



A Comparative Evaluation on Hydration Status and Hydration Knowledge of Young and Adolescent Male Sports Players

R.M.SOBANA

Assistant Professor, Department of Home Science, JBAS College for Women, Teynempet, Chennai-18, Tamilnadu, India.

DR. JOSEPHINE NIRMALA MANY

Associate Professor, Department of Home Science, Bharathidasan College for Women, Pondicherry, India.

ABSTRACT

Hydration is the biggest nutritional barrier among players. Adequate knowledge on hydration helps the players to improve fluid intake habits and thereby hydration status and sports performance. This study compared the fluid habits, hydration status and hydration knowledge between 60 young and 60 adolescent male sports players. The young players exhibited good fluid intake habits than adolescents, but less in quantity, which resulted in poor hydration status. A significant difference in hydration status was recorded. The adolescent player's hydration knowledge was good than young players. A positive relationship was found between hydration knowledge and hydration status, which indicates the necessity of continuous monitoring of hydration status and frequent hydration education to the sports players.

KEYWORDS : Hydration status, Hydration knowledge, Young players, Adolescent Players

INTRODUCTION:

Water is the most important component of the human body of which it accounts for approximately 60% and also a vital nutrient for sportspersons (Cheuvront, 2003). During an intense and prolonged exercise in hot climatic conditions, loss of water is accentuated. (Casa, 2010). "Hydration is the biggest nutritional barrier among players". It has been shown that losses as small as 2% of body weight increase significantly physiologic strain, decrease exercise performance and hinder the thermoregulatory advantages conferred by high aerobic fitness and heat acclimatization (ACSM, 2009).

Poor acclimatization of athletes is a major concern. Young sports players adjust to heat more slowly than adolescents/ adults due to their poor thermoregulation and often neglect fluid intake and exhibit hypo hydration due to poor thirst sensation (Marino et al., 2000). Because of the frequency and intensity of their exercise bout, adolescent players are a population at increased risk for hypo hydration (Rehrer, 2001). The Knowledge of players on sports nutrition, including hydration is highly influenced by the player's parents, coaches, peer groups and media which are the barriers for maintaining adequate hydration, hence results in dehydration.

Therefore, the purpose of the study was undertaken with the objectives

(1) To compare the pre practice hydration status of young and adolescent male sports players (2) to study the relationship between hydration knowledge and hydration habits of the players.

METHODOLOGY:

Sample selection: Using purposive sampling technique, a total of 120 sports players, 60 each young and adolescent boys in the age group of 7-12 years and 13-19 years respectively with sports experience of 2-4 years and do their practice regularly were selected from schools, sports academies and colleges.

Tools used in the study:

Hydration habits and hydration knowledge: A self developed questionnaire was used to study the sports player's fluid intake habits, type and fluid intake before, during and after practice. To assess the hydration knowledge of the players, the questions from Nigan et al., (2013) were modified and used to suit the age group of the present study with true or false response.

Hydration Status: To assess their hydration status, total body water, percent change in body mass, urine colour was measured using body composition analyzer and a urine colour chart by Armstrong et al., (1998) and compared with hydration index given by National Athlet-

ic Trainers' Association (NATA) Position Statement: Fluid Replacement for Athletes (2000). To check the prevalence and frequency of occurrence of dehydration, the players were asked to tick the dehydration symptoms listed, that was taken from Andrew Phillip (2011) with slight modification

Statistical Analysis: The data collected were statistically analyzed for frequency, mean, standard deviation, independent sample t -test and Pearson correlation coefficient test to compare between the age groups using SPSS version 16.

RESULTS AND DISCUSSION

Hydration Habits of the Sports players:

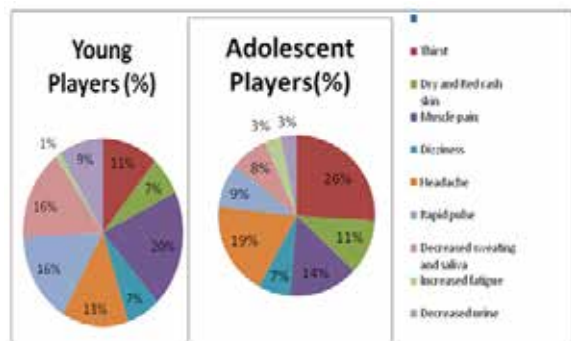
Table-1: Comparison of Fluid Intake habits of young and adolescent male sports players

Type of Fluid Intake	Young Sports Players (%)			Adolescent Sports Players (%)		
	Before	During	After	Before	During	After
Water	26.4	16.0	39.8	20.0	26.7	53.2
Coffee	1.5	0	0	16.8	0	2.7
Tea	3.3	0	0	29.5	0	3.3
Fruit juice	14.8	26.7	23.3	3.5	0	6.7
Carbonated beverages	16.7	7.0	13.7	2.7	3.5	12.0
Glucose water	5.6	6.5	5.9	6.7	2.6	6.0
Milk	17.2	0	11.0	3.3	0	1.3
Butter milk	0	0	0	0	2.7	0.3
Protein Drink	14.5	0	3.3	17.5	0	4.9
No fluids	0	43.8	0	0	64.5	9.6

It was observed from Table-1, that plain water consumption was high among both the groups. The young male sports players consumed milk, carbonated beverages, fruit juice and protein drink before and after practice. Whereas majority of the adolescent players found to consume tea followed by water, protein drinks and coffee before practice. 64.5% of the adolescents were not drinking any fluids during practice, compared to 44% of the young players. After practice, water consumption was high in both the groups. In contrast to adolescents, the quantity of water consumption among young players was good, since their parents and coaches insist them to drink adequate fluids (Fig-1).

Prevalence of Dehydration: From Figure-2, it was noticed that, invariably of age maximum number of sports players experienced the dehydration symptoms during and after practice. Due to poor thirst sensation, only 33% of the young players experienced thirst than adolescents (78%). The young players found to have muscle pain, weakness and fatigue more than adolescents.

Figure-2: Prevalence of Dehydration symptoms



Hydration Knowledge: The knowledge on hydration aspects in particular is vital to influence athletes' fluid intake habits and in turn to enhance their hydration status Table -2 shows that majority of the adolescent players were aware of the effect of dehydration, fluid guidelines for competition, whereas the young players exhibited a poor knowledge on hydration which was similar to the results of Casa et al., (2010). The knowledge on monitoring hydration status was under reported by both young (13.3%) and adolescent players (21.8%), which was also noticed by Decher et al., (2008) and Kavouras et al., (2012).

Table-2: Comparison of Hydration Knowledge between Young and Adolescent Male sportsplayers

S.No	Aspects of Hydration	Young Players	Adolescent Players
		%	%
1	Thirst is a time indicator that an athletes to drink fluids.	13.3	33.3
2	Dehydration increases the risk of experience heat-related illness, such as heat cramps, heat exhaustion, etc.	24	56.7
3	Comparing body weight before and after training/competition is a useful way to determine how much fluid need to be consumed.	10	30
4	Monitoring urine color is an effective way for an athlete to determine if he/she is dehydrated.	13.3	21.8
5	Athlete should begin each training session or competition well hydrated.	66.7	90
6	2-3 hours prior to exercise an athlete should aim to consume 500-600 ml of fluid.	8.0	86.7
	10-20minutes before competition an athlete should aim to consume: 200-300ml of fluid.	6.6	73.3
7	Fluid replacement during exercise should, at very minimum level, prevent dehydration of greater than 2% body weight reduction.	7.3	76.7
8	During recovery, athletes should aim to rehydrate within a 2 hour period after exercise.	37.3	66.7
9	Rehydration improves performance in endurance events.	80	96.7
10	Sports drinks are better than water	42	78.2

Hydration status:

Hydration status showed a significant difference in body mass change and dehydration symptoms at 1% level of significance and 5% level of significance in total body water and urine colour between young and adolescent sports players (Table-3). The result is supported by Rivera (2013) and Nigan et al., (2013) who observed a poor hydration status among adolescent judo athletes before and after training.

Table-3: Comparison of Hydration Status between young and adolescent male sports players:

Hydration Status	Sports Players	Mean SD	t-Value	Level of Significance
Body mass change (%)	Young Players	47.007 ± 7.04	4.322	0.001**
	Adolescent Players	46.39 ± 7.19		
Total Body Water (g%)	Young Players	55.99±4.37	1.293	0.005*
	Adolescent Players	57.59±8.5		
Colour of Urine	Young Players	3.33±1.32	1.403	0.005*
	Adolescent Players	3.016±1.04		
Dehydration Symptoms	Young Players	1.36 ± 1.447	14.658	0.001**
	Adolescent Players	7.14 ± 0.77		

Table-4: Correlation between Hydration Knowledge and Hydration Status of young and adolescent male sports players

Variable	Hydration knowledge vs Hydration status
Young Male Sports Players (60)	0.250*
Adolescent Male Sports Players (60)	0.344*

*Pearson Correlation is significant at 0.05 levels.

From Table-4, a positive correlation between hydration knowledge and hydration status was observed among both the groups (Table-4). Similar relation was observed by Nichols et al. (2005) who reported a significant, positive correlation between hydration and fluid replacement knowledge, attitude, and behaviors. It was found that adolescent players had good hydration knowledge, but suboptimal attitudes and behaviors which may indicate that an increase in knowledge can improve attitudes and behaviors

CONCLUSION:

Proper hydration is often an overlooked aspect by sportspersons. This study concludes that the fluid intake habits of young male sports players were better than adolescents. A significant relation was found in hydration status between the groups. A positive relationship was noticed in both the groups between hydration knowledge and hydration status. Identifying and removing barriers that prevent athletes from making healthy choices with regard to fluid and hydration is extremely important to attain success. Careful attention to fluid guidelines through hydration education will help avoid dehydration as well as hyper hydration that have been associated with sports performance.

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