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Profile of Flexibility and Arm Muscle Power of Palembang City FPTI Athletes

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Abstract

This research aims to determine the physical profile of Palembang City FPTI athletes. The physical profile measured includes Flexibility and Arm Muscle Power. This research is quantitative descriptive. The method used in this research is a survey method with data collection techniques in the form of tests and measurements. The population in the study were 18 FPTI athletes from Palembang City. The test and measurement indicators were the Flexibility test (sit and reach test) and the Muscle Power test (Pull Dynamometer). The selection of research subjects used total sampling, obtaining the entire population as subjects. The data analysis technique is descriptive. The results of research on physical condition profiles using tests and measurements show the following results: (1) Flexibility of FPTI athletes in Palembang city is categorized as "very good" with a percentage of 100%, (2) Arm muscle strength of FPTI athletes in Palembang city shows that two athletes (11 %) got a very good score, five athletes (27%) got a good score, and five athletes (27%) got a poor score. Apart from that, four athletes (22%) received the very poor category.

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INTRODUCTION

Viewing sports from various points of view is complex. Talking about achieving achievements as the main goal of sport, there are many factors that influence achieving these achievements. Sport is an effort to improve the quality of human life, with the main aim being to establish a healthy lifestyle. By exercising, a person will get many benefits, one of which is that the body's metabolic system will work better (Hardiyono , 2020). The development of sports is never influenced by the circumstances, culture, outlook on life, progress and level of progress of a nation. As a result, athlete participation and performance increases, resulting in competition between individual athletes or groups. According to Law of the Republic of Indonesia No. 11 of 2022, Chapter 1, Article 1 paragraph 2, sports are all aspects related to sports that require regulation, education, training, coaching, development, improvement, supervision and evaluation. The aim of sport in Indonesia is to improve physical, physical, mental and spiritual well-being in addition to improving performance.

One of the characteristics of life is movement; there is no life without movement; what's the point of living without movement? Movement improves quality of life. Movement is a characteristic that allows a person to live their daily life. A person must have movement skills to be able to live their daily life without experiencing significant difficulties or challenges (Martinus & Kesumawati, 2020) . Analysis motion base climb cliff use biomechanics will give understanding in a way whole about part body supportive human movements performed by coaches and athletes , such as bones , muscles , joints , joints levers , corners joints effective body in climbing , muscle mover main and muscle servant drives , and parts body humans , that is body part bottom and part above (ABADIE et al., 2020).

In performance sports such as rock climbing, athletes often face situations filled with tension. This happens because rock climbing athletes feel afraid and tense because they are facing something that is considered to threaten their self-esteem. Facing a situation full of tension makes it difficult for athletes to adjust or adapt to the situation. To overcome this tense situation, recovery sports massage is needed (Hardiyono, 2020) . Athletes must have the ability to quickly adapt to ongoing training programs. from physical activity and work. When doing exercises with maximum load for a long period of time, the muscles will get tired and cannot respond or contract. To reduce athlete fatigue, a recovery program should be implemented. The development of recovery techniques basically aims to improve athletes' adaptation to physical and mental stress during the competition and training phases (Asy'ari, 2015). Physical activity aims to improve the physical quality of human resources. Often we feel tired, muscle aches and sore after exercising. The body needs sufficient recovery time to recover from the pain or soreness. There are various methods to speed up recovery, such as active rest, acupuncture, massage, and others (Vitara et al., 2023).

The impact of tension athletes experience anxiety, feelings, muscle tension, flexibility, and coordination as a result which impacts the performance of their movement skills. Self-confidence is highly correlated with the consistency of positive emotions, such as joy and happiness, whereas low self-confidence is correlated with negative emotions, such as anxiety, doubt, and depression (Fikri, 2018). An athlete's physical condition is very important to their training program. must be well designed and systematic and aimed at improving physical fitness and

the ability of body systems to function so as to enable athletes to achieve better performance (Ronaldo Wijaya, Tono Sugihartono, 2017)

Need a sports massage for arm muscle strength, flexibility and back. All of these muscles influence a person's performance, both in skill movement practice and appearance. Therefore, to achieve optimal results from rock climbing training, a person must have good arm muscle strength, flexibility and back muscles. This muscle strength determines rock climbing ability according to the characteristics of each athlete (Yuliyanto , 2018) . Pre-workout exercise massage is carried out some time before exercise, and ideally should be done for 10-15 minutes. Light intensity massage is usually used in techniques such as effleurage/petrissage, vibration, percussion, strokes, and friction. When exercising, massage is used more to maintain fitness and reduce injury (Darmawan et al., n.d.).

Physical activity has many benefits for children, parents, and other people. Playing can help children grow physically, motorically, socially, emotionally, cognitively, language, behavior , sensory acuity, relieve stress, and provide therapy for disorders. physical, mental or other development (Munir & Nugraha, 2022). In rock climbing, there are many things that must be considered. Some of these are basic components, climbing systems, basic techniques, climbing procedures, equipment, and knots in the sport of rock climbing itself to prevent injury (Widanta, 2019). Rock Climbing is done in the wild. Historically, rock climbing was first done by people around the Alps in 1624. In the context of the Mission, Ywsuit Pastors crossed the Himalayas. Most often, rock climbing is carried out in places where cliff rocks are embedded with a certain degree of difficulty and the slope angle reaches 45 degrees. Rock climbing is basically a sport that prioritizes strength, flexibility and endurance through body lifting (Pull-ups), sitting down (Sit-ups), teamwork and individual ability to get around cliffs. Rock climbing is a very difficult and challenging sport, a person must have physical strength, muscle strength, technical maturity to carry out appropriate body placement, and the ability to apply the right strategy to avoid mistakes (Sugiarto, 2016).

Rock climbing is a type of sport that is very close to nature and is currently very popular with teenagers. One part of mountaineering is rock climbing, which was originally just an adventure sport without clear rules and required certain equipment and techniques to pass it. However, as the sport has evolved, there have been established rules and protocols for rock climbing (Zahra Hanum, 2017). Rock climbing is a sport that is currently starting to become popular among Indonesian people, especially young people and people who are young at heart. This can be seen from the increasing number of rock climbing sports associations both in the city and in the region which are members of an Indonesian rock climbing federation association which can be abbreviated as FPTI (Yahya, 2016). Currently, rock climbing is a type of sport that is increasingly popular and popular with many people. Rock climbing is one aspect of being a mountain climber, namely climbing mountains without using certain equipment and techniques. believes that rock climbing is a sport that is purely adventurous and has no clear rules. However, as the sport of rock climbing has developed over time, there have been established standards and standard procedures that rock climbing athletes follow (Nasugian et al., 2021). In Indonesia, rock climbing was first officially recorded in 1960 when army

troops (AD) used the Citatah T 48 (Kommando) cliff for training. Heinrich Heiner's team reached the top of Cartens Pyramid for the first time in 1962. Cliff bolts in the Alps were also used in the same year (Yusuf, 2016).

There are many rock climbing expeditions and artificial rock climbing competitions held by environmental organizations or climbing societies at local and national levels. At National Sports Week (PON), artificial rock climbing has become one of the sports contested. Most coaches, trainers and sports coaches in Indonesia already know the physical conditions required for each sport they coach (Pramukti & Junaidi, 2014). Wall climbing is a sport that originates from rock climbing, but was later changed to wall climbing, which differentiates rock climbing from wall climbing because of the medium. This sport is a sport that is difficult and has high risks (Hardiyono et al., 2019). Types of wall climbing sports are divided according to the method of climbing. There are three climbing categories in the sport of wall climbing: the lead category, the boulder category, and the Speed category. The lead category is pioneer climbing or climbers who install their own safety every one meter on the hook runner of the climbing route. The boards can reach 20 meters high. In this category, each hold is worth one point, and the higher the climb, the more holds passed, meaning more points are collected. Thus, the more points accumulated in this category the higher the ranking (Ariesta, 2020).

Speed Climbing is a competition between two climbers where both compete quickly to reach the top. In this competition the climber uses a safety rope that is attached to the anchor. There are 3 speed climbing competitions in Indonesia, namely speed track, speed classic and speed world record. Bouldering is climbing on cliffs, large rocks or artificial walls with a height of 2-5 meters, when climbing in Bouldering you do not use a safety rope. The only safety device used is a thick enough mat which is placed under the bouldering to anticipate if the climber falls (Nugroho, 2020). Flexibility is the body's ability to stretch itself as wide as possible which is supported by the wide range of movement in the joints. The movement ability of large muscle groups and their performance strength are closely related to the ability to move the body and limbs as widely as possible. The stretching ability of the muscles and tissues around the joints also contributes to this ability (Djohan, 2017).

In all aspects of human movement, flexibility is essential. If someone wants to remain able to move freely in everyday life, including when exercising, they must be flexible enough. For an athlete, flexibility is one of the most important elements of physical fitness. This is very important because it is the basis of almost every movement technique. Athletes can perform various motorbike tasks more efficiently and effectively when they have sufficient flexibility. The series of movements carried out by a joint is called flexibility. It relates to how the body or its parts can be bent or straightened through muscle flexion and stretching. Flexibility, which is an important part of physical fitness, is very important for athletes. This is very important because it is the basis of almost every movement technique. Athletes who have good flexibility can perform various movement tasks effectively and efficiently. Flexibility is a series of movements in a joint that is related to the movement and limitations of the body or body parts that can be bent or straightened through stretching and flexing muscles (Hardiyono, 2019).

Both sportsmen and non-sportsmen need muscle flexibility, because the more flexible the muscles, the less chance of injury. Muscles that must be maintained

The legs show flexibility. Athletes must maintain muscle flexibility to prevent muscle shortening or tension. An athlete, both children and adults, needs body flexibility, especially the legs, because they often have to move quickly and agilely (Rahmiati , 2013) .

The sport of rock climbing is seen from the physical activity which uses hand and leg muscle strength as well as flexibility. The impact of arm muscle strength in the form of biceps and triceps, the impact of leg muscle strength including the thighs, calves, soles of the feet, as well as the impact of flexibility. The three things above can function as triggers in terms of climbing ability (Risman et al., 2024). To achieve their best performance, athletes must have important components that can help them achieve it. When climbing, arm muscle strength is needed to push (Mangngassai et al., 2020). Muscle strength is a physical condition demonstrated by a muscle or group of muscles that the body uses to resist load or resistance during certain activities and protect the body from injury. In terms of sports, muscle strength is an important biomotor component. To achieve their best performance, athletes must have important components that can help them achieve it (Vaczi , et al, 2015). Arm muscle strength is essential for an athlete to achieve their best level of performance because these muscles are used to resist resistance from the shoulders, base of the arms, upper arms, and palms (Chtara et al., 2016).

When an athlete climbs, they require mature physical abilities, techniques and strategies. Skilled rock climbers need good body condition in terms of speed, flexibility, and most importantly, arm muscle strength. Apart from that, the combination of grip strength, arm and leg muscles also requires several movement abilities so that the biomotor component in the form of muscle strength dominates in order to get maximum results. Strength is the strength of a muscle or a number of muscles to be able to accept or withstand a work load. Muscle strength is the maximum contraction that can be produced by a muscle or group of muscles (Dwi Putri, 2020).

METHODS

This research is quantitative descriptive research , one of the characteristics of which is that there is no hypothesis and the data collected is presented. Descriptive research is not intended to test a particular hypothesis, but to describe what is true about a variable, symptom or situation. The method used in research is the survey method using data collection techniques in the form of tests and measurements.

Respondent

The population in this study were 18 FPTI Palembang City athletes.

Sampling procedures

In this research, the method used was to use a survey method with data collection techniques, namely tests and measurements carried out by the subjects using the sit and reach test instrument and the Pull Dynamometer.

RESULTS

Based on the results of research on the physical profile of Palembang City FPTI athletes using tests and measurements, the results of each test component have been obtained and can be explained as follows: The ability test for Flexibility using the Sit And Reach Test, from the Flexibility test results of the male and female FPTI Palembang city athletes were in the "very good" category. as many as 18 athletes or 100% The physical profile for Flexibility needs to be

maintained further by training Flexibility.

Table 1. Flexibility Test using the Sit And Reach Test.

No	Athlete's Initials	Gender (F/M)	Flexibility Sit And Reach	
			Results	Categories
1	DHA	m	35.0	Very well
2	MH	m	53.0	Very well
3	A A	m	53.0	Very well
4	LA	m	45.0	Very well
5	Qty	m	43.1	Very well
6	GPH	m	44.2	Very well
7	AP	m	44.5	Very well
8	R.A	m	51.5	Very well
9	FNK	m	29.7	Very well
10	MSK	m	27.0	Very well
11	FB	m	28.0	Very well
12	BYE	F	39.5	Very well
13	DM	F	34.0	Very well
14	EN	F	41.5	Very well
15	Watershed	F	37.0	Very well
16	ANA	F	39.5	Very well
17	SR	F	38.5	Very well
18	RS	F	28.0	Very well

The results of research on the Arm Muscle Power test which was measured using the Pull Dynamometer showed that two athletes (11%) got very good scores, five athletes (27%) got good scores, and five athletes (27%) got poor scores . Apart from that, four athletes (22%) received the very poor category.

Table 2. Arm Muscle Power Test using the Pull Dynamometer Test.

No	Athlete's Initials	Gender (F/M)	Arm Muscle Power Pull Dynamometer	
			Results	Categories
1	DHA	m	37.0	Good
2	MH	m	40.0	Good
3	A A	m	35.0	Good
4	LA	m	29.0	Not enough
5	Qty	m	41.0	Good
6	GPH	m	57.5	Very well
7	AP	m	43.0	Good
8	R.A	m	45.5	Very well
9	FNK	m	41.5	Good
10	MSK	m	22.0	Not enough
11	FB	m	23.2	Not enough
12	BYE	F	23.0	Not enough
13	DM	F	12.0	Less
14	EN	F	15.0	Less
15	Watershed	F	19.0	Not enough
16	ANA	F	20.0	Not enough
17	SR	F	17.0	Less
18	RS	F	9.0	Less

DISCUSSION

The flexibility of Palembang City FPTI athletes has good flexibility, which will help recovery during high-intensity training programs reducing the risk of injury. The flexibility/flexibility of male and female Palembang City FPTI athletes in this study mostly fell into the "very good" category, namely 18 athletes. or 100% of the total frequency. Indicating that the majority are still in the good category, the benefits of flexibility can be felt by FPTI Palembang city athletes when climbing, where athletes have to maintain speed. Increasing the flexibility component is needed to support athletes' ability to move during activities big to perform . The arm muscle strength of male and female FPTI Palembang City athletes in the Arm Muscle Power test measured using the Pull Dynamometer showed that two athletes (11%) got very good scores, five athletes (27%) got good scores, and five athletes (27%)) got less value. Apart from that, four athletes (22%) received the very poor category. Arm and shoulder muscle strength for Palembang City FPTI athlete functions when increasing speed.

Even though it is in the "Very Good" category in the flexibility test, it is "poor" in the arm muscle power test and during rock climbing training and competitions, there are still some athletes who have minor injuries, because of the intensity of the movement is very high, therefore researchers are interested in conducting further research by providing a sports massage program during exercise.

CONCLUSION

From the results of data analysis, descriptions, testing of research results and discussions, it can be concluded that the physical condition profile of the Palembang City FPTI athletes this year is in the sufficient category. It is necessary to increase arm muscle strength because some athletes still lack arm muscle strength.

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