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Research Article

BODY HYDRATION OF FEMALE HANDBALL PLAYERS DURING THE GAME STATUS

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ABSTRACT

The purpose of this study was to determine the hydration status of women's handball players on game day. Thirteen female handball players (age = 16.7 ± 0.7, height = 167.7 ± 6.8, sports age = 3.7 ± 1) voluntarily participated in the study. Hydration status of athletes in the morning of the match, before and after the game measured, body weight and fluid intake were observed. Athletes' USG changes were tested with Repeated Measure ANOVA, and athletes' body weights before and after the game were compared with a paired samples t test. Relationship between fluid intake and changes in ultrasound and body weight It was evaluated by Pearson's correlation test. In the morning measurement, 10 of the athletes were dehydrated and 3 were dehydrated. In the pre-game measurement, the results were the same as in the first measurement, after the game, all athletes were hydrated.

KEYWORDS

Handball, Performance, dehydration, Pearson correlation, hydration status.

INTRODUCTION

Maintaining fluid balance is essential for maintaining athletic performance and body temperature in young and adult athletes. Even moderate dehydration often increases physiological pressure, resulting in a disproportionate increase in heart rate and subsequent decrease in cardiac output, making it difficult for the

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body to reduce heat. In addition, fluid loss of more than 2% of body mass prevents performance in both the laboratory and the field. In addition, current research shows that even a low degree of dehydration (about 1%) sports causes unwanted changes in its indicators. It is important to monitor and ensure adequate fluid replacement of athletes after exercise or play. Thus, the aim of this study is to investigate the hydration status of female handball players during the game day.

METHOD

13 young female handball players voluntarily participated in the study. Physiological characteristics of athletes are recorded . After the study was explained to the athletes in detail, participant consent forms were obtained from athletes over 18 years of age and from themselves and their legal representatives for underage athletes. 18. The criteria for participation in the study were a normal physical examination of the athletes and the absence of metabolic, cardiovascular or renal diseases. All participants were regularly trained and had a normal body mass index. In addition, the athletes were told not to drink alcohol or caffeine-containing beverages until the time of measurement the day before the measurement. In addition, the body mass of the athletes was measured before and after the competition. Athletes had easy access to water during the competition, but fluid intake was not recommended. After the competition, the final samples were collected and analyzed, and the athletes' body weights were measured . In the literature, the number of studies revealing the hydration status of young athletes is very limited. Cavouras et al. (2012) study showed that training given to young athletes at a summer sports camp improved their hydration status within two days. In addition, this improvement in athletes has also been reported to increase their endurance performance. In contrast, although the majority of athletes in the study experienced a decrease in dehydration (-25%), almost 60% of athletes finished summer camp dehydrated. Additionally, in studies with young athletes, athletes were more likely to be dehydrated from start to finish. reported (Arnaoutis et al., 2013; Osterberg, Horswill, & Baker, 2009; Yeargin et al., 2010). It should be noted that in many sports, young athletes unknowingly try to maintain their performance in a dehydrated state (Arnaoutis et al., 2015). Despite athletes having access to water at training sites, inadequate fluid intake and long-term fluid deficits persist. Current research suggests that young athletes are more likely to become dehydrated during training, do not drink enough fluids during exercise, and therefore exhibit voluntary dehydration, both indoors (Rivera-Brown and De Felix-Davila 2012) and outdoors (Da Silva et al.) occurs. ., 2012; Gibson, Stewart-Hill, Pethick, & Gaul, 2012) report that this occurs in sports. Although there are many studies investigating the hydration status of professional athletes and related variables, there is no research investigating the hydration status of amateur

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youth handball players on the day of competition. Therefore, the purpose of this study is to investigate the dehydration status of young amateur athletes on the day of competition.

Material

13 young female handball players voluntarily participated in the study. Physiological characteristics of athletes are presented in Table 1. After the study was explained to the athletes in detail, participant consent forms were obtained from themselves for athletes over 18 years of age, and from themselves and their legal representatives for athletes under 18 years of age. The study was conducted in accordance with the recently published Declaration of Helsinki. The criteria for participation in the study were that the athletes had a normal physical examination and did not have metabolic, cardiovascular or renal diseases. All participants exercised regularly and had a normal body mass index.

Table 1. Physiological characteristics of athletes.

People who come back	The least	Maxima l	Average	Turning
Age (years)	16	18	16.77	.725
Height (cm)	160	182	167.00	6,831
Weight (kg)	50.0	75.0	61 692	8.5087
BMI (kg/height 2)	18.82	24.77	22.0259	1.72831
sports age	2	5	3.77	1013

Regarding the body weight of athletes, there is no significant difference between before and after the game (before the game = 61.6±8.5, after the game = 61.6±8.5, p = 0.598) . During the competition, the athletes consumed 1.14 ± 0.4 liters of fluid.

2.1. Statistical analysis of data

Results were presented as mean and standard deviation (SD). Since the data showed a normal distribution, parametric tests were applied. Athletes' USG changes were tested by repeated-measures

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analysis of variance (ANOVA), comparing athletes' body weights before and after the game with a matched-samples test. The relationship between fluid intake and changes in USG and body weight was examined by Pearson's correlation test.

DISCUSSION

The most important findings of this study, which was conducted to determine the hydration status of young handball players on the day of the game, are as follows: 1) Athletes were more dehydrated in the first measurement than in the subsequent measurements . 2) Athletes' post-game USG status was significantly lower than other measurements. Performance or performance in any sport can be affected for neuromuscular, mental, and metabolic reasons, and dehydration can affect one or more components of performance. For example, increased dehydration has been reported to have a major negative impact on athletic performance and motor function (Baker et al., 2007; Edwards et al., 2007). In addition, a study by Cheuvront et al. (2003) showed that dehydration leads to disorders in the cardiovascular system. Dehydration affects the neuromuscular system (Ftaiti, Grelot, Coudreuse and Nicoll, 2001) and muscle membrane stimulation (Costill, Cote, & Fink, 1976). If athletes become dehydrated during performance, they may experience more physiological stress. In addition, dehydration has a negative effect on health. Dehydration causes an increase in the arginine vasopressin (AVP) ratio. AVP travels through the bloodstream to the kidneys and prevents the excretion of excess fluid through the urine. Although it is important to maintain fluid balance, the results when this condition persists for a long time can be very harmful. High levels of AVP can lead to obesity, chronic kidney disease, glucose dysregulation, and cardiovascular disease (Arnaoutis et al., 2017; Carroll, Betts et al. Johnson, 2016). It has also been shown to cause cognitive impairment in youth, such as memory and cognitive functions (Bar-David, Urkin, & Kozminsky, 2005; Fadda et al., 2012). Most of the athletes in our study were dehydrated the morning of the competition. Although the situation improved before the competition, most of the athletes were dehydrated after the competition. However, no high correlation was found between athletes' fluid intake and changes in their hydration status. Arnaoutis et al. (2015) evaluated the pre- and post-exercise hydration status of young athletes in different sports and found that the majority of athletes (67.3%) began training in a dehydrated state and that most athletes maintained the same state at the end of training. was left or worse. Similarly, Yeargin and colleagues (2010) observed the dehydration status of high school players on the day of practice. Similar to our study, they showed higher dehydration in athletes in the morning measurement. In addition, Gurses et al. (2018) noted in their research that they determined the state of dehydration of athletes on the day of weighing and competition, and

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that there was no sufficient improvement in the level of hydration of athletes within 15 hours . Therefore, coaches, athletes, and parents need to be aware of the negative effects of dehydration on health and performance and develop realistic and practical rehydration strategies.

CONCLUSIONS

As a result, maintaining optimal fluid balance in athletes is critical for performance workers. Athletes and coaches should drink enough fluids during training or competition athletes should be educated about the importance of hydration for health and performance. However, steps should be taken to ensure that athletes have access to water/fluids on the field.

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