

Hydration Knowledge Level in Higher Student Athletes in Indonesia

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ABSTRACT

The purpose of this study is to provide an overview of how the insights of athletes who are still students about hydration or the need for fluids in the body. This research method is a quantitative research with a focus on cross-sectional descriptive research design. Most of the athletes who are still students already have insight or knowledge regarding the importance of fluid needs (hydration) both during the training process, competition and even at rest after exercising. Most of the athletes who are still students do not understand and have enough concern regarding the importance of fluid needs and their correlation to nutrition so that awareness of the management of fluid needs both during exercise, competition and at rest tends to be less than optimal. Referring to the research findings, it is necessary to re-educate student athletes regarding the management of fluid needs both during exercise, competition and at rest

Keywords: Hydration, Knowledge Level, Student Athletes

1. INTRODUCTION

Fluid is a major component in the physical activity of an athlete. Loss of body fluids or often called dehydration can reduce exercise performance and health problems. Dehydration can also decrease cognitive/mental abilities, especially at levels of dehydration more than 2%. These cognitive abilities play an important role in sports that require skill, concentration and tactics. A decrease in cognitive function and concentration will result in a player making the wrong movement/technique or being less responsive to the game situation, resulting in potential injury.

Dehydration occurs due to the removal of body fluids (through sweat) too much; lack of fluid intake through drinking; or a combination of the two. Athletes have the potential to become dehydrated during exercise, especially for athletes who do not get enough information about meeting their nutritional and fluid needs during their exercise. Student athletes need to maintain hydration status in their bodies so that they get optimal training results and reduce the risk of health problems

2. METHODS

This research method is a quantitative research with a focus on cross-sectional descriptive research design. According to [18] suggests that descriptive

research is research that aims to explain existing phenomena by using numbers to rely on individual or group characteristics. This research is a collaboration between more than one scope that applies the time approach in it, so this research is included in the cross sectional research group. Cross Sectional Research is a study that studies the dynamics of the relationship or correlation between risk factors and impacts, the approach taken is by observation or data collection at once at a certain time condition (point time approach). Each research subject was only observed once and the measurement time span was carried out on the status of the character or variable of the subject at the time of the study. Research subjects do not have to be observed at the same time [1].

3. RESULTS

This research is a cross-sectional descriptive study, namely research that provides an overview of the research object as it is. The cross sectional descriptive is intended to provide an overview of how the insights of the athletes who are still students regarding hydration or the need for fluids in the body. The sample in this study were 217 people. The sampling technique referred to in this study is purposive sampling (samples with criteria). The criteria in this study are; (1) the research sample is an active athlete (starting at the Regional, National, Regional and

International levels), (2) the research sample is an active student, and (3) willing to be a sample in this study by filling in the statement that has been submitted before filling in the data.

The area of origin of the respondent athletes who gave responses to this study were; Central Java, East Java, West Java, Special Region of Yogyakarta, West Sumatra, North Sumatra, West Nusa Tenggara, Papua, South Sulawesi, DKI Jakarta, South Sumatra, North Kalimantan, West Kalimantan and Central Sulawesi. Student athletes who became respondents in this study came from various sports, namely; Football, Fencing, Volleyball, Basketball, Taekwondo, Futsal, Athletics, Badminton, Karate, Archery, Pencak Silat, Table Tennis, Gymnastics, Swimming, Cycling Racing, Softball, Court Tennis, Muaythai, Judo, Rugby, Handball and Rock Climbing.

As an illustration of the achievements of all respondents who are athletes who are still students, they are; athletes who have excelled at the Regional (provincial) level by 49.8% or as many as 108 people, athletes who have excelled at the National level 39.6% or as many as 86 people, athletes who have accomplished at the international level 10.6% or as many as 23 people.

Data to identify insights from athletes who are still students regarding hydration or the need for fluids in the body is revealed by a google form-based questionnaire.

3.1. Description of respondents by gender

The results showed that 76.5% of the research subjects were male and the remaining 23.5% were female. The following is a complete description of the number of respondents in this study in the pie chart image below.

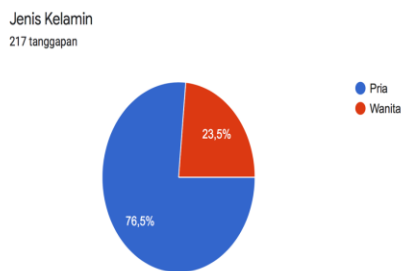


Figure 1. Pie Chart Diagram of the total research respondents by gender

3.2. Description of having received counseling about nutrition

The results showed that 67.7% of the research subjects had received education about nutrition counseling and the remaining 32.3% had never received education about nutrition counseling. The following is a complete description of the number of respondents in this study in the pie chart image below

Pernah mendapat penyuluhan tentang nutrisi sebelumnya : 217 tanggapan

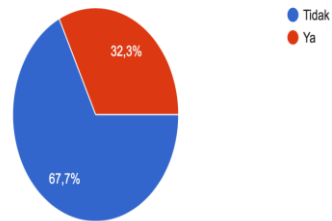


Figure 2. Pie Chart Diagram about the experience of getting education about nutrition counselling

3.3. Description of sources of information related to nutrition

The results showed that 34.3% of research subjects received information related to nutrition from courses (lectures), 24.3% of research subjects received information related to nutrition from seminars or sports training, 34.3% among research subjects get information related to nutrition that comes from information in the form of brochures, internet and other media and 7.1% of research subjects get information related to nutrition from other sources. The following is a complete description of the number of respondents in this study in the pie chart image below.

saya pernah mendapatkan informasi nutrisi dari: 70 tanggapan

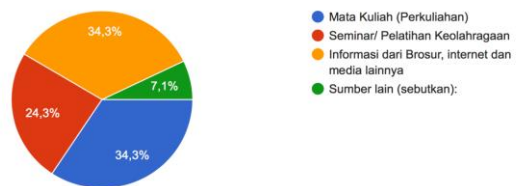


Figure 3. Pie Chart Diagram around sources of information related to nutrition

The segment of the student athlete's knowledge point of view regarding hydration is shown below

Table 1. Percentage of the point of view of how much knowledge of student athletes about the importance of fluid needs in sports activities

No	Statement	Answer	
		True	False
1	Salt tablets can prevent dehydration (dehydration) when exercising	61,8	38,2
2	Thirst is the best indicator that an athlete is losing body fluids (dehydration).	92,6	7,4
4	Athletes are not recommended to consume fluids/drinks while exercising	18,9	81,1
5	Coaches are not recommended to tell their players to consume fluids/drinks while practicing	19,4	80,6
6	Coaches are not recommended to ask their players to consume fluids/drinks while competing	18	82
7	Availability of drinks for athletes while training is important	100	0
8	Availability of drinks for athletes when competing is important	99,1	0,9
9	Athletes need to consume isotonic drinks / sports drinks in the first 2 hours after exercising	89,4	10,6
10	Isotonic drinks / ionized drinks (sports drinks) are better than plain water because they can replenish glycogen reserves in muscles	82,5	17,5
11	Athletes need to consume 500-600 cc (equivalent to 2-3 glasses) of water or isotonic drinks a few hours before exercising	82,9	17,1
12	Athletes need to consume 200 – 300 cc (equivalent to 1-1.5 glasses) 10-20 minutes before competing	84,3	15,7
13	Athletes are encouraged to consume isotonic drinks instead of plain water when exercising for more than 1 hour	56,2	43,8
14	Monitoring the color of urine (urine) is one way to assess whether an athlete is experiencing fluid loss (dehydration) or not.	82,9	17,1
15	Excessive sweating, thirst and muscle cramps (spasms) are signs of loss of body fluids (dehydration).	87,6	12,4
16	Consumption of more than 2 alcoholic drinks, the day before a match, can cause the risk of losing body fluids (dehydration)	84,3	15,7

4. DISCUSSION

The purpose of this study is to provide an overview of how the insights of athletes who are still students about hydration or the need for fluids in the body. Data to identify insights from athletes who are still students regarding hydration or the need for fluids in the body is revealed by a google form-based questionnaire

The results showed that; 67.7% of the research subjects had received education about nutrition counseling and the remaining 32.3% had never received education about nutrition counseling. 34.3% of research subjects received information related to nutrition sourced from courses (lectures), 24.3% of research subjects received information related to nutrition from seminars or sports training, 34.3% of research subjects received information related to nutrition sourced from information in the form of brochures, internet and other media and 7.1% of research subjects received information related to nutrition from other sources

Regarding the element of knowledge of student athletes in universities spread across Indonesia, they expressed the view that 61.8% of

research respondents thought that it was true that salt tablets can indeed prevent fluid deficiency (dehydration) during exercise and 38.2% of research respondents argued that that it is not true that salt tablets can prevent dehydration during exercise. 92.6% of research respondents think that it is true that thirst is the best indicator in showing that athletes are dehydrated and 7.4% of research respondents think that it is not true that thirst is the best indicator in showing that athletes are dehydrated. 81.1% of research respondents think that it is not true that athletes are not recommended to consume fluids/drink while exercising and 18.9% of research respondents think that it is true that athletes are not encouraged to consume fluids or drink while exercising. 19.4% of research respondents think that coaches are not recommended to ask their players to consume fluids or drinks while practicing and 80.6% of research respondents are of the opinion that it is not true that coaches are not recommended to order their players to consume fluids or drinks while practicing. 18% of research respondents think that it is not recommended for coaches to ask their players to consume liquids or drinks while competing is correct and 82% of research respondents think that coaches are not

recommended to ask their players to consume fluids or drinks while competing is not true. 100% of research respondents think that the availability of drinks for athletes when they are training is important is true and 0% of research respondents think that the availability of drinks for athletes when they are training is important is not true. 99.1% of research respondents think that the availability of drinks for athletes when they are competing is important is true and 0.9% of research respondents think that the availability of drinks for athletes when they are competing is not true. 89.4% of research respondents think that athletes need to consume isotonic drinks / ionized drinks (sports drinks) in the first 2 hours after exercising are true and 10.6% of research respondents think that athletes need to consume isotonic drinks / ionized drinks (sports drinks) in the first 2 hours after exercising. not true. 82.5% of research respondents think that isotonic drinks/sports drinks are better than plain water because they can replenish glycogen reserves in muscles and 17.5% of research respondents think that isotonic drinks/ionized drinks (sports) drink) is better than plain water because it can replenish glycogen reserves in muscles is not true. 82.9% of research respondents think that athletes need to consume 500-600 cc (equivalent to 2-3 glasses) of water or isotonic drinks a few hours before exercising is true and 17.1% of research respondents think that athletes need to consume 500 -600 cc (equivalent to 2-3 glasses) of water or isotonic drinks a few hours before exercising is not true. 84.3% of research respondents think that athletes need to consume 200 – 300 cc (equivalent to 1-1.5 glasses) 10-20 minutes before competing is true and 15.7% of research respondents think that athletes need to consume 200 – 300 cc (equivalent to 1-1.5 glasses) 10-20 minutes before the match is not correct. 56.2% of research respondents think that athletes are more recommended to consume isotonic drinks than plain water when exercising with a duration of more than 1 hour is true and 43.8% of research respondents think that athletes are more recommended to consume isotonic drinks than water normal when exercising with a duration of more than 1 hour is not true. 82.9% of research respondents think that monitoring the color of urine (urine) is one way to assess whether an athlete is experiencing loss of body fluids (dehydration) or not is correct and 17.1% of research respondents think that monitoring the color of urine (urine) is one way to judge whether an athlete has lost body fluids (dehydration) or not is not true. 87.6% of research respondents think that excessive sweating, thirst and muscle cramps (spasms) are signs of loss of body fluids (dehydration) and 12.4% of study respondents think that excessive sweating, thirst and muscle cramps (spasms) is a sign of loss of body fluids (dehydration) is not true. 84.3% of research

respondents think that consumption of more than 2 alcoholic drinks, the day before a match, can cause the risk of losing body fluids (dehydration) is true and 15.7% of research respondents think that consumption of more than 2 glasses of alcoholic beverages, the day before a match, can lead to the risk of losing body fluids (dehydration) is not true.

This study examines the insights or knowledge of college student athletes about hydration and fluid replacement practices. The results suggest that these college athletes need to be educated on awareness about proper hydration and fluids in replacement practice, and should be monitored regularly to reinforce positive attitudes and behaviors about hydration. Significant and positive correlations were observed between hydration-related knowledge scores, although weak, suggesting that increased knowledge can increase awareness of the importance of fluids during sports activities.

Taken together, these results suggest that knowledge about hydration is indeed important for promoting changes in the dietary practices of these college or college athletes. The results of this study indicate that although athletes can have adequate general hydration knowledge, their knowledge does not always match their level of knowledge, especially regarding hydration. One specific area of hydration and fluid replacement that many of the athletes surveyed showed poor knowledge of was fluid consumption during exercise. These results also imply that the availability of these specific beverages is not sufficient to increase their consumption. In addition to educating athletes about the proper use of beverages during exercise, coaches and sports nutritionists have a responsibility to ensure that athletes involved in endurance sports consume fluids while exercising.

5. CONCLUSION

Based on the research results obtained, the research team can conclude that. Most of the athletes who are still students already have insight or knowledge regarding the importance of fluid needs (hydration) both during the training process, competition and even during rest after exercising. Most of the athletes who are still students do not understand and have enough concern regarding the importance of fluid needs and their correlation to nutrition so that awareness of the management of fluid needs management both during training, competition and at rest tends to be less than optimal. Referring to the findings of the research, it is necessary to re-educate student athletes regarding the management of fluid needs both during exercise, competition and at rest.

REFERENCES

- [1] ACSM Position stand. Exercise and fluid replacement. American College of Sports Medicine, 2007.
- [2] Almatsier S. Prinsip Dasar Ilmu Gizi. Jakarta :Gramedia Pustaka Utama, 2009.
- [3] Casa DJ, et al. National Athletic Trainers Association Position Stand. Fluid Replacement for Athlete. *Journal of Athletic Training*, (2000) 35(2):212-224.
- [4] Castagna C, D'Ottavio S, Granda Vera J, Barbero Alvares JC. Match demands of professional futsal : a case study. *J Sci Med Sport*. (2009);12:490-4.
- [5] Cogan MD. 1991. *Fluid and Electrolytes Physiology & Pathophysiology*. California : Appleton & Lange.
- [6] Dahlan MS. Besar sampel dan cara pengambilan sampel dalam penelitian kedokteran dan kesehatan. Jakarta : Salemba Medika. Hal. 36-41, 2009.
- [7] Foss ML, Keteyien SJ. *FOX's Physiological Basis for Exercise and Sport*. 6th ed. Boston : WCB/McGraw-Hill, 1998.
- [8] Garcia Jimenez JV, Yuste JL, Pellicer G. Hydration Habits of Elite Field Futsal Players during Official Matches : Defenders and Forwards. (2014) *AJSSM* 2(3) : 88-92.
- [9] Goodman A, Klitzman S, Lau S, et al. Exertional Rhabdomyolysis and Acute Renal Impairment – New York City and Massachusetts. *MMWR. Morb. Mortal.* (1990) *Wkly. Rep.* 39:751-756.
- [10] Irianto DP, Danardono, Zein MI. Profile of Pre-Practice Hydration Status of Indonesian Junior Sub-Elite Karate Athletes : Pilot Study. *Proceedings Conference on Interdisciplinary Approach in Sports 2018*.
- [11] Murray RS & Udermann EB. Fluid Replacement : a Historical Perspective and Critical Review. *International Sports Journal* (2003) 7 (2) : 58-64.
- [12] PDSKO. *Buku Petunjuk Praktis Pemenuhan Kebutuhan Cairan dalam Latihan Fisik*. Jakarta : PDSKO, 2014
- [13] Santoso BI, Hardinsyah, Siregar P, Pardede SO. *Air Bagi Kesehatan*. Jakarta : Centra Komunitas, 2012.
- [14] Sawka MN, Burke LM, Eichner ER, Maughan RJ, Montain SJ, Stachenfed NS. Exercise and fluid replacement. *Medicine and Science in Sports and Exercise*, 39(2) : 377-390, 2007.
- [15] Sherwood. *Fisiologi Manusia dari Sel ke Sistem*. Jakarta : EGC, 2001.
- [16] Street C. Supplement : Drinking for Performance. *Journal Muscle and Fitness*, 60 (6) : 33, 1999.
- [17] Sugiyono. *Metodologi Penelitian Kuantitatif Kualitatif dan R & D*. Bandung: Alfabeta, 2012.
- [18] Syamsuddin, dkk. *Metode Penelitian Pendidikan Bahasa*. Bandung: PT. Remaja Rosdakarya., 2011.
- [19] Wilmore JH, Costill DL, Kenney WL *Physiology of Sport and Exercise*. 4th ed. US: Human Kinetics, 2008.