



## HOW'S YOUR URINE?

Hydration and other factors that can hamper a good pee

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### Dehydration

Water & electrolyte loss assoc. w/ carbohydrate metabolism and sweat loss

Lowers blood plasma volume

Increased cardiac stress - 1993 death Pdx Marathon, 2 at NYC in 1994

Reduced circulation to the brain and levels of consciousness

Reduces gastrointestinal blood supply – ischemic gastroenteritis, cramping

Decreased kidney function

Impairs GI absorption

After a 3% loss of body weight = reduced muscular endurance

After 4-6% loss of body weight = cramps may develop

After >6% loss of body weight = heat exhaustion or heat stroke can occur

Dehydration and electrolyte depletion can interfere with the body's thermal regulatory system, making the athlete more susceptible to hyper or hypothermia.

### Urination - don't scream in pain or ecstasy

Pale vs. dark (concentrated)

Clear vs cloudy

Sweet, sour, & bitter test – not recommended

Glucose - diabetes

Protein – over training

When assoc. w/ dehydration – rhabdomyolysis, usu. fatal

Blood – dehydration/over training (occasionally after marathon)

Kidney pathology (symptom after 90% lose of function)

### Hydration

Pre-hydration - Can improve performance by inducing better muscle profusion.

Increasing stroke volume

Increasing maximum cardiac output

Increasing skin blood flow

Enhance the thermal regulatory response by plasma volume expansion.

Volume consumed race day

Runner's who weigh 150lbs should drink 625-1250ml/hour of exercise, approximately 2.5-5cups/hr (8oz.). Most runners only take in 300-500ml/hr (2-3 water bottles). A 4-hour runner: 80-160oz per (4-8 water bottles) race.

Electrolytes - Sodium, Potassium, Magnesium, Manganese, Calcium

Sodium – depleted with exercise

Sodium increases the perceived level of thirst. Therefore, the athlete will be enticed to drink more. This is important because there is a physiological lag between the need for hydration and the perception of need for hydration.

Fructose - Assoc. w/ cramping & GI distress

Glucose polymer

Low concentration, 6% – increase absorption, usable energy source

FLUIDS ON RACE DAY: Lemon lime Gatorade and water. *SO GET USED TO IT!*

Gatorade early and frequent in race and add more water later in the race if desired.

Drinking technique - Fold top of cup, straw

### Drug Effluence:

NSAIDS - Increase GI bleeding, Liver load, Kidney load

May reduce GI absorption

Increase cramping

Related to acute renal failure

Other: Alcohol, Laxatives, Antihistamines, Diuretics & Beta-Blockers

## **COLD INJURIES**

Hypothermia can occur during seemingly mild weather. Possibly the body has used up all the readily available energy stores, and simply does not have enough left over to generate heat. The body's core temperature falls below 37 degrees Celsius, with hypothermia.

20% of those injured. Usually those who finish after 3 hours.

Apparel: Wear several layers, hat gloves

Non-cotton clothing, it retains sweat and water, preventing proper evaporation. This will chill the body in cooler weather. Chilling requires energy expenditure to warm the body.

Use this energy to run the race, not to warm your body.