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Purpose of the research. The purpose of the research is to create a classification of hand and arm techniques in rock climbing.

Research objectives:

1. To improve the existing classification of hand and arms techniques in rock climbing.
2. To describe the considered techniques.

Research methods:

1. Analysis of scientific and methodological literature.
2. Video recordings of elements of a competitive exercise.
3. Pedagogical observation.
4. Expert assessment method.
5. Methods of mathematical statistics.

Introduction. An analysis of Russian literary sources shows that in 2014 an attempt was made to create a classification of rock climbing techniques [1]. However, this classification is incomplete and requires expansion and description of the technical actions being introduced. We partially supplemented the mentioned classification in the article “Hand Techniques in Rock Climbing” [2]. Foreign sources do not introduce a complete classification, but there are descriptions of individual technical actions. The most detailed descriptions can be found, for example, in Malcolm Creasy [3] and John Long [4]. As a result of a survey of thirty coaches from eight regions of Russia, the need to expand the previously published classification was revealed.

Research results. In the original classification [1], 5 options for hand operation were considered: straight grip, tilting, picking up, wedging and resting on the hand. An overhand grip is necessary to grab the hold from above. This grip can be done either with the entire palm or only with the fingers, depending on what kind of grip is used. For large shelves and liabilities, it is recommended to use an overhand palm grip. In the case of “holes” and ordinary shelves, a direct grip without using the palm is convenient [2].

The tilt is used when the working part of the hook is on the side of the hook, as well as when passing external corners. As a result of a survey of trainers, it became necessary to identify the different types of angles used. The difficulty of using the tilt depends on the angle that needs to be loaded. The simplest is

an acute angle. It is possible to load it using the curve of your palm, similar to taking a good hold. The obtuse angle is loaded using flexion at the wrist joint and placing the palm on friction.

If the hook is taken with the hand from below, the term “grip” is used. It is possible to use the grip with or without a palm. The palm is used when picking up large holds. Small holds can be picked up only without the palm. Wedging is used when passing through various cracks. The type of jamming depends on the size of the crack.

An outstretched arm is necessary in order to load the passive, perform a long interception, and also for resting on the track. The bent arm is necessary to raise the center of gravity in preparation for the next interception.

The hook with a side working part can be used both in the tilting direction and in the opposite direction. In this case, the technical action is called “on the shoulder”; the movement occurs in the same direction where the working part of the toe is oriented.

It is advantageous to use cross movements to avoid unnecessary interceptions and changes of hands on small holds, where changing is very labor-intensive and not always possible. Possible execution options depending on the direction of movement - under and above the arm

Only E.V. Solovarova considers it as a separate technical “eversion” [1]. The basis of the “eversion” is a cross movement under the arm, but in the case of an “eversion” the head also passes under the arm, and after the interception is completed, a strong reverse untwisting is performed.

Wedging is described in only one source [1]. The action consists of simultaneously performing the “shoulder” element with both hands at the same time.

The widely used element “doubling” is practically not described in the literature. When doubling, both hands are on the same hold for the change. Depending on the size of the holds, either both hands are on it, or the hold is taken with two or one finger of one hand to leave room for one or two fingers of the other. Based on the results of processing the questionnaires, the concept of “compression” was added to the “Work of Hands” scheme. Compression involves squeezing a relief or large toe on both sides using the chest muscles. It is used in the absence of clearly defined hooks on the relief surface, even passive ones.

The considered schemes were assessed by fifteen experts on a five-point scale. The standard deviation is small (0.00; 0.16; 0.25; 0.34; 0.40), i.e., the difference between expert assessments and the average value is small. Thus, the correctness of the schemes of technical actions of the hand and arms is confirmed.

Conclusion. The correctness of the classification of technical actions of the hand and arms presented in this article has been confirmed by experts as being consistent with practice. Additions were made to the diagrams and descriptions of additional technical actions were given. The purpose of the diagrams and descriptions is to systematize knowledge in the field of technical training of climbers for use in the training process.

References

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