FACTOR ANALYSIS OF SOME KINEMATIC PARAMETERS IN FINAL PHASE OF JAVELIN THROW

Summary

Only one approach to the model of kinematic analysis in final phases of javelin throw in athletics has been presented and suggested. The data has been collected by acquisition of digital indexes of throws kinogram where the markers of a few interesting points have been defined by a computer system. The masses of some particular body segments have been calculated out of the structural indexes of mass, by Bernstain's model, and the position of the center of gravity was determined,too. A co-ordinate system for any position with a starting point in the center of mass has been defined for the typical 12 positions in final phases of jevelin throw. The coordinates of chosen points and the parameters of axises have been calculated. All the data has been put under the factor analysis with the rotation into an unconditional Prokrust's Promax position. The results showed that it was possible, from the data prepared in that way, to identify some five factors in such kind of a model representing an intergrated kinematic composite of a javelin thrower: 1) static stability, 2) dynamic stability, 3) object control (javelin), 4) stability of gravity center and 5) general stability of a javelin thrower. It was supposed , although it was dealt with a specific kind of movement, that the first four factors reflected the elements of general human features, and that the fifth factor was the one which contained the global specific quality of the javelin throw exactly. It was recommended to realize the control of the model with the top-grade throwers and if necessary with a group of some other additional parameters.

Key words*: javelin throw, kinematic analysis*