42 - ASSESSMENT OF THE DEGREE OF DEHYDRATION UNDER WEIGHT OF BODY OF A FOOTBALL PLAYERS CLUB OF BELEM-PA.

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This study aimed to monitor the loss of body weight (BW) of professional layers, before and after a charge of physical training and technical, determining the degree of dehydration(DD). It is a cross-sectional study, conducted in 2 days, evaluating 27 football players for a professional sports club in Belém-PA. In collects data was used to search a protocol that information was obtained for classifying the state of hydration of players. The evaluated had, on average, 24 years old, 1.78m tall and 74Kg of BW and most served as attacker(22.2%), driving(22.2%) or goalkeeper(14.8%). When evaluated, according to the state of hydration on the 1st day, the Maximum Temperature (MT) was 31.5°C and relative humidity (RH) of 87%, most athletes showed state of I-hydration (SIH)(89%) while the 2nd day, the MT was 31°C and 95% of RH, the majority of players showed state of Dehydration Dew (SDD)(55.6%). Moreover, both at 1 on the 2nd day of evaluation, athletes in SDD ingested, on average, a total water volume than the athletes in a state of SIH. It was observed that the average volume ingested Hydride (VIH) after training was significantly higher in both ratings ((607±141,2 and 785±156,2).When compared with the position of active, most of the players taken SIH served as attacker or steering wheel and that the majority SDD had served as goalkeeper. It follows that the DD among athletes may have been influenced by VIH, climatic factors and intensity of activity required in accordance with the active position. However, many times in the hydration drills/games is not prioritized, which contributes to the variation in the BW, increasing the DD and causing damage to health and sports performance.

INTRODUCTION

The majority of the great recent sportive events is being carried through in hot and humid climates; generally these events are marked for the months of summer and the schedules hottest of the day (MAUGHAN and BURKE, 2004). The soccer specifically is practiced on different climates as altitudes, temperature, relative humidity of air and schedules (BRUNORO and AFIF, 1997). A common individual consumes 1,200 normally mL of water to each day. The exercise stress and it thermal can raise the necessity to ingest liquids for five or six times above of this amount (MCARDLE and KATCH, 1996), so that it does not have dehydration. As Murray (1997) "the dehydration can be defined as a reduction of the corporal water, taking the organism of a state of I- hydrated stops hipohidrated". The dehydration (resultant of deficient perspiration or not) and the raised temperature follow that it (hyperthermia) are the causes most important of the fatigue during the exercise (COYLE, 1994). Losses above of 5% of the corporal weight will be able not to after have recovery of the water reserves in the stated period of 48 and 72 hours exercise (SANZ-RICO et al, 1996; HORSWILL, 1998), harming the performance and the health. Thus, the importance to assure the adequate ingestion of liquids, as much how much the electrolytic balance, can guarantee the performance and reduce the risks of problems associates to the heat (MAUGHAN and LEIPER, 1994).

METHODOLOGY

This study it is characterized as being of the transversal type, where the study population was constituted by all the professional players of soccer of a sportive club. These individuals had been selected of intentional form, for being part of a professional porting institution and for being a club where it has a program of systematic training. Also the fact of the players was considered as inclusion criterion to be duly contracted for the club in the period where the research was carried through.

The sample was constituted of 27 professional players of soccer of a sports club of the city of Belém-Pará, pertaining to the research "Evaluation of the Degree of Dehydration in accordance with the Corporal Weight of Football players of a Club of Belém-Pará.", that it evaluated these individuals with the superior age the 18 years and inferior the 32 years, all of the masculine sex.

The collection of data was carried through in the month of April of 2008, in two days distinct of training, the period of the morning, during the training of the athletes, which if constituted of exercises involving the physical preparation and technique, in the dependences of the club. The players had been selected intentionally and informed about the procedures carried through in the research.

Agreeing to participating of the research, these individuals were lead to the signature of the Term of Free and Clarified, requisite Assent obligator, approved for the Committee of Ethics in Research in Human beings of the Institute of Sciences of the Health of the Federal University of Pará, according to resolution 196/96 (MS/CNS, 1996).

In the anthropometric evaluation, the measures of weight of the study population had been surveyed by the researcher, duly trained how much to the standardization of techniques of measures, and carried through at two distinct moments, minutes before the training and soon after the ending the exercises.

For verification of the body weight Biometric scale of Filizzolla mark was used with sensitivity for 10 grams, placed on plain surface. The players had been weighed using only close clothes and without footwear and accessories, of form to diminish errors of evaluation. The same ones had remained erect in the center of the scale, with the arms throughout the body without if putting into motion (JELLIFFE, 1967). The percentage of variation of the body, necessary weight for the evaluation of the hydration state, was verified from the difference of the body weight measured before and after the training.

For the collection of the information about the water volume ingested by the athletes, daily pay-trainings, ingested volume after-trainings and ingested volume had been written down in the research protocol the values of ingested volume total. The information of the ingestion of the water volume daily pay-trainings was gotten through the story of the amount of liquids ingested for the athletes in up to two hours before the beginning of the exercise, whereas the ingestion of the water volume after-trainings was gotten through the measurement of the volume water that the players ingested after the exercise soon. For the verification of the ingested total water volume the addition of the volume ingested before was made, during and after the trainings.

The data collected in the evaluations had been written down in the protocol of research and later compiled in the

program Epi-Info version 6.04d (OMS, 2000). For the confection of tables or graphs and accomplishment of the analysis statistics the programs Microsoft Excel 2003 and Bio Estat 4,0 had been used (AYRES et al, 2006).

RESULTS AND QUARRELS

EVALUATION OF THE HIDRATAÇÃO STATE

From the difference of the corporal weight before and after the exercise is possible to calculate the percentage of loss of weight to classify the hydration state. In this study the classification was used proposal for the CREAM (HOUSE et al, 2000) in accordance with table 1

TABLE 1 - Scores of state of Hydration

State of Hydration	% Δ Body Weight	Coloring the urine	Specific gravity of urine
I - hydration	+ 1 a - 1	1 ou 2	< 1.010
Dehydration Dew	-1 a -3	3 ou 4	1.010 a 1.020
Significant dehydration	-3 a -5	5 ou 6	1.021 a 1.030
Severe dehydration	> -5	> 6	> 1.030

Source: National Athletic Trainer's Association (NATA)

EVALUATION OF THE CLIMATIC FACTORS

The values of the ambient temperature and the relative humidity of air had been supplied by the National Institute of Meteorology - 2º District of Meteorology (82191) of Belém-Pará, whose temperature was verified in Celsius degrees (ºC) and the relative humidity of air in percentage (%). The biological, anthropometric and climatic 0 variable had been harvested and registered in the research protocol. Table 2 sample that the evaluated players had, on average, 24 years of age, 1,78 m of height and 74 kg of habitual corporal weight. These average values of weight and stature classify these individuals as eutróficos according to IMC considered by the OMS (WHO, 1997).

TABLE 2 – Mean and standard deviation of age, height, weight and normal BMI of players from a football club in Belém-Pa. Brazil, 2008.

Variables	MEAN ± SD
Age	23,6 ± 4.15
Height	1,78 ± 0.07
Weight	74,1 ± 7.83
Body Mass Index (BMI)	23,3 ± 1.41

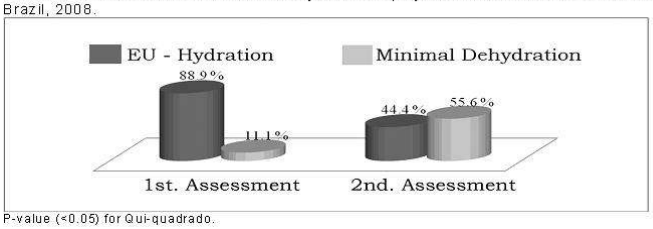
As it can be observed in table 3, when distributed in accordance with the game position, the majority of the athletes acts in the position of aggressor (22.2%), projection (22.2%) or goalkeeper (14.8%).

TABLE 3 – Distribution, according to the position in that act of players from a football club in Belém-Pa. Brazil, 2008

Position of player	N	%
Goalkeeper	4	14.8
Striker	6	22.2
Half-attacker	4	14.8
Half-right	1	3.7
Volante	6	22.2
Right Side	2	7.4
Left Side	2	7.4
Defender	2	7.4
Total	27	100

It ce enters the state of hydra f 31,5° C and the relative humidity of the 87% air, the majority of the athletes presented been of I (88.9%), whereas in according to day, where the measured maximum temperature was of 31° C and the relative humidity of the 95% air, the majority of the players presented been of minimum Dehydration (55.6%).

FIGURE 1 – Distribution of the state of hydration of players from a football club in Belém-Pa. Brazil, 2008.



P-value (<0.05) for Qui-quadrado.

Table 4 presents the comparison enters the state of hydration and the positions where the players act. It is verified that the majority of the players considered in state of I acts as attacking or projecting (25%) and between whom they presented minimum Dehydration the majority acts as goalkeeper (26.7%).

TABLE 4 – Distribution of the state of hydration, according to the position in that act of players from a football club in Belém-Pa. Brazil, 2008.

Position	Hydration status of the 1st Evaluation				State of hydration on the 2nd Assessment			
	I-hydration		Dehydration Dew		I-hydration		Dehydration Dew	
	n	%	n	%	n	%	n	%
Goalkeeper	1	4.2	3	100.0	0	0.0	4	26.7
Striker	6	25.0	0	0.0	3	25.0	3	20.0
Half-attacker	4	16.7	0	0.0	1	8.3	3	20.0
Half-right	1	4.2	0	0.0	0	0.0	1	6.7
Volante	6	25.0	0	0.0	5	41.7	1	6.7
Right Side	2	8.3	0	0.0	1	8.3	1	6.7
Left Side	2	8.3	0	0.0	2	16.7	0	0.0
Defender	2	8.3	0	0.0	0	0.0	2	13.3
Total	24	100.0	3	100.0	12	100.0	15	100.0

Comparing the hydration state as total volume of liquid ingested for the players, it is verified in table 5 that, the two distinct days of evaluation, the athletes in state of Minimum Dehydration had ingested, on average, significantly bigger a total water volume of what the volume ingested for the athletes in state of I, demonstrating not to have influences of the ingestion of liquid in the state of hydration of these individuals. Similar results had been observed in the ESCOBAR work et al, that, comparing the percentage of dehydration in football players in two days distinct, they had verified that did not have significant difference between the water ingestion and the percentage of dehydration.

TABLE 5 – Mean and standard deviation of total water volume ingested by the state of hydration of players from a football club in Belém-Pa. Brazil, 2008

State of Hydration	Volume Ingested Hydride (mL) 1st Assessment Mean ± SD	2nd Assessment Mean ± SD	P-value*
I-hydration	1050 ± 188.8	1266.7 ± 177.5	0.0213
Dehydration Dew	1200 ± 346.4	1266.7 ± 222.5	

* P-value for Qui-quadrado.

Table 6 presents the ingested water volume in each day of evaluation and at two moments of the training, daily pay and after-trainings, demonstrating that in the first day of evaluation the athletes ingested on average about 460ml of liquid before the trainings and in as the day the ingestion it increased for about 480ml.

Considering that the water volume daily pay-trainings was collected through the story of the amount of water ingested for the athlete in up to two hours before the beginning of the exercise, one notices that, according to SANZ-RICO et al, where he is described that the ingestion of 250 the 600 ml of liquids at least two hours before the exercise can assure the beginning of the exercise with a degree of appropriate hydration, the volume of liquid ingested for the players before the trainings revealed adequate for the maintenance of good condition of hydration during the training. On the other hand, according to CREAM, to assure the hydration state, the 500 approximately athletes must ingest 600ml of water or another sports drink the two three hours before exercise and 200 300mL the 10 20 minutes before the exercise.

In the period after-trainings he had a significant increase of the water ingestion in both the days of evaluation (607±141,2 e 785±156,2, respectively), being also significantly bigger in as the day.

One assumes that the ingestion biggest of liquids, as much before how much after the trainings, in as the day of evaluation is associated the biggest relative humidity of air (95%) registered on this day where the maximum temperature reached 31°C, since in these conditions it has an increase of the capacity of sweating having as consequence the biggest necessity of water ingestion for the organism.

TABLE 6 – Mean and standard deviation of the volume ingested water before and after the training of players from a football club in Belém. Brazil, 2008.

Volume Ingested	Before training Mean ± SD	After-training Mean ± SD	P-value*
1st Assessment	459.3 ± 93.06	607.4 ± 141.22	< 0.0001
2nd Assessment	481.5 ± 93.6	785.2 ± 156.17	< 0.0001

*Student.t Test

Table 7 describes the averages of weight daily pay and after trainings, lost and percentile weight of variation of weight in the two distinct days of evaluation, being registered in these days maximum temperature of 31,5ºC and 31ºC and relative humidity of 87% and 95% respectively. It is observed that it had difference enters the weight averages daily pay-trainings of the first one for as the day of evaluation. Whereas the weight after-trainings was not different in the two distinct days of evaluation.

The average of the lost weight and the percentage of the weight variation had been significantly bigger in as day of evaluation, whose registered temperature also was bigger in relation to the previous day, what influences it demonstrates it of the climatic conditions in the variation of weight of the athletes.

TABLE 7 – Mean and standard deviation of the weight of pre-and post-training, lost weight and percentage of change of weight loss within two days of evaluating players from a football club in Belém-Pa. Brazil, 2008

Variables	1st Assessment Mean ± SD	1nd Assessment Mean ± SD	P-value
Wiegth Before training	74.4 ± 8.2	74.6 ± 8.29	< 0.0001
Weight After-training	73.8 ± 8.2	73.8 ± 8.18	> 0.05
Weight loss(Kg)	0.62 ± 0.16	0.79 ± 0.17	< 0.0001
% Variations in weight	0.82 ± 0.16	1.04 ± 0.16	< 0.0001

In table 8 the position of the players can in accordance with be observed the distribution of the averages of percentage of loss of weight to the end of the trainings. He verifies yourself that in the first day of evaluation the players who act in the positions of goalkeeper and quarterback had had the average greater of percentage of loss of weight. Whereas in as the day, beyond these positions, the stocking-aggressors and stocking-right had also had a average of loss of bigger corporal weight of what playing of them of other positions.

Similar results had been found by SALUM & FIAMONCINI that, after to evaluate the relation enter the control of body weight and the dehydration in soccer athlete, had respectively verified a percentile greater of weight between goalkeeper and laterals. A possible explanation of the verification of a bigger loss enters the goalkeeper can be in the fact of the biggest physical requirement the one that these players are submitted during the trainings.

TABLE 8 – Mean and standard deviation of percentage of weight loss, according to the position in that act of players from a football club in Bethlehem-Pa. Brazil, 2008.

Position	% Weight Loss 1st Assessment Mean ± SD	2nd Assessment Mean ± SD
Goalkeeper	1.1 ± 0.08	1.3 ± 0.05
Striker	0.5 ± 0.21	1.0 ± 0.12
Half-attacker	0.8 ± 0.09	1.1 ± 0.12
Half-right	0.8 ± 0.00	1.1 ± 0.00
Volante	0.75 ± 0.10	0.98 ± 0.07
Right Side	0.8 ± 0.28	1.0 ± 0.14
Left Side	0.7 ± 0.00	0.95 ± 0.07
Defender	0.9 + 0.00	1.1 + 0.00

CONCLUSION

The degree of dehydration is concluded that, even so minimum enters the evaluated athletes can not only have been influenced for the ingested hydride volume, but also for climatic factors, as the temperature and the relative humidity of air where they are displayed, and for the intensity of the activity demanded to the player in accordance with the position where it acts. However, many times the hydration in drills or games is not prioritized, what it contributes for the variation of the body weight, increasing the dehydration degree and bringing damages in such a way to the health as to the sports performance of the athletes.

From there the necessity of detailed studies more than can contribute to alert the soccer clubs how much to the necessity of one adjusted accompaniment of the state of hydration of its professional players. Ahead of these results the implementation becomes necessary, the encouragement and Guidelines concerning the importance of the correct hydration, where physical and excessively responsible trainers, preparers for the activity must encourage the athletes so that these can ingest during liquids the training and/or games, providing time of the activities for the hydration and the presence of liquids next to the place to the exercises.

Key words: Nutrition, Dehydration, Football

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ASSESSMENT OF THE DEGREE OF DEHYDRATION UNDER WEIGHT OF BODY OF A FOOTBALL PLAYERS CLUB OF BELEM-PA.

This study aimed to monitor the loss of body weight (BW) of professional layers, before and after a charge of physical training and technical, determining the degree of dehydration(DD). It is a cross-sectional study, conducted in 2 days, evaluating 27 football players for a professional sports club in Belém-PA. In collects data was used to search a protocol that information was obtained for classifying the state of hydration of players. The evaluated had, on average, 24 years old, 1.78m tall and 74Kg of BW and most served as attacker(22.2%), driving(22.2%) or goalkeeper(14.8%). When evaluated, according to the state of hydration on the 1st day, the Maximum Temperature (MT) was 31.5°C and relative humidity (RH) of 87%, most athletes showed state of I-hydration (SIH)(89%) while the 2nd day, the MT was 31°C and 95% of RH, the majority of players showed state of Dehydration Dew (SDD)(55.6%). Moreover, both at 1 on the 2nd day of evaluation, athletes in SDD ingested, on average, a total water volume than the athletes in a state of SIH. It was observed that the average volume ingested Hydride (VIH) after training was significantly higher in both ratings ((607$\pm$141,2 and 785$\pm$156,2).When compared with the position of active, most of the players taken SIH served as attacker or steering wheel and that the majority SDD had served as goalkeeper. It follows that the DD among athletes may have been influenced by VIH, climatic factors and intensity of activity required in accordance with the active position. However, many times in the hydration drills/games is not prioritized, which contributes to the variation in the BW, increasing the DD and causing damage to health and sports performance.

Key words: Nutrition, Dehydration, Football

ÉVALUATION DU DEGRÉ DE DÉSHYDRATATION EN VERTU DE POIDS DE L'ORGANE DE FOOTBALL CLUB DE JOUEURS BELÉM-PA.

Cette étude visait à contrôler la perte de poids corporel (PC) des joueurs professionnels, avant et après une charge de l'entraînement physique et technique, la détermination du degré de déshydratation (DD). Il s'agit d'une étude transversale, réalisée en 2 jours, l'évaluation des 27 joueurs de football pour un club de sport professionnel dans Belém-PA. Dans collecte des données a été utilisé pour un protocole de recherche que l'information a été obtenue pour la classification de l'état d'hydratation des joueurs. L'évaluation a, en moyenne, 24 ans, 1,78 m de hauteur et 74 kg de PC et de plus servi comme attaquant (22,2%), de conduire (22,2%) ou de gardien de but (14,8%). Quand évalué, en fonction de l'état d'hydratation de la 1ère journée, la température maximale (TM) était de 31,5°C et l'humidité relative (LR) de 87%, la plupart des athlètes ont montré état de l'I-

hydratation (ELH) (89%), tandis que le 2ème jour, le TM était de 31°C et 95% des LR, la majorité des joueurs a montré l'état de déshydratation de rosée (LDR) (55,6%). En outre, les deux à 1 sur le 2ème jour de l'évaluation, les athlètes dans une situation d'LDR ingérées, en moyenne, un volume total d'eau que les athlètes en ELH.Il a été observé que le volume moyen ingéré hydrure (VIH) après la formation a été nettement plus élevée dans les deux avis (607±141,2 e 785±156,2). Si l'on compare avec la position de l'actif, la plupart des joueurs pris ELH servi comme attaquant ou du volant et que la majorité LDR a servi de gardien de but. Il s'ensuit que la DD mai parmi les athlètes ont été influencés par le VIH, les facteurs climatiques et l'intensité des activités requises conformément à la position active. Toutefois, de nombreuses fois dans l'hydratation des exercices/jeux ne sont pas classés par ordre de priorité, ce qui contribue à la variation de la PC, l'augmentation de la DD et causant des dommages à la santé et la performance sportive.

Mots-clés: Nutrition, la déshydratation, de soccer.

EVALUACIÓN DEL GRADO DE DESHIDRATACIÓN DE CONFORMIDAD CON EL PESO DEL CUERPO DE UN CLUB JUGADORES DE FÚTBOL DE BELÉM-PA.

Este estudio tiene por objeto controlar la pérdida de peso corporal (PC) de los jugadores profesionales, antes y después de una carga de entrenamiento físico y técnico, determinar el grado de deshidratación (GD). Se trata de un estudio transversal, realizado en 2 días, la evaluación de 27 jugadores de fútbol para un club deportivo profesional en Belém-PA. En recopila datos se utilizó para buscar un protocolo que se obtuvo información para clasificar el estado de hidratación de los jugadores.El ha evaluado, en promedio, 24 años, 1,78 m de altura y 74Kg de PC y la mayoría se desempeñó como atacante(22,2%), conducción(22,2%) o el portero(14,8%). Cuando se evalúan, de acuerdo con el estado de hidratación en el 1er día, la temperatura máxima(TM) fue 31,5°C y la humedad relativa (HR) del 87%, la mayoría de los atletas mostraron el estado de hidratación-I (EHI) (89%), mientras que el 2º día, el TM fue de 31°C y 95% de HR, la mayoría de los jugadores mostró el estado de deshidratación de rocío (EDR) (55,6%).Por otra parte, tanto a nivel 1 en el 2º día de la evaluación, los atletas en un estado de EDR se ingiere, en promedio, un volumen total de agua que los atletas en EHI. Se observó que el promedio de volumen ingerido hidruro (VIH) después de la capacitación fue significativamente mayor en ambos índices (607±141,2 e 785±156,2). Si se compara con la posición de activos, la mayoría de los jugadores adoptadas EHI actuó como atacante o volante y que la mayoría EDR se había desempeñado como portero.De ello se deduce que la GD entre los atletas puede haber sido influido por el VIH, los factores climáticos y la intensidad de la actividad requerida de conformidad con la activa posición. Sin embargo, muchas veces en la hidratación ejercicios/juegos no es prioridad, lo que contribuye a la variación en el PC, el aumento de la GD y causando daños a la salud y rendimiento deportivo.

Palabras clave: Nutrición, deshidratación, de fútbol.

AVALIAÇÃO DO GRAU DE DESIDRATAÇÃO DE ACORDO COM O PESO CORPORAL DE JOGADORES DE FUTEBOL DE UM CLUBE DE BELÉM-PA.

Este estudo teve como objetivo a monitorização da perda de peso corporal(PC) de jogadores profissionais, antes e depois de uma carga de treinamento físico e técnico, determinando o grau de desidratação(GD). Trata-se de um estudo transversal, realizado em 2 dias, avaliando 27 jogadores de futebol profissionais de um clube esportivo de BelémPA. Para coleta de dados foi utilizado um Protocolo de Pesquisa que foram obtidas informações para classificar o estado de hidratação dos jogadores. Os avaliados tinham, em média, 24 anos de idade, 1,78m de altura e 74Kg de PC e a maioria atuava como atacante(22,2%), volante(22,2%) ou goleiro(14,8%). Quando avaliados, segundo o estado de hidratação no 1º dia, a Temperatura Máxima(TM) foi de 31,5°C e a umidade relativa do ar(URA) de 87%, a maioria dos atletas apresentou estado de Eu-hidratação(EEH) (89%), enquanto que no 2º dia, a TM foi de 31°C e a URA de 95%, a maioria dos jogadores apresentou estado de Desidratação Mínima(EDM) (55,6%). Por outro lado, tanto no 1º quanto no 2º dia de avaliação, os atletas em estado de EDM ingeriram, em média, um volume hídrico total maior do que os atletas em EEH. Observou-se que a média de Volume Hídrico Ingerido (VHI) depois do treino foi significativamente maior nas duas avaliações (607±141,2 e 785±156,2). Quando comparados de acordo com a posição atuante, a maioria dos jogadores considerados em EEH atuava como atacante ou volante e os que apresentavam EDM a maioria atuava como goleiro. Conclui-se que o GD entre os atletas pode ter sido influenciado pelo VHI, fatores climáticos e intensidade da atividade exigida de acordo com a posição atuante. Entretanto, muitas vezes a hidratação em treinos/jogos não é priorizada, o que contribui para a variação do PC, aumentando o GD e trazendo prejuízos à saúde e ao desempenho esportivo.

Palavras-chaves: Nutrição, Desidratação, Futebol.