

US JUNIOR WOMEN'S NATIONAL TEAM

NUTRITION AND TRAINING DIETS - Important Considerations

1. Adequate Calories- Rowers must consume enough **food** or Lean Body Mass will be sacrificed by the body breaking down its own protein (muscles, tissues) for energy. This will leave less of an engine for rowing. Water is also lost when tissue is broken down.
2. Adequate Carbohydrates- Athletes need to maximize **glycogen (carbohydrate) stores** for competition and sustained training programs. To consistently perform well in practice and races, rowers must constantly refill glycogen-depleted muscles. It takes **time and timing** to accomplish refueling efficiently.
3. Protein- **Extra** protein may be unnecessary, but the RDA of protein is essential for a well-balanced diet. Recent studies show a small amount of post-exercise **low-fat protein** helps athletes recover from multiple workouts and ongoing training more quickly. Some safe recommendations for protein intake are as follows:

	<i>gms. of protein/ lb. body weight</i>
<i>Sedentary adult</i>	<i>0.4</i>
<i>Competitive Adult Athlete</i>	<i>0.6 - 0.9</i>
<i>Competitive growing athlete</i>	<i>0.9 - 1.0</i>

4. Fats- Some fat such as mono-saturated and polyunsaturated fats are essential for a healthy, active lifestyle. **Omega-3 fatty acids** are particularly helpful for athletes.
5. Vegetarianism - Although it is possible to compete on an equal level with non-vegetarian rowing competitors, there are several key nutrition issues that must be addressed.

- * Getting enough **iron** and **Vitamin B12**
- * Meeting **calcium** needs
- * Eating enough calories

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PRE-RACE /WORKOUT FOOD

Goal

1. Fuel muscles with stored glycogen (carbohydrate)
2. Settle your stomach- absorb gastric juices
3. Prevent hypoglycemia (low blood sugar) with accompanying symptoms of lightheadedness, blurred vision, indecisiveness, bonking
4. Psychological - **Winning edge and having fun!**

How to Calculate Amount of Carbohydrate Intake (CHO)

.5 to 2 gms. CHO/lb.. of body weight, consumed 1-4 hours before exercise

130 lbs.		150 lbs.		180 lbs.	
1 bagel	30gms.	1 bagel	30gms.	1 1/2 bagels	40gms.
1 T jelly	12	2 T jelly	24	2 T jelly	24
8 oz. drink	<u>17</u>	8 oz. drink	<u>17</u>	8 oz. drink	<u>17</u>
	59gms.		71gms.		81 gms.
	(65gms.)		(75gms.)		(90gms.)

(above example is .5 gm. carbohydrate per lb. of body weight eaten 1 hour before a workout. If the last meal is two hours before training, then the rower would need 1 gm. CHO/lb. of body weight, etc.)

Guidelines

1. Allow adequate time for food to digest

Large Meal- 4-6 hours

Liquid Meal- 1-2 hours

Small Meal- 2-3 hours

Snack or Sports Drink- 1 hour

Allow more time for digestion as intensity of exercise increases because muscles require more blood during intense exercise. As blood leaves the stomach to go to the muscles, digestion slows down.

2. **Avoid sugared foods from 1 hour before exercise up to 5-10 minutes.** This avoids a blood sugar spike followed by a plunge due to the release of insulin which prevents fats being released from cells and available for energy. This uses up glycogen even quicker! The last 5-10 minutes is too short a time for insulin to be secreted and secretion is turned off during exercise.

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3. Eat a high-carbohydrate diet **daily** so muscles will be fueled, especially if you have a jittery stomach and usually abstain from pre-race meals. Rowers can still perform well under these circumstances.
4. Eat familiar foods before a race, experiment in practice.
5. Hydrate -- the day before and an hour before. Longer races benefit from electrolytes.

DURING THE RACE/WORKOUT

Goal = HYDRATION

How to Implement

Races (or training) under 1 hour- water only

1. Higher intensity = more dehydrated
2. Higher the heat = more water loss, however the body can be trained to conserve electrolytes in the heat

Training over 1 hour- beverage with carbohydrate

1. **1 gm. Carbohydrate (4 calories) per minute of exercise.**
2. 6% glucose such as Gatorade, Powerade, Accelerade. Be careful with fruit juices. The fructose in fruit juices can cause gastric upset, but helps absorption of CHO after 2-3 hours of continuous exercise.
3. GU has 100 calories per packet. This would work every 25-30 min. WITH WATER.
4. READ LABELS of sports drinks and food!

Guidelines

1. Important thing may not be *how much* you drink, but *how quickly* the drink can be absorbed.
2. Cold drinks leave the stomach quickly and are absorbed faster.
3. Large volumes leave stomach quickly but may not be tolerated well.
4. Above 75% intensity of effort, harder for body to absorb liquids.

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5. Sports drinks (with CHO) help to maintain blood sugar and stamina, therefore allowing exercise to go on longer. *Glucose* aids absorption.
6. *Electrolytes* help absorption and keep sodium (salts) in the body in balance. They may also keep an athlete thirsty and drinking longer.
7. **60 calories every 15 minutes.** (EX. 1 packet *GU*=100 cal. or 25gms.CHO) Remember, a gram of carbohydrates a minute. The maximum amount of carbohydrate calories that can be absorbed is 250 calories an hour (in an elite male athlete).

POST RACE/WORKOUT MEAL

Goal *Refueling should begin as soon as possible after a training/racing session.*
The ability of muscle to replace glycogen is greatest in the first 30 minutes following exercise. Within 5-10 minutes is even better to keep energy levels high.

How to Implement

1. **Type of Carbohydrate-** Simple and complex (refined and unrefined) carbohydrates are equally effective in glycogen repletion, but complex unrefined have added benefits of fiber, vitamins, minerals and decreased fat. See Glycemic Index Chart.
2. **How Much Carbohydrate (CHO)-**
TARGET: 0.5 gms. of CHO/lb. of body weight within the first 2 hours
Repeat 2 hours later.
 $150 \text{ lb.} \times 0.5 \text{ gms. CHO} = 75 \text{ gms. CHO}$ (1gm.= 4 calories)
75 grams = 300 calories of carbohydrates

Guidelines

1. Muscles can store **2 times the amount of CHO** within the first 30 minutes post-exercise. This glucose stays in the muscle until the next training session, or up to two weeks if no training is done.
2. Energy Bar with < 30% fat and water or Sports Recovery Drinks. A small amount of protein may help speed recovery even more. The ratio is 1:4, Protein to Carbohydrates. Real food is great...try a wheat bagel with peanut butter. Some nuts, fruit, yogurt and water. A turkey sandwich on two slices of bread.

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3. Easy workouts don't require this much CHO since glycogen is not depleted. If the workout is less than one hour and the rower starts out fully carbo-loaded, he or she may not be very depleted.

PRE-RACE REST and CARBOHYDRATE-LOADING

Trained muscles can store more glycogen than untrained ones and they use less glycogen during rowing than untrained muscles. Training teaches muscles to use a higher percentage of fat as fuel. Diet manipulation, along with the right workout, can almost double the amount of glycogen in skeletal muscles. This works best on fit rowers.

Purpose: To rest the muscles by cutting back on exercise and to supersaturate them with carbohydrates in anticipation of competition and racing.

Guidelines:

1. Loading improves *endurance*, not *speed*.
2. Be careful - for every molecule of glycogen stored, three molecules of water are needed. Extra water can be used for hydration, but has a sluggish feeling effect on muscles.
3. Loading involves tapering off exercise coupled with a 50-60% carbohydrate diet that is increased to 70%. It is hard to eat that much!
4. Eat carbohydrates that are familiar and be careful not to fat-load.
5. Wholesome, fiber-rich carbohydrates will keep your system regular.
6. Drink extra fluids to hydrate your body while limiting dehydrating fluids such as caffeine-containing beverages. Remember, extra carbohydrates need extra water.

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7 - Day Plan for Carbo-Loading before a Race

Day One

- High Carbohydrate, Adequate Protein
- Don't skip meals

Day Two

- High Carbohydrate, Adequate Protein
- Don't skip meals

Day Three

- High Carbohydrate, Moderate-plus Protein
- Don't skip meals

Day Four

- Very high Carbohydrate, Adequate Protein
- Don't skip meals

Day Five

- Very high Carbohydrates all day (Think Snacks)
- Last day for practice (or on Day Four)

Day Six

- All day eat lots of starch (snacks)
- High calories, high Carbohydrate, low Fat
- Drink plenty of fluids

Day Seven-**RACE DAY**

- Eat pre-race food according to race schedule allowing time to digest