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Training of young football players with use of modern innovative approaches

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Purpose: *to study the condition of posture of young football players and to develop the multimedia information and methodical system "TORSO" for the further use in the educational-training process.*

Material & Methods: *analysis of special scientific and methodical literature, pedagogical observation, videometry and biomechanical analysis of posture. The research was conducted on the basis of the department of kinesiology of National university of physical education and sport of Ukraine. Football players of 7 years old in number of 40 people participated in the research.*

Results: *it is established that such type of violation of biogeometrical profile of posture as rounded back – at 30%, scoliotic posture – at 22%, rounded – hollow – at 16%, flat – at 6% and flat – hollow – at 2% most often meets at football players of 7 years. The obtained data caused the development of the information and methodical system "TORSO" which is expedient for using both for the prevention, and for the increase in level of theoretical knowledge of young football players and coaches.*

Conclusions: *introduction of computer technologies to practice of preparation and organization of the educational-training process of young sportsmen will allow bringing the quality of training of sports reserve to the new methodical level.*

Keywords: *young sportsmen, information technologies, multimedia, posture.*

Introduction

The most innovative and progressive moments of the accumulated experience of long-term preparation of sports reserve in football in many countries, first of all Western Europe, deserve not only the close attention of the Ukrainian experts, but also the scientific foundation of the directions of their use, for the sake of high-quality transformation of the native system of training of young football players [1; 5; 7].

Modern general-theoretical knowledge and powerful practical experience of management of the educational-training process in the branch of sport allow estimating critically training of sportsmen in football, to trace positive sides, to define reserve opportunities and ways of the subsequent improvement of the educational-training process [2; 8; 12].
Today, the use of information technologies in the training process became the relevant problem of scientifically pedagogical activity with the development of technologies of sports preparation [4; 6; 9]. The constant growth of opportunities of information systems causes the need of the search of new directions of use of modern information technologies for sports science and practice, needs even closer attention to opportunities of the optimization of information processes in the pedagogical activity [3; 10].

Communication of the research with scientific programs, plans, subjects

The research was executed according to the plan of the research work of the chair of kinesiology of National University of physical education and sport of Ukraine and the Built plan of the research work in the sphere of physical culture and sport for 2011–2015 of the Ministry of Education and Science, youth and sport of Ukraine, on the subject 3.7 "Improvement of biomechanical technologies in physical education and rehabilitation taking into account specific features of motility of the person", number of the state registration is 0111U001734.

The purpose of the research:

to learn the state of posture of young football players and to develop the multimedia information-methodical system "TORSO" for its subsequent use in the educational-training process.

Research tasks:

1. To generalize the scientific data on the current state of posture at young football players in the course of physical education.

2. To define the most frequent types of violations of posture at young football players.

Material and Methods of the research

Such methods of the research were used for the performance of the put tasks: analysis of special scientifically-methodical literature, pedagogical observation, videometry and biomechanical analysis of posture. The research was conducted on the basis of the chair of kinesiology of National university of physical education and sport of Ukraine. Football players of 7 years old, in number of 40 people participated in the research.

Results of the research and their discussion

The data of the stating experiment allowed to find out that violations of the biogeometrical profile of posture meets most often at football players of 7 years old is rounded back – at 30%, scoliotic posture – at 22%, rounded – hollow – at 16%, flat – at 6% and flat – hollow – at 2%. The videogram of the biogeometrical profile of posture were processed with the use of the program "Torso", with the definition of 3 angular characteristics of the biogeometrical indicator of posture: α_1 – the angle of slope a head, which is formed by vertical and the line, that joins acantha of the seventh cervical vertebra of C_7 and the center of weight (CW) of a head; α_2 – the point of view, which is formed by horizontal and the line that joins the most acting point of the front bone and performance of a chin; α_3 – the angle of slope of a trunk which is formed by vertical and the line that joins acantha of the seventh cervical vertebra of C_7 – the backbone point which is most acting back on border of cervical and chest departments and acantha of the fifth lumbar vertebra (L_5) – the most scoliotic profound point of lumbar lordosis (center of the somatic system of coordinates).

It is established in the course of the researches that deviations of angles of the biogeometrical profile of posture break the high-differentiated general structure of axial skeleton of children and lead to violations in the field of passive and active stabilizing and supporting structures.

The fact attracts attention that the angle, which is formed by vertical and the line that joins acantha of vertebra of C_{VII} and CW of a head (a1) at football players of seven years old with normal posture averaged 32,14° (S=0,61°), with flat – hollow 44,3° (S=0,2°), with rounded back – 38,28° (S=1,4°), with scoliotic posture – 32,48° (S=1,87°), and with rounded – hollow and flat – 31,44° (S=1,54°) and 36,42° (S=0,5°) respectively (tab. 1).

It was revealed that this angle equals on average 84,59° (S=0,84°) at rounded-hollow and flat back this indicator decreases on average till 77,77° (S=0,74°) and till 79,58° (S=0,66°) respectively, and also till 78,22° (S=0,97°) at scoliotic posture whereas at flat-hollow back increases till 86,77° (S=0,13°) at football players who have no violations of the biogeometrical profile of posture in the analysis of indicators of the angle, which is formed by horizontal and the line that joins the most acting point of front bone and performance of a chin (α_2).

The significant role are played by the system of numerous small muscles at which the ease increase in the angle is observed in the correct statement of the angle α_2 which is formed by horizontal and the line that joins the most acting point of front bone and performance of a chin. Scalenus muscles at which overloads the change of the angle which is formed by horizontal and the line, that joins the most acting point of front bone and performance of a chin, promote through the cervical department of spine column for support of point of view.

We developed the multimedia information-methodical system "TORSO" which is expedient for using as for the prevention of functional violations of the musculoskeletal system (MSS) of football players at the initial stage of preparation, and for the increase in the level of theoretical knowledge of coaches and young football players on the basis of data of the experiment, and also the research, ranks of experts [3; 4; 11] which prove the need of use of information technologies for the system of sports preparation.

The menu of the program is a page element of management with tabs and hyperlinks. Having activated the mouse cursor the necessary tab, it is possible to get access to necessary functions of the program "TORSO".

Table 1

Characteristic of the angle, which is formed by vertical and the line, that joins acantha of the vertebra C_{VII} and CW of a head (α_1) at football players of 7 years old

Type of posture	Statistical indicator			
	x	s	m	p
normal posture (n=6)	32,14	0,61	0,25	
round back (n=12)	38,28	1,4	0,4	<0,01
scoliotic posture (n=10)	32,48	1,87	0,59	
rounded-hollow back (n=6)	31,44	1,54	0,63	
flat back (n=4)	36,42	0,5	0,25	<0,01
flat-hollow back (n=2)	44,3	0,2	0,14	<0,01

Table 2

Characteristic of the angle, which is formed by horizontal and the line, that joins the most acting point of front bone and performance of a chin (α_2) at football players of 7 years old

Type of posture	Statistical indicator			
	x	s	m	p
normal posture (n=6)	84,59	0,84	0,34	
round back (n=12)	75,76	0,86	0,25	<0,01
scoliotic posture (n=10)	78,22	0,97	0,31	<0,01
rounded-hollow back (n=6)	77,77	0,74	0,23	<0,01
flat back (n=4)	79,58	0,66	0,33	<0,01
flat-hollow back (n=2)	86,77	0,13	0,09	<0,01

Such tabs contain on the panel of working window.
The tab "SET UP" – use of this tab provides the control of basic elements of the program (sound level, video picture size, size of text fonts, and so forth).

The tab "**USEFUL TO KNOW**" contains several subsections focused on obtaining additional data on posture, types of its violations. All information is submitted as separate sections and subsections:

The first section –"CORRECT POSTURE" includes information on correct posture and its characteristics.

The second section – "RECOMMENDATION" contains information: what it is necessary to be known for formation of the correct posture, how to prevent emergence of violations of posture as it is correct to get static working pose as it is correct to accept the orthograde pose as it is correct to choose berth and as it is correct to lie in bed.

In the section "ABOUT VIOLATION OF THE POSTURE" information on violation of posture is provided in the frontal and sagital planes.

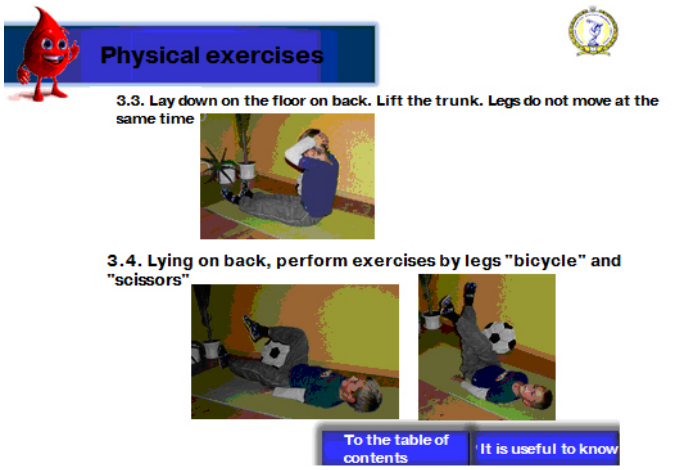
In the section "VIOLATIONS OF BASIC AND SPRING PROPERTIES OF A FOOT" – short information that such flat-footedness and methods of its definition.

The tab "Recommendations for coaches" contains information on opportunities of use of correctional-preventive actions in the educational-training process of young football players. This section gives opportunity to pass to the database of video lessons. This presentation – videos with complex of the physical exercises, which are developed for use in the course of the educational and training classes.

The tab "Recommendations for parents" informs on opportunities use of correctional physical exercises in house conditions.

The tab "Recommendations for children" submits information, which is directed to the increase in motivation at children for classes by physical exercises (pic. 1).

The available hyperlink is in each subsection by means of which it is possible to obtain more detailed information on this subject: everything that needs to be made, – only to activate the reference more in details in the bottom of the page.



Pic. 1. The window of the information-methodical system "TORSO" "Recommendations for children" (listing from the computer screen)

Conclusions

A lot of questions, which concern the correction of violations of posture of young sportsmen, are still far from the optimal solution.

It is established that such type of violation of the biogeometrical profile of posture meets most often at football players of 7 years old as rounded back – at 30%, scoliotic posture – at 22%, rounded-hollow – at 16%, flat – at 6% and flat- hollow – at 2%. The obtained data are planned to be considered further at the organization of the educational-training process of young football players in the annual cycle of preparation.

Recently the radical changes are noticeable in technique of sports preparation, which are connected with the increase in the competition at big competitions and promotion into the forefront of training programs, which implementation often exceeds adaptation opportunities of human body. This problem gains the special sharpness at the initial stages of long-term training of children and teenagers, when reserves of their organism are intensively spent for the natural growth and development, and also for power and plastic providing the set loadings. Such situation goes deep early specialization in sport, intensification of trainings and their negative impact on human body. Contradictions appear between the increased requirements to training of young sportsmen which are dictated by need of constant growth of results and limited functionality of their organism which develops.

Today, introduction of computer technologies, in practice of training of young sportsmen and search of ways of their effective use will allow bringing the quality of training of sports reserve to the highest methodical level in the conditions of the impetuous technification of activity of the coach.

Prospects of the subsequent researches will be connected with the introduction of the multimedia information-methodical system of the educational- training process of young football players.

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