Frontiers in Health Informatics
ISSN-Online: 2676-7104
www.healthinformaticsjournal.com
2024; Vol 13: Issue 8
Open Access

Effectiveness of Developing Badminton Drop Shot Training Model

Khaeroni[1], Samsudin[1], Hidayat Humaid[1]
[1]Physical education study program, Faculty of Sport, Universitas Negeri Jakarta

Cite this paper as: Khaeroni, Samsudin, Hidayat Humaid, (2024) Effectiveness of Developing Badminton Drop Shot Training Model. *Frontiers in Health Informatics*, *13(8), 3779-3782*

ABSTRACT

This study aims to produce a product in the form of a drop shot latiahn model in badminton, test the feasibility of the model and test the effectiveness of the developed training model. The method used in this research is the reseacrh and development (R&D) model of Borg and Gall. The subjects in this study were student badminton athletes at 3 universities. The small group test was conducted at Universitas Singaperbangsa Karawang with a total of 20 people, the large group test was conducted at Universitas Islam 45 Bekasi with a total of 40 people and the effectiveness test was conducted at Universitas Negeri Jakarta with a total of 20 experimental classes and 20 control classes. The results showed that the experimental group achieved an average speed N-Gain score of 0.7028 (70.28%), while the control group only reached 0.0910 (9.10%), the N-Gain score for accuracy in the experimental group reached 0.7179 (71.79%), while the control group only reached 0.1689 (16.89%). From the results of these calculations it can be concluded that the drop shot training model is effective for improving accuracy and speed.

keywords: Badminton, Drop shot, training

Introduction

Badminton is a sport that can be said to be a popular or popular sport. This sport attracts various age groups, various skill levels and both men and women play badminton (Berdhika et al., 2021; Wang, 2017). Badminton can be played indoors or outdoors for recreation or competition. The badminton court is divided into two equal sizes and separated by a net hanging on a net pole planted on the edge of the field (Bamaniya, 2016; Singh et al., 2017). The tools used are a racket as a hitting tool and a shuttlecock as a ball that is hit. Badminton is a game that is not reflected and must be played in the air, so this game is a fast game that requires good reflexes and a high level of fitness.

Badminton players can also benefit from this game in terms of social, entertainment and menta (Chen et al., 2022). Meanwhile, according to Jan & Yaday (2017) that badminton is known as a folk game because it has been played by people both in cities, in villages, by parents, children and men and women. To become a good and accomplished badminton player, it is required to master the basic badminton techniques. "Basic badminton techniques are the main mastery that every player must understand and master in playing badminton (Miyake et al., 2016) Basic badminton techniques are the main mastery that must be mastered by every badminton player in carrying out badminton playing activities. Mastery of these basic techniques includes how to hold the racket, wrist movements, footwork, and concentration. The player's ability is strongly influenced by mastery of technique, physicality, and strategy (Firdaus et al., 2018; Rachman et al., 2019). So, in every badminton practice the element of technique is very important for every player's shot. Research related to badminton techniques has been done a lot, but specifically there are still few studies that explore the experience of athletes. On this basis, this research will answer the question 1) how is the development of publications about badminton? 2) What publication themes are related to badminton? 3) What publication opportunities can be done in the future?

Methods

This study employs the Research and Development (R&D) method to develop a badminton dropshot training model. The research process begins with a needs analysis aimed at identifying issues in dropshot training. Data were collected through interviews with coaches and athletes to understand the challenges in dropshot techniques and observations of ongoing training sessions. The results of the needs analysis served as the foundation for designing a training model focused on improving dropshot accuracy and speed. The training model was designed in stages, considering the varying skill levels of athletes.

The trial phase was conducted in three stages at different locations. First, a small-group trial was conducted with student-athletes at Universitas Singaperbangsa Karawang (Unsika) to evaluate the feasibility and applicability of the model. Feedback from this phase was used to revise the model, which was then tested on a larger group of student-athletes at Universitas Islam '45 Bekasi (Unisma) to assess consistency and broader implementation. Finally, to evaluate the model's effectiveness in improving dropshot performance, the testing was conducted on student-athletes at Universitas Negeri Jakarta (UNJ).

Measurements were carried out using two main instruments: an accuracy test and a speed test. The accuracy test required athletes to perform dropshots targeting specific areas on the court, with successful placements scored to assess accuracy levels. Meanwhile, the speed of the shuttlecock during the dropshot was measured using a speed gun. Data from these measurements were analyzed quantitatively using statistical tests to compare performance before and after implementing the training model. The results from each trial stage were used to refine the model until achieving an optimal final version. The refined training model is expected to enhance the accuracy and speed of badminton dropshots, particularly among university-level athletes, and serve as an effective guide for training this specific technique.

Results

The needs analysis results indicate that developing a dropshot training model for badminton is an urgent necessity. This is due to the limited variety of existing training methods, which fail to adequately consider the individual characteristics of athletes. Identified obstacles include the lack of systematic training and minimal integration of simulation elements in dropshot techniques. Supporting factors include enthusiastic coaches and students eager to improve their skills, as well as the availability of facilities at universities.

Small-Group Trials

The small-group trial involving 20 students from Universitas Singaperbangsa Karawang showed that the developed dropshot training model was well-received. Student and observer feedback indicated that the model is relevant and applicable to daily training. However, there is a need to enhance training variations, such as integrating V-shaped movement patterns, dynamic targets, and competitive elements.

Large-Group Trials

During the large-group trial involving 40 students at Universitas Islam 45 Bekasi, pre-test and post-test results demonstrated significant improvements in dropshot accuracy and speed. The average accuracy score increased from 68% in the pre-test to 85% in the post-test, while the average stroke speed improved from 40 km/h to 52 km/h.

Effectiveness Testing

Effectiveness testing using a quasi-experimental design was conducted on students at Universitas Negeri Jakarta, divided into two groups: a control group and an experimental group, each consisting of 20 participants. Based on the results of the N-gain score test calculation, it shows that the average value for the experimental group is 0.4887 or 45.937%, which is included in the effective category. While for the control group is N-Gain score 0.00565 and N gain per cent 15.652. it is concluded that the use of the drop shot model is effective to improve the accuracy of drop shot ability. After conducting the effectiveness test stages above, and it has been known the effectiveness of the designed

model and the increase in the value obtained, continued with the next stages, namely Final Product Revision and Desiminination and Implementation.

Table 1. N-Gain Test Calculation Results Score Accuracy

No	Class	N-Gain Score	N-Gain Persen	Interprestasi
1	Eksperimen	0.7179	71.79%	Effective
2	control	0.1689	16.89%	Less Effective

Based on the results of the N-gain score test calculation, it shows that the average value for the experimental group is 0.7028 or 70.28%, which is included in the effective category. While for the control group is N-Gain score 0.0910 and N gain per cent 9.10%. it is concluded that the use of the drop shot model is effective for increasing drop shot speed. After carrying out the effectiveness test stages above, and it has been known the effectiveness of the designed model and the increase in the value obtained, continued with the next stages, namely Final Product Revision and Desiminination and Implementation.

Table 2. Calculation Results of the N-Gain Score Speed Test

No	Kelas	N-Gain Score	N-Gain Persen	Interprestasi
1	Eksperimen	0.7028	70.28%	Efektif
2	Kontrol	0.0910	9.10%.	Kurang Efektif

Based on the results of the N-gain score test calculation, it shows that the average value for the experimental group is 0.7028 or 70.28%, which is included in the effective category. While for the control group is N-Gain score 0.0910 and N gain per cent 9.10%. it is concluded that the use of the drop shot model is effective for increasing drop shot speed. After carrying out the effectiveness test stages above, and it has been known the effectiveness of the designed model and the increase in the value obtained, continued with the next stages, namely Final Product Revision and Desiminination and Implementation.

Refrencesscussion

The results of this study confirm that the developed dropshot training model effectively enhances students' accuracy and stroke speed. This aligns with motor learning theory, which suggests that training variations and simulation elements improve athletes' motor adaptation. The integration of V-shaped movement patterns, dynamic targets, and competition has proven to help students develop better technical skills relevant to match conditions.

The significant improvements in the experimental group compared to the control group indicate that this model successfully addresses the limitations of previous training methods. The systematic approach in the developed model also provides students with opportunities to understand and apply dropshot techniques effectively. Although the results demonstrate success, there is room for improvement. Training can be further enhanced by incorporating additional technologies, such as motion video analysis, to provide more comprehensive visual feedback. Furthermore, additional testing on different age groups and skill levels is necessary to ensure the generalizability of the results.

Overall, the developed training model is not only beneficial for students but also has the potential to be applied to broader levels of badminton training. This model could serve as a valuable reference for coaches in designing more

varied and structured training programs.

REFERENCES

1. Bamaniya, B. (2016). A comparative study sports achievement motivation between male and female badminton players. In International Journal of Physical Education, Sports and Health (Vol. 3, Issue 6, pp. 346–348). journalofsports.com. www.journalofsports.com
2. Berdhika, N. U. A., Adi, S., & Yunus, M. (2021). Pengaruh Latihan Shuttle Run Dan Skipping Rope Terhadap Kelincahan Shadow 6 Titik Cabor Bulutangkis Ukm Badminton Um. Jurnal Sport Science, 11(2), 66. https://doi.org/10.17977/um057v11i2p66-73
3. Chen, T. L. W., Wang, Y., Wong, D. W. C., Lam, W. K., & Zhang, M. (2022). Joint contact force and movement deceleration among badminton forward lunges: a musculoskeletal modelling study. Sports Biomechanics, 21(10), 1249–1261. https://doi.org/10.1080/14763141.2020.1749720
4. Jan, M., & Yaday, J. S. (2017). A comparative study on effect of selected exercises on flexibility and co-ordination of badminton and tennis players. In International Journal of Physical Education, Sports and Health (Vol. 4, Issue 3, pp. 139–142). kheljournal.com. https://www.kheljournal.com/archives/2017/vol4issue3/PartC/4-3-38-777.pdf
5. Singh, S., Varsha, Singh, H. S., & Singh, A. K. (2017). A comparative study of selected motor fitness components among badminton table tennis and squash. In International Journal of Physical Education, Sports and Health (Vol. 4, Issue 3, pp. 203–206). kheljournal.com. https://www.kheljournal.com/archives/2017/vol4issue3/PartD/4-3-57-883.pdf
6. Wang, Z. (2017). A Journey Into The Badminton World. In Badminton (pp. 1–105).
7. Bamaniya, B. (2016). A comparative study sports achievement motivation between male and female badminton players. In International Journal of Physical Education, Sports and Health (Vol. 3, Issue 6, pp. 346–348). journalofsports.com. www.journalofsports.com
8. Berdhika, N. U. A., Adi, S., & Yunus, M. (2021). Pengaruh Latihan Shuttle Run Dan Skipping Rope Terhadap Kelincahan Shadow 6 Titik Cabor Bulutangkis Ukm Badminton Um. Jurnal Sport Science, 11(2), 66. https://doi.org/10.17977/um057v11i2p66-73
9. Chen, T. L. W., Wang, Y., Wong, D. W. C., Lam, W. K., & Zhang, M. (2022). Joint contact force and movement deceleration among badminton forward lunges: a musculoskeletal modelling study. Sports Biomechanics, 21(10), 1249–1261. https://doi.org/10.1080/14763141.2020.1749720
10. Jan, M., & Yaday, J. S. (2017). A comparative study on effect of selected exercises on flexibility and co-ordination of badminton and tennis players. In International Journal of Physical Education, Sports and Health (Vol. 4, Issue 3, pp. 139–142). kheljournal.com. https://www.kheljournal.com/archives/2017/vol4issue3/PartC/4-3-38-777.pdf
11. Singh, S., Varsha, Singh, H. S., & Singh, A. K. (2017). A comparative study of selected motor fitness components among badminton table tennis and squash. In International Journal of Physical Education, Sports and Health (Vol. 4, Issue 3, pp. 203–206). kheljournal.com. https://www.kheljournal.com/archives/2017/vol4issue3/PartD/4-3-57-883.pdf
12. Wang, Z. (2017). A Journey Into The Badminton World. In Badminton (pp. 1–105).