
**International Congress on Economics, Management and Business Studies**
Hosted Online from New York, USA
Date: 23rd May , 2026
Website: https://econferencia.com

# IMPROVING STUDENTS' PHYSICAL PREPARATION THROUGH BADMINTON TRAINING

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**Abstract**
This article analyzes the theoretical and practical aspects of developing students' coordination abilities through the sport of badminton. During the pedagogical experiment, changes in indicators of coordination, reaction speed, balance, and movement precision were studied using special badminton exercises. The results obtained showed that badminton training is an effective tool for developing coordination qualities.

**Keywords:** Badminton, coordination ability, reaction speed, movement coordination, balance, footwork, student sports, pedagogical experience.

**Аннотация**
В статье анализируются теоретические и практические аспекты развития координационных способностей студентов средствами бадминтона. В ходе педагогического эксперимента были исследованы изменения показателей координации движений, быстроты реакции, равновесия и точности движений.

**Ключевые слова:** бадминтон, координационные способности, быстрота реакции, координация движений, равновесие, студенческий спорт.




Today, one of the urgent tasks is the development of the physical culture and sports system, especially increasing the interest of young people in a healthy lifestyle and the comprehensive formation of their physical qualities. In modern pedagogy and sports theory, it is of particular importance not only to develop students' physical qualities such as strength, speed, or endurance, but also to improve their coordination abilities. This is because coordination abilities are an important factor in the precise, rapid, flexible, and effective execution of human actions. Especially in rapidly changing sports situations, maintaining balance, correctly determining spatial orientation, coordinating movements, and making optimal decisions in a short time directly depend on the level of coordination training.

Although coordination abilities are important in almost all types of sports activities, they are one of the leading factors in certain sports. One such sport is badminton. Badminton is recognized as a complex coordination sport that requires high speed, precision, quick reaction, spatial thinking, and balance at the same time. During the game, the athlete moves in various directions over a short period of time, performs quick stops and turns, jumps, changes their position according to the opponent's strikes, and tries to predict the flywheel's flight trajectory in advance. These conditions activate the activity of the athlete's neuromuscular system and serve the regular development of coordination capabilities.

One of the characteristics of badminton is that an athlete must simultaneously combine several complex movement components. In particular, qualities such as coordination of eye and hand movements, maintaining body balance, rapid reaction, spatial orientation, sense of rhythm, and the execution of optimal technical movements in complex situations are fundamental conditions for successful game activity. In this regard, badminton training is viewed not only as

a means of enhancing athletic mastery but also as an effective pedagogical tool for improving students' general physical fitness.

The aim of the study is to determine the effectiveness of developing students' coordination abilities through badminton training.

The task of the study is to develop a system of special exercises, evaluate coordination qualities, and analyze the results.

Research methodology. This study was organized based on a pedagogical experiment to determine the effectiveness of developing students' coordination abilities through badminton sports activities. The study was conducted with the participation of 24 students aged 18–20 participating in the badminton club at the Gulistan State Pedagogical Institute. Participants were divided into two groups: the control group (n=12) and the experimental group (n=12).

While the control group practiced according to the current physical education program, the experimental group performed special exercises aimed at developing coordination abilities during 90-minute badminton sessions 3 times a week. During the training, exercises were used to move across the field (footwork), receive the steering wheel in various directions, develop hand-eye coordination, and increase balance and reaction speed.

At the beginning and end of the experiment, students' coordination readiness was assessed using special tests. Specifically, shuttle runs (3×10 m), reaction speed tests, balance tests, and movement accuracy tests were conducted. The results obtained were analyzed using mathematical and statistical methods, and the significance of intergroup differences was assessed at a level of $p < 0.05$ based on Student's t-test.

Content of the sessions. In the experimental group, exercises aimed at developing coordination were used: diagonal and multi-directional footwork, volan reception

at various angles, reaction exercises, eye-hand coordination exercises, and balance-strengthening tasks.

Testing and evaluation criteria. Before and after the study, control tests were conducted on shuttle run (3x10 m), reaction speed, balance test, and movement accuracy. The results obtained were analyzed using mathematical and statistical methods.

Results. The experimental results showed that badminton training led to a significant improvement in coordination abilities in the experimental group.

**Table 1**

| Test | Before the experiment | After the experiment | Increase (%) | Significance |
|---|---|---|---|---|
| Shuttle run (sec) | 8.8 ± 0.4 | 7.9 ± 0.3 | 10.2% | p<0.05 |
| Reaction rate (ms) | 280 ±15 | 245 ±12 | 12.5% | p<0.01 |
| Balance test (sec) | 18 ±2 | 24 ±2; | 33.3% | p<0.05 |
| Motion accuracy (%) | 70% | 85% | 21.4% | p<0.05 |

Analysis and discussion of the results. The results of the table show that badminton training is effective in developing coordination qualities. In particular, the reaction rate and equilibrium indicators improved significantly. Footwork exercises and multidirectional movements served to improve students' spatial orientation and movement accuracy.

Conclusion. Badminton is considered an effective pedagogical tool for developing coordination abilities. When special exercises are used systematically, students experience significant changes in reaction speed,

balance, coordination, and movement accuracy. Therefore, it is recommended to widely introduce badminton training into the physical education process.

## LIST OF USED LITERATURE

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