Profile of Physical Conditions from UNNES Football Club at Liga Mahasiswa Piala MENPORA 2019

1st Khoiril Anam
Department of Sports Sciences
Faculty of Sports Sciences
Universitas Negeri Semarang
Semarang, Central Java, Indonesia
khoiril.ikor@mail.unnes.ac.id

2nd Hadi Setyo Subiyono
Department of Sports Sciences
Faculty of Sports Sciences
Universitas Negeri Semarang
Semarang, Central Java, Indonesia
hadisetyos@mail.unnes.ac.id

3rd Muhammad Arif Rahman
Department of Sports Sciences
Postgraduate Program
Universitas Negeri Semarang
Semarang, Central Java, Indonesia
arifrahman1737@gmail.com

Abstract— **This research aims to determine the profile of the football athlete's physical condition. This type of research is quantitative descriptive research. The sampling technique in this research used a total sampling technique. The instruments used: 1) the hand dynamometer test, back and leg dynamometer test; 2) sit-ups, push-ups, and squat jumps; 3) 50 meter running test; 4) the Illionis Agility run test; 5) Sit and Reach test; 6) vertical jumps test, 7) MFT test. Analysis of the data used is quantitative descriptive analysis with percentages. Based on the analysis of the data, it can be concluded that: 1) the average strength of arm muscle in pushing is in the medium category, 2) the average strength of arm muscle in pulling is in the medium category, 3) the average strength of back muscle is in the medium category, 4) the average strength of leg muscle is in the less category, 5) the average endurance of arm and shoulder is in the good category, 5) the average endurance of muscle abdominal is in the less category, 6) the average endurance of leg muscles is in the medium category, 7) the average speed is in the medium category, 8) the average agility is in the medium category, 9) the average flexibility is in the excellent category, 10) the average of leg muscle power is in the medium category, and 11) the average of Cardiopulmonary Endurance is in the very poor category.**

Keywords— *Physical Conditions, Football, Liga Mahasiswa Piala MENPORA*

I. INTRODUCTION

Football is a team work that is played by two teams; each consisted of eleven players including a keeper. The play can be played by involving all part of our body but arms. The aim of each team is to make a goal to the opponent's goal and protected its team goal from the opponent's attack.

Basic technique in football includes without ball technique and with ball technique [1]. One of with ball technique is technique in kicking the ball. Technique in kicking ball is the baseline in soccer game, because a good soccer team is if all the players master the kicking ball technique correctly [2]. Kicking the ball aims to (1) passing the ball, (2) making a goal, (3) bring the ball back to the game after some faults such as free kick, corner kick, fault kick, etc, and (4) for clearing.

In football, the Physical Conditions component greatly influences the quality of the game. in competitive international female match play, most sprints were over short distances with 76% and 95% being less than 5 and 10 m, and physical demands of the player depend on different playing positions [3]. Other studies mention that professional soccer players can perform a higher dynamic range of motion (DROM) of the hip joint during the instep kick after dynamic stretching incorporated in warm-ups, hence increasing the chances of scoring and injury prevention during soccer games [4].

Soccer is a highly demanding game in which the participants are subjected to numerous actions that require overall strength and power production, speed, agility, balance, stability, flexibility, and the adequate level of endurance [5-8]. Power performance appears to be maintained for the duration of a soccer match but declines significantly within 24 hours after the match [9].

Therefore, exercises are needed to improve the components of physical condition. According to [10] a combined weight training and plyometrics program may be effective in eliciting gains in strength, jump, and sprint in soccer players of different ages, the training program used appears to be generally less effective as the age of the soccer players increased. And According to [11] the importance of developing reactive strength to improve speed and change of direction (CoD) ability in female soccer players. Exercises are also done to improve the aerobic endurance of the player [12]. Enhanced aerobic endurance in soccer players improved soccer performance by increasing the distance covered, enhancing work intensity, and increasing the number of sprints and involvements with the ball during a match.

FIFA (*Fédération Internationale de Football Association*) is an organization which describes itself as an international governing body of association football. Whereas in Indonesia, football has a main namely PSSI (*All Indonesian Football Association*) which takes care of all football affairs in Indonesian. PSSI has the authority to organize League 1, League 2, League 3, U-19 League, Pertiwi Cup, U-15 Suratin Cup, U-17 Suratin Cup, and Indonesian Cup Kratingdaeng [13].

In addition to PSSI as the main organization of football in Indonesia, sport is also the authority of Ministry of Youth and Sports. According to law No. 3 of 2005 concerning the national sports system, the government has the task of

establishing and implementing policies and standardizing the sports sector nationally.

In 2016, UNNES Football Club represented the Central Java region to compete in the National Student League held in Malang and Sidoarjo. In the Student League, the UNNES Football Club was only able to win the 3rd place. In 2018, UNNES Football Club participate in the Liga Mahasiswa Piala Menpora which the final party will be held in Bandung. Before going to the final, the University teams had to go through fierce battles in their respective regions. Semarang State University in the Liga Mahasiswa Piala Menpora 2018 was only able to win runner-up or the second champion in the Central Java regional round. These results cannot deliver the UNNES football club as the representative of Central Java in the national round.

The component of physical condition is a unified whole of the component of physical fitness. Factors that affect physical fitness also affect a person's physical condition. The factors that affect physical conditions are: 1) Age, 2) Gender, 3) Genetic, 4) Physical activity, 5) Smoking habits, 6) Other Factors (body temperature).

A person's physical condition in sports activities will greatly affect and even determine the appearance of his movements. According to [14], a good physical condition will affect the functions and systems of the body's organisms, including: 1) There will be an increase in the ability of the circulatory system and the work of the heart, 2) There will be an increase in strength, flexibility, stamina and components other physical conditions, 3) There will be better movement during exercise, 4) There will be a faster recovery in the organs of the body after exercise, and 5) There will be a quick response from our body's organisms if needed.

Football is a sport that requires excellent physical condition in achieving its achievements. Components and classifications of the ability of the men's football according to [15] are as follows: 1) Strength, 2) Muscle endurance, 3) Speed, 4) Agility, 5) Flexibility, 6) Leg power, and 7) Endurance of the cardiopulmonary. Based on this, in this research, data will be collected on 7 components of the physical conditions that are needed dominantly in football.

II. MATERIALS AND METHODS

This type of research is quantitative descriptive research. The method used is a survey method using test and measurement techniques. The variables in this study are the ability of physical condition, which consists of 1) Strength, 2) Muscle endurance, 3) Speed, 4) Agility, 5) Flexibility, 6) Leg power, and 7) Cardiopulmonary endurance.

The population used in this research is the athlete who passed the selection of the UNNES football club in the first stage in facing the Liga Mahasiswa Piala Menpora 2019, as many as 19 players. The sampling technique in this research used a total sampling technique, as many as 19 players.

Data on the ability of the physical condition of football is obtained by using the following instruments: 1) Strength, namely arm and shoulder muscle strength using the hand dynamometer test, back muscles strength using the back dynamometer test, and leg muscles strength using the leg dynamometer test; 2) muscular endurance, the abdominal muscles endurance using sit-ups, arm and shoulder muscles endurance using push-ups, and leg muscles endurance using squat jumps; 3) Speed, which is using a 50 meter running test; 4) Agility, which is using the Illionis Agility run test; 5) Flexibility, which is using a Sit and Reach test; 6) Leg muscle power, which uses vertical jumps, 7) Cardiopulmonary endurance, which uses Multi-stage fitness test.

The data analysis technique used in this study is a descriptive statistical technique. Analysis of the data used is quantitative descriptive analysis with percentages.

III. RESULT AND DISCUSSIONS

The results of the research of the profile of physical conditions from the UNNES football club at the Liga Mahasiswa Piala Menpora 2019 can be described as follows:

TABLE I. Statistical description of the physical conditions

Explanation:
Comp. 1 = strength of the arm muscles in pushing
Comp. 2 = strength of the arm muscles in pulling
Comp. 3 = strength of the back muscle

Statistic	Mean	Median	Mode	Standard Deviation	Min	Max
Comp. 1	28,05	26	30	12,78	10	65
Comp. 2	28,26	27	19	8,04	18	45
Comp. 3	144,73	140	-	55,29	46	262,5
Comp. 4	147,34	142	-	47,41	74,5	249
Comp. 5	33,31	35	35	13,65	5	65
Comp. 6	36,89	36	35	35	20	50
Comp. 7	48,73	50	50	6,37	35	59
Comp. 8	6,62	6,74	6,4	0,46	5,8	7,8
Comp. 9	17,1	16,8	18,53	1,28	15,3	19,57
Comp. 10	41,73	43	49,5	5,75	29,5	49,5
Comp. 11	52,05	51	51	5,47	42	61
Comp. 12	42,34	43,6	43,6	6,29	29,5	53,1

Comp. 4 = strength of the leg muscle
Comp. 5 = endurance of the arm and shoulder muscles
Comp. 6 = endurance of the abdominal muscle
Comp. 7 = endurance of the leg muscle
Comp. 8 = speed
Comp. 9 = agility
Comp. 10 = power of the leg muscle
Comp. 11 = flexibility
Comp. 12 = cardiopulmunary endurance

The following is a graphic illustration of the profile of physical conditions from the UNNES football club at the Liga mahasiswa Piala Menpora 2019, which consists of: 1) Strength, 2) Muscle endurance, 3) Speed, 4) Agility, 5) Flexibility, 6) Leg power , and 7) Cardiopulmonary Endurance.

A. *Strength of the Arm Muscles in Pushing*

Based on Figure 1 below, it can be seen that the muscle strength of the player's arm in pushing is in the category of very less 0%, less categories 21%, medium category 58%, good category 16%, and excellent category 5%.
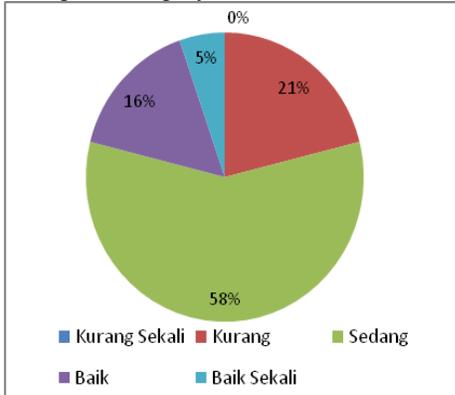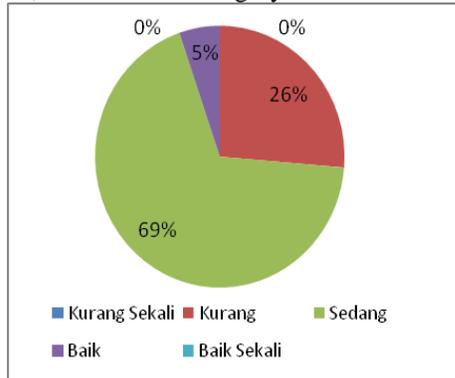

Fig 1. Graph of Muscle Strength of a Player's Arm in Pushing

B. *Strength of the Arm Muscles in Pulling*

Based on Figure 2 below, it can be seen that the arm muscle strength of the player in pulling is in the category of very less 0%, less category 26%, medium category 69%, good category 5%, and excellent category 0%.

Fig 2. Graph of Muscle Strength of a Player's Armin pulling

C. *Back Muscle strength*

Based on Figure 3 below, it can be seen that the back muscle strength of the player is in the category of very less 0%, 10% less category, medium category 5%, good category 32%, and excellent category 53%.
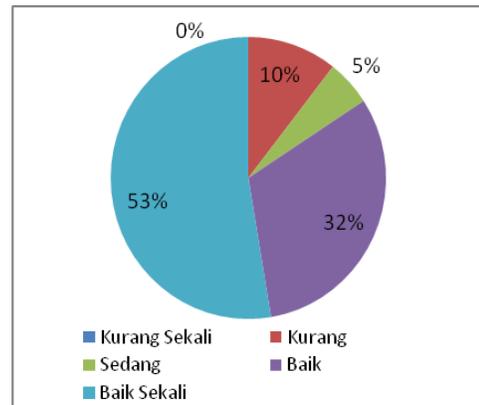
Fig 3. Graph of the Back Muscle Strength of the Player

D. *Leg Muscle Strength*

Based on Figure 4 below, it can be seen that the leg muscle strength of the player is in the category of very less 0%, 32% less category, medium category 63%, good category 5%, and excellent category 0%.
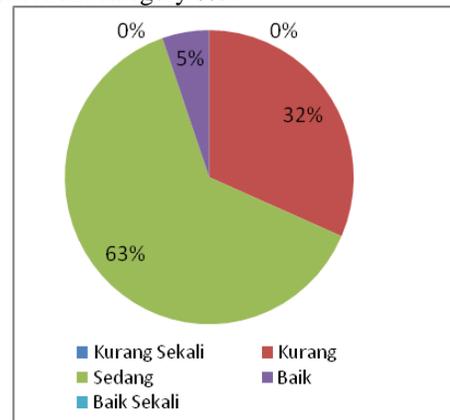

Fig 4. Graph of Muscle Strength of Player's Leg

E. *Arm and Shoulder Muscle Endurance*

Based on Figure 5 below, it can be seen that the muscular endurance of the arm and shoulder of the player is in the category of 5% less, 0% less category, 32% medium category, 37% good category, and 26% excellent category.
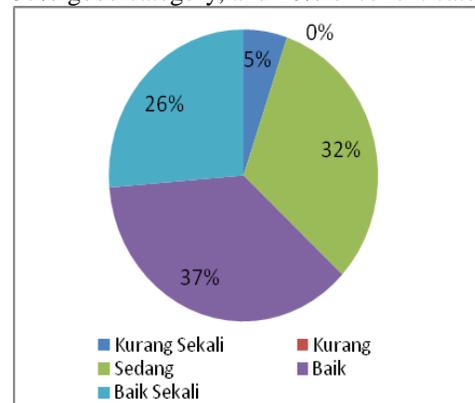

Fig 5. Graph of Endurance Muscles of Arm and Shoulder Muscles

F. Abdominal muscle endurance

Based on Figure 6 below, it can be seen that the abdominal endurance of the players is in the category of very 5%, 95% less, 0% moderate category, 0% good category, and 0% excellent category.
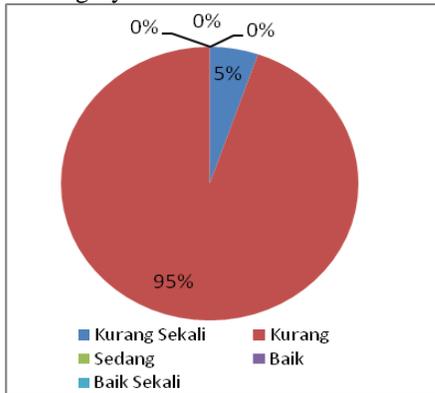

Fig 6. Graphic Abdominal Muscle Endurance Player

G. Leg musclesEndurance

Based on Figure 7 below, it can be seen that the limb muscle endurance is in the category of very less 0%, 32% less category, medium category 68%, good category 0%, and excellent category 0%.
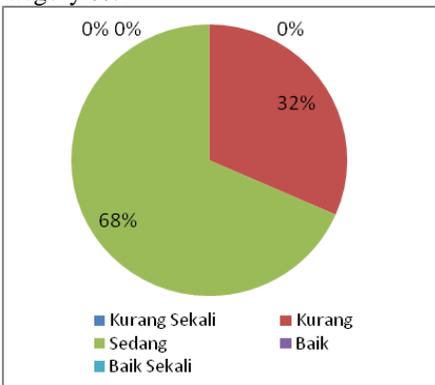

Fig 7. Graph of endurance of the player's leg muscles

H. Speed

Based on Figure 8 below, it can be seen that the player's speed is in the category of very low 0%, 32% less category, medium category 68%, good category 0%, and excellent category 0%.
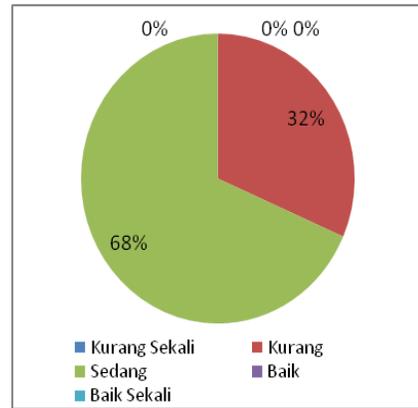

Fig 8. Graph of Player Speed

I. Agility

Based on Figure 9 below, it can be seen that the player's agility is in the category of very poor 21%, the category of less 16%, the medium category 37%, the good category 26%, and the excellent category 0%.
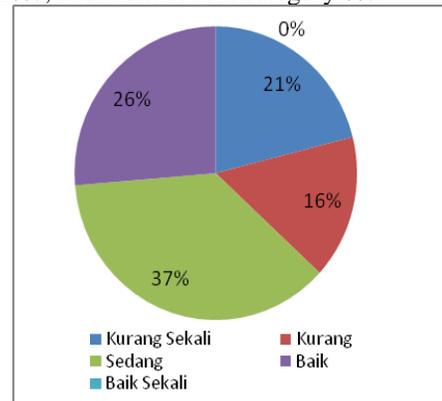

Fig 9. Graph of Player Agility

J. Body Flexibility

Based on Figure 10 below, it can be seen that the flexibility of players is in the category of 0% less, 0% less category, 0% medium category, 0% good category, and 100% excellent category.
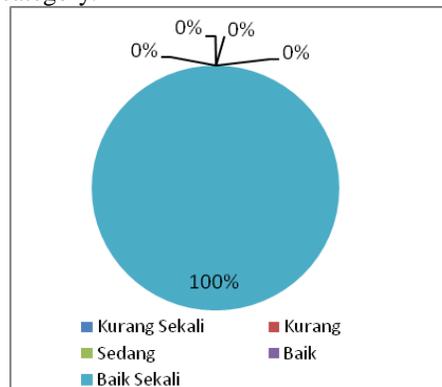

Fig 10. Graph of Player's Body Flexibility

K. Leg Muscle Power

Based on Figure 11 below, it can be seen that the leg muscle power of the players is in the category of 5% less, 42% less category, 53% medium category, 0% good category, and 0% excellent category.
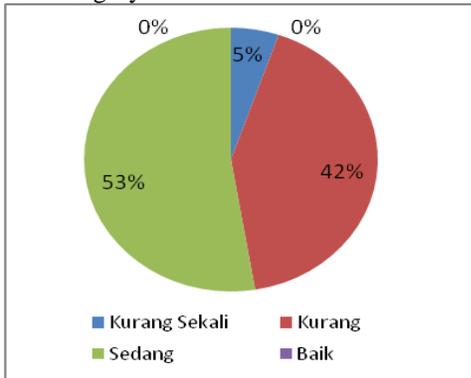

Fig 11. Graphic of the Player's Muscle Power

L. Cardiopulmonary Endurance

Based on Figure 12 below, it can be seen that the muscle endurance of the player's limbs is in the category of very poor 37%, category 47% less, medium category 16%, good category 0%, and excellent category 0%.
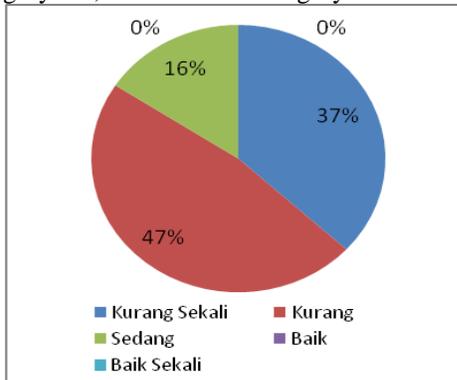

Fig 12. Graphof Player's Cardiopulmonary Endurance

IV. CONCLUSIONS

Based on the analysis of the data, it can be concluded that: 1) the average strength of the player's arm muscle in pushing is in the medium category, 2) the average strength of the player's arm muscle in pulling is in the medium category, 3) the average strength of the player's back muscle is in the medium category, 4) the average strength of the player's leg muscle is in the less category, 5) the average endurance of the player's arm and shoulder is in the good category, 5) the average endurance of the player's muscle abdominal is in the less category, 6) the average endurance of the player's leg muscles is in the medium category, 7) the average speed of the player is in the medium category, 8) the average agility of the player is in the medium category, 9) the average flexibility of the player's body is in the excellent category, 10) the average of the player's leg muscle power is in the medium category, and 11) the average of the player's Cardiopulmonary Endurance is in the very poor category.

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