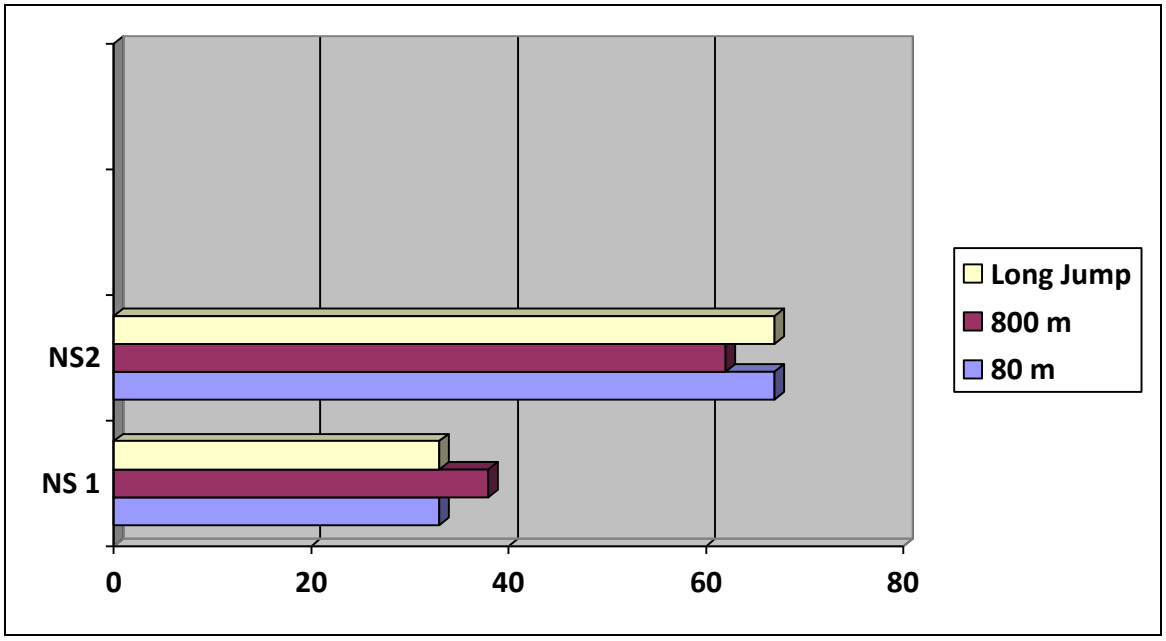

Fig. 2 The results obtained in the initial testing and final testing of the three samples

As a result of the results obtained at the 80m sample, it results that NS2 subjects had an average of 40 tenths of a second less than subjects who were not subjected to the virtual NS1 experiment, respectively a 67% progress compared to 33%.

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Based on the results obtained at the 800m sample, it results that NS2 subjects had an average of 33-tenths of a second less than subjects who were not subjected to the NS1 virtual experiment, respectively a 62% progress compared to 38%.

Following the results obtained from the sample length, that test subjects undergoing NS2 had an average of 21cm longer than subjects who did not receive virtual experiment NS1 or a progress rate of 67% to 33%.

Conclusions

The use of personality tests contributes to the efficiency of sports training, especially at the level of training athletes.

In this context, the application of psychomotor tests as modern methods that can significantly influence the quality of the training, clearly leads to the improvement of athletic performance in the level 1 children.

Following the interpretation of the results, it has been shown that the virtual reality training method is effective, demonstrated by those who have not achieved sensitivity to the MBTI test and achieved comparable results to the sensory.

The approach to athletic training of modern methods in our case by applying the virtual reality training method has led to a significant increase in the performance of the athletes in research at all three control samples.

The body image of subjects in research is enhanced by virtual reality training due to neuro-motor stimulation.

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