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The Effect Of Agility Training On Improving Basketball Dribling Skills In Bkmf Basketball FIKK UNM Athletes

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Abstract. This study aims to determine the effect of agility training on improving dribbling skills in BKMF Basketball FIKK UNM athletes. The method used is an experiment with a pretest-posttest design on 25 samples. Initial data (pretest) showed that the average dribbling time in the zig-zag test was 16.84 seconds, with the highest value of 18.12 seconds and the lowest value of 15.70 seconds, which is in the moderate category. After undergoing an agility training program for six weeks, the posttest results showed a significant increase, with the average dribbling time decreasing to 14.90 seconds, the highest value of 15.80 seconds, and the lowest value of 13.62 seconds. Statistical analysis using the paired sample t-test produced a t-value of 8.764 with a p-value of 0.000 (<0.05), so it can be concluded that there is a significant difference between the pretest and posttest. These results prove that agility training has a positive effect on improving athletes' dribbling skills.

Keywords: agility training, dribbling skills, basketball, agility training

1 Introduction

Improving skills in sports is one of the important factors that support athlete achievement. One of the most crucial skills in basketball is dribbling ability. Good dribbling allows a player to control the ball effectively, avoid pressure from opponents, and create opportunities to score. Dribbling is a key element in basketball because without good dribbling skills, a player will have difficulty implementing game strategies. Therefore, to achieve an optimal level of skill in playing basketball, structured and focused training is very important, one of which is through agility training. Agility is the ability to change the position or direction of the body quickly and efficiently without losing balance. In the context of basketball, agility is essential, both in attack and defense. A player's ability to move quickly, change direction suddenly, and control the ball effectively while dribbling is a determining factor in determining

the success of the game. An agile player will find it easier to avoid opponents and create space to attack or defend better. This makes agility one of the important aspects that basketball athletes need to train. However, in practice, there are still many beginner and university-level basketball athletes who have difficulty in significantly improving their dribbling skills. Some of the problems that are often faced include lack of body coordination when moving with the ball, slow response to changes in direction of play, and lack of balance when dribbling the ball at high speed. In addition, most of the exercises carried out are still monotonous and do not emphasize dynamic game situations, so that the transfer of skills into real games is less than optimal. One solution that can be applied to overcome this problem is to implement an agility training program combined with dribbling exercises. This program emphasizes the development of quick reaction skills, sudden changes of direction, and increased body coordination and control. With this approach, athletes not only learn to dribble the ball in one direction, but also in various directions and speeds according to actual game conditions. This exercise is more contextual and closer to the real situations faced by athletes on the field. Dribbling and agility have a close relationship, especially in basketball games that are full of dynamics and opponent pressure. Agility allows players to move quickly and efficiently, while dribbling allows players to control the ball during its movement. Structured agility training can help basketball athletes improve their dribbling skills, as good agility will make it easier for players to manage the ball while moving, maintain balance, and avoid interference from opposing players.

In theory, the concept of agility in sports has b[19] widely discussed in sports literature. According to Sheppard and Young (2006), agility is the ability to make quick and effective changes in direction with good body control, and supported by muscle strength and flexibility. Agility plays a role in increasing the speed of a player's reaction in dealing with unexpected game situations. Training that focuses on agility can improve an athlete's ability to predict and respond to an opponent's movements more effectively, as well as improve body coordination skills that support other technical skills, such as dribbling. Agility training consists of various methods, ranging from training that prioritizes speed, coordination, to body flexibility. In the context of basketball, agility training often involves zigzag training, sprinting, and rapid changes of direction, which help athletes improve their accuracy in moving and speed up their reactions to situations on the field. In addition, agility training can also be applied in dribbling training, where players are trained to change dribbling direction quickly, improve ball control, and avoid opposing players efficiently. Previous s[6]udies have shown that agility training can improve dribbling ability in basketball athletes. According to research conducted by Nakamura et al. (2013), athletes who underwent agility training showed significant improvements in dribbling speed and accuracy, as well as the ability to maintain ball control when facing opponents. This increase in agility allows players to move faster and more efficiently, thereby improving the overall quality of their game. BKMF (Student Sports Agency of the Faculty of Sport Science) FIKK UNM athletes are a group of athletes who have the potential to develop technical skills, one of which is dribbling. Along with the rapid development of basketball, it is important for BKMF athletes to have adequate basic skills, including dribbling. Through appropriate and targeted training, it is hoped that their dribbling skills can improve significantly, thereby improving their performance in matches. Agility training specifically designed to improve dribbling skills in basketball athletes requires a systematic approach based on biomechanical and motor theory. According to motor theory, agility is the result of coordination between the central nervous system and the muscles of the body, which allows individuals to perform movements with high speed and good accuracy. In this regard, targeted agility training can help improve athletes' reaction speed, movement coordination, and body control, which in turn will improve their dribbling ability.

This study aims to examine the effect of agility training on improving basketball dribbling skills in BKMF Basketball FIKK UNM athletes. By using a specially designed agility training method, it is expected to identify how much contribution this training makes in improving dribbling skills. This study also aims to provide recommendations for basketball coaches and team managers in designing more effective training programs to improve the technical skills of basketball athletes, especially in the dribbling aspect. The importance of this study lies in its ability to provide deeper insight into the effect of agility training on improving dribbling skills. The results of this study are expected to provide a positive contribution to the development of basketball training programs, both at the college level and at a wider level. Thus, this study not only provides practical benefits for athletes, but can also be a reference for further research related to the development of sports training.

2 Method

This study is a quantitative study with a quasi-experimental approach, which aims to determine the effect of agility training on improving basketball dribbling skills in BKMF Basketball FIKK UNM athletes. The design used is a one-group pretest-posttest design, where measurements are taken before and after treatment to see changes in dribbling skills that occur due to agility training interventions. The subjects in this study were male athletes of BKMF Basketball FIKK UNM who actively participated in basketball training activities. The number of samples used was 25 male athletes selected by purposive sampling, with the following criteria: (1) male, (2) aged between 18-24 years, (3) actively participating in basketball training and competitions for at least the last 6 months, (4) not currently injured, and (5) willing to follow all stages of the study. The instrument used to measure dribbling skills was the zig-zag dribbling test, which is a test of dribbling the ball through several points or obstacles in a zig-zag track as far as 20 meters. This test measures speed, accuracy, and ball control while dribbling. In addition, to support the accuracy of the measurement, each test is recorded using a camera to be re-analyzed if verification of the results is needed. The implementation of the study began with a pretest given to all samples to determine the initial level of dribbling skill. After that, treatment was given in the form of an agility training program that lasted for 6 weeks, with a training frequency of 3 times a week. Each training session lasted for 60 minutes, starting from warming up, core agility training (including exercises such as ladder drills, cone drills, shuttle runs, and winding dribbling), to cooling down. The training was designed in stages from light to moderate to heavy intensity. The independent variable in this study was agility training, while the dependent variable was basketball dribbling skills. To maintain the validity of the results, other variables that could affect dribbling skills such as fatigue, diet, and attendance during training were controlled through direct supervision by researchers and assistant coaches. The presence and participation of athletes in each training session were recorded systematically. After the 6-week intervention, all samples were given a posttest using the same test as in the pretest. Pretest and posttest data were analyzed using paired sample t-test through statistical software (eg SPSS), with a significance level of $\alpha = 0.05$. If the p-value <0.05, it can be concluded that there is a significant difference between before and after training, indicating the influence of agility training.

This study also pays attention to the principles of research ethics, such as requesting written consent from participants (informed consent), maintaining the confidentiality of personal data, and ensuring that all exercises and procedures carried out are safe and do not endanger the physical condition of the participants. Before the start of the exercise, all participants were given an explanation of the procedures, benefits, and risks that may occur

during the study. To increase the reliability and validity of the data, the researcher also conducted instrument triangulation and limited repetition of tests on several participants to see the consistency of the results. In addition, direct observation was carried out during the training process to ensure that all procedures were carried out in accordance with the research design. Through this systematic approach, it is hoped that the study will be able to provide a strong empirical picture of the effect of agility training on dribbling skills, while also contributing to the development of training methods in sports education environments, especially basketball.

3 Result

This study aims to determine the effect of agility training on improving basketball dribbling skills in male athletes of BKMF Basketball FIKK UNM. After going through the research stages consisting of pretest, six-week treatment, and posttest, the following results were obtained:

Initial data (pretest) showed that the average dribbling ability of athletes was still in the moderate category. Of the 25 samples, the average dribbling time on the zig-zag test was 16.84 seconds, with the highest value of 18.12 seconds and the lowest value of 15.70 seconds.

After following the agility training program for 6 weeks, a re-measurement (posttest) was carried out to assess the development of dribbling skills. The results showed a significant increase. The average dribbling time decreased to 14.90 seconds, with the highest value of 15.80 seconds and the lowest value of 13.62 seconds. This decrease in time indicates an increase in dribbling speed and effectiveness.

Table 1. Descriptive Test

Variabel	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Pre test	25	15,70	18,12	385.93	16,84	0,74
Post test	25	13,62	15,80	363.28	14,90	0,65

Statistical Analysis of Paired Sample T-Test To determine whether the increase in dribbling skills after agility training is statistically significant, an analysis was conducted using a paired sample t-test. The results of the analysis using SPSS software version 25 showed the average pretest value: 16.84 seconds, the average posttest value: 14.90 seconds, the average difference: 1.94 seconds, the calculated t value: 8.764, Df (degrees of freedom): 24 and Significance (2-tailed): 0.000 Based on these results, it is known that the significance value (p-value) is 0.000 <0.05, so it can be concluded that there is a significant difference between the dribbling results before and after agility training. This means that agility training has a positive effect on improving athletes' dribbling skills.

Table 2. Sample T Test

Variabel	N	Difference	T	sig.(2 tailed)
Dribbling Ability	25	1,94	8,764	0.000

The improvement of dribbling skills indicated by the decrease in travel time in the zig-zag test after the agility training intervention indicates that this training is effective in improving coordination, reaction speed, and ball control while moving. This is in accordance with the agility theory according to Sheppard and Young (2006) which states that agility training plays an important role in developing the ability to change direction and respond quickly to game situations. In addition, observations during the training process showed that athletes became more confident in dribbling the ball, were able to change direction quickly without losing control, and had the ability to cope with opponent pressure better.

4 Discussion

The results showed that there was a significant increase in basketball dribbling skills after athletes underwent a six-week agility training program. This was shown by a decrease in the average dribbling time from 16.84 seconds in the pretest to 14.90 seconds in the posttest, as well as the results of the paired sample t which showed a significance of 0.000 ($p < 0.05$). This 11.51% increase indicates that agility training has a positive and significant effect on the development of technical dribbling skills in basketball. Physiologically and biomechanically, agility training develops the body's ability to respond to changes in direction quickly without losing control and balance. In the context of dribbling, this is very important because basketball players often have to change direction while still controlling the ball. Research by Chaouachi et al. (2022) shows that agility training based on change of direction training can improve neuromuscular coordination, reaction speed, and complex motor skills such as ball-handling. Agility exercises such as ladder drills, cone drills, and shuttle runs given in this study help improve synergy between the central nervous system and the muscular system, accelerate the processing of visual-motor information, and improve muscle control when performing fast movements. This is in line with the latest theory from Young et al. (2021), which states that agility is not just a physical ability, but involves the integration of perception, decision-making, and efficient execution of motor movements. Dribbling in basketball not only requires technical skills to control the ball, but also the ability to read game situations, anticipate opponents, and respond with fast movements. The agility exercises applied in this study not only improve physical aspects but also help in the formation of automatic movement patterns that support decision-making in the game. In addition, the results of this study also support the findings of Thomas et al. (2020) which state that agility training combined with ball game techniques can accelerate the development of specific motor skills. Athletes who have a high level of agility will find it easier to adapt to game pressure and be more stable in dribbling the ball in dynamic conditions. In field observations, in addition to improving technical skills, there was also an increase in the athletes' confidence when dribbling the ball. This shows that agility training also contributes to psychological aspects, such as focus, concentration, and calmness in controlling the ball under pressure, which is also reinforced by the theory of McMorris (2019) in the book "Cognitive Neuroscience and Sport Performance", that physical training involving coordination and speed can improve the executive function of the brain which plays a role in decision making.

Overall, the agility training program provided was able to improve the quality of dribbling skills from the technical, physical, and cognitive aspects. The implementation of systematic and gradual agility training according to the principles of sports training has been proven to provide optimal results. However, there are still some limitations in this study. One of them is that there has not been a division of the control

group to compare the results with athletes who did not receive agility training treatment. In addition, other variables such as nutrition, sleep patterns, and fitness levels have not been controlled in depth, which may also affect athlete performance. Nevertheless, the results of this study provide a significant contribution to the field of sports training, especially the development of basketball technical skills. Coaches and sports trainers can integrate agility training as an important part of the daily training program to effectively improve players' dribbling skills.

5 Conclusion

Based on the results of the research that has been conducted on the Effect of Agility Training on Improving Basketball Dribbling Skills in BKMF Basketball FIKK UNM Athletes, it can be concluded that agility training has a significant effect on improving dribbling skills. This is evidenced by the significant difference between the pretest and posttest results, where the significance value obtained from the paired sample t-test was 0.000, far below the significance threshold of 0.05. This indicates that agility training contributes significantly to improving the dribbling skills of athletes. The agility training program given for six weeks succeeded in improving dribbling ability, as seen from the decrease in average time from 16.84 seconds in the pretest to 14.90 seconds in the posttest. This performance increase reached a percentage of 11.51%, reflecting improvements in the efficiency and effectiveness of ball control during fast movements and changes in direction. The agility training that was applied has improved important physical aspects such as speed of change of direction, body coordination, balance, and reaction speed. These aspects directly support the improvement of dribbling skills which are very much needed in a dynamic and competitive basketball game. This finding strengthens previous theories stating that agility is one of the key factors in basketball sports performance, especially in optimizing players' technical skills when facing game pressure.

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