

## THE DIFFERENCES IN MORPHOLOGICAL CHARACTERISTICS AMONG TOP HANDBALL, BASKETBALL AND FOOTBALL PLAYERS

### **Abstract**

*The aim of the research is to apply the system of 25 variables of morphological characteristics and the differences among groups of sportsmen regarding the arithmetic mean of the variables so more objective and correct selection of sportsmen can be made during the training process and the training transformational process can be managed more efficiently; the research has been carried out on the sample of 158 top sportsmen of male gender (51 handball players, 51 basketball players and 56 footballers). The processing of data by statistical method of multivariate and univariate analysis of variance (MANOVA/ANOVA) has shown that there is a considerable difference in the arithmetic means ( $p= 00$ ) among handball players, basketball players and footballers in the whole system (multivariate) of the applied morphological variables. By analyzing univariate values according to groups of latent variables, the results have shown that the basketball players have the highest values of the variables of longitudinal and transversal dimension of the skeleton; the handball players are characterized by the highest value of the mass and voluminosity of the body as well as of the panniculus adiposus, whereas the footballers show the lower values than handball and basketball players. On the basis of the obtained multivariate and univariate statistically important parameters of the differences in the arithmetic means of all applied manifested variables, it can be concluded that there are various morphological structures of the sportsmen according to the sports. The special attention during selection should be paid to the basketball players because they have increased values of morphological characteristics of longitudinal and transversal dimension of the skeleton where we can find gene limits, whereas in case of handball players and footballers there is the possibility of transformation regarding morphological characteristics.*

**Key words:** handball, basketball, football, morphological characteristics, MANOVA/ANOVA, differences

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