

Improving the Endurance of the Lower Body Muscles Strength with the Application of Chair Media to Athletes Long Distance Running Numbers of KONI in Depok City



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ABSTRACT: This study aims to increase the endurance strength of the lower body muscles with the application of seat media to athletes who run long distance running numbers in Depok City KONI athletes. The research sample was 30 athletes from the Depok City KONI Platda who were members of the team for the preparation of the 2022 Porprov preparation. The method used was quantitative with the type of action research, research data was collected using planning techniques (plan), action (action), observation (observe), reflection (reflect). then analyzed quantitatively. The technique of collecting data by testing and measuring the endurance ability of the lower body muscles using the leg press test. The data analysis technique used was the t test at a significance level of 5%. The results of the study explain the training methods used to increase the strength of athlete's muscle endurance including: 1) standing and sitting on a chair with additional weight from the outside such as dumbbells or plates, 2) bridging exercises or lifting the waist with a footstool against a chair, and 3) Performing sit and stand on one footstool. The endurance of the athlete's lower body muscles increased in the third cycle, by means of regular and varied mentoring methods carried out by the coach and using maximum corrective feedback to train the athlete's achievement motivation.

KEYWORDS: Exercise Quality, Muscle Endurance, Athletics, Long Distance, Running.

I. INTRODUCTION

Sport is an important activity in human life. Exercise that is carried out regularly and appropriately will make humans healthy and strong, both physically and spiritually (Zulaikha, 2007: 1). "Mens ada in corpora sano" is a motto that has existed since ancient times and is evidence of the importance of a strong body and a healthy spirit. Safaria & Kunjana (2006: 64) argue that exercise can also increase self-confidence, self-control, self-esteem and create a positive body image, one of which is by running. In Indonesia alone, long-distance running or marathons are currently not only in demand for professional athletes, especially athletes who excel to get the podium for long distance running champions. However, in this day and age, this type of cardiovascular exercise, namely running long distances, is very popular with people, both among them. Upper, middle to lower class society. People like this with a motivational thing that is always in one's mind, namely to get a finisher medal or an award medal for completing a specified mileage.

Running is a step that is accelerated so that when running there is a tendency for the body to float. This means that when running, both feet do not touch the ground or at least one foot remains on the ground. Running is part of the number of athletic sports which basically can be made into three major parts, namely the sprint number, the middle distance running number, and the long distance running number. In addition to the three parts of the running number, there are still other running numbers, namely relay, hurdle, and steeple chase (Kaur & Sutisyana, 2019).

Long distance running is running over 5,000 meters or more. In general, long distance running is divided into several categories, namely; 5,000 meters, 10,000 meters, and 42,195 meters or so-called marathon. In traveling the distance that has been determined, the competitors must try to finish it in the fastest possible time in order to win championships and sports achievements. To be able to cover this distance in a short time, of course every competitor must have good physical fitness (Ilmiyanto & Budiwanto, 2017).

Based on the current problems faced by long-distance athletes when carrying out an endurance training program or in implementing a long-distance race, athletes often experience muscle aches or pains in the lower body, even muscle cramps

Improving the Endurance of the Lower Body Muscles Strength with the Application of Chair Media to Athletes Long Distance Running Numbers of KONI in Depok City

during a race. as well as in running an exercise program. This strengthens the author in observing the incident that is often experienced by long distance running athletes, namely the lack of training in various components of the physical condition in the aspect of strength. Good physical condition and mastery of techniques will be able to contribute significantly to athletes to achieve sports achievements, especially long distance running numbers, there are many forms of training that need to be provided, including leg muscle strength (Kaur & Sutisyana, 2019). According to Herman, physical condition is a very important element in almost all sports. Therefore, exercise in physical conditions needs serious attention to be planned carefully and systematically so that the level of physical fitness and functional ability of the organs of the body is better (Herman Subarjah, 2012). The number of components that exist in physical conditions such as; strength, endurance, explosive power, speed, flexibility, agility, coordination, balance, and accuracy. In all these physical components, each sport must analyze the characteristics of the sport. Where the athletes can be given physical exercises that are used in the characteristics of the sport. Based on observations and theoretical reviews of the form of long-distance running, there are elements of physical conditioning in the form of cardiovascular endurance, muscle strength endurance, speed, balance and movement coordination. Every distance runner athlete is required to have a physical condition that is really sufficient to be a good category in the distance runner athlete himself. The component of the physical condition of muscle strength is one that exists in the form of training and is needed for long distance running numbers. According to Chris Napier in one of his books entitled Science Of Running said that:

"Strength exercise selected for their focus on the muscles used most in running, the strength-training exercises featured in this chapter can be used to develop the power and robustness needed to withstand the repetitive impacts involved in running, as well as the increasing loads of a training program. There is growing evidence to suggest that strength training has a beneficial effect not just on injury risk, but also on performance. "

When doing long distance running, it is often the case that the body part that is most often used in running, one of which is the muscles. Therefore strength and resistance training can be used to withstand repetitions of the impacts involved in running, as well as increasing the load of the training program. There is increasing evidence to suggest that strength training has a beneficial effect not only on injury risk, but also on performance (Napier, 2020).

So with the above statement, it can be concluded that the existence of a form of strength training in long-distance running athletes is a very important component in minimizing injury to muscles due to the addition and increasing of training load, supporting athlete's performance when running training programs, and influencing achievement of athletes. Long distance running itself. This is because muscle strength is the driving force for any physical activity such as running. With strength, a long distance running athlete will also be able to help strengthen the stability of the joints. Clarke (1980) states that strength is the main determinant of sports achievement and other elements are the support that is formed simultaneously with the process of increasing or building strength. According to Nossek (1982), that to improve physical ability, one of the important activities that must be done is to increase the pressure on muscles that are trained repeatedly (Hanafi, 2010).

In long distance running, you can do a variety of movements that involve almost all the muscles of the body. Some sports require fast and strong movements and there are also sports that require repetitive muscle movements over a long period of time (Wiguna, 2017). Strength training can be done with a variety of training methods. There are many alternative ways that can be done to increase strength, for example with bodyweight training exercises that can be done anywhere without requiring a lot of time. Bodyweight training has actually been developing for a long time, but there is a lack of understanding of the community, especially students, about the effectiveness of this training model so that rarely knows. The types of bodyweight training are very varied and easy to do, for example with push ups, sit ups, back ups, and jumping jacks, we can do muscle strength and lung endurance training. Bodyweight training is an effective exercise because all components of the muscles of the body contract the movement so that all body muscles are trained. Contreras (2014) explains that bodyweight training is an exercise to master your own body weight before using weight training. So it can be interpreted that bodyweight training is a form of training using one's own weights as a basis before doing exercises using external weights (Brahmana Rangga P, 2017).

Problems are also often encountered when doing strength training with body weight (own body weight), athletes feel bored in the monotonous training process without modification of training equipment and find it difficult to do strength training because they do not have supporting facilities and infrastructure that make it easier for athletes to do so. strength training. To meet the training needs of athletes, it is necessary to have innovations in doing training such as using existing training media around the training ground which can later be useful for athletes and coaches in athletic sports, especially in long-distance running numbers. Researchers took the initiative to use an existing chair in the training ground or any kind of chair as a medium for strength training. Research using chairs as a medium for strength training in long-distance running athletes in Jakarta in improving physical conditions in the strength aspect component. With the presence of training media using chairs, so that long

Improving the Endurance of the Lower Body Muscles Strength with the Application of Chair Media to Athletes Long Distance Running Numbers of KONI in Depok City

distance running athletes' interest in training in athletic sports get good results in terms of their physical condition in the strength component.

With the medium of chairs, we can do physical activities that aim to train strength for athletes. With this chair media, a training movement will be created in it which contains strength training to support long distance running athlete performance. Strength training by providing chairs which will later become a guide in training long distance running numbers, especially in increasing lower body muscle strength for long-distance athletes.

The explanation above concludes that according to Sigit Nugroho that physical ability is one of the most dominant components in the achievement of sports achievements (Sigit Nugroho, 2007). One of the components of the physical condition that plays the most important role in minimizing the risk of injury, supporting other aspects of training and increasing the performance of athletic sports, especially in long-distance running numbers, is the physical component of strength. To improve the physical condition aspects of strength endurance for long distance athletes, it is necessary to take action to run and carry out a strength training that is suitable and effective for the characteristics of long distance running numbers, so that it will also result in increased achievement in long distance running numbers for the athletic sport.

II. METHODE

This study uses a quantitative method with this type of action research (action research). The action research design was used by researchers to provide assistance and improvement to training models and methods in an effort to increase muscle endurance for athletes of the KONI Depok City athletic sport in long distance running numbers. Mentoring and improvement of athlete training performance is carried out systematically and continuously with a number of training models and methods formulated by both the coach and the researcher. Each training exercise, the researcher recorded observations, conducted discussions, and developed a follow-up framework to increase athlete's muscle endurance.

Action Research (action research) is one of the methods used to acquire knowledge as well as take action to create change in society (Darwis, 2016). Action Research (Action Research) or abbreviated as AR is characterized by a systematic inquiry approach that has characteristics, principles, guidelines, procedures that must meet certain criteria. Action research must clearly distinguish the different characteristics of action and research, it must be directly involved and not just an audience (Yaumi & Damopolii, 2016a). In some of the above meanings, this explains that Action Research is an action based on the observations we make, then from the observations that have been made, a drug or solution with actions is given that can be said to be effective or really effective and efficient later. The research was conducted at the fitness center KONI Depok City. The time allocation for the study was carried out from January to early June 2020. The subjects of the study were the athletes of the KONI Depok City long distance running number, totaling 30 people consisting of 20 men and 10 women.

This form of action research was chosen based on the anxiety of a problem in long-distance running athletes who feel boredom and boredom when doing strength training with monotonous movements and no training variations. To that end, researchers intend to conduct action research in collaboration with long-distance running number coaches, physical trainers, and long-distance running athletes to improve muscle endurance strength results. The object of this research is the application of the method of muscle endurance strength training using body weight with the application of chair media. The research design used a model from Kemmis and Mc. Taggart is in the form of two iterative cycles which include the design stages at each cycle, namely: (1) Planning (plan), (2) Action, (3) Observation, (4) Reflection, and will revised planning on the repeat cycle if still needed.

Researchers observed the infrastructure used during the muscle endurance training process. Researchers observed the muscle endurance training program used by the trainer. Researchers observed increased muscle endurance using the leg press test. Researchers observed the role of the coach in increasing the muscular endurance of athletes in the regional training plate of the KONI Depok City in the long distance running number athletics. Researchers observed and interviewed athletes before and after training and the timing of the exercise and its implications for the training process. Researchers discuss with the trainer about the use of facilities and infrastructure used during the training process. Researchers discussed with the trainer the role of the trainer to increase muscle endurance. Researchers discuss with the trainer about an exercise program to increase muscle endurance. Researchers provide input to increase the muscular endurance of athletes from KONI Depok City athletics for long distance running numbers. based on the three previous activities which are a spiral of action research.

III. RESULT AND DISCUSSION

Training program for athletes of KONI Depok City athletics for long distance running numbers. leads to muscle endurance training using chair media, which includes: 1) up and down chair exercises such as the Harvard test, 2) interval training with 3

Improving the Endurance of the Lower Body Muscles Strength with the Application of Chair Media to Athletes Long Distance Running Numbers of KONI in Depok City

movements made with chairs, and 3) circuit training with movements - the movement is done with a chair. Exercises all this is done by the trainer to train the athlete's muscle endurance, training starts at 07.00 to 09.00 WIB. Up and down chair exercises such as the Harvard test are carried out for 25 minutes, then continued with chair squats (3.5 minutes). During training, athletes are very enthusiastic in every stage of their movement, although it drains a lot of energy, but the obsession to improve performance makes all athletes struggle hard during training and is supervised by the coach while providing corrective feedback to athletes to stimulate achievement motivation. The whole exercise for the day ended with cooling down with stretching static. In the process of interval training, the trainer divides the training session into several parts, for example: doing bridging with a chair in a number of repetitions or 16-18 reps in 3 sets. And each set is given a break for 1 minute. Doing the interval method, of course, with a few movements.

Another training program used is circuit training with 7 posts and the duration of each post is 45 seconds and a rest time of 1-2 minutes for each post. Post I begins with a jump over a chair. In post II, the hop lunges exercise was carried out with a chair. Post III athletes do single squats with a chair, then sit by lifting one leg above the surface. Heading IV two-leg hop touch. Post to V is single side knee up with a chair. Heading VI is a one-leg hop jump using a chair. Post VII is a front step up and knee up exercise. The trainer sets the form of each post with a duration of 45 seconds, carried out for 6 sets. According to the coach, because the athletes are still juniors, only 6 sets are used, but in practice the coach only gives 5 sets. In accordance with the circuit training model, the trainer sets 7 posts and this is done alternately. But when an athlete arrives late, the coach immediately orders him to join the training and enter the post designated by the coach. The rest time (interval) given by the coach in each set is 1-2 minutes.

Muscle endurance is one component of health related fitness that cannot be separated from muscle strength (Hapsari, 2011). Where muscular endurance can also be interpreted as the ability to work muscles or organs in the body continuously for a certain time without experiencing excessive fatigue. Irianto revealed that muscle endurance is the ability of a group of muscles to do work for a long time (Sandang, 2016). From these references, the researchers concluded that muscle endurance works a muscle group for a long time in order to avoid excessive fatigue that can cause an injury to that muscle group if an athlete does not have good muscle endurance.

Muscle endurance can contribute to improving and increasing performance and limiting fatigue levels. So it is not surprising that muscle endurance is very closely related to the characteristics of long-distance running, where this sport really requires good muscle endurance for itself in supporting performance for long distance running athletes themselves to get good performance. . In the explanation of the nature of the strength above, according to the explanation, it is divided by the many types of strength, the strength which is very closely related to the characteristics of the sport of long distance running itself is muscle endurance. Muscle endurance is needed to maintain activities which are dominated by the use of muscles or muscle groups (Nasrulloh, 2012). As with other components, muscle endurance is only needed to the extent necessary for muscle activity. Muscle endurance will gradually decrease with age, but decreased muscle endurance does not occur as rapidly as muscle strength decreases. Muscle endurance is found in any part of the human body, in a group of muscles in the lower body of the human body (lower body), strength training can also be done with the aim of increasing muscle endurance in that part. In long distance running, a long distance running athlete must have muscular endurance strength as a support in increasing running speed continuously and with long duration and long distances such as running a 42.195 kilometer marathon. This is based on a statement stated in a research journal article which states that running requires optimal muscle work to get maximum speed (Baihaqi, 2014).

Chairs are a means of sitting that are used for certain activities such as eating, working, and others. Chairs usually have 4 legs to support a load using the chair itself so that it is balanced (Arief & Wicaksana, 2013). With the various uses of chairs, it turns out that chairs can also be used for sports. Chairs that can be found easily around and around us in carrying out any life activity become a tool in exercising. Especially in sports, physical activities include strength training. However, for the purpose of doing strength training activities, one must consider and pay attention to a chair that is sturdy, and strong against the weight it supports. The criteria for these chair objects, of course, vary in size and use. However, according to the researchers' observations, the size of the chairs did not differ significantly. The height of a chair is measured from the floor or normal surface and the standard ranges from 40 cm - 60 cm, if it is more than that size, then it cannot be called a chair because it is dangerous for a person's skeletal system in using the chair. So it can be concluded that the chairs here can be used for sports with the height of the chair from the floor surface is 40 cm - 60 cm. This is reinforced by Annarimo statement that has used chairs as physical activity exercises. Annarino (1976) lists physical exercise by going up and down benches with the provision that the bench used is 17 inches (43.18 centimeters) to 24 inches (60.96 centimeters) in size (Budiwanto, 2012). Another statement also came from Safrit by conducting the up and down bench test using a bench height of 20 inches (50.8 centimeters), carried out for

Improving the Endurance of the Lower Body Muscles Strength with the Application of Chair Media to Athletes Long Distance Running Numbers of KONI in Depok City

five minutes at 30 steps per minute. This strengthens the researcher that the determination of the size of the chair or bench above can be done and carried out in planned and programmed strength training activities.

Sharkey (1984) explains that up and down bench exercises can improve physical fitness and increase the strength of muscle contraction and improve the blood circulation system (Budiwanto, 2012). From this statement it strengthens researchers to be able to do strength training with the aim of increasing muscle endurance through the media of chairs or bench. In this explanation, the researcher wants to take action by increasing muscle endurance for long distance running achievement.

IV. CONCLUSIONS

The results of the study explained that by using the action research method, the endurance of the muscle strength of the KONI athletes in Depok City in the athletic sport of long distance running increased from the first to the third cycle. To increase muscle endurance, three training methods are used, including: 1) chair up and down exercises such as the Harvard test, 2) interval training with 3 movements performed on a chair, and 3) circuit training with the movements performed provide a chair. Athletes feel motivated by the mentoring training method, because the coach can improve a variety of exercises using corrective feedback by emphasizing the athlete's performance.

The mentoring program should be continued to emphasize methods that are oriented towards increasing achievement. Up and down chair exercises such as the Harvard test movement, interval training with 3 movements performed using a chair, and circuit training with movements performed using a chair. need assistance, so that training models and methods can be improved for the benefit of sports achievement. For coaches, it can open a communication space with academics to always be affiliated in developing sports achievements in Indonesia.

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Improving the Endurance of the Lower Body Muscles Strength with the Application of Chair Media to Athletes Long Distance Running Numbers of KONI in Depok City

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