

## The Method of Postural Orientations of Movements as a Method of Biomechanical Research of Sports Exercises

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**Abstract:** *This article presents the method of postural orientations of movements as a way of biomechanical research of sports exercises.*

**Keywords:** *gymnastics, method, biomechanics, pose, phase.*

The study of scientific and methodological literature indicates the importance of studying the technique of gymnastic, acrobatic exercises as well as teaching them, taking into account knowledge about the body posture, the state of the athlete's body. In this regard, in order to study the technical procedures of sports varieties of gymnastics, V.N. Boloban, E.V. Biryuk recommended using the method of postural orientations of movements. The method of postural orientations of movements is a method of biomechanical study of sports exercises by considering previous and further body postures, body positions and their animations in the phase structure of the exercise performed with the target of comprehension of the main components of sports equipment. The main component of sports equipment is a signal pose of movement, which determines the effectiveness of the athlete's resolution of the motor problem. The method of postural orientation of movements was invented in the late 70s. In subsequent years, the concept and methodology, the scientific and actual use of the method in the works of V.N. Boloban also improved.

When using the method of motion picture analysis, as well as the APAS 2000 video computer program, biomechanical studies of the nodal elements of sports equipment of such exercises were carried out: step jump; step jump - step jump; ball throw in the Cossack jump – catching in the roll on two hands and back on rhythmic steps; ball throw in the jump touching in the ring – catching in the roll on two hands and back on rhythmic steps; forward flip – forward flip in the grouping; rondat – back flip in the grouping; rondat – back flip bending; rondat – double backflip in grouping; rondat - double backflip bent; rondat - double backflip bent in conjunction with a tempo flip, etc. Further, using the method of pose orientations of movements, the authors were able to identify the following nodal elements of sports equipment in the listed exercises: in the phase of preparatory motor actions – nodal element - starting body pose - biomechanically rational body pose to enter the main phase of the exercise; in the phase of basic motor actions - nodal element - animation of the body pose; animation of body poses, as a nodal element of sports equipment, is considered as a process of sequential execution of instant fixed poses of a single-profile or combined profile of movements to create a holistic motor action, with a controlled change of body poses, body positions; MP determines the composition and structure of the exercise; in the phase of the final motor actions, the final body pose is a nodal element of the exercise sports technique, which characterizes the stability of the body on the support in the interests of completing the exercise or creating conditions for performing a subsequent bundle of exercises.

The ideological essence of the method of postural orientations of movements lies in this, that any previous position of the trunk, in the exercise performed by the athlete, is obliged to favorably influence the biomechanics of the further posture of the trunk, which makes it possible to exercise in the absence of excessive motor rearrangements, with this, in order not to accumulate industrial errors during the presentation of the procedure or the entire composition of procedures.

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Curiously, it is also instructively prescribed in the Teaching of Taijiquan - the martial art of health-improving gymnastics. For the purpose of high-quality study of the procedures of this concept, the employed should go through 3 integral stages. ... "Stage 1 ... laying the foundation: ... working out the correct statement of the body ... the stability of the steps. Stage 2 ... transformation to the study of key poses or final positions as well as ways of transition in moving from one view to another. Stage 3 ... absolute awareness of absolutely all movements...".

In biomechanical studies, as well as teaching experiments, the expediency of using the method of postural orientations of movements as well as an effective method of analysis and evaluation of elements of sports equipment has also been proved in order to develop didactic technologies for teaching sports exercises of different coordination difficulties. In the studies, recommendations are provided to use a postural method of teaching the technique of athletics competition. The creators emphasize 3 poses: the running pose, as well as the exodus from the barrier; in high jumps - a competition pose, exit poses are also poses with a bar; in long jumps: a competition position, an exit pose in a step is also a landing pose. The creators also emphasize that the object of teaching must be the position of the trunk as well as the recreation of poses. Studying the texture components of industrial training of athletes V. Gamaliy, M. Ostrovsky is informed about this, that the procedure for developing and improving the sports technique of exercises should be based in no way on convincing the increase in the unconditional meanings of biomechanical movement data, but in the study and creation of mechanisms for their achievement in the performance of competitive actions.

In this regard, N.G. Suchilin points to the fact that any stage of movement includes the main element of coordination, which can be established in biomechanical, physical and teaching degrees. The main element of coordination determines the formation of the controlling influence in a certain phase of movement, gives it a special configuration and form also establishes its structure. It plays a triggering role in intermuscular coordination, but with the development of the greatest efforts, it is intended as an instrument for increasing the speed of muscle contractions. The correct or incorrect technique of execution of the main element of coordination is determined in the base of consideration of the control position in half of the phase, in which place, in addition, boundary statements and basic elements are formed, which makes it possible to significantly streamline the presentation of sports equipment. The stage of technical actions, the writer notes, may also include the smallest elements. For example, the stage of the main flight actions when performing double and triple flips in a grouping contains subphases of grouping and holding the group.

Actions according to the plan have already been taken - in no way that other, as well as an active arbitrary basis for the implementation of the full program of movement, the basis of technology, a way of personifying the planned external program of the situation. This program component of the action - movement itself is also a key informal part of the movement structure to be mastered during the learning process. "Locomotor as well as game types of physical exercises," Yu.K. reports. Haverdovsky- - programmatically, they are built to a greater extent as well as a set of actions - movements according to the program of places and poses. Synchronized swimming exercises, in fact, are performed in a fixed spatial zone and are primarily associated with movements according to the pose program and, to the least extent, orientation." Approaching from this position to the analysis of the program - kinematic content of the exercises of each sport, it is possible to assess the didactic specifics of the material most clearly, as well as scientifically and methodically develop approaches to its practical development.

**Conclusion:** In a similar way, the method of postural orientations of movements as a way of biomechanical research of sports exercises by considering previous and further body postures, body positions in the phase structure of the exercise performed in order to learn the nodal elements of sports equipment is effective and is also implemented in sports science. It is assigned to the base of biomechanical consideration and evaluation of the nodal elements of the technique of exercises of sports varieties of gymnastics, the development of the concept of improving long-term training programs in the structure of macromethodics of sports training.

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