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Relationships between the Parameters of Physical, Functional and Technical Readiness of Athletes Specializing in Field Hockey

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Abstract:

In the process of individual development in adolescence, the processes of development of motor qualities continue, although, according to B.A. Nikityuk, 1991, Pavlova O.I., 2003, Kostyukevich V., 2008, Davletmuratov S.R., 2021 with the somatotype of athletes. So with dolichomorphy, the processes of growth and development are delayed and continue after 18 years, with brachiomorphy, growth processes are completed by the age of 16, since it is at this age that the endocrine system is actively working. In order for the development of physical qualities to occur correctly, functional loads must increase gradually, and a certain system of alternating training and recovery is also necessary. Not only a properly organized pedagogical process is important, but also indicators of medical and biological control, only such indicators can be objective and reliable. It is important for a coach to timely conduct a pedagogical examination of the level, taking into account the specifics of sports specialization, the development of physical qualities and changes in the body of athletes under the influence of training. This allows him to control and analyze the training process and make all kinds of amendments to it to develop physical qualities and improve the sportsmanship of those involved. To date, the relationship between the parameters of physical and functional development and the indicators of technical and tactical preparedness of youth hockey players remains poorly understood.

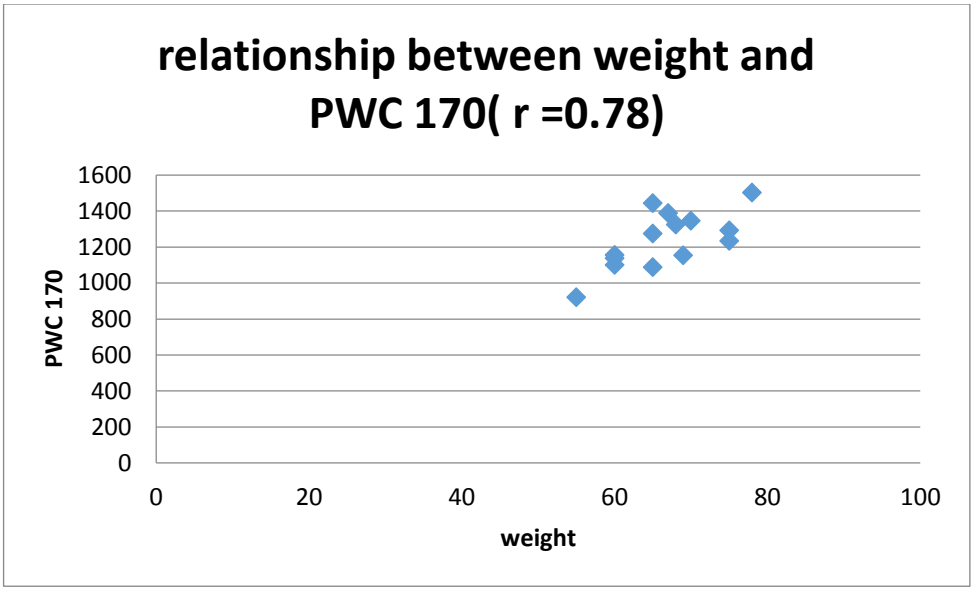
Keywords: physical, functional, technical, parameters, fitness The foregoing was the rationale for conducting this study.

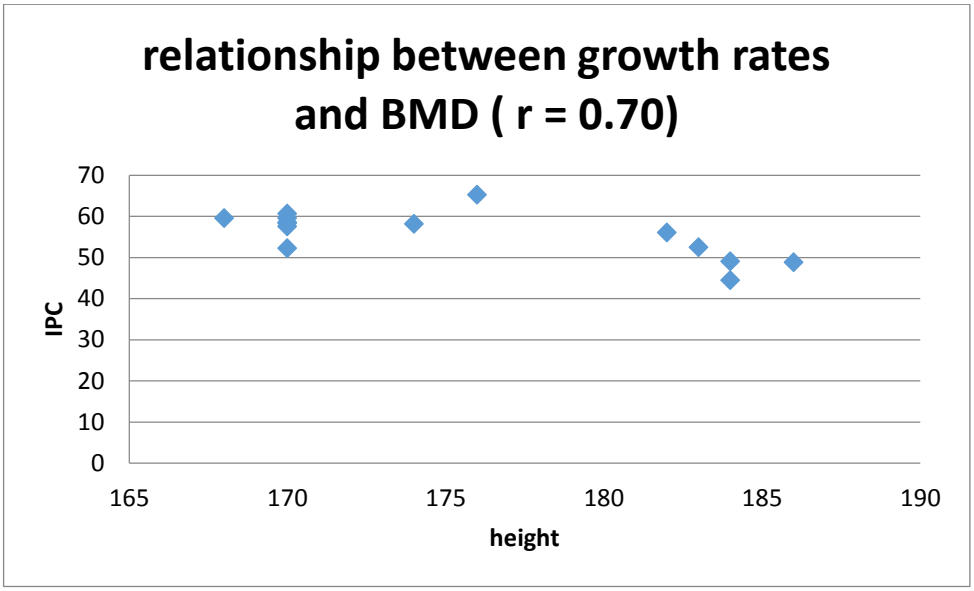
The purpose of the research : Research in the relationship between the parameters of physical, functional and technical fitness of athletes specializing in field hockey.

Research methods : The indicators of physical, functional readiness and technical readiness of field hockey players with sports qualifications of candidates for the master of sports, aged 17-19 years, were established by the methods of pedagogical testing. Athletes were divided into 3 groups. The group of indicators of physical fitness consisted of the results of such tests: long jump from a place, triple jump, 30 m run from the move, "shuttle run - 100 x 4 m", run 1000 m, 100 m, jump up, arm strength. The group of indicators reflecting the technical readiness of hockey players includes the dribble technique, the running technique or the ball dribbling, the accuracy and distance of the throw, the time and accuracy of shots on goal. The third group consisted of indicators of physical development and functional fitness, using anthropometric methods and physiological tests, in particular, physical performance was determined by the Karpman method PWC-170, as well as MPC- as an indicator of the aerobic capacity of the body of athletes.

Results of the study and their discussion : It has been established that there is a strong statistical relationship between the total body dimensions and indicators of physical performance. So, between weight and MRI, the correlation coefficient is 0.87 (r = 0.87), between weight and PWC 170, the correlation coefficient is 0.7 (r = 0.70), the same relationship exists between growth rates and BMD (r = 0.70). Also, a strong statistical relationship was recorded between the total body size and indicators of special physical fitness - the number of dribblings within 1 min. and weight (r =0.71), shuttle run and weight (r =0.55).

Drawings No. 1, No. 2.





In addition, there is an average statistical relationship between some indicators of physical development, functional indicators with indicators of general and special physical fitness, (Table 1) such as

- 1000 m run and MRI (r = 0.49)
- 1000 m run and PWC -170 (r = 0.46),
- Throwing a stuffed ball back (3 kg) and PWC-170 (r = 0.49),
- throwing the ball with a stick for a long distance and VC (r = 0.57),
- ball hitting the goal from a distance of 7 m and VC (r = 0.54),

- the number of dribblings within 1 min and MRI (r = 0.52),
- the number of dribblings within 1 min and PWC 170 (r = 0.57).

Table No. 1. Correlation relationships between total body dimensions, indicators of physical performance and general and special physical fitness

	Weight	Height	IRI	VC	PWC 170	IPC
Run at 1000m	-0.37	-0.25	-0.49	-0.17	-0.46	0.2
run at 100m	0.32	0.49	0.31	0.16	0.28	-0.29
shuttle running 100x4	-0.21	0.55	-0.13	0.01	-0.36	-0.37
throwing stuffed ball back (3 kg)	0.41	0.4	0.31	0.02	0.49	-0.06
standing long jump	0.51	0.15	0.43	-0.2	0.18	-0.36
Throwing the ball with a stick for a long distance	0.37	0.23	0.32	-0.57	0.33	-0.19
kick the ball on goal from a distance of 7 m	0.36	0.44	0.23	-0.54	-0.02	-0.46
number of dribbles in 1 min	0.71	0.49	0.52	-0.01	0.57	-0.25
zigzag dribbling for 30m	-0.28	-0.44	-0.2	0.02	-0.48	-0.03
weight	-	-	0.86	-0.01	0.70	-0.56
height	-	-	0.57	-0.01	0.33	-0.70

Note : *- strong statistical relationship*

- medium statistical relationship

There is also an average statistical relationship between the total body dimensions and some indicators of both general and special physical fitness, and indicators of technical actions - 100m run and height (r = 0.49; - shuttle run 100 x 4 and height (r = 0.55 ; - throwing a stuffed ball back (3 kg) and height (r = 0.48; - long jump and weight (r = 0.51); - ball hitting the goal from a distance of 7 m and height (r = 0.44); - the number of dribblings for 1 min and growth (r = 0.49; - zigzag dribbling for 30m and growth (r = 0.44; An analysis of the dynamics of the relationship between physical fitness and physical development showed that height -weight characteristics have a significant impact ($p<0.05$) on the results of tests that assess the level of speed-strength fitness of hockey players. For example, the amount of dribbling and weight - r = 0.71, shuttle run and growth (r = 0.55), zigzag ball dribbling and growth r = 0.44 This fact indicates that tall hockey players have an advantage in performing technical actions (Fig. 1, Fig. 2). In addition, with age, there is a gradual differentiation of abilities for different types of motor activity: in particular, an increase in the level of technical preparedness of hockey players, in particular the technique of stroking and running around , as a result of which the time spent directly on handling the ball or running around the racks has a smaller share in general. test execution time, and the result is increasingly dependent on speed and speed-strength qualities. It should be noted that the quality of endurance was assessed according to the results of the 1000m test, with the characteristics of the physique, in particular with the height -weight index, there is also an average statistical relationship (r = 049, $p<0.05$), and with such a functional indicator as physical performance - PWC 170 (r = 046). Based on the data obtained, it can be assumed that at the stage of sports improvement, hockey players continue to restructure the structure of physical and technical fitness indicators.

Conclusion: The conducted correlation analysis of the structure of physical and technical fitness of athletes specializing in field hockey revealed the existence of a clear statistical relationship between specific indicators of physical development (height, weight, MRI) with indicators of functional fitness (PWC -170 and MPC) a clear statistical relationship and results technical actions.

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