

**Watermelon Intake on Endurance in Pencak Silat Athletes****Ahmad Maulana^{1✉}, Rasyidah Jalil^{2✉}, Saman^{3✉}**Universitas Muhammadiyah Palopo, Indonesia¹²³**Article History**

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Keywords:

Watermelon; Endurance; Pencak Silat.

Abstract

This study aims to determine the effect of giving watermelon juice on endurance in pencak silat athletes. The method used is an experiment with 10 samples. The results of the study show that giving watermelon juice have a significant effect on muscle fatigue, anaerobic fatigue, pulse rate, delayed onset muscle soreness, and VO₂Max. Physical condition is an important aspect to support the success of an athlete, so proper monitoring of the athlete's physical fitness level is needed. Athletes who play sports to achieve regional, national or international success must have skills specific to the sport they participate in and must be in peak physical condition. This research uses quantitative research methods and experimental research design with pretest and posttest groups. The research population was 20 pencak silat athletes in Luwu and the sample was 10 athletes. This research found that the athlete's physical fitness level was good and could be improved. This study also found that watermelon consumption had a significant effect on endurance. Resources cited in this text cover a wide range of sports-related topics, including the physical and psychological characteristics of athletes, training methods, and the effects of certain foods and training on performance. This study also found that watermelon consumption had a significant effect on endurance. Resources cited in this text cover a wide range of sports-related topics, including the physical and psychological characteristics of athletes, training methods, and the effects of certain foods and training on performance. This study also found that watermelon consumption had a significant effect on endurance. Resources cited in this text cover a wide range of sports-related topics, including the physical and psychological characteristics of athletes, training methods, and the effects of certain foods and training on performance.

How to Cite

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INTRODUCTION

Sport is a human activity to train the limbs by using planned and structured movements which can involve the movement of the entire limb in a repetitive manner and improve it so that the body can function properly. (Dhevanga Pristawan Abhimasta, Stanislause Wirriawan, 2020). When Exercising, the body and mind properly and correctly will have a healthier, fresher and fitter impact as the saying goes "Mensana In Corpore sano" which means a healthy body has a strong soul. (Education et al., 2022). Watermelon is a fruit plant that contains a lot of nutrients and can be found in markets and fruit shops. Watermelon also contains various vitamins, such as vitamin A, vitamin C, vitamin B6, and folic acid, as well as minerals such as potassium and magnesium. Apart from that, watermelon also contains phytochemical compounds such as lycopene and citrulline, which function as antioxidants and improve body health. Watermelon is a herb that can grow on vines, in English it is called Watermelon (Lubis & Siregar, 2017).

Watermelon is also liked by many people because watermelon has a sweet taste and has its own characteristics and contains high water content, the red flesh of the watermelon makes a special appeal, watermelon is a natural anti-oxidant, and easy to apply. served and enjoyed in all circles from small children to adults (Watermelon, 2022). Many studies have been conducted on watermelon and the results show that watermelon is also very good if managed using watermelon juice which can have a significant or very significant effect on muscle fatigue, anaerobic fatigue, heart rate, delayed muscle soreness and VO2Max. (Ris-mawati et al., 2018) Arifianto (2008) found that 100 grams of watermelon contains 92.1 grams of water and 6.9 grams of carbohydrates. (Shanti & Zuraida, 2016). Not only can physical exercise increase the VO2 max value, but also the food content, namely nitrate, citrulline and lycopene, also influences this value. One of the ingredients that can significantly influence the VO2max value is citrulline, because citrulline will be converted into nitric oxide (NO) through a chemical process by the body. The NO that is formed will enter the mitochondria in the cells. In the mitochondria, NO binds to cytochrome c oxidase (COX) which will then increase the efficiency of the mitochondrial oxidative phosphorylation process. 10 Increasing mitochondrial efficiency will increase the amount of oxygen that can oxidize nutrient molecules to produce energy so it is estimated that ATP production will increase which

can be used for, activities that will increase the value of VO2 max. as one of the best sources of natural citrulline (Hanifwati et al., 2023).

Based on the statement that number of fruit can made as recommendation in carbohydrate replacement And fluid for body, including watermelon. (Ayati et al., 2019) What's more, the watermelon fruit plant is one of the superior plant commodities in Indonesia (Gunawan et al., 2014). Of the many branches of achievement sports, pencak silat is a sport that is quite popular among the population in Indonesia. Pencak silat is also a popular sport in Indonesia and even in the world, this can be seen from the martial arts colleges and the various activities carried out in competitions such as competitions between schools, between agencies, between regions, and others. (Satria et al., 2021). Pencak silat is one way for humans to defend themselves and maintain personal safety. In pencak silat, what distinguishes it from other martial arts is that there are four aspects that become one that are mutually sustainable, namely the mental-spiritual aspect, martial arts, arts, sports. (248223-Physical-Condition-Profile-Ukm-Pencak-Silat-Un-6c4e86ec, nd) In achieving achievements, a fighter must master all the elements in pencak silat itself, including elements of physical condition (muscle explosive power to avoid all kinds of calamities). So it is clear that pencak silat is the basis for defending oneself from various kinds that befall from yourself. (Edwarsyah, 2017).

Sports are organized as part of the educational process and carried out in formal and informal education channels through classes or side activities. (Zulbahri, 2019). In matter fitness physical, There is One component Which is determine the students' performance; muscle And cardiovascular endurance (Suparyanto and Rosad (2015, 2020). Muscular endurance is the ability of the muscles to overcome or maintain fatigue caused by exertion over a relatively long period of time. (Erison1 & M. Ridwan2, 2020). Cardiovascular endurance, or heart condition, is the ability to continuously supplying oxygen to the muscle in period time Which operate longer in blood circulation And Respiratory. This is the most important component in people's physiological profile. (Hasan, 2018).

Endurance is One of the most important factors for athletes which can deeply affect physical abilities of someone or athlete to play in a relatively longer time. Besides That, It is not just endurance that is needed by the athlete. however they Also need good physique to support Skills player in field. Good Stamina is a must owned by

every player in every match. Athlete with good endurance can compete well. (M. Akbar Husein Allsabab, 2021)

Physical condition which is also a strong supporting factor for every athlete in achieving a sporting achievement, physical condition is also difficult to gain without continuous training and quite heavy and long physical practice. (Atmaja et al., 2022) That is the reason to maintain the physical condition of the body and pay attention in training and stay fitness in order to get results and planning Which desired. This must be planned in a systematic manner to gain physical fitness (Ramadansyah, 2021). Physical condition training is a training process to develop physical mobility abilities that are carried out systematically and progressively to be improved to maintain or increase the degree of physical fitness in achieving work ability with the expected goals that are tailored to the needs of each sport. (Bhakti & Adi S, 2022).

It has been proven that systematic physical training improves health, increases physical and mental capacities, and improves the quality of learning. (Sports et al., n.d.). Term "fitness physical" consists from say "fitness" And "physical". In Dictionary Big Language Indonesia (KBBI), say fitness interpreted as something circumstances, whereas "physical" means body or body. kindly literally, condition physique is condition body somebody (Tri Hardi Septiawan*, 2022). Cardiorespiratory endurance is the optimal performance of the body's vital organs to idealize the body when resting through the intake of oxygen to active tissues so that they can be used during the body's metabolism. In general, cardiorespiration is the working capacity of the bones, muscles, lungs, blood vessels, and heart to maximize oxygen consumption and distribute it throughout the body through metabolic processes. Cardiorespiration is closely related to physical condition (Setiawan et al., 2022). In pencak silat martial arts activities there are several basic techniques that must be mastered, including; posture, stance, step patterns, punches, kicks and blocks. There are two pencak silat techniques used in a pencak silat attacks are punches and kicks. In general, the attacks that are often carried out in every pencak silat match in the fight category are kicks, while punches are usually only done occasionally in a pencak silat match. We can see this in every existing pencak silat match. When carrying out attacks using pencak silat kick techniques, there are several factors that determine success, including the speed and strength of the kick. Apart from the two factors

above, training intensity, balance and maturity of movements also influence the success of every attack directed at an opponent in a match. (Rino Lusiyono Lucius & Daryanto, 2022)

From experts' point of view, every athlete can own prime physique precondition to maintain And increase their performance as well as face task daily With full energy. (Nur et al., 2018). One element that cannot be ignored or even absolutely needs to be improved for a silat fighter is endurance. (Education et al., 2022).

Sport is a physique exercises Which planned And structured Which involve movement repeated For guard body still fit. (Prima & Kartiko, 2021). Fitness physique is aspect important from success a athlete. By Because That, needed monitoring Which appropriate to fitness physical athlete. Athlete Which compete in sport certain For reach prowess in level regional, national or international Possible own Skills special in sport Which they follow And is at in condition physique Which very Good. (Dhevanga Pristawan Abhimasta, Stanislaue Wiriawan, 2020).

Apart from endurance, physical fitness is an important part for an athlete. An athlete has not succeeded if his physical fitness has not reached the maximum stage, Thus monitoring is necessary which suitable to fitness physical athlete. Athlete who demonstrate a certain sport, For reach success in level area, national And international naturally must own this special skill Which pursued it And own excellent physique condition, and of course have disciplined training so that their physical fitness is maintained. (Suharto, 2019). Lack of physical activity can caused by inability of coach in understanding the exercise, compile exercise program And understand the exercise dose, because the level of ability of athletes is different. (M. Akbar Husein Allsabab, 2021). Anxiety refers to emotions in athletes that are unpleasant and are characterized by vague but persistent feelings of fear and anxiety. Martial arts athletes must be clever to stop unpleasant or negative thoughts (Dongoran, 2021).

In order to change the athletes' psychological characteristics, coach need to understand the nature of each athlete's training competence psychological. Characteristic psychological athlete is characteristic Which influence success in sport, motivation, self confidence, anxiety management, interest team, preparation mental, positive encouragement in athletes And focus on achievement. (Triananda et al., 2021). Success in sport is not only depend on technical ability And health physique, but Also on mental condition. (Jannah et al., 2022).

METHODS

The type of research used in this research is a quantitative research method. Quantitative research methods are methods that use research data collected in the form of numbers and analyzed using statistical tests whose results can answer research hypotheses. The purpose of quantitative research is to develop a nomothetic science, namely a science that seeks to make laws out of generalizations. (Jannah et al., 2022).

Experimental Research Instrument. The population of this study was 20 pencak silat athletes from the Luwu Branch using a sample of 10 pencak silat athletes. Matter This in accordance with statement (Arikunto 2006:12)

Study quantitative is approach study Which require use numbers, started with collection data, interpretation data, And publish the result. (Fajriyudin et al., 2021).

Non-Probability Sampling Techniques. Using Pre-Test and Post-Test Group Experimental Research. In this research, the first data collection was carried out, namely the Pretest or initial data after that the Watermelon Administration was carried out. After that, the final data collection was carried out, namely the PostTest.

Table 1. Physical fitness test scores.

Mark	zigzag run	Squad	Push Ups	Jump One Leg Alternately	1200m run
5	SD - 7.2"	19 - Up	41 - Up	73-Up	SD - 3'14"
4	7.3" - 8.3"	14 - 18	30 - 40	60-72	3'15" - 4'25"
3	8.4" - 9.6"	9 - 13	21 - 29	50 - 59	4'26" - 5'12"
2	9.7" - 11.0"	5 - 8	10 - 20	39 - 49	5'13" - 6'33"
1	11.1" etc	0 - 4	0 - 9	38 etc	6'34" etc

Table 2. Norms for Physical Fitness Tests

Number of Values	Classification of Physical Fitness
22-25	Excelent (E)
18 - 21	Good (G)
14 - 17	Medium (M)
10 - 13	Less (L)
5 - 9	Bad (B)

RESULTS AND DISCUSSION

Table 3. Descriptive Results of Watermelon Intake on Endurance in Pencak Silat Athletes.

	N	Range	Minimum	Maximum	Means	std. Deviation	Variances
Pre-Test	10	15	8	23	14.70	3,889	15.122
Post-Test	10	15	13	28	19.70	3,889	15.122

PreTest obtained minimum value = 8, maximum = 23, mean = 14.70, Std. Deviation = 3.889, Variance = 15.122, while post test obtained minimum value = 13, maximum = 28, mean = 19.70, Std. Deviation = 3.889, Variance = 15.122 .

Table 4. Normality Test of Watermelon Intake on Endurance in Pencak Silat Athletes

	Statistics	Df	Sig.
PreTest	.917	10	.332
PostTest	.917	10	.332

Shapiro-Wilk

Sig. Value PreTest 0.332 > 0.05. Then the PreTest Variables are Normal Distribution.

Sig. Value PostTest 0.332 > 0.05 Then the PreTest Variables are Normal Distribution. FromThe analysis above, which has been tested using SPSS, shows the results the description of the PreTest obtained Minimum Value = 8, Maximum = 23, Mean = 14.70, Std.Deviation = 3.889, Variance = 15.122, While PostTest obtained Minimum Value = 13, Maximum = 28, Mean = 19.70, Std.Deviation = 3.889, Variance = 15,122. And the normality test is also normally distributed with a Sig value. Pretest 0.332 > 0.05. Then the PreTest Variables are Normal Distribution. Sig. Value PostTest 0.332 > 0.05 So the Pre-Test Variable is Normally Distributed.

This research was conducted in Luwu, which was carried out for 1 month with 2 meetings every week. The first meeting went well and smoothly. Data collection was carried out 2 times, namely the PreTest and PostTest, the initial data collection process for the PreTest was taken from the beginning of the meeting until the number of samples was used up, continued the next day and if samples could only be collected, only 1 athlete per day after that. The athlete's initial data collection takes place and begins with zig-zag running, squad, push-ups, one-leg jump alternately, and 1200 M run. After half a month with 5 meetings then takes the final data, namely the PostTest or final test that can be determine whether there is a change in results by administering watermelon juice.

Research was conducted to determine the effect of giving watermelon juice on endurance endurance in pencak silat athletes. The results showed that administration of watermelon juice had a significant effect on muscle fatigue, anaerobic fatigue, pulse rate, delayed onset muscle soreness, and VO2Max. Apart from that, this research also found that an athlete's good level of physical fitness can improve sports performance. In the discussion, the author explains that fitness physical is aspect important for success a athlete. By Because That, need done checking condition physique athlete with Good. Athlete Which demonstrate branch sport certain For reach success in level regional, national or international must own Skills special in branch sport Which pursued it And is at in condition physique Which prime.

The author also cites several sports-related sources, such as physical and psychological characteristics of athletes, training methods, and the effects of certain foods and exercises on performance. In addition, the authors also explain that systematic physical training can improve health, increase physical and mental capacities, and improve the quality of learning. In this conclusion, the authors state that giving watermelon juice has a significant effect on endurance in pencak silat athletes. In addition, good physical condition can improve sports performance. Therefore, it is necessary to properly monitor the level of the athlete's physical condition and to carry out systematic physical training to improve the health and performance of athletes.

CONCLUSION

Based on the results of data analysis and discussion, several things can be concluded that are related to this research: (1) The level of physical fitness of Luwu Regency Pencak Silat Athletes is in the Good category. And it can still be improved by making efforts to create activities so that athletes can move optimally. (2) Watermelon has a significant effect on endurance endurance in pencak silat athletes. This research used experimental methods with a sample of 10 athletes and showed that watermelon juice could increase muscle fatigue, anaerobic fatigue, pulse rate, delayed onset muscle soreness, and VO2Max. Apart from that, this research also found that athletes' good physical condition can improve sports performance. The sources cited in this text cover a wide range of sports-related topics, including the physical and psychological characteristics of athletes, training methods, and the effects of certain foods and training on performance.

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