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Description of the quality effects of dehydration and hydration on the focus of archery athletes

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ABSTRACT

Dehydration and hydration status are important to pay attention to again, so that the body does not experience a condition of lack of fluids which is called dehydration or a combination of fluids which is called hydration. If you don't pay attention to the status of dehydration or hydration, it will have a long-term effect. Writing this article aims to find out the description of the quality of the effects of dehydration and hydration on the focus of archery athletes. So to evaluate and analyze athletes' perceptions regarding the quality of dehydration, the hydration they receive from their training requires efforts and strategies to overcome dehydration problems. The method used in this research uses quantitative descriptive. This method can also be used to analyze past data to look for patterns or trends in the data. The number of research samples were 55 athletes. The instrument used in this study was a questionnaire/questionnaire in the form of a google form. The results in this study pay attention to the results that are owned in the quality of hydration and dehydration of athletes. Hydration during training agreed 68.8% of athletes and felt not dehydrated agreed 62.5% and completing training with hydration needs and providing on time is one of the best ways. With the results agreeing 68.8% and athletes adequate hydration in training 56.3% The fifth diagram focuses on athletes training. The results in the statements agreed 43.8% and strongly agreed 31.3% with the results strongly disagreed 6.3% in statements also disagreed 18.8% found there was still a lack of awareness of archery athletes. qualitative approach, namely in the form of analysis of facts and the relationship between the phenomena being studied.

Introduction

Indonesia is a tropical country which has two seasons, dry and rainy. Indonesia is located on the equator, therefore, the Indonesian state influences the humidity and air temperature at the equator(Olchev et al., 2015). The humidity and air temperature are quite high in Indonesia, resulting in less attention to hydration of the body. Moreover, every day humans have different activities and activities, ranging from children to the elderly.

Especially teenagers and adults who have a lot of activities from morning to night. Many activities also require prime condition and physical fitness. So that it supports the activities carried out every day(Febiyanti & Ashadi, 2019). With regard to maintaining the condition of the body so that it is maintained, it is necessary to make efforts so that what must be done is one of them by exercising. One type of sport that can be done is archery.

Archery is a sport that is applied using a bow and arrow. This is done by shooting arrows with the help of a bow to reach the target or shooting target at a predetermined distance(Prasetyo et al., 2020). Archers are required to make each shot using concentration and consistent movement so as to create accuracy, good movement. So, the risk of archery athletes experiencing dehydration is very large due to outdoor sports with high temperatures and water evaporation rates. Apart from exercising, you also carry out activities to stabilize normal body temperature, by removing body fluids which are commonly called sweat(Savvides et al., 2020). The longer the activity is carried out, the more sweat will be released. Too much sweat is released which results in instability in hydration status and lack of fluids which can be called dehydration(Pertiwi, 2015).

As the body itself requires a lot of nutrients to carry out daily activities. One of them is by fulfilling nutrients that are very useful and must be fulfilled properly, so that humans can survive, namely water(Marcos et al., 2014). According to explained that, humans can survive long without food, but humans cannot survive long without water. Because we need to know that in the human body water is used to help the body's metabolic processes(Gropper & Smith, 2012). Where in this metabolism is very important for human survival.

So that the adequacy of water in everyday life must be fulfilled so that the body can carry out activities smoothly. Here are the benefits of hydration, namely as follows: 1). Maintain body temperature to remain normal, 2). Helping the process of excretion, namely releasing sweat, 3). Helps the process of metabolism and 4). Preventing heat stroke(RI Ramdhan & Rismayanthi, 2016).

Dehydration is a disturbance in the balance of fluids in the body, in which a person's condition experiences little fluid intake in the body compared to expenditure. Dehydration itself is divided into two categories: mild dehydration and severe dehydration(Kenefick et al., 2012). Mild dehydration is characterized by lips that feel dry, dizziness, and decreased concentration. Meanwhile, severe dehydration is characterized by a weak body, and decreased performance and function of organs, especially the kidneys.(Ashadi, 2014).

Hydration is the process of ions being surrounded by water molecules arranged in a certain state. Hydration itself helps in stabilizing the ions in solution and prevents the cations

from recombining with the anions(Kusuma, 2020). Hydration itself is different from hydrolysis. Hydrolysis, usually the molecule is split into two parts while rehydration is the compounding process again(Pandalino, 2015). However, the right way that can be used to overcome the adverse effects of unstable hydration status is to prevent it, one of the ways is to regulate drinking patterns.

Hydration in the body can be overcome by consuming mineral fluids, in general it is recommended that 8 glasses or 2 liters of water per day. However, the amount of water consumption here is different from an athlete(RI Ramdhan & Rismayanthi, 2016). Because, it can be measured from the level of physical activity carried out so that the water that must be filled in the body will also increase. This is because the mass of muscles in athletes and young people is more. So that the required water content is also a lot. The large amount of water is also seen from the level of water consumption, especially athletes in sports where their immune system is greater(Parnell et al., 2015).

This is motivated by the amount of sweat that comes out and the temperature of the environment which greatly affects the loss of fluids in the body, so if this is not paid attention to it will cause dehydration. Therefore, as an athlete, his endurance must be strong and be able to meet his hydration needs to maintain his performance in every activity he does.

Continuous body activity actually requires adequate fluid intake so you don't experience dehydration or hydration which will have a negative impact on the body. Improper drinking patterns will also have a negative impact on hydration stability(Hrudey & Hrudey, 2004). So there is a need for further review related to what drinking patterns are appropriate for maintaining hydration status in continuous activities. Thus, based on the background of the problem. Writing this article aims to determine the effectEffects of dehydration and hydration on athletes' focus on archery. In this research, it is hoped that archery athletes will be more able to maintain and meet water consumption for the body's needs so that performance during exercise is maintained, so they can avoid dehydration.

Method

Descriptive quantitative research is research that draws conclusions by monitoring, observing, and describing the number of samples based on phenomena that occur during the study(Son, 2015). Descriptive quantitative research is research with a design to visualize a research result(M. Ramdhan, 2021). Meanwhile according to(Jayusman & Shavab, 2020)Descriptive quantitative research aims to find information, goals to be achieved, how to approach it, and collect various kinds of data as a reference for making reportsuntilto the conclusion that descriptive research is done by seeking informationrelation to the symptoms

that exist to reach the goal. The main method between descriptive research and other research is that this research is more focused on answering problems that existed at the time the research was carried out, or there were significant problems/events that still arise. This study aims to describe the situation precisely and accurately, not to look for a relationship between the independent variable and the dependent variable or to compare two or more variables to look for a causal relationship.(Ratna Wijayanti Daniar Paramita, 2018). The method used in this study is a descriptive quantitative study. Descriptive investigation is an investigation that investigates a situation, situation, or other event and then presents the results in the form of an explanatory investigation report that uses quantitative methods because it uses numbers, from data collection, data interpretation and results.(Hussin et al., 2014). Based onunderstanding in research cancame to the conclusion that descriptive research is carried out by seeking information in relation to existing symptoms achieving a clear goal of how researchers approach and collect differently various data such as materials to be made reports(Awang, 2012). This research is expected to determine the hydration quality of athletes and dehydration using media through a Google form in the form of a questionnaire that is distributed viawhatsapp group for 3 months. Starting from September – November 2022, after obtaining all the necessary data, grouping is carried out.

Results and Discussion

Based on this research, the quality of hydration and dehydration of athletes is one of the important factors in determining the success of athletes. This study found that athletes who have good hydration quality with little dehydration tend to have better results scores, physical strength than athletes who are often dehydrated. This shows that the athlete's hydration quality can play an important role in training and competition to determine the athlete's success. In addition, this study also found that good hydration quality among athletes during training can improve focus, motivation and athlete confidence, which in turn can increase athletes' scores and physical endurance. This study uses a quantitative descriptive which focuses on the results of statements in the form of grouped questionnaires. The sample used in this study were 55 athletes with the instruments used in this study using a questionnaire.

The results of the research that has been done show that hydration or dehydration is divided into 3, namely: before training, during the training/race program after training/recovery. So that the final result of hydration, namely meeting the athlete's fluid needs, is appropriate or not according to what we want. The results of data describing the quality of hydration and dehydration were obtained from archery athletes from the Special Region of Yogyakarta, with a diagram based on research as follows:

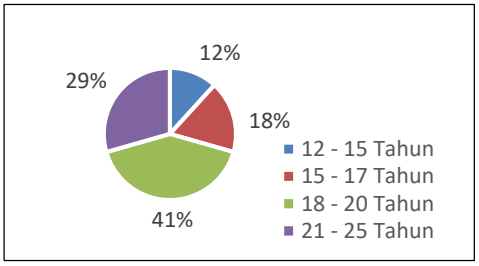

Figure 1. Overall Questionnaire Results
DIY Archery Athlete

Based on the results of the data in Figure 1, the filling results are 12-14 years old 12% and the results are 15-17 years old 18% with 18-20 years old 41%, then 21-25 years old 29%. Based on the results that answered this statement, the majority in the questionnaire were aged 18-20 years.

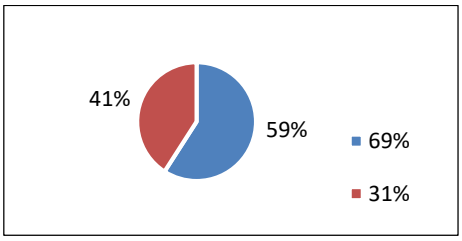

Figure 2. DIY Archery Athlete Questionnaire Results
Based on Gender

Based on the results of the data in Figure 2, gender in terms of the quality of the physical abilities of athletes who answered the statement the most was male 57%. This is because men are more active and focus on training compared to women 43% with different target focuses. In addition, men are also more likely to have a more dominant role in the quality of fluids consumed by athletes.

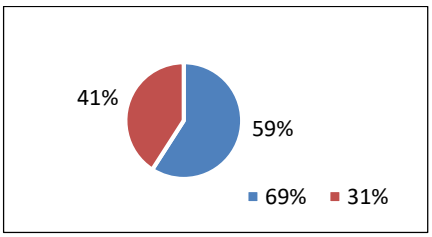

Figure 3. Results of the Importance of Hydration Questionnaire

Based on the results of the data in Figure 3, the results of the importance of hydration and preventing dehydration in training results because athletes who have awareness to meet fluid needs can more easily achieve predetermined training goals. There are 69% agreed results while 31% strongly agree results then two 0% results, namely strongly disagree and disagree with the statement. Hydration in training allows athletes to use energy in training,

and helps create good endurance and optimal physical fitness. In addition, hydration can also help create focus in training and competitions.

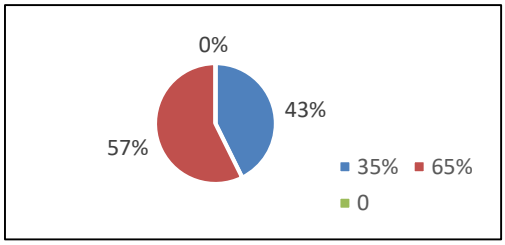

Figure 4. Results of the Awareness Questionnaire Archery Athlete Liquid Needs

Based on the results of the data in the figure4, athletes' awareness of hydration in training is a result of agreeing 65% while the results strongly agree 35% then and the results do not agree the diagram is 0%. As an athlete, knowing the condition of the body is dehydrated in every exercise given by the trainers. This method can help athletes identify problems and find the right solution for any problems that arise. In addition, athletes must also ensure that every body that is given an exercise program by the coach is serious so that dehydration does not occur. Feeling that the body has not been dehydrated stated by athletes is irrelevant to the purpose of training, athletes must have this high awareness by drinking every training interval.

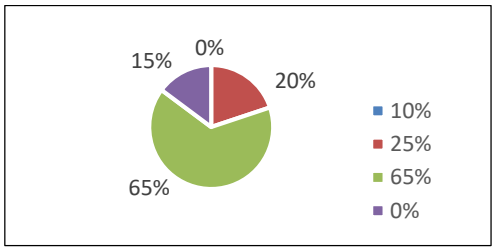

Figure 5. Results of the Dehydration Effect Questionnaire on Archery Athlete Performance

Based on the results of the data in Figure 5, the effect of dehydration on athlete scoresis one of the causes of decreased performance. The following results agree 65% while the results strongly agree 25% then the results strongly disagree 10% the results disagree 0% this means that dehydration is the cause of not being able to reach the target score. If there are different thoughts and perspectives, we can find the right and effective solution to prevent dehydration. As well as helping to raise awareness about meeting fluid needs. In this way, it is expected to achieve the desired target score during practice, and problems can be solved properly and effectively.

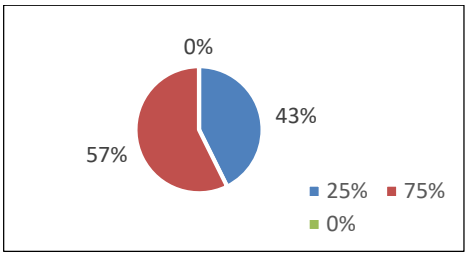

Figure 6.Important Questionnaire Results
Hydration during Exercise

Based on the results of the data in Figure 6, fluid needsthe importance of hydration in training 57% agree that athletes need to pay attention to fluid requirements, so they can be more focused when scoring in the training process so that the goals of training can be achieved 43% strongly agree fluid needs are a very important component in supporting the spirit of endurance athletes and focus on training. Then there are the results of the diagram 0% strongly disagree and disagree. Athletes can finish with this program thanks to their fluid needs being met. An effective met needs fulfillment program with a good score has helped the athlete to complete the training program successfully and not feel overwhelmed because dehydration does not occur.

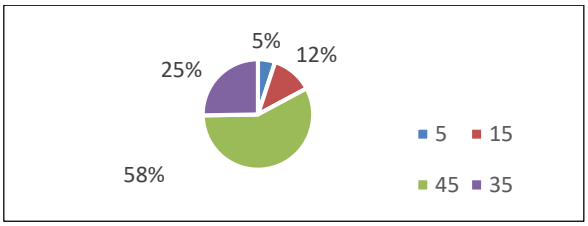

Figure 7. Results of the Hydration Statement Questionnaire
Affecting the Performance of Archery Athletes

Based on the results of the data in Figure 7, in the above statement hydration is involved in the performance of the athlete's pulmonary endurance with muscle endurance, should be part of the athlete's responsibility. Because of that, hydration in training and competition must be seen with the right time, place and the results of the athlete's score. The results in the statements agreed 45% and strongly agreed 35% with the results strongly disagreed 5% and the statements also disagreed 15% helping athletes to understand the needs of the body and improve the ability of athletes to complete training programs. the performance of athletes' pulmonary endurance with muscular endurance also allows athletes to get high scores. the performance of athletes' pulmonary endurance with muscular endurance also helps athletes to maintain fitness in completing better training programs.

An archery athlete is required to shoot an arrow and hit a predetermined target at a certain distance. Increasingly trained consistently with targets that have points each and the

line starts from x, 10,9 are yellow, 8,7 are red, 6, 5 are blue, 4,3 are black and 2,1 are white and 0 outside specified circle line. So, the more it hits the yellow or x line, the higher the accuracy of the athlete.(Izzah et al., 2018).

1. Archery Accuracy

Based on the statement above, it can be concluded that archery is the closer to the arrow hitting the center point or point x, the higher the accuracy of the archer.(Ngatman, n.d.). So that the distance between one arrow and another arrow will be closer. So that the higher the precision when shooting the athlete(Kridasuwarso et al., 2020).

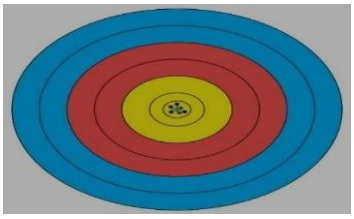

Figure 8.Archery Accuracy and Precision
Source: Personal Documents of Febriansyah, 2021

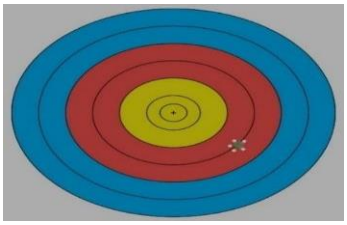

Figure 9. Archery Precision
Source: Personal Documents of Febriansyah, 2021

Based on Figure 8 above, it shows that there is accuracy and precision. However, Figure 36 only shows that there is archery precision and there is a lack of good accuracy. Because the arrow hit was found in a red ring that was far from its main target. Namely the yellow ring that is colored X (located in the middle circle). Whereas figure 9 shows the results of precision and accuracy in archery against the background of the density of arrows hitting. The arrows themselves are found in a yellow circle located in the center of the circle which is used as the main target for obtaining the accuracy and precision required for concentration, good endurance and precision.

2. Dehydration and Hydration

Dehydration occurs in archery athletes because an athlete experiences a lack of fluids in the body. Dehydration does not just happen immediately, but occurs

gradually(Goulet, 2012). There are factors that can affect dehydration internally and externally. According to (Rismayanti, 2012) in the journal (Irianto, n.d.) States that

> *"The danger of dehydration is due to decreased cognitive abilities difficulty concentrating, risk of urinary tract infection, and stone formation kidneys, as well as reducing stamina and work productivity through disturbances of headaches, lethargy, seizures leading to fainting, drinking enough and not drinking Holding urine is the most effective way to prevent infection urinary tract,"*

Therefore, it is necessary to pay attention to hydration for someone, especially an athlete. Hydration here is defined as the balance of fluids in the body which acts as a function of the body's cell metabolism(Meyer et al., 2012). The following hydration can be classified into several groups, namely as follows:

a. Euhydration: normal or balanced fluid status in the body
b. Hyperhydration: excess fluid status in the body (awater excess)
c. Hypohydration: decreased fluid status in the body (a water deficit)
d. Dehydration: the process of losing water in the body that causes dehidrated
e. Rehydration: returning body fluids, becoming rehydrated(Apriliyani, nd)

Dehydration is caused by a disturbance in the balance of electrolyte fluids and can get worse if accompanied by prolonged physical activity and individual factors such as age, drinking habits and nutritional status.(Sudargo et al., 2021). Sustained dehydration can cause thickening of the blood circulation which in the long term will result in impaired organ function (Nalurika et al., 2022). The following classification of dehydration is as follows: dehydration is classified into three parts, the first is mild dehydration, the second is moderate dehydration and severe dehydration.Mild dehydration canseen from 4% of body weight, moderate dehydration 6% of body weight, and moderate dehydration 8% of body weight.(Andayani & Dieny, 2013). Mild levels of dehydration such as: weakness, dizziness, muscle cramps, fatigue and decreased concentration while severe levels of dehydration, namely the body loses fluids <6% of body weight which can cause muscle stiffness, kidney failure, blue lips and can result in death (Ridwan, 2017).

Table 1. Presentation of Body Water Loss with Signs and Symptoms

% Losing Weight Due to Water	The sign generated
1-2	Strong thirst, feeling of discomfort, and loss of taste
3-5	Dry mouth, decreased concentration at work and it becomes difficult to focus on work, excessive shaking, hot skin, vomiting, drowsiness, unconsciousness, emotional instability, decreased urine output

6-8	Increased body temperature, increased heart rate and respiratory rate, shortness of breath, headaches, articulation of speech is not smooth, muscles are weak and blue
9-11	Experiencing seizures, hallucinations, tongue looks swollen, circulation balance is weak, kidney failure and decreased volume blood pressure

Source: Thomas Jonice, Manora Melinda, Vaughan Linda (Santoso, et al 2012) in(SKM et al., 2017)

According to (Armstrong, 2005) Here is a way to determine urine hydration status. The following foods can cause urine color, including:

a. Consuming coffee and tea makes the urine brown in color (more than 500 mg/4 cups)
b. Consuming carrots, pumpkin and vitamins C and B complex can make urine a brown color no more than 400 mg.
c. Bosen berries, cereals, syrups and soft drinks can make urine red.

Based on the determination of urine, it can be checked with a urine color chart that can be used at any time, except when you first wake up in the morning because it is still concentrated.(Hardinsyah et al., 2011).

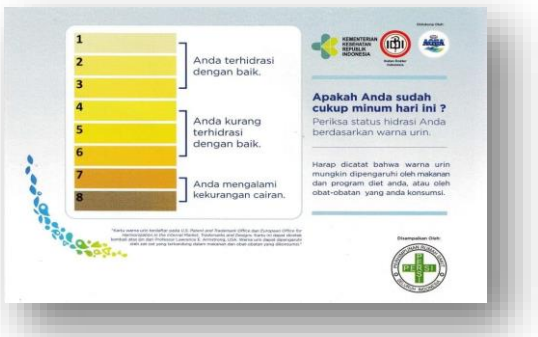

Figure 1.. Urine Color Criteria *Source: PERSI, 2018*

There are types of urine specimens including the time of collection, namely in the form of urine at any time, first morning urine, second morning urine, 24 hour urine and postprandial urine(Majid, 2021):

a. Urine during (Random)

   This urine is used for various inspection activities. Issued at an unspecified time.

b. First morning urine

   Urine the first morning after waking is best to be checked for both routine checks and pregnancy tests

c. Second morning urine

   Urine is collected 2-4 hours after the first urine output

d. 24 hour urine

   This urine is collected in a large bottle with a volume of 1½ liter or better closed.

e. Urine 2 hours postprandial

Urine is well used in the examination of glucosuria. It is the first urine to be excreted1½-3 hours after eating(Pratiwi et al., 2019).

3. Dehydration Prevention Efforts

Water requirements here vary, depending on gender, age, and physical activity. The human body needs as much as 1 liter of calories per kg of calories. Following are the efforts that need to be made in overcoming dehydration according to(Christy, 2014)namely as follows:

a. It is recommended to drink water regularly (don't use the word thirst as an indicator)
b. Weigh the body before and after exercise. (every 1 kg of weight loss is the same as a lack of 1 liter of liquid that comes out of the body. So every 1 kg lost must meet the need for 1 liter of water)
c. The color produced by urine is used as an indicator. (colors that tend to be dark/turbid and show a little lack of fluids in the body, meanwhile, urine is bright/pale and lots of it shows good hydration for the body(Hooper et al., 2016).

Conclusion

Hydration status is an illustration related to the balance of water in and out in the body. StatusHydration describes our body in a state of dehydration/overhydration/euhydration/hyperhydration/hypohydration. Therefore, in order to find out problems related to dehydration and hydration, simple examinations and laboratories are needed according to the situation. The endurance quality of archery athletes in the Special Region of Yogyakarta. The importance of athlete hydration agrees 68.8% and athlete awareness in fulfilling fluids 62.5% and completing the training program and managing drinking time is one of the best ways, with the results agreeing 68.8% in the effect of dehydration on athlete scores 56.3%,

As for the 5th diagram, the need for fluids is the importance of hydration in training. The results in the statement agreed 43.8% and strongly agreed 31.3% with the results strongly disagreed 6.3% as well as those who disagreed 18.8% helped athletes to understand the need for fluids in the body and increased the athlete's ability to complete the training program. Hydration is involved in the performance of athletes' pulmonary endurance with muscular endurance also enabling athletes to get good scores and well-fulfilled training programs. Hydration is involved in the performance of the athlete's pulmonary endurance

and also helps the athlete to exercise spiritedly with good endurance and maintain better mental focus.

Fulfillment of hydration is very important to do to supportathlete's performance and appearance when doing training or racing which is characterized by good accuracy. Based on the research above. Researchers suggest that:

a. Archery athletes should pay more attention to the hydration level of the body properly, so that they can maintain good performance during training and competition
b. Fulfillment of water consumption by calculating the number of calories. So that it can fulfill the consumption of water for the body, and
c. Coaches should pay more attention to the hydration of their athletes, and remind athletes to avoid cases of dehydration.

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