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# Choosing Professional Supporting Means to Improve Topspin Forehand Tennis Ball Technique for Students in Physical Education at Hong Duc University

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**Abstract** Based on teaching principles, on the theoretical basis of improving the topspin forehand tennis ball technique for students, based on the physiological and psychological characteristics of students' ages and the required purposes of the program training program, the topic is to select specialized means to improve the forehand topspin tennis ball technique in the teaching process for students majoring in Physical Education at Hong Duc University.

**Index Terms** means of supporting professional expertise, improving technique, topspin forehand tennis ball technique, department of physical education, hong duc university

## I. Introduction

Teaching initial techniques to learners is considered an extremely important task, it directly affects the process of forming technical movements. The application of new scientific teaching methods with the support of professional means will help improve learners' techniques as quickly as possible [1].

Teaching always involves correcting and improving techniques, so creating accurate technical models using specialized means is very useful and highly practical. The actual survey of the teaching process at Hong Duc University shows that although lecturers apply quite a variety of pedagogical methods in teaching technology to students with the application of specialized means of exercises, in terms of subjects and specializations, the application of specialized supporting means is weak, leading to low teaching effectiveness [2].

Based on the analysis of the importance and urgency of the problem, the study has shown the application of a number of professional supporting means to improve the topspin forehand tennis ball technique for students majoring in Physical Education at Hong Duc University is a necessary issue.

## II. Methodology

The research process uses the following methods: Document analysis and synthesis method; Pedagogical observation method; Interview method; Pedagogical testing methods; Mathematical and statistical methods [2].

## III. Findings And Discussion

### *A. Choosing Professional Supporting Means to Improve the Topspin Forehand Tennis Ball Technique for Students Majoring in Physical Education at Hong Duc University*

On the theoretical basis of choosing professional supporting means to improve the topspin forehand tennis ball technique for students majoring in Physical Education at Hong Duc University, by reference and analysis of materials. We have initially identified 10 professional supporting tools that meet the theoretical requirements [3], [4].

With the purpose of determining the practical basis of choosing specialized means of support for application in teaching to improve techniques for research subjects, the topic conducted interviews with 60 people who are trainers and experts currently teaching and coaching tennis nationwide using questionnaires.

The topic will select supporting means that are evaluated at over 80% of agreeing opinions [5]. The results are presented in the Table 1.

Table 1 shows that, according to the interview principles set out, the project selected 06 professional supporting means to improve the forehand topspin tennis ball technique for students majoring in Physical Education at Hong Duc University includes means in the order 5,6,7,8,9,10 (images of means are presented in Figure 1).

To bring the selected professional supporting media into teaching practice, we have taken the next step of selecting exercises to apply each selected media. 16 exercises to apply the media. A supporting mean to improve forehand topspin tennis ball technique for students majoring in Physical Education at Hong Duc University. Specifically, the exercises include: [6]–

| S/N | Professional supporting means | Interview result | | | |
|---|---|---|---|---|---|
| | | Agree | % | Disagree | % |
| 1 | Cones: Move horizontally, forwards and backwards, regulates the movement of hitting the tennis ball forehand by area | 46 | 76.67 | 14 | 23.33 |
| 2 | Softball: Practice correcting technique | 44 | 73.33 | 16 | 26.67 |
| 3 | String ball: Practice hitting the tennis ball right and left | 41 | 68.33 | 19 | 31.67 |
| 4 | Leg training: Practice moving your legs according to the exercise | 47 | 78.33 | 13 | 21.67 |
| 5 | Knee belt: Practice bending knees and lower your center of gravity when performing the technique | 49 | 81.67 | 11 | 18.33 |
| 6 | Wrist lock: Adjust the way you hold the racket, correct wrist mistakes when hitting the tennis ball | 52 | 86.67 | 8 | 13.33 |
| 7 | Technical training tree: Build and shape movements, practice technical feeling when contacting the ball | 55 | 91.67 | 5 | 8.33 |
| 8 | C-shaped swing exerciser: Racquet dancing with the "c" racket opening tool | 50 | 83.33 | | 16.7 |
| 9 | Practice wall: Support practicing correct movements, correct walking posture, self-adjusting racket swing speed, tennis ball hitting force | 59 | 98.33 | 10 | 1.67 |
| 10 | Ball shooting machine: Supports practicing many different exercises in one or more positions, stable ball path, flexible shooting speed | 60 | 100.00 | 0 | 0.00 |

Table 1: Interview results for selecting professional supporing means to improve forehand topspin tennis ball technique for students majoring in Physical Education at Hong Duc University (n=60)

[8].

1) Group of Exercises With Knee Belt: Practice Knee Bending and Lowering the Center of Gravity for Forehand Technique (5 Exercises) [6]

1) On the spot, perform the technique of hitting the forehand topspin tennis ball diagonally 20 times.
2) On the spot, perform the technique of hitting the forehand topspin tennis ball in a straight line 20 times.
3) From the middle of the court, move to the right and perform the forehand topspin tennis ball technique 20 times.
4) Two people hit the tennis ball back and forth in the service box.
5) Move sideways and hit the tennis ball forehand at the back of the court 30 times.

2) Group of Exercises With Wrist Locking Device: Practice Adjusting the Racket Grip, Correcting Mistakes in Using the Wrist When Hitting the Tennis Ball (2 Exercises) [7]

1) On the spot, simulate the technique of hitting a forehand topspin tennis ball with a clock application 20 times. (Creating momentum 6 hours - Touching the ball 3 hours - Following momentum 12 hours).
2) On the spot, hit the forehand topspin Tennis ball with the clock application 20 times.

3) Group of Exercises With Technical Exercise Sticks: Build Movement Shaping and Technical Feeling When Contacting the Ball (2 Exercises) [8]

1) On the spot, perform the forehand topspin tennis ball technique with the practice stick 20 times.
2) Move sideways and perform the forehand topspin tennis ball technique with the practice stick 30 times.

4) Group of Exercises With a C-Shaped Exercise Stick (2 Exercises)

1) On the spot, simulate the technique of hitting a forehand topspin tennis ball with a C-shaped practice stick 20 times.
2) Move horizontally to simulate the technique of hitting a forehand topspin tennis ball with a C-shaped practice stick 30 times.

5) Exercise Group With Exercise Wall: Supports Practicing Correct Movements, Correct Walking Posture, Self-Adjusting Racket Swing Speed, Tennis Ball Hitting Force (2 Exercises) [3]

1) On the spot, perform the technique of hitting the forehand topspin tennis ball against the practice wall 30 times.
2) Move horizontally and perform the forehand topspin tennis ball technique against the practice wall 30 times.

6) Exercise Group With Ball Shooting Machine: Support Practicing Many Different Exercises in One or More Positions on the Field, Stable Ball Path, Flexible Shooting Speed. (3 Exercises)

1) On the spot, perform the technique of hitting the forehand topspin tennis ball diagonally 30 times.
2) From the middle of the court, move to the right and perform the technique of hitting the forehand topspin tennis ball diagonally 20 times.
3) Move and hit the tennis ball with forehand at multiple points on the court 30 times.

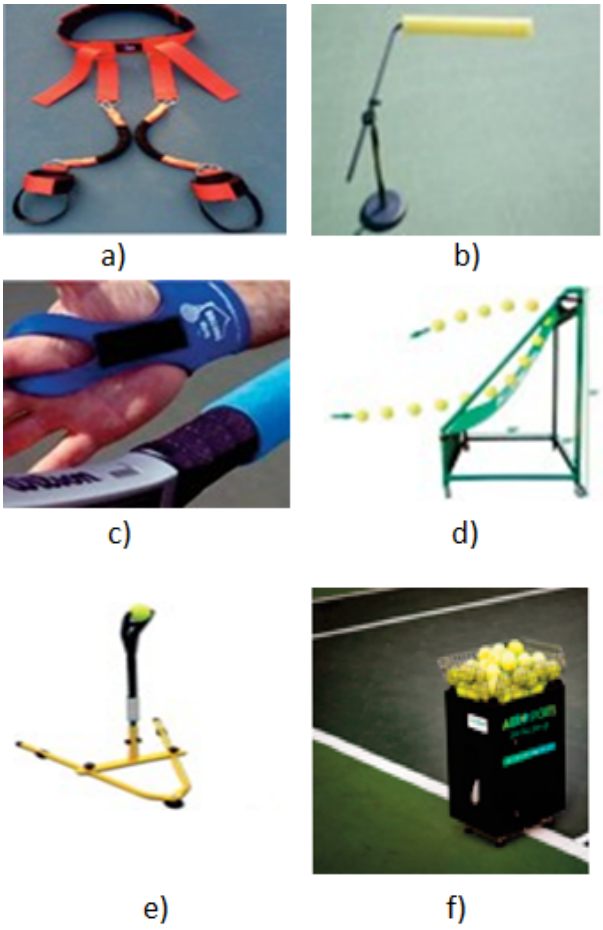


Figure 1: a) Knee belt: Practice bending the knees and lowering the center of gravity for forehand and backhand techniques, b) C-shaped swing set: Racket dancing with the "C" racket opening tool, c) Wrist lock: Practice adjusting the way you hold the racket, correcting mistakes in using your wrists when hitting the ball, d) Practice wall: Support practicing correct movements, correct walking posture, self-adjusting racket swing speed and ball hitting force, e) Technique training stick: Build and shape movements and technical feeling when contacting the ball, f) Ball shooting machine: Support practicing many different exercises in one or more positions on the field, stable ball path, flexible shooting speed

### *B. Applying and Evaluating the Effectiveness of Professional Support Means to Improve the Forehand Topspin Tennis Ball Technique for Students Majoring in Physical Education at Hong Duc University*

1) Experimental Organization [2]
   1) Method: Parallel comparison experiment.
   2) Experimental subjects: 12 K21 students majoring in Physical Education at Hong Duc University.
   3) Experimental period: Semester 2, school year 2021-2022. Total 60 lessons, corresponding to 30 lesson plans.
   4) Experimental location: Hong Duc University.
   5) Testing and evaluation: Conducted at the time before the experiment (beginning of semester 2) and after the experiment (end of semester 2).
   6) Tests used in the evaluation include:

- Test 1. From the middle of the court, move to the sideline of the single court, hit the forehand topspin tennis ball diagonally into the 15m2 box, 10 shots (balls)
- Test 2. Coordinate horizontal movement to hit the forehand topspin tennis ball into a 15m2 box in a straight line with 10 balls per box ()
- Test 3. Hit the forehand topspin tennis ball continuously against the wall 50 time (s).

### *C. Evaluation of Applicability [2]*

Pre-experimental test results. Before the experiment, we tested the forehand topspin tennis ball technique of the control and experimental groups using 3 selected tests, and compared the differences in the test results of the 2 groups as a basis for monitoring the change in technical level of hitting the forehand topspin tennis ball of each group during the 3-month experiment. The results are presented in Table 2.

Table 2 shows; Before the experiment, the test results for the 3 criteria found were all less than t=2.120 at the probability threshold P>0.05. Thus, the results of testing the forehand topspin tennis ball technique of the experimental and control groups did not have a statistically significant difference at the threshold with P > 0.05. This proves that the grouping is completely objective, in other words before the experiment, the results of testing the forehand topspin tennis ball technique of the experimental and control groups were equal [5].

Test results after 03 months of experimenting with supporting media and selected topic, the topic conducted a test to evaluate achievement through tests to test the forehand topspin tennis ball technique of the practice group. Experimental and control with the same tests as before the experiment, and compare the difference in test results between the two groups. The results are presented in Table 3.

Table 3 shows that after 3 months of experimenting according to the selected topic exercises, the results of testing the forehand topspin tennis ball technique of the experimental and control groups were significantly different in all tests shown in table > table at probability threshold P<0.05. Thus, after 3 months of experimenting with exercises on selected topics, exercises with specialized supporting equipment have had clear effects on experimental subjects.

## IV. Conclusion

Select 06 means with 16 specialized supplementary exercises to improve the forehand topspin tennis ball technique for students majoring in Physical Education at Hong Duc University. The initial application of the means in practice has shown practical effectiveness in improving shading techniques for students majoring in Physical Education at Hong Duc University.

| S/N | Statistical params Test | Experimental group (n = 6)(x± □) | Control group (n = 6)(x± □) | tcalc | P |
|---|---|---|---|---|---|
| 1 | Test 1 | 6.04 ± 0.39 | 6.12 ± 0.41 | 1.76 | >0.05 |
| 2 | Test 2 | 5.14 ± 0.48 | 5.08 ± 0.51 | 0.91 | >0.05 |
| 3 | Test 3 | 117.6 ± 1.02 | 118.1 ± 0.98 | 1.27 | >0.05 |

Table 2: Comparison of initial achievement test results of the experimental and control groups - before the experiment (n=12)

| S/N | Statistical params Test | Experimental group (n = 6)(x± □) | Control group (n = 6)(x± □) | tcalc | P |
|---|---|---|---|---|---|
| 1 | Test 1 | 7.57 ± 0.62 | 6.79 ± 0.60 | 2.39 | <0.05 |
| 2 | Test 2 | 7.24 ± 0.78 | 6.18 ± 0.61 | 2.482 | <0.05 |
| 3 | Test 3 | 105.6 ± 1.13 | 113.1±0.82 | 3.777 | <0.05 |

Table 3: Comparison of achievement test results of the two experimental and control groups - after the experiment (n=12)

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