

Nutrition for CXC Racers

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A Discussion of the Critical Components of Skiing:
Carbohydrates, Protein, Fat and Fluids

Carbohydrates

- **Refined/Simple**
 - Typically does not contain fiber or protein.
 - Fast stomach transit time.
 - Fruit Juices
 - Sport Drinks
 - Candy
 - Sugar
 - Soft drinks
 - Snickers Candy
 - Should you? Events lasting 1 hour or more.
- **Complex**
 - Most always contains fiber and protein.
 - Slower stomach transit time.
 - Whole Wheat Bread
 - Brown Rice
 - Vegetables
 - Whole grain Cereal
 - Oats/Bran
 - Quinoa
 - Should you? Always! Day to Day Eating Pattern

Carbs Before and During Event

For events lasting 90-120 daily consume: 7-12 g/kg body wt.

For event lasting more than two hours and intense: 10-12g/kg body wt).

4 hours Before:

- Sandwich, soup, pasta.
(optimizes liver glycogen and gastric emptying).

- 1-2 hours before:
Beverage w/ carbs & electrolytes.

1 hour before: only sport drink + gels, GU, etc.

During Event:

- 30-60 gm Carbs per hour.

2 hours + include:
5 gm Protein /hour.

***Always test/experiment w/
new foods during training...
not during a Race!

Target Carb intake after Event within 20-30 Minutes

1.2 gm per kg body weight. (Divide your weight in lbs. by 2.2).

- 125 lbs: (57 kg) 68.4 grams Carbohydrate
- 135 lbs: (61 kg) 73.2 grams
- 140 lbs: (64 kg) 76.8 grams
- 150 lbs: (68 kg) 81.6 grams
- 175 lbs: (80 kg) 96.0 grams

50-75 g Carb Suggestions:

- 32 oz. sport drink
- 16 oz. sport drink plus 1 banana sandwich
- 16 oz. sport drink plus 1 honey sandwich
- 16 oz. sport drink plus 1 carbo sport bar
- 8 oz. chocolate skim milk plus peanut butter jelly sandwich
- 1/8th cup raisins

Why Protein?

- Maintain/repair muscle tissue.
- Protects against illness.
- Fluid and electrolyte balance depend on content in plasma.
- Protein (provides Na) to prolong hydration during event.
- Slows lactic acid build-up in muscles.

Target Daily Protein Amt

Normal Activities:
(.8 grams/kg wt)

125 lbs: 45.6 grams Protein
130 lbs: 48 grams
140 lbs: 51 grams
150 lbs: 55 grams
175 lbs: 63 grams

Daily or Weekly
Training: (1.6 grams/kg wt)

125 lbs: 91 grams Protein
130 lbs: 98 grams
140 lbs: 102 grams
150 lbs: 109 grams
175 lbs: 127 grams

What to know about Fat!

- Integrity of cell membranes
- Transports Vitamins A, E, D, K.
- Play a role in inflammatory disease processes.

Animal fat:

Dairy products, meat, palm oil/coconut oil. (Tends to be inflammatory).

Saturated/transfat/cholesterol

Vegetable fat:

- high in Omega 6 and 9
(Tends to be anti-oxidant and anti-inflammatory)
Avocados, olive oil, safflower, fish...salmon.
Monounsaturated/polyunsaturated

Target daily Fat: .8 gm/kg wt. (See carb slide).

The Critical Role of Fluids

- **Minimize dehydration.**
 - Maximize nutrient and waste delivery.
 - Increases glycogen and protein re-synthesis after event.
 - Helps to prevent hypothermia in the cold.
- Body weight will be higher before a race w/fluid retention.....lost during exercise.

*Electrolytes lost during training/racing: sodium/chloride, potassium, magnesium and calcium.

Fluid Intake Before Race/Event

- Before training/event lasting 1 hour +:
 - Start well-hydrated!
 - NO alcohol during training or before event.
 - 2-3 hours prior: 17 to 20 oz. sport drink + water depending on intensity.
 - 10 minutes prior: 6-8 oz. sport drink – gel, etc.
 - For events lasting longer than 1 hour: urine should be colorless & t fluid consumption.

Fluid During Event

- 2 hours or longer (30 to 50 km race)
 - 10-23 oz/hr recommended but not practical.
 - Tip: 1 mouthful = approx. 1 oz.
 - Goal: try not to lose more than 2% initial body wt.
 - Tip: during training weigh yourself before and after to identify how much fluid is lost. Be sure to use sport drink w/sodium to prevent hyponatremia. (See fluid balance on last page).
 - Drink early and continue every 15-20 minutes.
 - Use specialized sport drink + Gels, etc.
 - Protein adds Na to increase fluid retention.

Fluids After Event

- Drink 20 to 24 oz. for each pound of body wt. lost.

Endurox (with Protein)
Gatorade (with Protein)
Chocolate Skim Milk
Fruit juices/soft drinks

What to look for in a Sport Drink

- 32 oz. bottle (1 liter)
 - Carbohydrate: 40 to 80 grams
 - Sodium: 500 to 700 mg/ L
 - Potassium: 120 to 600 mg (variable)
- Events lasting longer than 2 hours: 5 gm Pro/hr "specialized drinks, ie. Accelerade". Increases hydration via enhanced fluid retention.
- Sugar sources: Mixture of glucose, sucrose, fructose, maltodextrin.

Fluid Balance test

Date	Type Training	Duration	Wt b/f training	Wt a/training	Wt Lost/Gain	Fl type & volume

Est. sweat loss: % dehydration = $100 \times (\text{pre-train wt (kg)} - \text{post train wt (kg)}) / \text{pre-train wt (kg)}$

References

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