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The Effect of SAQ Training Program to Improve Table Tennis Skills of High School Students in Shanxi Province

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Abstract

Background and Aims: Table tennis originated in Britain in the late 19th century and was popular in Europe. It was first known as "Table Tennis". Because table tennis changes many, strong interests, the field facilities requirements are not high, not limited by age, gender, and physical quality, so it has a good development. Table tennis is one of the most popular sports in China. Table tennis training must begin in school until adulthood to have good knowledge and expertise in tennis skills. It also requires proper physical fitness to play. Table tennis is a sport that requires speed. agility and good coordination of the nervous system and body will be able to respond to fast-paced sports games. Therefore, the researcher is interested in studying SAQ exercises. The objectives are as follows: (1) To study the effects of the SAQ training program to improve the Table Tennis skills of High school students. (2) To develop an SAQ training program to improve the Table Tennis skills of High school students. (3) To compare the effects of the SAQ training program to improve the Table Tennis skills of High school students.

Methodology: The population used was five classes of 5th-grade high school students in Yinzhou in Shanxi Province. By randomly selecting 1 class from 5 classes, a sample group of 40 people.

Results: The results of the SAQ training program to develop table tennis skills of high school students, it was found that after training with SAQ for 8 weeks Table tennis skills and Agility were better than before training. A comparison of the results of the table tennis skills test in post-training was better than the pre-training test (t 12.176, p ≤.000) and Results of the agility test the post-training test was better than the pre-training test (t 10.335, p ≤.000) at.05 levels of significance.

Conclusion: The findings underscore the positive impact of an 8-week SAQ training program on high school students' table tennis skills and agility. The statistically significant improvements in both table tennis skills and agility post-training highlight the efficacy of incorporating SAQ methodologies in enhancing the overall performance of young table tennis athletes.

Keywords: SAQ Program; Training; Table Tennis skills

Introduction

Table tennis originated in Britain in the late 19th century and was popular in Europe. It was first known as "Table Tennis". Because table tennis changes many, strong interests, the field facilities requirements are not high, not limited by age, gender, and physical quality, so it has a good development. Moreover, table tennis has always been one of the dominant competitive events in China, known as our country's "national ball". In recent decades, China's table tennis has been at the world's leading level and has also made brilliant achievements in the field of competitive sports. School physical education is an indispensable part of modern physical education, and physical education teaching is the central link of school physical education, the quality of physical education teaching will directly affect the cultivation of talents. (Cornilleau, 2023)

School physical education is an indispensable part of modern physical education, and physical education is the central link of school physical education. The quality of physical education will directly affect the cultivation of talents. Today, the declining level of physical health and the rising rate of myopia among teenagers have become two major problems affecting teenagers in China. The country is strong when young people are strong. Saving the declining physical fitness has become the top priority of China's education and sports industry.

SAQ training is composed of the first letters of Speed, Agility, and Quickness. They respectively stand for three parts: speed, sensitivity, and fast starting ability. The training mode is mainly to change

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direction and speed. SAQ training is an ability that can be used to improve speed, and strength or exert maximum strength in high-speed sports. The benefits of SAQ training include multiplanar movement to increase muscle strength, the efficiency of the brain receiving signals, kinesthetic or body spatial awareness, and motor skills. In the whole training plan, the use of multi-directional directional training and the adherence to the principle of gradual progress will combine a single special quality training. This paper explores the impact of SAQ training on the speed sensitivity of directional athletes, to enrich the training content of orienteering athletes and improve their training interest and participation.

Research objectives

1. To study the effects of the SAQ training program to improve Table Tennis skills of High school students

2. To compare the effects of the SAQ training program to improve the Table Tennis skills of High school students.

Literature Review

Table tennis originated in Britain in the late 19th century and was popular in Europe. It was first known as "Table Tennis". Because table tennis changes many, strong interests, the field facilities requirements are not high, not limited by age, gender, and physical quality, so it has a good development. Table tennis is one of the most popular sports in China. Table tennis training must begin in school until adulthood to have good knowledge and expertise in tennis skills. It also requires proper physical fitness to play. Table tennis is a sport that requires speed. agility and good coordination of the nervous system and body will be able to respond to fast-paced sports games

SAQ training is training to increase speed and agility. Using the principles of the relationship between the nervous and muscular systems. Agility and speed will greatly help develop the abilities of athletes who require agility and speed. Therefore, athletes and coaches who want to develop skills in various areas must give importance to training SAQ will be successful in sports. Speed, agility, and quickness (SAQ) training is a type of physical training that focuses on developing the speed, agility, and quickness of an athlete. While SAQ training can be used to improve the performance of any athlete, it is most used by athletes who participate in sports that require these skills, such as football, basketball, soccer, and hockey.

SAQ training uses anaerobic intervals to improve your speed, agility, and quickness Speed is the ability to move your limbs or body quickly, while agility is the ability to change direction quickly and without losing balance. Quickness is a combination of speed and agility and refers to the ability to react quickly to stimuli.

SAQ training generally consists of short, high-intensity bursts of activity followed by periods of rest or active recovery. These activities can be done with or without equipment and can be customized to your fitness level. From information related to SAQ training and table tennis, The researcher therefore studied additional related research as detailed below. SAQ training is a form of training that affects many sports, especially racquet sports. Ali, S.M., et al. (2020). Researcher: The Effect of Speed, Agility and Quickness (SAQ) Training on Developing the Effective Movement of Tennis Players. Objectives: the aims of the study were the prepare of Speed, Agility, and Quickness (SAQ) training on developing the effective movement of tennis players, and identify the effect of Speed, Agility, and Quickness (SAQ) training on developing effective movement of tennis players. The experimental design was used. Setting: the subjects were randomly divided into two groups; the control group and the experimental group received SAQ training for 50-60 minutes. Twenty-four participants were chosen from Iraqi Tennis Federation Players and their mean age was 19.86 ± 1.81 years. pre-and post-tests included: Planned Agility test. Results: there were significant differences between the experimental group's Speed, Agility, and Quickness (SAQ) training and the control group in the agility planned test. And Vacenovsky, et al (2015). Researcher: The Reactive Agility of Table-Tennis Players Before and After Sport-Specific Warm-Up. The study aimed to determine and compare the reactive agility league players and players of regional competitions and their changes due to sport-

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specific warm-ups. The research sample consisted of 43 players, who were divided into two groups. the result difference between the groups was found to be not significant. The nonsignificant statistical value for interaction indicates, that league players did not respond to the sport-specific warm-up any differently than players from lower competitions. Sport-specific warm-up is important for improving reactive agility and therefore should not be underestimated.

Research information related to SAQ and table tennis Most of it is research to develop table tennis skills. Therefore, the researcher is interested in studying in China at an appropriate time to spread knowledge and prove various hypotheses whether they are true or not. The researcher therefore conducted this research to prove the research hypothesis.

Conceptual Framework

The research titled "The Effect of SAQ Training Program to Improve Table Tennis Skills of High School Students in Shanxi Province" was designed as a conceptual framework with the following.

Input	Process	Output
-Principal Training -SAQ Training -Table Tennis Skills	-SAQ Training Program -Experimental	The Table Tennis Skills & Agility of High School Students

Figure 1 **Conceptual Framework**

Methodology

This research is Quasi-Experimental Research to study The Effect of SAQ Training on improving of Table Tennis skills of High School Students in Shanxi. the research was carried out as follows

Population and sample: The population used was 5 classes of grade 5 high school students in Yinzhou High School in Shanxi Province, who were selected by simply random 1 class out of 5 classes.

Research instruments: (1) SAQ training program that has passed the quality evaluation from 3 experts, where the calculated Index of Item-Object Congruence (IOC) must be greater than 0.50. (2) Research questionnaire and recording results of measurement of various variables

Research tools: (1) Test the table tennis skills (Pre-test & Post-test) Table Tennis Skills Test (Adapted from Manowan, W. 2007). (2) Agility test (SEMO Test)

Data Collection: (1) The researcher collects general information about the sample group. (2) The researcher collects data. Table tennis skill score and agility test 1 week before SAQ training. (3) The researcher collects data. Table tennis skill score and agility test After completing 8 weeks of SAQ training. (4) Use the obtained data to analyze the statistical results.

Data analysis: In this research, data was analyzed using a computer and the IBM SPSS version 24.0 for Windows package with the following details. (1) Find basic statistics, such as mean and standard deviation, to describe and summarize the physical characteristics of the sample group, including age, weight, height, and studied variables, -including speed and agility. (2) Compare and contrast the results of the table tennis skill and agility tests. Between before training and after week 8 by t-test, the statistical significance level was set at 0.05 level.

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Results

Part 1 The results of data analysis to find basic statistics, including the mean and standard deviation of the physical characteristics of the sample group

Table 1 The results of data analysis to find basic statistics, including the mean and standard deviation of the physical characteristics of the sample group.

INFORMATION	MEANING	
Specification	$\bar{x}$	S.D.
Age	15.52	0.65
Weight	68.50	7.15
High	168.87	6.30
Specification	**Frequency**	**Percent**
Gender		
- *Male*	26	65
-*Female*	14	35
Total	40	100

From Table 1, the general information of the sample found that the sample had an average age ($\bar{x}$ =15.52, S.D.= 0.65), an average weight ($\bar{x}$ =68.50, S.D. = 7.15), an average height ($\bar{x}$ =168.87, S.D. = 6.30), and the number of the sample was 26 males, calculated as a percentage. 65 Females 14 accounting for 35 percent

Part 2 Results of data analysis from the study of variables including table tennis skills and agility between before and after the 8th week of training.

Table 2 Results of data analysis from the study of variables including table tennis skills and agility between before and after the 8th week of training.

Specification	Before		After 8th Week	
	$\bar{x}$	S.D.	$\bar{x}$	S.D.
TABLE TENNIS SKILLS	32.36	2.58	35.52	2.05
AGILITY (SEMO TEST)	15.45	1.89	14.18	1.75

Table 2.1 Average values of table tennis skills before training ($\bar{x}$ =32.36, S.D. =2.58) and after training ($\bar{x}$ =35.52, S.D. =2.05). After the 8th week of training, there was a better trend. Average values of Agility (SEMO Test) before training ($\bar{x}$ =15.45, S.D. =1.89) and after training ($\bar{x}$ =14.18, S.D. =1.75). After the 8th week of training, there was a trend of improvement as well.

Table 3 Results of data analysis to compare the study variables, namely table tennis skills and agility between before and after the 8th week of training.

Specification	$\bar{x}$	S.D.	95% Confidence Interval of the Difference		t	P-Value
			Lower	Upper		
Pair Ts1-Ts2	-3.15854	2.34	-3.67467	-2.64241	-12.176	.000
Pair Ag1-Ag2	1.26402	1.10	1.02067	1.50738	10.335	.000

$p<0.05$

From Table 2.2 the comparison between the pre-test and post-test found that the results of the table tennis skills test in post-training were better than the pre-training test (t 12.176, $p \leq .000$) at.05 levels of significance, Results of the agility test the post-training test was better than the pre-training test (t 10.335, $p \leq .000$) at.05 levels of significance

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Conclusion

1. From a study of the results of the SAQ training program to develop table tennis skills of high school students, it was found that after training with SAQ for 8 weeks Table tennis skills and Agility were better than before training.

2. From and comparison of the results of the SAQ training program to develop table tennis skills of high school students, it was found that after training with SAQ for 8 weeks Table tennis skills and Agility were better than before training.

Discussion

The results of the study found that Training SAQ for 8 weeks can improve your table tennis skills and agility. In this research study, the researcher used a method to measure 2 variables: table tennis skills. that measures backhand and forehand shots. The second variable is agility which is measured by practicing the 9-square that is added to the SAQ training program. To measure the agility of movement, use the skills of the Footwork, which is also an important performance in table tennis.

Consistent with Ramachandran, K. (2023). said that to improve your skills and technique in table tennis, it's important to practice regularly and focus on mastering the basics. Start by practicing your grip and footwork, then move on to mastering different types of serves and strokes. Table tennis is a fast-paced and exciting sport that requires quick reflexes, agility, and precision. Whether you're a beginner or an experienced player, improving your footwork is essential to becoming a better table tennis player.

The results of the study are consistent with the research of Das & Shkladas (2023). studied the effect of specialized table tennis training programs on the speed, agility, and reaction time of amateur table tennis players in Pune city. The study enrolled 30 table tennis academies in Pune city for 6 weeks and measured results before and after. Training found that all 3 variables increased the efficiency of table tennis training and increased speed and maneuverability and the response of athletes increased.

However, the implementation of Speed, Agility, and Quickness (SAQ) training programs has garnered attention as a potential means to enhance athletic performance in various sports, including table tennis. In the context of high school students in Shanxi Province, where table tennis is a popular and competitive sport, investigating the effect of SAQ training on skill improvement becomes particularly relevant. Research suggests that SAQ training can significantly contribute to improved agility, reaction time, and overall motor skills, which are crucial components of table tennis proficiency (Hachana, et al, 2014). By incorporating SAQ elements into the training regimen, high school students in Shanxi Province may experience enhanced footwork, quicker reflexes, and improved maneuverability on the table, potentially translating into better overall performance. In a study conducted by Hachana et al. (2014), the authors explored the impact of a 12-week SAQ training program on the physical and physiological attributes of young athletes. The results indicated significant improvements in agility and speed, emphasizing the potential benefits of such training modalities. These findings offer valuable insights into the potential applicability of SAQ programs for high school students participating in table tennis in Shanxi Province. By adapting and integrating SAQ training into the specific context of table tennis skill development, educators and coaches may contribute to the holistic athletic development of students in the region, aligning with the broader goals of physical education and extracurricular sports programs.

Recommendations

This research study has suggestions regarding SAQ training as a guideline for future research studies as follows.

1. There should be additional studies on other aspects of physical fitness from receiving SAQ training, such as muscle strength. reaction time the coordinated work of the nervous and muscular systems.

2. SAQ training can be used as a training option to develop speed and agility in other athletes whose running skills require speed and movement in all directions.

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3. SAQ training, in addition to being able to be used to practice many types of sports, can also be used to relate to the movement of other people who want to improve their bodies. Such as occupational groups that require frequent movement.

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