

Performance Nutrition

What to Eat Before, During, & After Intense Exercise

	Before	During	After
Timing	<p>Allow time for food to digest. More time is needed before more intense activities.</p> <p>Large meal: ≥ 3-4 hrs. Small meal: 2-3 hrs. Liquid meal: 1-2 hrs. Light snack: ≤ 1 hr.</p>		<p>Re-fuel <u>immediately</u> after heavy exercise (within 30 minutes).</p> <p>NOTE: This is especially important if you'll be training or performing several times a day.</p>
What you need	<ul style="list-style-type: none"> ✓ High carbohydrate ✓ Low fat ✓ Some protein <p>Why?</p> <ul style="list-style-type: none"> - Carbs are digested fast, so they provide immediate energy for activity. - Fats take too long to be digested, so they can cause stomach/intestinal upset. - Protein provides EAAs,* which are the building blocks for muscle repair and growth during and after resistance training. <p>How much?</p> <p><u>Before resistance training:</u> 6 g EAAs (which can be provided by ~12-15 g of high quality whole protein).</p> <p>Other tips:</p> <ul style="list-style-type: none"> ✓ Low fiber ✓ Familiar foods <p>Why?</p> <ul style="list-style-type: none"> - Helps prevent stomach or intestinal upset during intense exercise. 	<ul style="list-style-type: none"> ✓ When exercise is <u>intense</u> and <u>> 1 hr.</u> in duration, you need extra carbohydrate. <p>Why?</p> <p>Muscle glycogen stores become depleted after an hour of intense activity. If you don't consume extra carbohydrate, you won't be able to sustain your activity.</p> <p>How much?</p> <p>30-60 g carbohydrate during each extra hour after the first hour.</p>	<ul style="list-style-type: none"> ✓ Carbohydrate ✓ Protein (including some EAAs) <p>Why?</p> <ul style="list-style-type: none"> - Carbs are critical for replenishing muscle glycogen and for creating an anabolic environment (with increased insulin and decreased cortisol levels). - Protein provides EAAs, which promote an anabolic environment and provide the building blocks for muscle repair and growth. <p>How much?</p> <p>Within 30 minutes...</p> <p><u>After endurance training:</u> - 0.5 g carbohydrate per pound of body weight</p> <p><u>After resistance training:</u> - 6 g EAAs (which can be provided by ~12-15 g of high quality whole protein) AND <i>at least</i> 35 g carbs</p> <p>Mixed meal 2 hrs. later</p>

* EAAs = Essential Amino Acids

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Fluids	<ul style="list-style-type: none"> ✓ <u>At least</u> 16 oz. 2 hrs. before exercise. ✓ Another 8 oz. 10-20 min. before exercise. 	<ul style="list-style-type: none"> ✓ ~8 oz. every 15-20 min. during exercise. ✓ When exercise is <u>intense</u> and <u>> 1 hr.</u> in duration, choose a sports drink w/ carbs and electrolytes. 	<ul style="list-style-type: none"> ✓ <u>At least</u> 16 oz. (preferably 24 oz.) for every lb. of water weight lost. 														
Example fuels:	<p><i>3 hrs. before:</i></p> <ul style="list-style-type: none"> ✓ Turkey Sub, baked chips, banana, + water ✓ Pasta with marinara sauce, grilled skinless chicken breast, small salad w/vinaigrette dressing, roll, + water <p><i>≤1 hr. before:</i></p> <p><u>One</u> of the following snacks:</p> <p><i>Endurance training:</i></p> <ul style="list-style-type: none"> ✓ 1 apple or banana ✓ 1 packet oatmeal ✓ 8 oz. carton yogurt <p><i>Resistance training:</i></p> <ul style="list-style-type: none"> ✓ 1 Boost High Protein shake (33 g carbs, 15 g pro) ✓ 1 Zone Perfect bar (22 g carbs, 16 g pro) ✓ 1 English muffin with 1 whole + 2 egg whites (30 g carbs, 16 g pro) 	<p><i>During LONG events:</i></p> <p><u>One</u> of the following per hour:</p> <ul style="list-style-type: none"> ✓ 24 oz. Gatorade (43 g carbs) ✓ 1/3 cup raisins (40 g carbs) ✓ 1 medium banana (30 g carbs) ✓ 2 oranges (30 g carbs) ✓ 1 Clif bar (45 g carbs) ✓ 4 small fig bars or 2 large graham crackers (42 g carbs) ✓ 2 Gu energy gels (50 g carbs) 	<p><i>Within 30 min. after:</i></p> <p><i>Endurance training:</i></p> <p>Get adequate carbs based on your weight below:</p> <table style="margin-left: 40px; border: none;"> <tr><td>110 lb.</td><td>55 g carbs</td></tr> <tr><td>130 lb.</td><td>65 g carbs</td></tr> <tr><td>150 lb.</td><td>75 g carbs</td></tr> <tr><td>170 lb.</td><td>85 g carbs</td></tr> <tr><td>190 lb.</td><td>95 g carbs</td></tr> <tr><td>210 lb.</td><td>105 g carbs</td></tr> <tr><td>230 lb.</td><td>115 g carbs</td></tr> </table> <p><i>Resistance training:</i></p> <p>Get adequate carbs + EAAs</p> <ul style="list-style-type: none"> ✓ Peanut Butter Sandwich + 8 oz. Fat free milk (42 g carb, 20 g pro) ✓ 1.5 c. Raisin Bran + 8 oz. fat free milk + 1 hard boiled egg (79 g carb, 23 g pro) ✓ 1 Promax bar + 1 apple (54 g carb, 20 g pro) ✓ 1 Boost High Protein shake + 1 small banana (48 g carb, 15 g pro) 	110 lb.	55 g carbs	130 lb.	65 g carbs	150 lb.	75 g carbs	170 lb.	85 g carbs	190 lb.	95 g carbs	210 lb.	105 g carbs	230 lb.	115 g carbs
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References:

- Gibala, Martin. Dietary Protein, Amino Acids, & Recovery From Exercise. Sports Science Exchange #87. Gatorade Sports Science Institute. Vol. 15 (2002). No. 4.
- Position of the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and athletic performance. Journal of the American Dietetic Association. 2000; 100:1543-1556.

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