

# KINEMATIC SPECIALITIES OF TECHNIQUE OF BASKETBALLERS FROM DIFFERENT HEIGHT-WEIGHT GROUPS

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## INTRODUCTION

The investigations by a number of authors (Aiskina, S.N., 1986; Martirosov, E.G., Tumanyan, G.S., 1976) showed that many features of a technique and tactics in basketball were depended greatly from human motorics specialities. As it was set the basketballers of different playing role had different specialities of body's total dimensions. Unfortunately the whole information from the literature on sport morphology, biomechanics and basketball what is achieved for us is limited by this. And meanwhile it is absolutely obviously that the knowledge of individual regularities about the development of athletes' motorics may be used not only for their choice of theirselves playing role but for the improving of methodology of technical-tactical training.

The purpose of the work is the improving of pedagogical process for training of basketballers with different skill on the base of the accounting of individual and group specialities within their motorics.

## METHODS

The complex approach with a system usage of the following research methods: the observations, the biomechanical experiment with the usage of a somatometry, goniometry, videometry and mathematical statistics had been taken for this work. The method of biomechanical analysis on the base of received biomechanical characteristics on the basketballer's technique of motion actions was used for the videogrammas' processing.

15 short basketballers (the body length was  $182.3 \pm 3.8$ cm) and 15 high basketballers (the body length was  $201.0 \pm 4.01$ cm) participated in the experiment. The ball throw into basket from the standing position at the jumping by one hand over ball at the 4m distance from the ring as technical method which was used most frequently had been chosen as a movement task. The following biomechanical characteristics: the time parameters of each phase of executed movement actions, the amplitude of movements of shoulder, elbow and radial-wrist joints, the linear velocities and accelerations of the radial-wrist joint and the hand's extremity during the throwing of a ball into a basket in different time momenta were investigated by grapho-analytical methods after the receiving of videogrammas which have been printed as biokinematic schemes of basketballers' movement actions. Received characteristics are presented by graphs.

## RESULTS

The investigations on the technique of basketballers from different height-weight groups showed that the authentic differences which are expressed by the durations of different phases of ball throwing into basket by one hand from the standing at the jumping are presented within biomechanic structure of their

movement actions. The duration of preparing phase for short basketballers is equal 0.041s on the average, the duration of basic phase is equal 0.416s and final phase is equal 0.164s. The phase durations for high basketballers are distributed as 0.082s; 0.492s; 0.217s on the average correspondingly (Fig. 1).

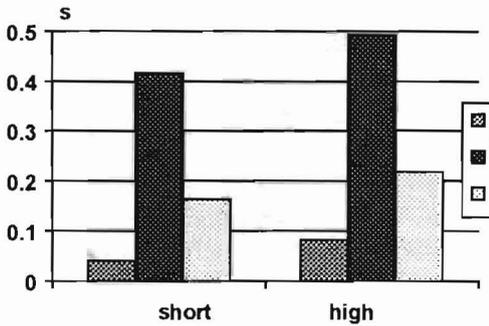


Fig.1. The durations of preparing, basic and final phases.

Linear velocity of movement of hand extremity and radial-wrist joint for short basketballers at preparing phase is accordingly equal 6.5m/s and 6.8m/s on average; at basic phase one is 3.5m/s and 2.6m/s and one is equal 5.6m/s and 1.4m/s at final phase. These parameters for high basketballers are equal accordingly 4.4m/s and 3.1m/s on the average at preparing phase, 2.7m/s and 2.4m/s at basic phase and 1.4m/s and 0.8m/s at final phase.

It was set the dynamics of amplitude of the angle for shoulder joint at final phase of the throw determined the angle of a ball sending into basket. Useful degree of the ring surface rises with the increasing of this angle. This is proved by the work. This angle is equal 168° on average for short basketballers and 159° for high basketballers.

## CONCLUSION

Authentic differences within biomechanical structure of technical actions of basketballers from different height-weight groups are presented. Basic reasons of this lay in essential differences between mass-inertial characteristics of their movement actions that results in different expenditures of mechanical energy under the executing of playing ways. The results of carried researches show that it is necessary to use a special differential training methodology for basketballers of different height-weight groups.

## REFERENCES

1. Wooden, J, (1966). Practical Modern Basketball. N.Y. Ronal Press. Co. New York.