

# Performance Playbook: Optimizing Hydration

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## PERFORMANCE PLAYBOOK Optimizing Hydration

During the Spring of 2000 the National Athletic Trainers' Association released a Position Statement titled Fluid Replacement for Athletes.<sup>1</sup> This document provides extensive recommendations for all levels of athletics and six key concepts of the position statement are highlighted below:

### 1. Educate athletes and fellow staff about hydration process

The perpetual struggle to keep athletes properly hydrated is much easier to accomplish when the athletes and staff are aware of the role that proper hydration plays in optimizing athletic performance and minimizing the incidence of heat illness. Also, all athletes should become active participants in their own hydration process and be educated about monitoring hydration status and encouraged to rehydrate based on individual needs.

### 2. Individualize the rehydration process

This entails three important considerations.

1. Athletes lose fluids via sweat and urine at different rates for many reasons and thus should replace fluids based on individual requirements. Determine athletes' sweat rate if possible by this calculation for a range of environmental conditions, practices and competitions.

Sweat Rate =

$$\begin{aligned} & (\text{pre-exercise body weight} \\ & - \text{post-exercise body weight} \\ & + \text{fluid intake} \\ & - \text{urine volume}) \\ & \hline & \div \text{exercise time in hours} \end{aligned}$$

2. Athletes choose to drink different amounts and should be encouraged to monitor how much they drink to be sure it matches the amount that is being lost.

3. The confines of different sports and positions dictates how an athlete optimizes the rehydration process based on individual access to fluids.

### 3. Drink appropriate amounts before, during and after exercise

#### Pre-Exercise

- Approximately 17 to 20 oz, 2 to 3 hours before activity
- Consume another 7 to 10 oz after the warm-up (10 to 15 minutes before activity)

#### During Exercise

- Approximately 28 to 40 oz every hour of play (7 to 10 oz every 10 to 15 minutes)
- Develop a hydration process that includes drinking based on fluid needs (see above), monitoring fluid intake and having a plan based on the confines of sport

#### Post Exercise

- Encourage athletes to rapidly replace lost fluids (sweat and urine) within two hours after activity to enhance recovery by drinking 20 to 24 oz for every pound body weight lost through sweat

#### 4. Choosing a beverage

Provide the optimal oral rehydration solution (water, carbohydrates, electrolytes) before, during and after exercise. The ideal fluid replacement solution should include approximately 70 to 1266 mg sodium/8 oz and 14 to 17g carbohydrates/8 oz (6%-7% carbohydrate solution).

#### 5. Make sure fluids are accessible and cooled

Hydration is much more likely to be maintained if the fluids are conveniently located for the athletes to drink during practice and rest periods. Keep individual containers on ice in a cooler so an athlete can access it during practice and increase fluid intake.

#### 6. Recognize dehydration

All coaches, athletes and medical staff need to recognize the common signs and symptoms associated with dehydration. They include:

- Thirst
- Irritability
- Headache
- Weakness
- Dizziness
- Cramps
- Chills
- Vomiting
- Nausea
- Head or neck heat sensations
- Decreased performance
- General discomfort

Be aware that an athlete will likely only exhibit a few of these signs and symptoms.

<sup>1</sup>Casa, D. et al. *J Athl Train* 35(2):212-224, 2000