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# Development of SAQ Training to Improve Taekwondo Players' Performance

**Tong Xin[1] and Wisute Tongdecharoen[2]**
Faculty of Sports Science and Technology, Bangkokthonburi University, Thailand
[1]E-mail: tbbtbb899@gmail.com, ORCID ID: https://orcid.org/0009-0004-0969-9054
[2]E-mail:Wisute.ton@bkkthon.ac.th, ORCID ID: https://orcid.org/0009-0008-5233-7533

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**Abstract**

**Background and Aim:** The objective of this research is 1 to study the effects of SAQ training on Taekwondo players' performance. 2) to compare the effects of SAQ training on Taekwondo players' performance, and 3) to compare the effects of within-group SAQ training on Taekwondo players' performance during the Pretest, After Week 4, and post-test periods.

**Materials and Methods:** The research design was quasi-experimental, using a two-group experimental design. Taekwondo players aged 14-16 from the Jiujiang Children and Youth Sports School in Jiangxi Province were simply randomly sampled and placed into two groups: experimental and control. They were tested for Taekwondo skills, speed, agility, and quickness before receiving SAQ training and repeating the assessments after week 4 and the posttest. The data were analyzed using statistical software packages for mean, standard deviation, t-test, one-way ANOVA repeated measures, and Bonferroni post hoc analysis. The statistical significance threshold was 0.05.

**Results:** The results showed that: 1) the mean comparison between experimental and control groups, SAQ test (30-meter sprint, 'T'test, and lateral change of direction) and taekwondo skills (20s turning kick, 20s double chop kick, and combination kick) were significant difference (*p<.05). 2) The mean comparison within the experimental group between the pretest, after week 4, and the posttest, all of the variables pairwise showed significant differences (*p<.50).

**Conclusion:** The SAQ training can improve taekwondo skills.

**Keywords**: SAQ Training; Taekwondo Performance

## Introduction

Taekwondo is an official Olympic competition, and matches should normally be between competitors in the same weight class. In competitive matches, if a final match is reached, 4-5 or even more matches may be played, and a Taekwondo athlete needs to have a combination of athletic qualities, such as strength, speed, explosiveness, agility, quick reaction, and flexibility. Physical fitness is the foundation of Taekwondo, and it is the basis for improving skills. Only when physical training is in place can the skill level be further improved. SAQ training is a modern method of physical training popular in the United States, with speed, agility, and quickness. The SAQ training method is a flexible, multilateral, and fun training method to rapidly improve the athletes' physical qualities needed for competition. SAQ is a training program that focuses on the development of movement ability and body movement through the integration of the nervous and muscular systems to control performance and improve the whole body's movement and speed.

Udo & Young (2020) mentioned that the process of the globalization of taekwondo started in the aftermath of the Korean War (1950–1953), as a result of the Korean Diaspora when several Korean martial arts instructors emigrated to the United States. During the late 1950s and 1960s, the South Korean government made limited efforts to promote taekwondo internationally, except for a considerable number of taekwondo teachers dispatched to instruct South Vietnamese soldiers in hand-to-hand combat. The South Korean government's official role in promoting taekwondo internationally changed only after 1971, when taekwondo was declared the nominal 'national sport' of South Korea and the Park Chung Hee regime exploited taekwondo's full potential in promoting Korea's soft power and cultural recognition. Eaddy et al (2009) mentioned. Taekwondo is an art of self-defense training that focuses on the development of the whole body, It incorporates physical, mental, and spiritual development. The origins of taekwondo-do can be traced back to 'Taek Kyon', a form of martial arts practiced by Koreans around 50 BC. Kim & Zhang (2021) mentioned that taekwondo, Korean traditional martial arts, is one of the major symbols of Korea.



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Taekwondo is referred to as "the world's most popular martial art." The benefits of participating in taekwondo are widely publicized in terms of culture, spirit, mind, and body. Currently, the World Taekwondo Federation (WTF) has 205 member nations with more than 80 million participants learning taekwondo all over the world (WTF).

Research shows. Physical fitness and skill are very important in Taekwondo. Lu (2017) concluded that Taekwondo has a certain degree of flexibility and is a confrontational sport, and Taekwondo athletes need to have a certain degree of technical ability and training skills to have a certain advantage in the competition, which in turn increases the chances of winning. Sun (2023) considered that the competitive taekwondo program is highly confrontational and that it is important to focus on the training of skills and techniques as well as the physical training of the athletes during the training process. Xu & Tang, (2022) concluded that taekwondo matches under the new rules are characterized by more intense confrontation, stricter foul penalties, more uncertainty in winning and losing matches, and faster metabolism of physiological systems, and that physical fitness plays a key role in the athletes' rapid movement of the feet in matches, the play of technical and tactical skills, and the fulfillment of physiological functions, as well as the need to win the matches. Physical fitness plays a key role in the rapid movement of the athlete's feet, the performance at technical and tactical levels, the satisfaction of physiological functions, and the need for victory.

Research shows. That SAQ training has a positive effect on the physical fitness of both athletes and adolescents. Gao (2023) concluded that the correlation between the SAQ training method and all the indices of the agility test was significant, which means that the SAQ training method is conducive to the cultivation and enhancement of the offensive mobility of youth basketball players. Akhmad et al (2021) concluded that SAQ training has a significant effect on kicking speed in junior taekwondo athletes and SAQ training has a significant effect on agility in junior taekwondo athletes. According to Wang, (2022), SAQ training can improve students' agility better than traditional agility training after conventional agility training. Chandrakumar & Ramesh (2015) concluded that step training and SAQ training significantly improved speed and agility. According to the research, there are still more studies at home and abroad about the effects of SAQ training on physical fitness, but there are fewer studies about the effects of SAQ training on skills, and insufficient studies about SAQ training on Taekwondo programs. Therefore, this experimental study uses SAQ training to improve the performance of taekwondo players. The study of the development of SAQ training for the performance improvement of taekwondo players. Has certain theoretical and practical significance. It is very necessary.

This study used an experimental method to investigate the effect of SAQ training on improving Taekwondo players' performance. A training program was also prepared with the hypothesis that the development of SAQ training can improve physical fitness and skills in Taekwondo and that this training program can serve as a reference for athletes and coaches in Taekwondo and other sports. Some scholars have researched the relevant contents of SAQ training, and this study is an in-depth study of SAQ training using a new training program and training plan to experiment on the physical fitness and skills of taekwondo athletes, which has not been covered in previous studies. It gives Taekwondo athletes, as well as athletes from other sports, a deeper understanding of the effects of SAQ training to improve Taekwondo players' performance.

**Objectives**

The purpose of this research is to find out as follows:

1. To study the effects of SAQ training on Taekwondo players' performance.
2. To compare the effects of SAQ training on Taekwondo players' performance.
3. To compare the effects of within-group SAQ training on Taekwondo players' performance during the pretest, after Week 4, and posttest periods.



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## Literature review

Wang (2023) used Meta-analysis to investigate the effects of SAQ training on soccer players' agility, and the results showed that SAQ training can improve soccer players' agility; In his opinion, when applying SAQ training, random sensitivity training should be added, so that the athletes can respond according to the random signals issued by the coaches to simulate the game scenes, thus improving the athletes' adaptability on the field.

In the Experimental Study of the Effect of SAQ Training on the Physical Fitness of Level 3 Students, Li (2023), the results showed that through the 12-week SAQ training intervention, the students in the experimental group showed different degrees of improvement in physical form, physical function, and physical quality. He concluded that SAQ training in a short period can promote the physical health development of Level 3 students, and the effect is better than that of regular physical education, which can effectively improve the physical health level of the students; when carrying out SAQ training, we should pay attention to the training load and difficulty of the training, take into full consideration of the individual differences of the students, and formulate a scientific training plan, so that we can improve the students' physical fitness in an orderly manner.

Tan, (2021) in the "SAQ training method on the senior high school sports 100 meters training empirical research" selected 40 senior male physical education students as the research object, carried out 10 weeks of experimental intervention, and concluded that: SAQ training method as a new method in the training of physical education students is feasible, and in the grass-roots training, the conventional training method as the traditional training method is obvious and effective in improving the athletes' physical fitness and athletic performance. She concluded that SAQ training is feasible as a new approach to training sports students and that routine training as a traditional training method in grassroots training is effective in improving athletes' physical fitness and performance.

Akhmad et al (2021) in"Speed, Agility, and Quickness (SAQ) Training of the Circuit System: How Does it Affect Kick Speed and agility of Junior Taekwondo Athletes?",conducted a study with 28 junior athletes based on the difficulties encountered by coaches in improving the kicking speed and flexibility of junior taekwondo athletes. He concluded that Taekwondo coaches and coaches of other sports who want to improve kicking speed and agility can use the SAQ circuit system systematically.

Azmi & Kusnanik (2018) in "Effect of Exercise Program Speed, Agility, and Quickness (SAQ) in Improving Speed, Agility, and Acceleration". Analyzed the effect of Exercise Program Speed, Agility, and Quickness (SAQ) in Improving Speed, Agility, and Acceleration. It was concluded that speed, agility, and quickness training programs can improve speed, agility, and acceleration in soccer players.

Comprehensive the above domestic and foreign research literature on SAQ-related research is summarized and analyzed, at present, domestic scholars on SAQ research popularity is less, from 2022 the popularity of plus more, but concentrated in ball sports and track and field events, in these neighborhoods have achieved rich research results, but in taekwondo projects have not been related to the study on the practice of SAQ, the foreign scholars of the study on the SAQ is relatively more some, but also focused on ball sports, and there are fewer studies on SAQ training in taekwondo programs. Generally speaking, domestic and foreign researches on SAQ mainly focus on ball sports. In terms of theory, both domestic and foreign scholars have provided a rich foundation for the development of SAQ theory, and in terms of practice, both domestic and foreign scholars believe that SAQ training has obvious effects in improving the qualities of speed and agility, and also serve as the theoretical references and countermeasures references for the cases related to the SAQ training conducted in this paper.



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## Conceptual Framework

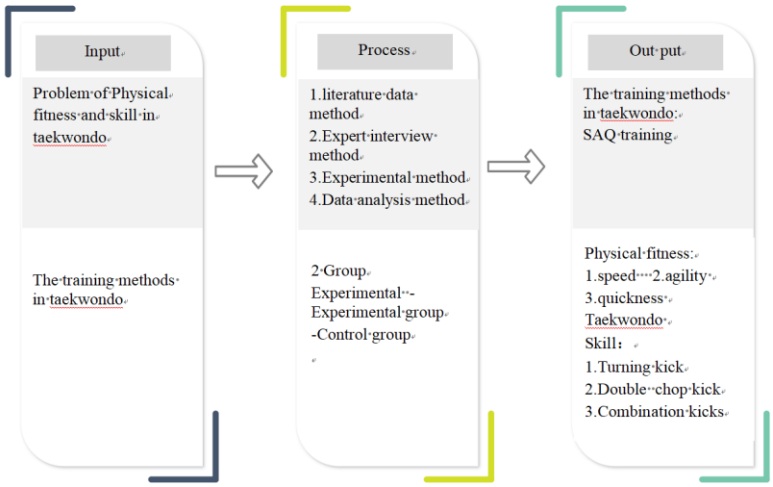


**Figure 1** Conceptual Framework

## Methodology

### Population

50 Taekwondo players from the Jiujiang Children and Youth Sports School in Jiangxi Province,aged 14-16 years.

The total sample consisted of 50 taekwondo players, aged 14-16 years. Boys and girls were categorized into three levels based on the difference in taekwondo kilograms. A 60% sample was assigned to each level.

| Sex | Male(n=30) | | | Female(n=20) | | |
|---|---|---|---|---|---|---|
| **kilogram level** | 54kg | 58kg | 63kg | 46 | 49 | 53 |
| **population** | 10 | 13 | 7 | 10 | 7 | 3 |
| **sampling** | 6 | 8 | 4 | 6 | 4 | 2 |

### Sample

In this experimental study, 30 Taekwondo athletes were designated as a purposive sample. Then double chop kick 20s test was performed on the selected 30 samples and the scores of all the samples were ranked, finally, the system grouped the samples (experimental group: 1, 4, 5, 8... Control group: 2, 3, 6, 7...) The average was divided into an experimental group (15 people) and a control group (15 people).

The power of the test was calculated from the study of Fajar et al (2023), which studied improving leg power and dynamic change kick speed in taekwondo using plyometric, SAQ, and circuit training methods. They found that the post-kicking speed (m/s) of the SAQ training group was 15.07±0.96 and the control group was 13.63±0.97. The effect size by G*power was 0.9553699, with 15 people in each group.

Inclusion criteria:

1. Taekwondo athletes from the Jiujiang Children's and Youth Sports School in Jiangxi Province
2. Taekwondo athletes who are currently injury-free must be approved by a physician.
3. Voluntarily sign a consent form to participate in the study.

Exclusion Criteria:

1. Participated in the experiment less than 90% of the time during the 8-week experimental period.
2. Subjects did not complete the test in the time specified by the researcher.



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3. some subjects are in poor health during the experiment or are injured during the experiment, which prevents them from continuing to participate in the experiment.

4. Subjects apply to leave the research project.

**Research Instrument**

Based on theory and literature review, a special training program was designed using a combination of SAQ training and Taekwondo. The experiment was conducted three times a week for 8 weeks on Mondays, Wednesdays, and Fridays. Each session lasted 120 minutes. The content validity of the training program was conducted by 5 experts who provided comments and suggestions for improvement and analyzed the content validity (Item-Objective Coherence Index: IOC). Then, 5 samples that match the actual sample characteristics are selected for testing. The consistency and reliability of the training program are ensured by the pilot test. The IOC equaled 0.84.

Physical Fitness Test: Speed: 30 Metre Sprint Test. Agility: 'T' Test. Quickness: Lateral Change of Direction Test.

Taekwondo Skills Test, National Youth Sports Skill Level Standard Development Group (2022). : Turning kick: Turning kick-20s. Double chop kick: Double chop kick-20s-. Turning kick, double chop kick, double chop kick: Combination kicks.

This research has passed the Research Ethics Review Committee of the Human Research Ethics Committee board, Bangkok Thonburi University. No. 79/2567, Date of issuance 1 May 2024.

**Data collection**

| Groups | Testing time | Experimental time | Testing time | Experimental time | Testing time |
|---|---|---|---|---|---|
| **experimental group** | Pretest | 1-4 weeks | After week 4 | 5-8 weeks | Posttest |
| **control group** | Pretest | 1-4 weeks | After week 4 | 5-8 weeks | Posttest |

Data were processed and analyzed using SPSS 27.0 statistical software. Changes in fitness and skill values before, during, and after training were compared and tested between the two samples.

**Data Analysis**

1. Analyze the general data of the sample using descriptive statistical analysis to find the mean, standard deviation, median, and percentage of the general information and to find the maximum and minimum values for physical fitness.

2. Comparison of the experiment groups and control groups for the normal distribution of physical fitness and skill indices

3. T-tests for independent variables were used to analyze whether there was a significant difference between the experimental and control group athletes' physical fitness and skill test indices in the pretest and post-test.

4. One-way ANOVA repeated measures were used to analyze whether there was a significant difference between the athletes' physical fitness and skill test indices in the experimental group at the pretest, after 4 weeks,and at the posttest.

5. Use of post hoc Bonferroni for pairwise pretest-after week 4, pretest-posttest, after week 4-posttest.

## Results

To study the effects of SAQ training on Taekwondo players' performance.



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**Table 1** Characteristics of subjects in the experimental group and control group.

| Variables | experimental group(n=15) | control group(n=15) |
|---|---|---|
| | $\bar{X}$±SD | $\bar{X}$±SD |
| Age (year) | 14.93 ± 0.80 | 14.87 ± 0.83 |
| Height (cm) | 173.60 ± 4.53 | 173.47 ± 4.98 |
| Weight (kg) | 52.69 ± 5.15 | 52.65 ± 5.47 |
| BMI (%) | 17.25 ± 0.81 | 17.01 ± 0.82 |

Form Table 1 found that.

Experimental group: mean and standard deviation of Age, Height, Weight, and BMI were 14.93 ± 0.80 years, 173.60 ± 4.53 cm, 52.69 ± 5.15 kg, and 17.25 ± 0.81, respectively.

Control group: mean and standard deviation of age, height, weight, and BMI were 14.87 ± 0.83 years, 173.47 ± 4.98 cm, 52.65 ± 5.47 kg, and 17.01 ± 0.82 respectively.

**Table 2** The mean comparison between the experimental and control groups of physical fitness and taekwondo skills with a pretest by an independent t-test.

| Variables | experimental group | Control group | t | df | p |
|---|---|---|---|---|---|
| | ($\bar{X}$+SD) | ($\bar{X}$+SD) | | | |
| 30 Metre Sprint(sec) | 4.54 ± 0.20 | 4.50 ± 0.19 | 0.58 | 28 | 0.57 |
| 'T' Test(sec) | 10.36 ± 0.06 | 10.35 ± 0.07 | 0.41 | 28 | 0.69 |
| Lateral Change of Direction(sec) | 3.52 ± 0.15 | 3.52 ± 0.16 | 0.96 | 28 | 0.92 |
| 20s turning kick(reps) | 33.80 ± 1.37 | 33.67 ± 0.98 | 0.31 | 28 | 0.76 |
| 20s double chop kick (reps) | 54.00 ± 2.59 | 53.93 ± 2.66 | 0.07 | 28 | 0.95 |
| combination kick(sec) | 25.93 ± 0.60 | 25.85 ± 0.58 | 0.40 | 28 | 0.69 |

*p< .05

Table 2 found that all variables had no significant difference.

**Table 3** The mean comparison between the experimental and control groups of physical fitness and taekwondo skills with a posttest by an independent t-test.

| Variables | experimental group | control group | t | df | p |
|---|---|---|---|---|---|
| | ($\bar{X}$+SD) | ($\bar{X}$+SD) | | | |
| 30 Metre Sprint (sec) | 4.20 ± 0.20 | 4.36 ± 0.19 | -2.26 | 28 | .01* |
| 'T' Test (sec) | 10.05 ± 0.05 | 10.18 ± 0.07 | -5.87 | 28 | .01* |
| Lateral Change of Direction (sec) | 3.13 ± 0.15 | 3.33 ± 0.13 | -3.88 | 28 | .01* |
| 20s turning kick(reps) | 40.47 ± 1.19 | 37.47 ± 1.06 | 7.30 | 28 | .01* |
| 20s double chop kick (reps) | 61.47 ± 2.59 | 58.40 ± 1.96 | 3.66 | 28 | .01* |
| Combination kick (sec) | 21.31 ± 0.54 | 22.62 ± 0.62 | -6.18 | 28 | .01* |

*p< .05

Table 3 found that all variables had significant differences (p< .05).

To compare the effects of SAQ training on Taekwondo players' performance between experimental and control groups.



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**Table 4** The mean and standard deviation of physical fitness and taekwondo skills in the experimental group at pretest, after week 4, and posttest (n = 15)

| Variables | Pretest | After week 4 | posttest |
|---|---|---|---|
| | $\bar{X}$+SD | $\bar{X}$+SD | $\bar{X}$+SD |
| 30 Metre Sprint(sec) | 4.54 ± 0.20 | 4.40 ± 0.18 | 4.20 ± 0.20 |
| 'T' Test(sec) | 10.36 ± 0.06 | 10.20 ± 0.06 | 10.05 ± 0.05 |
| Lateral Change of Direction(sec) | 3.52 ± 0.15 | 3.35 ± 0.14 | 3.13 ± 0.15 |
| 20s turning kick(reps) | 33.80 ± 1.37 | 37.13 ± 1.30 | 40.47 ± 1.19 |
| 20s double chop kick(reps) | 54.00 ± 2.59 | 57.60 ± 2.47 | 61.47 ± 2.59 |
| combination kick(sec) | 25.93 ± 0.60 | 23.52 ± 0.62 | 21.31 ± 0.54 |

Table 4 found that.

1. Pretest of mean and standard deviation of 30-meter Sprint, 'T' Test, Lateral Change of Direction, 20s turning kick, 20s double chop kick and combination kick were 4.54 ± 0.20 sec, 10.36 ± 0.06 sec, 3.52 ± 0.15 sec, 33.80 ± 1.37 reps, 54.00 ± 2.59 reps and 25.93 ± 0.60 sec respectively.

2. After week 4 of mean and standard deviation of the 30-meter Sprint, 'T' Test, Lateral Change of Direction, 20s turning kick, 20s double chop kick and combination kick were 4.40 ± 0.18 sec, 10.20 ± 0.06 sec, 3.35 ±0.14 sec, 37.13 ± 1.30 reps, 57.60 ± 2.47 reps and 23.52 ± 0.62 sec respectively.

3. Posttest of mean and standard deviation of 30-meter Sprint, 'T' Test, Lateral Change of Direction, 20s turning kick, 20s double chop kick, and combination kick were

4. 20 ± 0.20 sec, 10.05 ± 0.05 sec, 3.13 ± 0.15 sec, 40.47 ± 1.19 reps, 61.47 ± 2.59 reps and 21.31 ± 0.54 sec respectively.

**To compare the effects of within-group SAQ training on Taekwondo players' performance during the Pretest, after week 4, and Posttest periods.**

**Table 5** The results of the pretest, after week 4, and the posttest of the experimental group were analyzed and compared with the repeated-measures test.

| Variable | Source of variant | Sum of squares | df | MS | F | p |
|---|---|---|---|---|---|---|
| 30 Metre Sprint(sec) | Test | 0.86 | 2 | 0.43 | 1389.74 | .01* |
| | error | 0.01 | 28 | 0.00 | | |
| | Total | 0.87 | 30 | | | |
| 'T' Test(sec) | Test | 0.72 | 2 | 0.36 | 2222.41 | .01* |
| | error | 0.01 | 28 | 0.00 | | |
| | Total | 0.73 | 30 | | | |
| Lateral Change of Direction(sec) | Test | 1.15 | 2 | 0.58 | 8791.76 | .01* |
| | error | 0.00 | 28 | 6.56 | | |
| | Total | 1.15 | 30 | | | |
| 20s turning kick(reps) | Test | 333.33 | 2 | 166.67 | 1166.67 | .01* |
| | error | 4.00 | 28 | 0.14 | | |
| | Total | 337.33 | 30 | | | |
| 20s double chop kick(reps) | Test | 418.31 | 2 | 209.16 | 833.98 | .01* |
| | error | 7.02 | 28 | 0.25 | | |
| | Total | 425.33 | 30 | | | |
| combination kick(sec) | Test | 160.51 | 2 | 80.25 | 1550.14 | .01* |



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| Variable | Source of variant | Sum of squares | df | MS | F | p |
|---|---|---|---|---|---|---|
| | error | 1.45 | 28 | 0.05 | | |
| | Total | 161.96 | 30 | | | |

*p< .05

Table 5 shows that all variables had at least one significantly different pair.

**Table 6** The results of the pretest, after week 4, and the posttest of the experimental group were analyzed and compared two by two using the Bonferroni test.

| variables | Test | Pre-test | After week 4 | posttest |
|---|---|---|---|---|
| 30 Metre Sprint(sec) | Pretest | xxx | 0.14* | 0.34* |
| | After week 4 | | xxx | 0.19* |
| | posttest | | | Xxx |
| 'T' Test(sec) | Pretest | xxx | 0.16* | 0.31* |
| | After week 4 | | xxx | 0.15* |
| | posttest | | | Xxx |
| Lateral Change of Direction(sec) | Pretest | xxx | 0.18* | 0.39* |
| | After week 4 | | xxx | 0.22* |
| | posttest | | | Xxx |
| 20s turning kick(reps) | Pretest | xxx | -3.33* | -6.67* |
| | After week 4 | | xxx | -3.33* |
| | posttest | | | Xxx |
| 20s double chop kick(reps) | Pretest | xxx | -3.60* | -7.47* |
| | After week 4 | | xxx | -3.87* |
| | posttest | | | xxx |
| combination kick(sec) | Pretest | xxx | 2.41* | 4.63* |
| | After week 4 | | xxx | 2.21* |
| | posttest | | | xxx |

*p< .05

Table 6 found a significant difference (*P<.05) in comparison between the pretest, after week 4, and the posttest of the experimental group.

## Discussion

Because SAQ training has allowed Taekwondo athletes to improve physically, which in turn has allowed Taekwondo athletes to improve their skills, it has shown that there was a significant effect of the SAQ training program. The study showed that there was a significant effect of speed, agility, and quickness (SAQ) training programs in improving speed, agility, and acceleration. In summary, it can be concluded that the speed, agility, and quickness (SAQ) training program can improve the speed, agility, and acceleration of soccer players. (Azmi & Kusnanik, 2018). The importance and effectiveness of incorporating SAQ training into soccer-specific practices, particularly to improve the high-intensity preseason and midseason performance of U-20 female soccer players. From a practical standpoint, soccer coaches and fitness practitioners can implement periodic SAQ fitness training over an 8-week period, which improves a player's ability to sprint and execute multidirectional movements (linear, lateral, and diagonal) without loss of maximum running speed and body control. (Lee et al, 2024). The SAQ training method is a comprehensive training method that combines speed, agility, and reaction qualities. It is a fun training method that attracts students' attention, stimulates their awareness of the sport, cultivates their interest in the sport, helps them complete the teaching task efficiently, and develops the ability of young people to change direction and move quickly. (Jiang & Chen, 2023).



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It was found that SAQ training in the experimental group was more effective in improving the Taekwondo players' performance compared to the control group. The players' abilities were increasing, and their development curve became higher because they had good technical skills, which showed that the SAQ training program was reliable. Research has shown that SAQ training is feasible as a new training method for sports students, while routine training, a traditional training method in grassroots training, is effective in improving athletes' fitness and performance. (Tan, 2021). plyometric training, SAQ training, and combination training could develop agility, speed, and explosive power, but the current study shows that SAQ training is the most interesting among the three types of training due to the highest mean score of the EFI survey. ( Chan, 2020). SAQ training programs have a more effective positive impact than traditional training programs in developing dribbling agility and all types of In developing dribbling agility and all types of dribbling skills, SAQ training programs have a more effective positive impact than traditional training programs. SAQ training is recommended for players, especially youth players, to improve the physical fitness elements of speed, agility, and quickness during their sensitive formative years, as this is the main gateway to development and reaching the highest level of performance, reflecting its impact on the effectiveness of motor skill development. (Moselhy, 2020). The results of this study are indicated by changes in kick speed and agility after 18 training sessions. This change is the basis that programmed SAQ exercises will increase speed and agility for junior taekwondo athletes. (Akhmad et al.,2021).

**Recommendation**

1. Due to the limited research conditions, this study was conducted only on some taekwondo players did not conduct experiments and data collection on taekwondo players in the whole school, and did not develop other training methods to improve the performance of athletes, and in the future, it will be expanded the sample size, as well as carry out the use of other training methods.

2. The Taekwondo skills of the experimental group of 20-sec turning kick, 20 sec, double chop kick, and combination kick are better than the control group. It is found in the experiment that the post-test of all the variables is better than the pre-test, which is because of the effect of the training program. The SAQ training is interesting and has various training methods, which can be applied to different sports. When designing SAQ training, coaches should master the concept of SAQ and design a set of targeted training programs according to the different sports, environments, and athletes' bodies and minds. It is recommended to improve the study of SAQ training for each sport in future research so that the training effect of SAQ training can be widely applied to each sport.

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