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## The effect of drilling training on increasing the agility of badminton athletes

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### Abstract

This study aims to determine the effect of drilling training on increasing the agility of badminton athletes. This study used an experimental method with a one group pretest-posttest research design). The population in this study was 25 Makassar badminton athletes. The sample in this study was 25 Makassar badminton athletes with total sampling. Data collection techniques are carried out agility measurements with shuttle run measuring instruments. The data analysis technique used is to use SPSS 23 software to test the Paired sample test. The results showed that there was an effect of drill training to increase the agility of badminton athletes with a value of  $0.00 < 0.05$  and an increase in the treatment given by 65%.

**Keywords:** Drilling exercises, agility, badminton

### Introduction

Sport is an activity that can be done every day, Sport is a physical activity that improves body fitness (Marpaung & Manihuruk, 2022) <sup>[20]</sup>. Sports are activities that can be carried out by all ages from children, adolescents, adults, and the elderly, and can improve physical health and fitness (Manihuruk *et al.*, 2022) <sup>[19]</sup>. Sport is an educational process that utilizes physical activity to produce changes in the whole individual, both in terms of physical, mental, and emotional and exercise is carried out regularly with many benefits such as increasing immunity, health, fitness, feeling happy and improving memory (Mukti *et al.*, 2023; Nurulfa *et al.*, 2021) <sup>[21, 25]</sup>. From the above opinion, it can be concluded that exercise is physical activity that is carried out regularly and continuously can improve physical health and fitness.

In Indonesia, many sports have developed and contributed to excellent performance, one of which is badminton (Fadhly *et al.*, 2021) <sup>[5]</sup>. Badminton is a successful sport played by two players (for singles) or two players (for doubles) facing each other, badminton can be practiced flexibly both indoors and in halls and outside (Rofiqy & Jayadi, 2021) <sup>[32]</sup>. Badminton is a game sport that uses rackets, shuttlecocks and nets (Ishak *et al.*, 2022) <sup>[9]</sup>. Badminton is a long-duration sport that requires good and good physical condition (Kopania *et al.*, 2022; Valdecabres *et al.*, 2022) <sup>[14, 39]</sup>.

In achieving a good achievement in badminton, athletes need good physical condition. From the above opinion, in line with the opinion of Toresdah & Asif said that in an effort to improve an achievement, physical condition is a requirement to be prepared optimally (Toresdahl & Asif, 2020) <sup>[38]</sup>. Besides requiring mastery of good game techniques, if you do not have ball feeling and strong physical condition and cannot move quickly, it will be difficult to get points (Liu *et al.*, 2017) <sup>[18]</sup>.

Badminton has explosive movement characteristics and can change at any time according to game conditions, for that players are required to have good physical condition and supporting skills (Yuliawan & Sugiyanto, 2014) <sup>[41]</sup>. In a match requires excellent physical condition, so it is necessary to do repeated training, if not trained players will experience fatigue, which obviously affects the game.

Physical condition is a sports movement activity in which there are factors including endurance, strength, speed, flexibility, coordination when doing sports with a certain activity duration (Hardiansyah, 2018) <sup>[7]</sup>.

Physical condition is a few factors or indicators that must be owned by a person when carrying out sports activities by combining every element of strength, endurance, agility, flexibility, and coordination in order to achieve the expected target (Jariono *et al.*, 2020) <sup>[10]</sup>.

One element of physical condition that must be possessed by badminton athletes is agility. Agility is a fast body movement and is still aware of the position of the body so that it does not lose balance (Purdadi *et al.*, 2022) <sup>[31]</sup>. Agility is a movement that quickly changes direction to reach an object (Kuo *et al.*, 2022) <sup>[15]</sup>. Agility is a physical condition that must be possessed by an athlete to get good performance results and good performance on the field during training and matches (Nugroho *et al.*, 2022) <sup>[24]</sup>.

Agility is a determining variable for achieving maximum potential (Prananta & Santika, 2022) <sup>[28]</sup>, so a more effective agility training method is needed (Santika, 2015, 2017; Sumerta *et al.*, 2021) <sup>[33, 34, 37]</sup>. One of the common badminton exercises is drill exercises in an effort to train physical conditions. Optimal sports affect physical conditions which are unknowingly formed by themselves (Kardani & Rustiawan, 2020) <sup>[11]</sup>.

Drilling exercises are carried out by a coach who hits shuttlecocks throughout the field to be reached by athletes (Hasibuan *et al.*, 2020) <sup>[8]</sup>. Some literature that discusses drilling training methods can improve techniques in badminton games, such as research conducted by Fitriadi & Barlian which said that drilling lob exercises can significantly increase lob hitting ability, while patterned lob stroke exercises can also improve lob hitting ability (Fitriadi & Barlian, 2019) <sup>[6]</sup>.

A method of exercise done repeatedly can improve the physical condition applied (Ozmen & Aydogmus, 2017) <sup>[26]</sup>. Badminton athletes when they do not do routine training, footwork skills are not good, so routine training with effective training methods is needed to get good agility in order to master the field by being able to return the shuttlecock even in a difficult position (Nando, 2018) <sup>[23]</sup>. From the opinion above, it is in line with Ardhia *et al* who said that when training to improve footwork agility, it is easy during training and matches to reach or return the shuttlecock to the opponent (Ardhia *et al.*, 2022) <sup>[2]</sup>.

At the time in the field it was found that a coach did not know that drilling exercises could be applied to increase agility so this study aimed to determine the effect of drilling training on increasing the agility of badminton athletes. Given the conditions on the field, coaches provide training that tends to be monotonous for entry-level athletes. In addition, in the implementation of training, trainers pay less attention to the principles of training (Yuliawan & Sugiyanto, 2014) <sup>[41]</sup>. To be able to master good footstep techniques, in addition to physical condition, it also takes the ability to control the motion of lower body parts and overall body movements, in other words good automatisasion is needed to be able to perform footsteps with high agility (Karyono, 2016) <sup>[12]</sup>.

**Materials and Methods**

This type of research is experimental research, so it can be interpreted that experimental research has treatment given to samples in research (Ajeeb *et al.*, 2023) <sup>[1]</sup>. The experimental method is used to be able to see the presence or absence of the effect of treatment given to badminton athletes through drilling exercises to increase agility (Vo, *et al.*, 2023) <sup>[40]</sup>. The design in this study used the design of one group pretest-posttest (The One Group pretest-posttest). This research was held at the Makassar badminton court. This study was carried out for 4 weeks or 1 month, the study began on January 9, 2023 to February 9, 2023. Frequency of exercise 3 times a week. The number of training sessions is 12 times. Workout schedule on Monday, Wednesday, and Friday. Training starts at 15-17 WIB.

Population is a subject in a study (Shiraishi *et al.*, 2023) <sup>[35]</sup>. The population in this study was 25 Makassar badminton athletes. The sample is part of the population to be studied in a study which will later be treated and measured with measuring instruments (Kennedy *et al.*, 2020) <sup>[13]</sup>. The sample in this study were 25 badminton athletes in Makassar, the sampling technique was total sampling, the total sampling was all populations in the population used as samples to obtain research data (Zickar & Keith, 2023) <sup>[42]</sup>. The instrument used in measuring agility is the shuttle run. Data analysis techniques use the help of SPSS 23 software to test normality, homogeneity and t (influence) tests.

**Results and Discussion**

From the results obtained when tests and measurements are carried out with instruments or shuttle run measuring instruments and analyzed using the SPSS 23 software application can be seen in the table below.

**Table 1:** Test of Normality

|          | Tests of Normality              |    |                   |              |    |      |
|----------|---------------------------------|----|-------------------|--------------|----|------|
|          | Kolmogorov-Smirnov <sup>a</sup> |    |                   | Shapiro-Wilk |    |      |
|          | Statistic                       | DF | Sig.              | Statistic    | df | Sig. |
| Pretest  | .128                            | 25 | .200 <sup>*</sup> | .934         | 25 | .108 |
| Posttest | .158                            | 25 | .107              | .935         | 25 | .112 |

\*. This is a lower bound of the true significance.

A. Lilliefors Significance Correction

Based on the SPSS output in table 1, the pretest and posttest sig results are greater than > 0.05 so that it can be said that the data is normally distributed.

**Table 2:** Test of Homogeneity

| Test of Homogeneity of Variances |      |      |      |
|----------------------------------|------|------|------|
| Pretest post-test                |      |      |      |
| Levene Statistic                 | DF 1 | DF 2 | Sig. |
| .847                             | 1    | 48   | .362 |

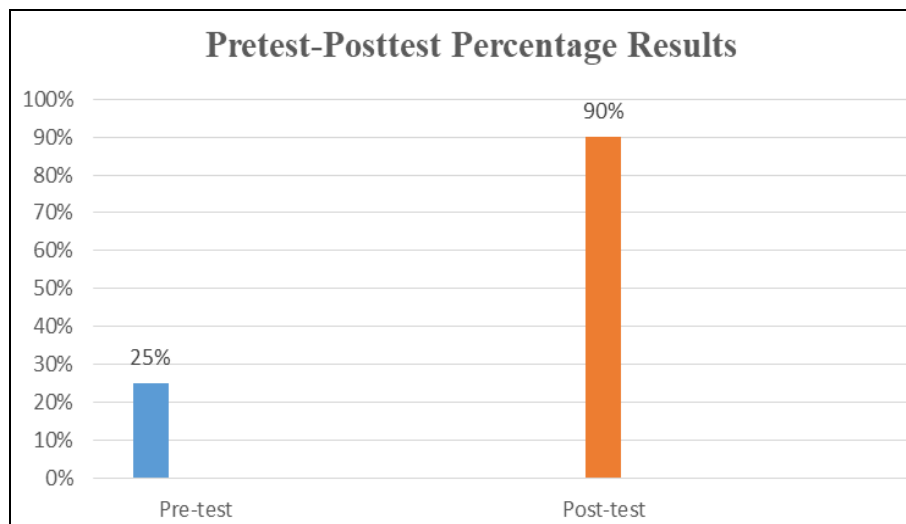
Based on the SPSS output in table 2, the results of the sig pretest and posttest are > greater than 0.05 so that it can be said that the data is homogeneously distributed, so that the T test or influence test can be carried out.

**Table 3:** T test or influence test

| Paired Samples Test |                    |                    |                |                 |   |          |        |    |                 |
|---------------------|--------------------|--------------------|----------------|-----------------|---|----------|--------|----|-----------------|
|                     |                    | Paired Differences |                |                 |   |          | T      | DF | Sig. (2-tailed) |
|                     |                    | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |          |        |    |                 |
|                     |                    |                    |                |                 | Lower                                     | Upper    |        |    |                 |
| Pair 1              | Pretest - Posttest | 1220.560           | 146.075        | 20.658          | 1179.046                                  | 1262.074 | 59.084 | 49 | .000            |

From the results of the SPSS 23 output analysis data, it can be seen in table 3 that the sig (2-tailed) value is less than 0.05, so

it can be concluded that there is an effect of drilling exercises on increasing the agility of badminton athletes.



**Fig 1:** Descriptive data of pre-test and post-test increased agility from drilling exercises

Based on the graph above, it can be seen that the increase in drill training has increased the agility of badminton athletes by 65% so that it can be said that drill training is significant for increasing the agility of Makassar badminton athletes.

Sports activities have many supporting factors that influence to get achievements, such as: physical condition, technique, tactics, and mental (Soniawan & Irawan, 2018) [36]. The chosen form of exercise will also be decisive in achieving the desired training target (Basrizal *et al.*, 2020; Musrifin & Bausad, 2020) [3, 22]. In badminton, agility is done by changing the position of the body, feet and hands quickly to reach the ball and return it to the opponent's area (Pratama, 2019) [29]. A badminton athlete has agility from a significant training process from the training program given by the coach (Cahyaningrum, 2021) [4]. Badminton is a sport that is quite complex in terms of physical condition components, so the physical training model must really describe the sport to be able to achieve peak performance physical fitness (Kusuma & Jamaludin, 2022) [16].

From the results of the study it was found that there was a significant effect of drilling exercises on increasing agility. Through a well-programmed physical training process, badminton players must have physical fitness qualities that have a positive impact on mental, psychic fitness, which ultimately has a direct effect on the appearance of playing techniques (Kusuma & Jamaludin, 2022) [16]. Training patterns using the Agility Training method are carried out gradually from easy movements to difficult movements so as to increase athlete agility (Musrifin & Bausad, 2020) [22]. The physical condition of badminton players must have a good level, through physical condition training (Kardani & Rustiawan, 2020) [11], using a well-programmed drilling training method, the fatigue factor and the delay in reaching the shuttlecock from the opponent will be overcome.

The drilling training method is in the form of taking the shuttlecock which is hit by the coach to all corners of the field which is done repeatedly so that athletes get used to making stepping movements to all corners of the field, so that athletes feel used to or more motion automation. The accuracy of providing drill training in each movement will accelerate athletes to gain agility. Conversely, the athlete's agility will be weak if the training is carried out in an unprogrammed way (Panuntun *et al.*, 2022) [27].

The drilling training method has a significant influence on agility skills because the method used is to repeat the punches throughout the same field until you really master but the

drilling training method is not enough to do with just one training session, but it has to be done over a long period of time. Research conducted by Lengga *et al* said that the provision of drilling training methods can improve backhand overhead clear skills in male badminton athletes aged 8-12 years in PB. BAT Malang City (Lengga *et al.*, 2020) [17], while research conducted by Primayanti & Isyani said that there is an influence of drill training methods on the accuracy of smashes in badminton athletes (Primayanti & Isyani, 2021) [30]. From several research results and some of the research above, it can be concluded that training using the drilling method affects the physical condition and technique of badminton athletes so that coaches are expected to implement routine and programmed drilling exercises for the agility of athletes and techniques of hitting badminton athletes.

### Conclusions

Training using drilling training methods is an alternative and can be applied to improve physical condition, one of which is agility. From the results of this study, it was found that drilling training affects the agility of badminton athletes

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