

**Basal Energy Expenditure (BEE) in Pencak Silat Athletes The City of Palopo
and Luwu Regency****Holirul Rahman^{1✉}, Rasyidah Jalil^{2✉}, Wahyuni Ulpi^{3✉}**Physical Education, Faculty of Teacher Training and Education, University of Muhammadiyah
Palopo, Indonesia¹²³**Article History**Received October 2022
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Published Vol.11 No.(3) 2022**Keywords:**Basal Energy Expenditure;
Pencak Silat; Athletes**Abstract**

The martial art of pencak silat as a method of fighting philosophically teaches spiritual and physical education to help its devotees live the noble moral values in it. The material object of this research is pencak silat and the formal object is the art philosophy or aesthetics of the pencak silat. This study aims to describe the Basal Energy Expenditure (BEE) seen from the status of .The research method used is descriptive research method with a quantitative approach. As for the research subjects, namely the pencak silat athletes in the city of Palopo and Luwu Regency, the sample size is 27 people with saturated sampling technique, using data analysis techniques. This means a technique for a study whose data can be measured by scoring or numerically. The data obtained were processed through statistical and computerized methods. From the results of the study above, BEE 1501 was thin, the frequency was 1 and the percentage was 3.7%. Normal BEE 1268-1773, frequency 21 and percentage 77.8%. Overweight BEE 1415-1842, frequency 3 and percentage 11.1%. Obesity BEE 1924-1948 frequency 2 and percentage 7.4% . The test results showed that the average body weight of the sample of pencak silat athletes that I studied had normal BEE.

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INTRODUCTION

In ancient times, not all regions in Indonesia used the term pencak silat to refer to a self-defense activity. Pencak is a movement to attack and defend oneself in the form of dance and rhythm with rules (customs of politeness), and can be used as a show. Silat is the essence of pencak, while fighting or self-defense is not a performance lag. So, the term 'pencak silat' literally means 'fight with art' (Ediyono & Widodo, 2019).

Pencak Silat is the result of Indonesian human culture to defend, defend, exist (independence) and integrity (oneness) to the environment/nature around it to achieve harmony in life in order to increase faith and piety. Many benefits are obtained in learning pencak silat, such as cognitive, affective, and psychomotor development. Cognitive abilities develop in line with being given pencak silat concept exercises, fast thinking processes in dealing with problems that are immediately solved and making decisions accurately and accurately (Gristyutawati et al., 2012)

Pencak silat is a martial art handed down by our ancestors as Indonesian culture that needs to be preserved and continuously developed. (Jalil et al., 2022). Pencak silat is not only related to the physical aspect, but also relates to other non-physical aspects. There are at least 4 (four) aspects in the teachings of pencak silat, namely, mental spirituality, art, martial arts and sports, which have different emphases and ways to care for and develop them. Pencak silat has the meaning of the two words that compose it. Pencak means basic martial arts movements that have rules. While silat has the meaning of a complete self-defense movement and comes from spirituality. The teaching of pencak silat in the community is considered not only to contain martial arts training, but the teachers and trainers of pencak silat diligently provide moral and ethical teachings to their students. The teachings conveyed aim to be ideal individuals, pious, responsive, tough, honest (Mufarriq, 2021).

Martial arts moves to follow natural body movements, are flexible and soft. Physical and mental strength is taught gradually from the beginning of practice until it reaches the highest level (Mardotillah & Zein, 2017). On the other hand, sport is a means of achievement that can no longer be underestimated. The achievements that can be achieved by an athlete are not only determined by the method of training or talent but the consumption of proper nutrition on a daily basis will also have a positive influence on improving the performance and achievements that can

be achieved by an athlete. Therefore, athletes who have a high level of physical activity will require the consumption of appropriate nutrients in their composition so that the availability of energy sources in the body can be maintained properly to carry out daily activities and during matches. defense and attack. Continuous physical exercise leads athletes to maintain an unstable balance between food intake, energy expenditure, and the added demands of large amounts of physical activity (Istiqomah et al., 2021).

Individual health and fitness is influenced by three main factors, one of which is the regulation of food intake or nutrients (Miftahul, 2021). This is in line with the RI Ministry of Health (2010) that consumption of energy and balanced nutrition can improve nutritional status, increase physical endurance, and increase productivity. Pencak silat is a sport that requires high physical endurance in carrying out movement activities, both in performing sparring techniques and in moving pencak silat moves during a match without experiencing fatigue. In order for athletes to have good physical endurance, it is necessary to pay attention to the portion of the exercise and the adequacy of energy to support the athlete's performance. The energy needed for physical activity is obtained from the food consumed. So it can be said that without energy that comes from food, there is no activity that can be done by someone including athletes (Syafrizar, 2009: 63).

The nutritional needs of athletes are macro and micro nutrients. Macronutrients include carbohydrates, fats and proteins, while micronutrients include vitamins and minerals. Good nutritional status can be obtained through a balanced diet (Ramadhani, 2012). Energy-producing nutrients, namely carbohydrates, fats and proteins found in staple foods. The main function of carbohydrates is the main producer of energy in food in the body. In addition to functioning in producing carbohydrate energy, it also serves as a sweetener in food, regulates fat metabolism, helps excrete feces and as a protein saver. While protein is needed for growth, development, muscle formation, formation of red blood cells, body defense against disease, enzymes and hormones, and the synthesis of other body tissues so that side dishes are classified as food sources of building blocks. But this cannot be separated from the influence of good consumption such as nutrition, vitamins and supplements. Athletes are strongly discouraged from consuming excessive protein (Maisun, 2021).

The group of regulatory nutrients, namely minerals and vitamins, is mostly contained in

vegetables and fruits. The aerobic system is the process of energy formation through the burning of carbohydrates, fats and proteins in the blood that uses oxygen, usually being the main energy source in activities that last between 2 minutes to 3 hours. Among carbohydrates, fats, and proteins, stored carbohydrates and fats are the main sources during exercise. While the anaerobic system is the process of energy formation through the breakdown of ATP (adenosine triphosphate) in the muscles through the stimulation of explosive movements. Become a supply of energy in activities that last 10 seconds to 1 minute.

Fulfillment of nutritional intake in athletes is very important because contracting muscles require adequate energy intake. The sports nutrition required to support performance is not specific to the sport but is specific to the individual athlete. If the energy expended is the same as the energy that comes in from food and drink, the athlete during training or during a match will avoid fatigue. The results of observations on several athletes with various sports backgrounds show that nutrition and physical exercise together produce good performance. However, currently the attention to nutrition regulation is still very low level. Martial arts show the intensity of the match very quickly. This condition forces athletes to be more likely to feel high anxiety (Donoran, 2021).

METHODS

The research method used is descriptive research method with a quantitative approach (Yosani, 2006). Explains that descriptive research is research conducted to determine the value of independent variables, either one or more (independent) variables without making comparisons, or connecting with other variables (Daniel & Harland, 2017). Descriptive research is a research that tries to answer the existing problems based on the data. The analysis process in descriptive research is presenting, analyzing, and interpreting (Abdullah, 2015). Research subject is a person, or object that is observed in the context of machining as a target (A, 2017), as for the research subjects, namely the pencak silat athletes in the city of Palopo and the district of Luwu. By using data analysis techniques. This means a technique for a study whose data can be measured by scoring or numerically. The data obtained were processed through statistical and computerized methods. It should be noted that in quantitative analysis (Qomari, 1970), the sample selection using saturated sampling that is the entire population is sampled. The objectives to be achieved from the research

This is to find out how students perceive pencak silat as a legacy national culture at the Pencak Silat Pedepokan (IPSI) (Gristyutawati et al., 2012).

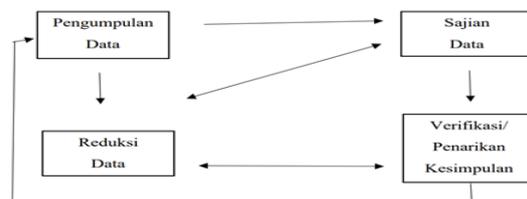


Figure 1. Research Stages

RESULTS AND DISCUSSION

Balanced nutritional needs are very important in sufficient energy reserves for pencak silat athletes. This can have a big impact on the length of the duration of training and matches. Adequate energy stock is influenced by body weight and a healthy lifestyle.

Table 1. Descriptive Data Results

| Descriptive Statistics | | | | | |
|------------------------|----|---------|---------|-----------|----------------|
| | N | Min | Max | mean | Std. Deviation |
| Age | 27 | 16.00 | 23.00 | 19.2963 | 1.99644 |
| BB | 27 | 45.00 | 86.00 | 58.4444 | 11.09169 |
| TB | 27 | 149.00 | 178.00 | 162.0741 | 6.94996 |
| BEE | 27 | 1268.00 | 1948.00 | 1512.0370 | 187.33895 |
| BMI | 27 | 18,40 | 29.10 | 22.1037 | 2.98090 |
| Valid N (list-wise) | 27 | | | | |

Information:
 BB = Weight
 TB = Height
 BEE = Basal Energy Expenditure
 BMI = Body Mass Index

Table 2. Results of data on nutritional status, BEE, frequency and percent

| Nutritional status | BEE | Frequency | Percent |
|--------------------|-----------|-----------|---------|
| Thin | 1501 | 1 | 3.7 |
| Normal | 1268-1773 | 21 | 77.8 |
| More Weight | 1415-1842 | 3 | 11.1 |
| Obesity | 1924-1948 | 2 | 7.4 |

Table 1 shows the descriptive results of a sample of 27 people, minimum age 16.00, maximum 23.00, mean 19.2963, standard deviation

1.99644. BB minimum 45.00, maximum 23.00, mean 58.4444, standard deviation 11.09169. TB minimum 149.00, maximum 178.00, mean 162.0741, standard deviation 6.94996. Minimum BEE 1268.00 maximum 1948.00, mean 1512,0370, standard deviation 187.33895. Minimum BMI 18.40, maximum 29.10, mean 22.1037, standard deviation 12.98090.

From the results of **Table 2** above, it is known that from the results of the sample of pencak silat athletes, they are divided into several categories including thin BEE 1501, frequency 1 and percentage 3.7%. Normal BEE 1268-1773, frequency 21 and percentage 77.8%. Overweight BEE 1415-1842, frequency 3 and percentage 11.1%. Obesity BEE 1924-1948 frequency 2 and percentage 7.4% . The test results showed that the average body weight of the sample of pencak silat athletes that I studied had normal BEE.

When the energy in and energy out is balanced, the ideal body is obtained. For excessive energy intake that is not balanced with physical activity that uses energy, there will be a buildup of energy which will have an impact on body weight which will eventually become fat and can achieve excess weight/obesity. However, energy consumption that is greater than energy intake will also cause an energy imbalance (Miftahul, 2021).

BEE which is included in the normal category, athletes can maximize their performance when dealing with opponents or during matches. The duration of the fight is very useful when the opponent's BEE is below normal or even above normal. With an opponent who gets tired easily, athletes with normal BEE can last longer and of course with power that is still above the opponent.

CONCLUSION

From the results of the research above, it is concluded that there are many athletes with BEE who are balanced and in accordance with the results of training and a good lifestyle. But there are some who exceed or even less in the category of normal or ideal body posture.

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