THE EFFECTS OF CIRCULAR AND SQUARE WARM-UP PROGRAM ON AGILITY OF MALEFOOTBALLERS AT RAJABHAT MAHA SARAKHAM UNIVERSITY

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ABSTRACT

Football is the most popular sport in the world. The effects of circular and quadrangular warm-up programs on the agility of football sport were monitored and evaluated. The sample consisted of 22 male footballers of the Rajabhat Mahasarakham University team, aged between 18-23 years. The sample group was divided into 2 groups of 11 footballers each. The experimental group was trained with circular and square warm-up programs by the research team. Created and the control group practiced following a regular soccer training program. The training was 6 weeks, 3 days a week, 15 minutes of training per day. Agility physical fitness assessments were used with the Arrowhead Illinois Agility Test (AIAT) which is a commonly used test of agility in sports, and as such there are well-established norms available. The length of the course is 10 meters and the width is 5 meters. Four cones are used to mark the start, finish, and the two turning points and the Modified Agility T-Test (MAT) is a simple running test of agility, involving forward, lateral, and backward movements, appropriate to a wide range of sports were assessed with the Pre-Post-Research-Design method. Statistically significant was analyzed with percentage, mean, standard deviation, and analytical statistics as a t-test was compared. The results showed that after participating in the exercise with the circular and square warm-up programs, the Post-Experimental group showed a faster mean change in agility than Pre-experimental and Pre-post-footballer-control groups for participating in the training were differences at the 0.05 levels, significantly.

Keywords: Agility Footballer,Agility t-test, Illinois agility test, Physical warm-up, Pretest-posttest-research-design method.
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INTRODUCTION

Sports are an essential part of our lives. Sports provide us with exercise, a means of team-building, and a way of unifying people all over the world. Sports are a great way to meet new friends and form strong bonds (World Population Review, 2021). Why Are Sports Important? Sports are beneficial for both a child's mental and physical well-being. Not only can sports help to strengthen bones and tone muscles, but they can also help children improve their academic performance and teach them the value of teamwork. Additional Benefits of Sports: better self-esteem, exercise, improved leadership skills, stronger relationships, better communication, and time management skills (Joey, 2019).

For children, playing sports can help develop friendships centered on healthy, safe, and enjoyable activities. Adults who play sports also have the opportunity to develop friendships centered on an active lifestyle. Team practice and competitions provide socializing options that are healthier and more active compared with regular sessions of other more sedentary activities. Sports can particularly benefit low-income individuals, who might not have the money or resources to socialize outside of playing sports, according to Child Fund International (Rush, 2018).

Preparing teams for sporting events, one of the most beautiful things about professional sports is the team aspect. Although many sports are individual, they usually have a team supporting them. For example, gymnasts compete by themselves but their scores combine to support their team score. Find out who should be on a professional sports team: Proper Warm-up: stretch, set an

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achievable goal, start slow; Be Consistent: set a pace (and be consistent), visualize your victory, maintain proper nutrition; Your Team: coach, fans, and training buddy; Variety: take time off/sleep/recover, and use a range of different exercises and training methods (Huston, 2019).

While it may not be apparent in the United States, association football (soccer) is the most popular sport in the world. Soccer is king in virtually all of Europe, South America, Africa, the Middle East, Central America, and Asia. There are about 3.5 billion soccer fans worldwide and 250 million players across 200 countries around the world. The next most popular sports in the world are cricket (2.5 billion fans), basketball (2.2 billion fans), and field hockey (2 billion) (World Population Review, 2021).

While human beings engage in several different sports, football (also known as soccer in the United States) is virtually one of the most popular sports worldwide. In this blog, we will look at some of the reasons why this is so. These reasons includea more regular display of high-class competition, varied field of competition, and it is inexpensive. Compared to other sports, football is highly inexpensive. For instance, it is essential to point out that you do not need a soccer ball to engage in the sport. You can even choose to kick a can around, and you will be enjoying football. All you need to do is get two objects to mark the goalposts, and then you are good to go (The Forza Italian Football Staff, 2021).

The fact that this sport is super funny is one of the main reasons soccer is popular worldwide. It is essential to point out that this is one of the most straightforward sports that one can engage in. Football does not have many complicated rules. Someone who has never played the game can easily understand the rules quickly and start enjoying the sport (Akolo, 2019). By planning out everything before the football team does the exercise to ensure that footballers do the exercise efficiently and safely. The more knowledge footballers gain about the exercise, the better they will be able to do it. They need to prepare their body by stretching all of the main muscles that will be used as they are walking. They want to make sure that they don't clash with other local events in your area. They'll also need to ensure you have enough time to pull your resources together to make the event a success. The more time they leave themselves to plan their sports event, the more time there is to promote and gain traction for it. (Frechette, 2019).

Increasing the ability to use oxygen and increasing knee joint sense (Knee Joint Sense). Increase the amount of pH in the blood. The concentration of lactic acid in the blood helps the body to balance the temperature better through Static Stretching (SS) (Church et al, 2001). The commonly practiced warm-up includesStretching and Short-Run which takes about 5-10 minutes and stretching. There are two types of stretching: Static Stretching (SS) and Dynamic Stretching (DS). Static Stretching (SS) is the flexibility of the muscles increased by external forces. This is to stretch the muscles to the point that they feel tight but not painful. The force is to be held at that point for 15-30 seconds, while dynamic stretching is a stretching of muscles with a difficult-easy sequence and continuous movement. For example, adjusting the speed and direction has a beneficial effect on improving physical performance, such as increasing nerve conduction, and increasing the process of energy degradation such as Glycogenolysis, Glycolysis, and High-energy Phosphate Degradation (Bishop, 2003).

Warming up before training or competition is a popular practice among trainers and athletes by increasing the flexibility of tendons and muscles Increased temperature and increased blood flow to the distal extremities are increased coordination between work, movement, injury prevention, and sports preparation. The value of warmingup is a worthy research problem because it is not known whether warming-up benefits, harms, or has no effect on individuals. The

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warm-up was shown to improve performance in 79% of the criteria examined. Because there were few well-conducted, randomized, controlled trials undertaken, more of these are needed to further determine the role of warming-up concerning performance improvement (Fradkin, Zazryn, & Smoliga (2010).

Passive muscle heating has been shown to reduce the drop in post-warm-up muscle temperature (T m) by about 25% over 30 min, with concomitant sprint/power performance improvements. This research study sought to determine the role of leg blood flow in this cooling and whether optimizing the heating procedure would further benefit post-warm-up T m maintenance Methods (Raccuglia et al., 2016).

Warm-up is an essential part of every game. Footballers' performance relies heavily on how good a warm-up you have had. Football is a physically intense sport, which requires them to be at their peak for 90 minutes. To achieve that, they must do a proper warm-up for each muscle of their body. Warming up helps reduce the risk of injury and also provides them with the right mindset before going into a game. Here is a perfect warm-up routine for them to follow before their next game of football: Warm-up meal, Pre-match warm-up, Jogging-10 minutes, Stretching, Static stretching- 5 minutes, Dynamic stretching-10 minutes, Butt kicks, Frankensteins, High knees/ knee hugs, Front to back leg swing, Closed knees, Open knees, and Ankle twists, those are the warm-up for the footballers, generally (Arora, 2020).

With football being a sport that has many forms of movement, especially nowadays, with modern methods of playing, physical fitness, agility, and agility are applied in competition, making the game more quality. It also creates excitement and excitement for the audience if athletes can quickly change the position of the body or any part of the start. a quick stop changes direction quickly. It will be able to put pressure on the opponent on the effects on the explosive muscular performance by incorporating 8 weeks of strength training into the preparation of junior male soccer players, allocating subjects between an experimental group (E, n=19) and a matched control group (C, n=12). They conclude that biweekly strength training improves key components of performance in junior soccer players relative to standard in-season training (Hammami et al. 2017).

To get the most out of agility drills for football, it's important to understand why agility is so important. Agility is the same in football as it is in any other sport. It's about how quickly you can change direction without it affecting your balance. Extremely agile footballers, like Lionel Messi, can stop quickly, change directions and keep moving in one fluid movement. If a footballer has agility in movement and has a quick response and maintains a good balance of the body and will be able to succeed in the competition (Sharma & Kailashiya, 2018).

Agility is the player's capability to perform the rapid whole-body movement with a change of velocity or direction in response to a stimulus (Benvenuti et al., 2010). A new definition of agility is proposed as a rapid whole-body movement with a change of velocity or direction in response to a stimulus. Agility has relationships with trainable physical qualities such as strength, power, and technique, as well as cognitive components such as visual scanning techniques, visual scanning speed, and anticipation (Sheppard & Young, 2006). Good agility requires a combination of speed, balance, power, and coordination. Agility, which is a meteoric ability, can be improved by regular progressive exercise. As an important component, agility is used to be an acceptable method in sports performance test batteries (Karacabey, 2013). Rapid directional changes are dynamic movements that require maximum muscle strengthand most are linked to contraction and mobility (Ioan-Sabin & Pomohaci, 2016).

For this reason, researchers are interested in studying dynamic stretching (DS) warm-up exercises in football players. The aims

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are to help football players to prevent injuries and to prepare before training and playing sports. It also has a positive effect that the footballer'sathletes have agility moving to change direction quickly and maintain the balance of the body as well and will be able to succeed in the competition.

MATERIAL & METHODS

Sports research is designed to explain the underlying mechanisms of how athletes function. It gives coaches and athletes a way to gain solid information and apply it to sports performance. It helps coaches form beliefs about how to develop programs and coaching techniques. Sports also involve physical activity and exercise but differ in that they also have a set of rules, or goals to train and excel in specific athletic skills: football or soccer. This research process was to design a dynamic stretching (DS) warm-up for application in football players. The aim is to help football players to prevent injuries and to prepare them before training and playing sports.

RESEARCH AIMS

1.To monitor and evaluate the effects of circular and square warm-up programs on the agility of the men's football team, Rajabhat Maha Sarakham University.

2.To compare the effect of circular and square warm-up programs on the agility of men's soccer teams, Rajabhat Maha Sarakham University.

Population and Sample

The population was of male footballers of Rajabhat Maha Sarakham University, Mueang District, Mahasarakham Province in the academic year 2019 consisted of 35 footballers

The sample group was a male footballer of Rajabhat Maha Sarakham University, aged between 18 - 23 years, 22 footballers, obtained from the method of purposive sampling, with the following qualifications:

Inclusion criteria

1.He is a male footballer, Rajabhat Mahasarakham University, age 18 - 23 years.

2.Be an athlete who has a list to compete in the University Sports of Thailand.

3.Have a healthy and complete body

4.No history of serious injury requiring medical attention to ankle and leg in the past 3 months.

5.Interested in testing circular and square warm-up programs.

Exclusion criteria

1.Participate in less than 80 percent of the programmed training.

2.Not voluntarily participating in the research project.

3.To have been injured or have been in an accident to the extent that further research is not possible.

4.Force majeure events that prevent further participation in research, such as moving schools, etc.

Research instrumental collective data

1.Circular and square warm-up programs.

2.Scales height gauge and body mass index datasheet.

3.Test data sheets including pre-test and post-test experimental group.

4.Recording participation in the research project.

RESEARCH PROCEDURES

Creating Process Instrument

1.Searching and collecting information on the international documents, textbooks, articles, and research reports on circular and square warm-up contexts.

2.Using the data obtained from the research project to design the circular and square warm-up programs.

3.Obtain circular and square warm-up program outlines.

4.Taking the circular and square warm-up programs were created by the research team. Presented to the five experts for review and assess the suitability of the programs. Content validity is determined by estimation of conformance (IOC), whereby experts consider program consistency for each item and rate it. Using the criteria was divided the levels

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into 3 levels as follows:+1 means appropriate in the program.0 means not sure if it's appropriate for the program.-1 means there is no suitability in the program.

5.The circular and square warm-up programs were adapted according to the recommendations and presented programs to the experts again.

6.According to the assessment of the suitability of the circular and rectangular warm-up program by 5 experts, considering the consistency of the equipment in each item in the whole edition, which has a value of 0.92, it is suitable and can be used for this research study.

7.Bring the circular and square warm-up program to tryout with the men's football team of Rajabhat Maha Sarakham University, which was not a sample of 22 footballers to find bugs and bring them to improve.

8.Complete circular and square warm-up programs.

RESEARCH COLLECTIONS

1.The research team took a letter requesting permission to use the football stadium of Rajabhat Maha Sarakham University for designing trial data to collect information

2.Announcement to accept samples who were interested and voluntarily participating in the circular and square warm-up programs for 6 weeks, 3 days per week, i.e. Monday, Wednesday, Friday, spending 15 minutes for practicing training warm-up per day.

3.The sample was selected whose ages of 18 - 23 years, 22 males according to the inclusion criteria laid out.

4.A sample size consisted of 22 footballers who would have to undergo a physical examinationand answer a health questionnaire from a medical doctor at Rajabhat Maha Sarakham University Hospital Center.

5.The research team clarified the details of the practice including details on the research process, explaining in detail, giving advice before participating in the circular and square warm-up program, potential danger, and collecting information to understand, clearly.

The Pretest-Posttest-Research Design Method

The sample group was divided by testing as follows:

1.Measure the proportions of the body (Body Composition) by weighing (Weight) in kilograms and measuring height (Height) in centimeters, and body mass index (BMI).

2.Agility was measured with the Arrowhead Agility Test score (Jalilvand et al., 2015).

3.The sample was divided into two groups. It consists of an experimental group and a control group. Then, the agility that the samples achieved was arranged from ascending and descending and grouped by stratified random sampling into the control and experimental groups of 11 participants each.

Testing Before Participating in Research

The research team arranged for samples of groups, the experimental group, and the control group, to test before training by measuring agility test patterns Illinois Agility test (Kucsa and Mačura, 2015) and Agility T-test (Sassi et al, 2009).

Experimental Group

A sample consisting of 11 footballers who were selected for the experimental group was trained with circular and square warm-up programs. It also explains the postures of the circular and square warm-up programs. Get used to each posture by performing the exercises according to the prescribed program 3 times a week, 15 minutes each time, for a total of 6 weeks.

Control Group

The sample size consisted of 11 footballers who were selected to enter the control group that have stretched their muscles by using regular warm-ups according to the format of the Rajabhat Maha Sarakham University football team for doing a

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regular warm-up according to the football team pattern, 3 times a week, 15 minutes each time, for a total of 6 weeks were designed.

After the completion of 6 weeks of research, the research team made an appointment with a sample group; an experimental group, and a control group. Both groups were tested after training by measuring agility again with the Illinois Agility Test (Kucsa and Mačura, 2015) and Agility T-test (Sassi et al, 2009).

DATA ANALYSIS

Statistically significant was analyzed using a ready-made statistical computer program as follows:

1.Analyze for average means and standard deviation on the pretest-posttest-training-design method on the pre-footballers-training in the warm-up program and post-footballers-training after the 6th week of training.

2.Comparative analysis of the difference in average fluency within the groups of experimental and control groups, pre-training and post-training after 6 weeks of training, the statistical significance was determined at the .05 level with t-test dependent was performed analysis.

3.Comparative analysis of the difference in average dexterity between the experimental group and the control group of their pre-training and post-training after the 6th week of training, the statistical significance was determined at the .05 level with t-test independent analysis.

RESULTS

Football players must complete a high volume of direction changes during a match. Thus, change-of-direction (COD) ability is an important characteristic to measure, and numerous tests have been designed for this purpose. Agility physical fitness assessments were used with the Arrowhead Illinois Agility Test (AIAT) which is a commonly used test of agility in sports, and as such there are well-established norms available. The AIAT test was created specifically for footballand is completed by cutting around markers in a set direction, with an initial move to the left or right. The Modified Agility T-Test (MAT) which is a simple running test of agility, involving forward, lateral, and backward movements, appropriate to a wide range of football sports was assessed with the Pretest-Posttest-Research-Design method.

General data of the sample size

The sample size is a part of the population chosen for experimental research that refers to the number of participants includingthe control-footballer-group and experimental-footballer-group of their Age (years), Weight (kg), Height (cm), and Body Mass Index (BMI) (Kilogram/m^2). The average mean scores, standard deviation, and p-values as reported in Table 1.

Table 1.Average Mean Scores, Standard Deviations of Age, Weight, Height, and Body Mass Index (BMI) of the Footballers before Participating in the Circular and Square Warm-Up Program of the Control and Experimental Groups

Trial	Control Group (n=11)	Experimental Group (n=11)	p-value
	$\bar{X}$± S.D.	$\bar{X}$± S.D.	
Age (year)	21.00 ± 1.10	20.73 ± 0.79	0.341
Weight (kilogram)	66.77 ± 2.88	65.55 ± 3.05	0.131
Height (Centimeter)	177.00 ± 4.52	175.91 ± 3.88	0.568
Body Mass Index (Kilogram/m^2)	21.44 ± 1.79	21.20 ± 1.22	0.668

*p<.05, **p<.01, ***p<.001

Table 1 shows the comparing characteristics of the samples between the control group and the experimental group, it was found that the two groups had no statistically significant difference (p<0.05) in the data on the sample characteristics: Age (years), Weight (Kg), Height (cm), and Body Mass Index (BMI).

Comparisons between Agility of the Pre-Footballer-Training and Post-Footballer-Training to theControl and Experimental Groups for the AIAT Actual Form

Using the Arrowhead Illinois Agility Test (AIAT) (Kucsa and Mačura, 2015) and the Modified Agility T-Test (MAT) (Sassi et al, 2009) were assessed the physical characteristics play an important role in the selection of the 11-footballer-control group, and an 11-footballer-experimental group of their progress in their playing performance to analyze differences in comparisons of the physical characteristics concerning their playing positions. There will be statistically significant differences between playing positions in each performance test's results that are reported as Table 2.

Table 2.Means, Standard Deviation, and Agility of the Pre-Footballer-Training and Post-Footballer-Training to the Control and Experimental Groups for the AIAT Actual Form.

	Mean ± S.D.		t-value	p-value
	Pre-test	Post-test		
Control Group	18.65 ± 0.16	18.59± 0.18	0.825	0.423
Experimental Group	18.69 ± 0.25	18.52± 0.17	3.494	0.006**
t-value	1.456	2.541		
p-value	0.176	0.041*		

*p < 0.05 when comparing pre-and post-training participating in the program in the same group

**p < 0.01 when compared between groups after joining the program

***p < 0.001 when compared between groups after joining the program

As reported in Table 2, the pre-agility-training-control group had indicated that of 18.65 ± 0.16 s, and after 6 weeks of training the post-agility-training-control group was 18.59 ± 0.18 s. Comparing pre-agility-training and post-agility-training within the control group, it was found that the abilities of the two groups are no differentfrom their agility training, significantly (p>.05). In terms of the experimental group pre-agility-training-experimental group was 18.69±0.25 s, and after 6 weeks of training, the post-agility-training-experimental group agility indicated that 18.52±0.17 s. Comparisons between pre-agility-training and post-agility-training within the experimental group, the differences in tests results by training positions were evaluated by t-test analysis. There were significant differences found in the results of footballers' agility performance tests between the same group positions as .05 (p<.05), significantly.

While the control group and the experimental group are compared between groups, it was found that the agility of the experimental group was significantly faster than the control group at the .05 level, differently.

Comparisons between footballers' agilities of their pre-training and post-training in terms of the control and experimental groups

This study aimed to examine the effects of core training on the speed and agility skills of football players, 11 footballers in each control and experimental groups' values of sprint test using the Modified Agility T-Test (MAT) were tested and compared. The results as reported in Table 3.

Table 3.Means, Standard Deviation, and Agility of the Pre-Footballer-Training and Post-Footballer-Training to the Control and Experimental Groups for the MAT Actual Form

	Mean ± S.D.		t-value	p-value
	Pre-test	Post-test		
Control Group	10.62± 0.22	10.59± 0.18	1.171	0.268
Experimental Group	10.68± 0.13	10.47± 0.16	5.819	0.000***
t-value	1.483	3.723		
p-value	0.169	0.004**		

*p < 0.05 when comparing pre-and post-training participating in the program in the same group

**p < 0.01 when compared between groups after joining the program

***p < 0.001 when compared between groups after joining the program

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In terms of footballers' agility that are tested with the MAT test, the pre-training of the control group indicates that of 10.62 ± 0.22 s, and after 6 weeks, the post-training agility was 10.59 ± 0.18 s. Comparisons between pre-training and post-training of footballers' agility within the control group. Statistically significant on their agility are no differences at .05 level (p>.05).

Focused on footballers' agility that is tested with the MAT test, the pre-training of the experimental group indicates that of 10.68± 0.13 s, and after 6 weeks, the post-training agility was 10.47± 0.16 s. Comparisons between pre-training and post-training of footballers' agility within the control group. Statistically significant in their agility are differences at a .05 level (p<.05).

While the control group and the experimental group are compared between groups, it was found that the agility of the experimental group was significantly faster than the control group at the .05 level, differently.

DISCUSSION

Football is considered a high demand game as the players are subjected to numerous actions that require overall strength and power, speed, agility, balance, stability, flexibility, and adequate endurance level, thus making theconditioning of players a complex process (Jovanovic, Sporis, Omrcen & Fiorentini, 2011). According to Paul,Gabbett & Nassis (2016), team sports are characterized as being intermittent in nature, whereby players are required to frequently transition between brief bouts of high-in intensity running and long periods of low-intensity activity. In addition, players need to perform movements such as tackling, blocking, jumping, integrating directional changes, and other technical skills.

Agility is one of the important features of team football players. There is a growing interest in the factors that influence agility performance and appropriate test protocols and strategies to evaluate and improve this quality (Salmela, 2018). Agility is the ability of the player to execute fast whole-body motion with velocity or direction change in response to a stimulus (Benvenuti, Minganti, Condello, Capranica, & Tessitore, 2010). A new concept of agility in response to a stimulus is proposed as a rapid whole-body movement with velocity or direction change. Agility has relationships with trainable physical attributes such as strength, power, and technique, and cognitive components such as visual scanning techniques, speed, and anticipation of visual scanning (Shahidi, Mahmoudlu, Kandi, & Lotfi, 2012).

In a study of the effect of circular and square warm-up programs on the agility of male soccer players, Rajabhat Maha Sarakham University found that after 6 weeks of training with circular and square warm-up programs, the level of physical fitness in agility had a statistically significant increase in agility at the .05 level. This is because the program created by the research team relies on circular and rectangular body movements to raise the temperature to make the heartbeat a little faster. Resulting in increased blood flow to various organs, especially around the muscles. It also allows ligaments and joints to move, making the body more prepared. To adjust the circulatory system and increase the temperature of the muscles and stimulate the synovial fluid (Synovia Fluid) to nourish the joints more during running, which is consistent with the concept of Kovacs et al. (2013) that said training to develop agility requires physical movement in a manner similar to that of the sport. Therefore, to have a direct effect on the force generated by the hip muscles while muscle fibers respond quickly, athletes become more agile to show that training with circular and square warm-up programs is more similar to football than regular, daily training.

The circular and square warm-up programs created by the research team, the effects' change in agility. This resulted in increased agility than the control group. Because the researchers created the circular and square warm-up programs as a 10-minute, fast-moving warm-up, the muscle

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temperature was raised enough to see a change in physical performance. And neural responses are working powerful enough to improve agility performance, consistent with research by Fletcher and Jones (2004) and Bishop (2003) who reported in their study that mobile stretching increases body temperature and muscles. Reduce stiffness or stiffness of muscles and joints, the command of the nervous system is faster. The ATP and Glycolysis are allowed mobile stretching methods to increase the efficiency of power and dexterity (Danny et al., 2006). According to Harrison and Bourke (2009), the nature of agility training is changing the direction of movement and reversal the round-trip distance is about 5-7 meters with forwarding movement, left-right side, and backside.

During the first four to six weeks of training, the nervous system is more adaptive than the musculoskeletal adaptation. The neurological adaptations of the muscle spindle, Golgi-tendon organs, and joint proprioceptors (Craig, 2004) are later adaptations of the musculoskeletal system rather than the nervous system to make the muscles bigger muscles gain more strength through training. This will result in increased agility as well.

Bujalance-Moreno et al. (2018) studied a 6-week program of the small-sided game (ie 2 vs. 2 and 4 vs. 4 players) and found that the change of direction, sprint, and repeated sprint ability in male soccer players was consistent. A study by Turki et al (2020) found that Dynamic Warm-Up in combination with Weighted Vest can increase Repeated Change-of-Direction. in football athletes were consistent with the study of Amiri-Khorasani et al. (2010) and Van Gelder and Bartz (2011) found that time of agility was significantly reduced after dynamic stretching of athletes, and this is consistent with research by Daneshjooet al., (2013). The 11+ warm-up program with dynamic stretching can develop a high jump. Agility and football skills in youth footballers were provided.

Although different warm-up and flexibility routines are often prescribed before physical activity, little research has been conducted to determine what effects these routines have on athletic performance in activities. Analysis of variance revealed a significant difference in vertical jump performance that revealed decreased vertical jump performances for the treatment group was based before a vertical jump test would be detrimental to performance (Church et al., 2001).

While warm-up is considered to be essential for optimum performance, there is little scientific evidence supporting its effectiveness in many situations. As a result, warm-up procedures are usually based on the trialand errorexperience of the athlete or coach, rather than on scientific study. The many warm-up studies conducted over the years are difficult. Warm-up techniques may be important to supplement or maintain temperature increases produced by an active warm-up, especially if there is an unavoidable delay between the warm-up and the task and/or the weather is cold. Further research is required to investigate the role of warm-up in different environmental conditions, especially for endurance events where a critical core temperature may limit performance (Bishop, 2003).

CONCLUSIONS

Football is the world's most popular form of sport, being played in every nation without exception (Reilly & Williams, 2003). The modern game of football seems to be all about speed and power. Today's players are faster and sharper than ever (Davies, 2005). Elite football is a complex sport and performance depends on several factors, such as physical fitness, psychological factors, player technique, and team tactics (Arnason et al., 2005). Football is a game that requires very fast body movement which is determined by situations within the competition such as the opposing team's player with and without the ball, ball movement, and teammate movement. Because of these reasons, a modern football game is characterized by fast movements, which

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become prominent in short and long sprints, explosive reactions (jumps),and quick changes of direction (Kapidzic, 2011). High-speed actions are known to impact football performance and can be categorized into actions requiring maximal speed, acceleration, or agility (Little & Williams, 2005).

According to previous instructions (Sassi et al., 2009), athletes completed a Modified Agility T-test (MAT). A photocell gate system was used to record the time. The players performed the test using the same directives as in the traditional T-test, although they were not required to move laterally or face forward. Two maximal trials were completed and the best time was used for later analysis

The Arrowhead Illinois Agility Test (AIAT) test had good absolute and relative reliability and could be useful in detecting moderate changes in speed for football players. As players covered approximately 37m during the Arrowhead test, it could potentially measure speed over an extended distance. Practical Application: Strength and conditioning coaches could adopt the Arrowhead test knowing that it is reliable, and should detect moderate changes in speed. Further research is needed to confirm the validity of the AIAT test for football.

The evaluation and testing in this study followed the effects of circular and squares warm-up programs on the agility of male football players of Rajabhat Maha Sarakham University consisted of 22 footballers, divided into 2 groups: 11 footballers were trained with circular and square warm-up programs and 11 footballers who used regular warm-up programs. In comparisons between the basic characteristics of the two sample groups, it was found that the basic characteristics of both groups were age, sex, weight, height, and BMI. Statistically significant were no differences including the values used to assess physical fitness in agility pre-joining the circular and square warm-up programs. It was clear that the variables between the two groups were not influenced by the use of circular and square warm-up programs.

This study was to compare the effects of circular and rectangular warm-up programs with pre-training and post-training after 6 weeks were tested, it was found that physical fitness in agility after 6 weeks of training, agility was statistically significantly higher than the control group at .05, while the control group showed none statistically significant change. When considering the circular and square warm-up programs created by the research team, After 6 weeks of programmed training, average agility improved (significant) compared to pre-experiment training.

After 6 weeks of training with circular and square warm-up programs on the agility of men's football players, the experimental group showed a faster mean change in agility than before the training. A statistically significant level of 0.05 showed that circular and square warm-up programs could be used as a pre-football warm-up to improve agility performance.

CONFLICTS OF INTEREST -This research article is no conflict of interest, state that.

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