

## Abstract

Verbal feedback has been the subject of much research in the teaching and learning process of complex motor skills. One of the problems in teaching and improving a sports technique is determining the method of effectively delivering verbal feedback. Trainers can provide learners with feedback on the result of motor skills (knowledge of result – KR) and the performance of movement (knowledge of performance – KP). The fact is that in the absence of feedback, the process of learning complex motor skills requires much more time and is prone to more errors.

Therefore, it is necessary to determine what kind of feedback should be provided, what it should be about, with what frequency it should be delivered, and how to adjust it depending on the level of advancement of the learner. Despite the conducted research, scientific data on effective methods of instructing and communicating with the learner do not provide clear information on the methods of effectively delivering verbal feedback, especially in terms of the type of feedback influence on complex motor skills in women's artistic gymnastics.

The aim of the study was to determine the influence of verbal feedback on the effectiveness of learning a straight forward somersault after a forward swing and a roundoff – backward somersault on a balance beam ended with a stable landing.

The research material consisted of female gymnastics competitors (J) (n = 16). They were randomly assigned to one of two groups: experimental group (n = 8) - with feedback on key elements or control group (n = 8) - with 100% feedback on all errors made in the phase structure of movement task.

The pedagogical experiments were carried out in two stages using the technique of two parallel groups. The aim of the first stage of the research was biomechanical analysis of exercises and gymnastic routines in order to identify key elements of the sports technique. In turn, the aim of the second stage was to assess the effectiveness of teaching and improvement of selected exercises and gymnastic routines with the use of feedback about errors made in key elements of a sports technique and information about all errors made in the phase structure of motor task. During the experiments, the female competitors learned and improved two gymnastic routines – a straight forward somersault after a forward swing and a roundoff - backward somersault on a balance beam ended with a stable landing.

From the research, it has been established that key elements can be identified in the preparatory, main, and final phases. After the ANOVA analysis of variance in the mixed schema, significant ( $p < 0.05$ ) differences were noted due to the teaching method used (Group

x Time factor) when performing the gymnastic routine: roundoff - backward somersault ended with a stable landing on the balance beam made by female gymnasts. It was shown on the basis of t Welch's analysis for independent data that the group with feedback on the key elements obtained significantly higher mean scores from the judges at the end of the experiment. On the other hand, when learning straight forward somersault after flipping forward on the floor made by female gymnasts, it was found that the group with feedback on the key elements received significantly higher scores from judges at the end of the experiment.

When analyzing the obtained research results, it seems advisable to use these type of solutions in groups of female gymnasts, a fact of which increases the effectiveness of teaching and learning complex motor skills in women's artistic gymnastics.

**Keywords:** verbal feedback, motor learning, knowledge of performance