



# Developing physical fitness through the principle of ‘repetition without repetition’

UDC 796.075.8



Dr. Hab., Professor **Sh.Z. Khubbiev**<sup>1, 2</sup>

PhD, Associate Professor **G.V. Zarodnyuk**<sup>3</sup>

PhD, Professor **A.V. Karavan**<sup>4</sup>

PhD, Associate Professor **N.A. Zinoviev**<sup>5</sup>

<sup>1</sup>Saint-Petersburg State University, Saint Petersburg

<sup>2</sup>The Military Institute of Physical Training of the Ministry of Defense of the Russian Federation, Saint Petersburg

<sup>3</sup>Saint-Petersburg Mining University, Saint Petersburg

<sup>4</sup>Military Educational Institution of Logistics named after General of the Army A.V. Khrulyov, Saint Petersburg

<sup>5</sup>Baltic State Technical University «VOENMEH» named after D.F. Ustinov, Saint Petersburg

Corresponding author: gena391@mail.ru

Received by the editorial office on 13.02.2026

## Abstract

**Objective of the study** is to substantiate ‘repetition without repetition’ as a principle for developing physical fitness.

**Methods and structure of the study.** The study involved a review of the scientific and methodological literature, systematic analysis, deduction and induction, and content analysis. The research was conducted between 2024 and 2025.

**Results and conclusions.** It has been established that the principle of ‘repetition without repetition’ refers to the repeated execution of movements to solve a motor task during the development of physical fitness. The latter is based on motor abilities.

**Keywords:** *physical training, skill development, repetition without repetition, review.*

**Introduction.** Physical fitness is a key component of a person’s ability to achieve a planned outcome; this outcome determines the means and methods used to develop that person’s physical fitness.

Physical fitness for various human activities is comprised of motor abilities; their qualitative basis and distinctive characteristics are determined by physical qualities, whilst motor skills and abilities represent the form in which these qualities are manifested [3]. Motor abilities are developed through various types of activity, taking into account the principles governing the development of motor skills, habits and physical qualities. Clearly, there must be an organic interconnection and interaction between physical qualities and motor skills and habits.

**Objective of the study** is to substantiate ‘repetition without repetition’ as a principle for developing physical fitness.

**Methods and structure of the study.** The study involved a review of the scientific and methodological literature, systematic analysis, deduction and induction, and content analysis. The research was conducted between 2024 and 2025.

**Results of the study and discussion.** Motor abilities should be regarded as a systemic entity constituting a unified whole. They consist of physical qualities as their substance, and motor skills and abilities, which represent the form in which these qualities are manifested. Two questions arise: What are the patterns governing the development of motor abilities as a holistic entity? How should one be guided by the laws governing the development of physical qualities and the formation of motor skills and abilities? Understanding the essence of motor abilities, questions regarding their development and formation must be considered from the perspective of synergetics. The validity of our position is based on the fact that the principle of ‘repetition without repetition’ is underpinned by the laws of self-organisation [3].

Before discussing this principle in greater detail, let us turn to the provisions of the theory and methodology of physical education concerning motor abilities. Physical exercises are characterised by form and content. The content and form of physical exercises are organically interrelated. The content of a physical exercise plays a leading role in relation to



its form. Therefore, to achieve success in a physical exercise, its content must be altered, which will influence the development of physical qualities. And this can lead to an increase in the body's functional capabilities. However, form and content are inseparable as parts of a whole – motor abilities. Therefore, to develop physical qualities, one must repeatedly perform physical exercises, applying motor skills and abilities. It is precisely this that will ensure both the development of physical qualities and the refinement of the motor skills and abilities themselves, as the form in which the former are manifested. Developing physical qualities impart a qualitative distinctiveness to motor abilities. Thus, the development and refinement of physical qualities, motor skills and abilities in their holistic unity – within the system of motor abilities – cannot be isolated and developed separately [4]. It can be said that a change in the nature of motor abilities will, accordingly, affect motor skills and techniques. Physical recreation, aimed at overcoming fatigue and restoring working capacity, plays an important role in this process [9, 10].

Thus, according to L.P. Matveev [4], an increase in the speed and endurance of movements affects their amplitude and the ratio of the supported and unsupported phases of the exercise. Imperfect motor skills and techniques hinder the optimal expression of a person's functional capabilities, and thus their development. This leads to an increase in unnecessary energy expenditure, which, in turn, results in a reduction in the level of physical development. It has been established that a highly developed form of motor abilities facilitates the best utilisation of physical potential. For example, at the same skiing speed, a person with a more refined technique expends 10–20% less energy than a person whose technique is less refined.

However, some authors hold opposing views. They believe that when developing motor abilities in athletes, physical qualities must first be developed, followed by the formation of the sport's technique [4, 7]. It is impossible to develop physical qualities in isolation, as they are inextricably linked and interdependent with motor skills and abilities. The development of one leads to a corresponding change in the other. A clear example of this is preparation for the GTO fitness test – the 'gold' level requires the comprehensive development of a range of physical qualities, abilities and skills [6].

Therefore, it is necessary to seek out methods for their development. The principle of 'repetition without

repetition' proposed by N.A. Bernstein [1] can serve as the basis for the development and implementation of such a methodology in physical education and sport.

What is the value of the principle of 'repetition without repetition' for addressing issues in physical education and sport? To answer this question, let us consider a number of propositions characterising this principle.

1. The principle of 'repetition without repetition' is based on the laws of synergetics [3], which determine the interactions, interrelationships and correlations between physical qualities, motor abilities and skills that develop within the framework of holistic motor abilities. Therefore, interdisciplinary research into the issues of physical education and sport should be undertaken to develop and substantiate the synergetic foundations of physical education and sports training.

2. By applying the principle of 'repetition without repetition', the process of developing motor abilities can be described. When a movement is performed repeatedly, it is not copied each time; rather, various methods of solving the motor task under changing conditions are developed and implemented. In this context, what is crucial is not the number of repetitions, but the level of mastery achieved in motor abilities, which constitute developed physical qualities, and the form of their manifestation is the acquired motor skills and abilities.

3. The essence of repeated movement execution in the development of motor abilities lies in gradually progressing towards the goal by identifying optimal movements associated with solving the pedagogical task. When an exercise is correctly performed repeatedly, the process of solving this task occurs through the modification and refinement of each successive repetition. Without taking these principles into account, physical exercise turns into a process of 'mechanical rote learning' [2].

4. During repeated performance of an exercise, the brain sends a specific 'command' to the muscles and receives signals from proprioceptors regarding the results of their functioning. Based on the signals received, the brain sends new 'commands' to the muscles, aimed at correcting the execution of the exercise. Thus, there is a direct and reciprocal connection between the brain and the peripheral nervous system, which facilitates the process of movement construction. The same goal can be achieved in many ways (pathways), and all of them are effective [8]. It is char-



acteristic that, alongside the construction of movement, the development of physical qualities within the motor skills system occurs simultaneously [5].

5. The acquisition of a motor skill is not the result of accumulating experience through the repeated execution of the same stereotypical commands, but rather the training of a person to perform the skill in a new way with each repetition, i.e. taking into account the need for appropriate adaptation to solve the motor task according to the principle of 'repetition without repetition' [8].

6. When implementing the principle of 'repetition without repetition', each successive movement is performed under slightly different conditions. Therefore, to achieve the same result, it is necessary to develop a person's ability to solve a motor task, to cultivate their skill in quickly finding a solution under the changing conditions of the exercise being performed, guiding them towards achieving the desired result. At the same time, it is important to ensure that the result achieved in the movements corresponds to the set goal [8]. Movements are regulated by sensations (I.M. Sechenov), but the reverse is equally true: sensations, as both an image and a regulator, are constructed through movement.

**Conclusions.** 1. The principle of 'repetition without repetition' is implemented through the repeated performance of motor actions aimed at developing motor skills and abilities, which are manifestations of physical qualities. Motor skills and abilities are inter-related and interact within the system of motor abilities. The result of solving a motor task when applying the principle of 'repetition without repetition' is the development of a person's physical fitness, which is required by the activity they are performing. 2. The principle of 'repetition without repetition' is implemented through repeated actions involving, as it were, the same movements. In reality, a motor task is being solved to develop the motor abilities that constitute physical fitness. Subsequently, the result of each repetition is systematically assessed, with the technique of performing the actions being compared each time against a standard and followed by an analysis of any deviations. Taking into account the data from the assessment of physical fitness and the comparison of

motor technique, corrections are made to these deviations until the intended result, corresponding to the set goal, is achieved.

### References

1. Bernshteyn N.A. O postroenii dvizheniy. Gosudarstvennoe izdatelstvo meditsinskoy literatury, 1947. 253 p.
2. Bernshteyn N.A. Fiziologiya dvizheniy i aktivnost. Moskva: Nauka, 1990. Pp. 373-392.
3. Veraksa A.N., Eskov V.V., Sorokina L.S., Klyus I.V. Tretya paradigma predstavlyayet «povtorenie bez povtoreniya» N.A. Bernshteyna v vide effekta Eskova-Zinchenko. Vestnik novykh meditsinskih tekhnologiy. Elektronnoe izdanie. 2016. No. 2. Pp. 80-86.
4. Matveev L.P. Teoriya i metodika fizicheskoy kultury: ucheb. dlya in-tov fiz. kultury. Moskva: Fizkultura i sport, 1991. 543 p.
5. Rudenko G.V., Gorelikov V.G., Ivashev V.K. Optimizatsiya vypolneniya sportivnoy tekhniki dvizheniy na osnove soglasovaniya prilagaemoy sily i sily tyazhesti. Teoriya i praktika fizicheskoy kultury. 2020. No. 3. Pp. 28-29.
6. Rudenko G.V., Bolotin A.E. Organizatsionno-pedagogicheskie usloviya, neobkhodimye dlya vnedreniya novogo kompleksa GTO v sistemu fizicheskogo vospitaniya naseleniya Rossii. Teoriya i praktika fizicheskoy kultury. 2015. No. 7. Pp. 97-99.
7. Tkachuk M.T., Levitskiy A.G., Rudenko G.V., Simakov A.M. Osobennosti fizicheskogo razvitiya sportsmenov-edinobortsev. Teoriya i praktika fizicheskoy kultury. 2025. No. 3. Pp. 9-11.
8. Feygenberg I.M., Nikolay Bernshteyn: ot refleksa k modeli budushchego. Moskva: Smysl. 2004. 239 p.
9. Elmurzaev M.A., Panchenko I.A., Smirnova N.V. Kulturosozidayushchiy potentsial fizicheskoy rekreatsii. Teoriya i praktika fizicheskoy kultury. 2018. No. 4. Pp. 102-103.
10. Elmurzaev M.A., Panchenko I.A., Pakholkova N.V. Postroenie modeley fizicheskoy rekreatsii: innovatsionnyy vektor razvitiya. Teoriya i praktika fizicheskoy kultury. 2019. No. 3. Pp. 47-48.