

EXPERIENCE OF APPLICATION OF ENTROPY COEFFICIENT OF THE SHANNON TO THE ANALYSIS OF PHYSICAL FITNESS OF TWO GROUPS OF FOURTH GRADE STUDENTS

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The concept of information entropy is used in many scientific disciplines, including biology. The increase or decrease of information leads to a change in the uncertainty of the measurement results. In this regard, the use of entropy in the field of sports and pedagogical research is a promising direction and has great theoretical and practical importance. In this paper, the possibility of applying the information-entropy approach for analyzing the level of physical preparation of pupils of the fourth grades has been tested. In the comparative aspect, the final assessments of the performance of the norms for the ball system and with the use of the entropy index as measures of the uncertainty of the results are analyzed. Certain relationships and differences between the two approaches have been established. It is shown that, unlike the ball evaluation system, the entropy coefficients do not show the degree of poor or good physical readiness, but show the level of differentiation of pupils according to the level of physical development and the ordering of their distribution according to evaluation categories. In addition, patterns of seasonal changes in the increase in athletic performance and entropy in four types of exercises were revealed. It was noted that the greatest increase in indices for both classes, for all types of exercises, falls on the spring season, and the greatest uncertainty or entropy is in the autumn season. On the basis of this, conclusions were drawn on the application of entropy analysis as an effective additional measure of the physical preparation of pupils. The results obtained can serve as a guide for the coach or teacher in eliminating the uncertainty of the group's sports results in order to increase the probability of achieving the highest scores.

Keywords: a group of pupils, physical exercises, scores, entropy.

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