FAST REHYDRATION RATE HELPS TO KEEP POSITIVE BODY FLUID BALANCE LONGER TIME: A PILOT STUDY

Alejandro Gaytán-González1, Roberto Gabriel González-Mendoza1, Eduardo Pinedo-Ruan1, Sergio Alejandro Copado-Aguila1, Jesús Eduardo González-Rivera1, Marisol Villetgas-Balcázar1, Juan R. López-Taylor1.


2Autonomous University of Sinaloa. Culiacán, Sinaloa, México.

alejandro.gaytan@cucs.udg.mx

ABSTRACT:

To compare the effects of three different post-exercise rehydration rates after exercise derived dehydration on body fluid balance and subjective feelings of thirstiness and bloating.

METHODS:

Subjects were evaluated immediately after the dehydration protocol and every 30 minutes for a 240 minute lapse. This assessments consisted on measuring body weight without clothes (only after voiding their bladders and drying the skin with towels) each 30 minutes during a 240 minutes lapse. At the same time (Figure 2B). No other significant difference was observed at any other moment neither for bloating or thirstiness.

RESULTS

Figure 1. Body fluid balance after a dehydration protocol and receiving a Fast, Moderate or Slow post-exercise rehydration rate. Significant differences (p<0.05) for: Fast vs Slow, § Fast and Moderate vs Slow; ¶ Slow and Moderate vs Slow.

Dehydration protocol

First, subjects were weighted without clothes, this was the euthydrated weight. Then, they ran on a treadmill for 45 minutes until they reached a 2% weight loss. If they didn’t, they ran again for 20 minutes until they reached the weight goal or until voluntary exhaustion.

Rehydration rate

After the dehydration protocol, they received the 150% of their weight loss with a flavored carbohydrate-electrolyte solution (5% glucose, 30 mEq Na/L). They were assigned in a randomized, crossover and counterbalanced design of one of three post-exercise rehydration rates. Rate fast consisted on drinking the whole volume the first 30 minutes, in three equal doses 15 minutes apart. Moderate rate: Drinking the whole volume the first 60 minutes, in five equal doses, 15 minutes apart. Slow rate: Drinking the whole volume the first 120 minutes, in nine equal doses, 15 minutes apart.

Body fluid balance, thirstiness and bloating

Subjects were evaluated immediately after the dehydration protocol and every 30 minutes for a 240 minute lapse after exercise. This assessment consisted on measuring body weight without clothes (only after voiding their bladders and drying the skin with towels), and answering a visual analogue scale about their feelings of thirstiness and bloating. This consisted on a 100 mm straight line asking “how thirsty/bloated do you feel right now?”, where 0 mean “not at all” and 100 “completely”.

We calculated the body fluid balance (BFB) accordingly to the next equation: BFB (%) = PEW / (PEW + EW) * 100

Where PEW is the post-exercise weight at every evaluation time, and EW is the euthydrated weight.

Statistical analysis

We compared the BFB, thirstiness and bloating scores with a two way repeated measures ANOVA, with a Tukey post hoc test. All analysis were considered significant with a p value ≤0.05.

CONCLUSIONS

Drinking a large volume of a flavored carbohydrate-electrolyte solution at a fast rate may be helpful for quickly achieve a positive BFB, keep it longer, and rapidly accusse thirstiness. However, bloating may be a concern employing this rate. If these results may affect exercise performance, warrants further research.

REFERENCES


INTRODUCTION

Current guidelines for post-exercise rehydration suggest subjects should drink 125 to 150% of their weight loss to ensure adequate fluid replacement (1-2). This surplus may overcome the fluid loss for urine production during and sweating after exercise. However, little is known about the rate in which it should be drank (2). Some research suggest that drinking a large volume in a short period may lead to blood dilution and to diuresis, resulting in a negative fluid balance. Therefore, consuming these volumes in a longer time (3) would help to keep positive body fluid balance longer time.

METHODS

Subjects

We evaluated five male college soccer players from the representative team of the University of Guadalajara. They were informed about the objectives, procedures and possible risks about this protocol, and we obtained a written statement of consent before any test were performed.

Pre testing

Subjects were instructed to refrain from exercise, and drinking alcohol, coffee and energy drinks for at least 24 hours before they arrived to the laboratory. Also we instructed to drink 5 ml of plain water/two hours before testing. Subjects voided their bladders and defecated before the assessments started.