

Hydration Review

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The following is an excerpt from a chapter in *Strength, Conditioning and Injury Prevention for Hockey*, by Joe Horrigan and Doc Kreis.¹ Although the information below appeared in a book on ice hockey, it applies to athletes of all sports. This is especially true for your patients who will be participating in sports and activities in the summer heat. Following these guidelines can prevent serious heat-related illness.

Day Before	Four Hours Before (Optional)	Three Hours Before	Two Hours Before	One Hour Before	During	Recovery
1/4 oz water per pound body weight* over and above normal intake divided evenly throughout the day (Multiply your body weight by 1/4 AKA .25.)	If dehydration is a problem, drink 1 oz of sports drink** per 10 lbs of body weight.*** (Divide your body weight by 10.)	1 oz sports drink** or water per 10 lbs of body weight.***	1 oz sports drink** or water per 10 lbs of body weight.***	1 oz. water per 10 lbs. of body weight.	Sports drink: Consume as much as comfortably possible.	Beverage: water or sports drink. If competing within 24 hours: sports drink. Amount: 16 oz per pound of body weight lost. If competing within 24 hours, 24 oz per pound body weight lost.
<p>* 160 pounds x 1/4 = 40 ounces above your normal consumption. ** A sports drink should contain no more than 75 calories per 8 oz serving. Consume a sports drink if:</p> <ul style="list-style-type: none"> • it is the second game in two days; • it is the third game in four days; • you feel flat or fatigued; • you are sick or have been sick in the previous 72 hours with a cold or flu; • you have cramped within 72 hours; or • you have missed time due to injury and are deconditioned. <p>*** 160 pounds ÷ 10 = 16 ounces.</p>						

Drinking Guidelines

There are wide physiological differences in the amounts of fluids athletes require. Sweat rates vary considerably and are affected by an athlete's physical condition, acclimatization and pre-event fluid levels. Weather conditions also play a role. Carbohydrate intake prior to competition tops off glycogen reserves and stimulates fluid retention. Athletes should practice hydration during training; this will improve their ability to hydrate during competition.

Morning Competition

1. Follow "day before" protocol.
2. Consume a 20-ounce carbohydrate-loading beverage as soon as you wake up.
3. Consume a sports drink 60 minutes before competing (1 ounce for every 10 pounds of body weight).

A "carbo-load" beverage should contain no less than 150 calories per 8-ounce serving. You can make these using powdered sports drink mixes to make them stronger.

Remember that when an athlete pre-hydrates, approximately 50 percent of the fluid he or she consumes will be lost in the urine. For example, in the hours before a game, if one has consumed 60 ounces, 30 ounces will be lost in urine, leaving a net gain of 30 ounces. Although it does not seem like much, having 30 ounces more fluid in your body than your opponent will give you a physiological and psychological advantage. Between periods, drink as much as you comfortably can. Shoot for between 10 and 20 ounces, depending on how much you played and how much you weigh. (The more you play and the more you weigh, the greater your fluid needs are.)

Cut out the following and give to patients:

Safe Preseason and "Two-A-Day" Practice Guidelines

Drinking

Drink throughout the day.

Drink one ounce for each 10 pounds of body weight per hour, beginning three hours before practice.

Drink as much as you comfortably can during practice.

Drink before you are thirsty.

Drink 16-24 ounces of fluid per pound of body weight lost after practice.

"Do's" and "Don'ts"

Do weigh yourself before and after practice.

Do observe the color of your urine. (Dark urine means you need to drink more.)

Do watch the volume of your urine. (Small amounts indicate you need to drink more.)

Do tell your coach or trainer if you are on any kind of medications.

Don't consume beverages containing alcohol and caffeine. (They reduce the power of your water-holding hormone.)

Don't come to camp or preseason workouts out of shape.

Don't practice or play if you are sick or injured (unless you are medically cleared).

Warning Signs of Heat Illness

- headache
- nausea
- weakness
- excessive thirst

- dizziness
- fever
- cramps
- poor performance
- You feel chills in hot weather.
- You feel hot without sweating.

Be Smart

Every year, young athletes decide to be "tough" instead of smart, and every year, unnecessary tragedies occur. Heat illness can progress from simple headaches and weakness to catastrophe within minutes! If you do not feel well, be smart: tell your coach and trainer. It could save your life!

Reference

1. Andersen, G.D. Dehydration/rehydration in *Strength, Conditioning, and Injury Prevention for Hockey* by Horrigan JM, Kreis EJ. 2003 McGraw-Hill New York, New York.

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