

# bodywork

Fitness, Health  
& Nutrition

## No More Barriers: PART THREE Clean Energy

Proper nutrition is more than just a training necessity. It's the pros' secret weapon—and it could be the performance hurdle that's holding you back.

BY AARON GULLEY

Special  
fold-out  
section



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"I'm going to get my nutrition right and come back for the world record," says ultrarunner Josh Cox.

## Eat to Win

AT THE 2009 Rock 'n' Roll Arizona marathon in Phoenix, Josh Cox's attempt to break the world record in the 50K was thwarted by restroom stops. "My legs felt fine, but I was having a hard time with fluids," remembers the 36-year-old Mammoth Lakes, California, runner. His mistake: by drinking too much in an effort to stay hydrated, he became bloated, and by race's end he had vomited six times. The sick bouts put Cox minutes off his planned pace, though he still bested the U.S. 50K mark by more than four minutes. "I thought, if I can set an American record on a bad day," says Cox, "I'm going to get my nutrition right and come back for the world record."

Setbacks like Cox's aren't uncommon. In a recent study in the *International Journal of Sports Physiology and Performance*, nearly a quarter of ultramarathoners in two major U.S. events reported digestive issues. And 23 percent said they dropped out because of nausea or vomiting, which underscores a crucial lesson Cox has learned. "Training is the easy part," he says. "Nutrition is the secret weapon."

It's easy to fixate on working out harder, but changing your diet can unlock a whole new level of performance. And good nutrition begins long before the starting gun. A 2009 study by researchers at Southern Connecticut State University showed that cyclists who modified their diets to lose weight improved their performance almost 10 percent, the same amount

experienced by cyclists who added intense interval training to their regimen.

Athletes often miss out on these benefits through simple inattention. "People go to great lengths to pick a coach and plan their training," says sports dietitian Suzanne Girard Eberle. "But food and nutrition are an afterthought." Have you planned tomorrow's workout but not what's for breakfast? Do you know how many grams of carbs and proteins you'll need in the first hour after exercise? If not, you may be robbing yourself of many of the benefits of training. "Workouts are like classes, and nutrition is like studying," says dietitian Jenna A. Bell, coauthor of the 2009 book *Energy to Burn*. "You can attend all of your classes, but if you don't take time to study for the exam, it's unlikely you'll do well." And as in school, the more you learn about what to eat and when to eat it, the better you'll do.

In the months following the 2009 marathon, Cox fine-tuned his diet and, on race days, took in more nutrients and less liquid by using energy gels diluted in water. Last January, during another race in Phoenix, he shaved a whopping 3 minutes and 32 seconds off his previous best and missed the world record by just seven seconds. "It came down to not getting enough calories in the last part of the race," says Cox. During the final 10K, he neglected to polish off his drink bottles. "With a bit more honing, next time I'll be a lot faster," he says.

The same goes for the rest of us. There's no magic recipe for perfect performance, but a solid understanding of how best to fill your tank can make for huge gains.

## Practice the Fundamentals

Forget complicated meal plans. Build good eating habits around basic food knowledge, and keep these three guidelines in mind.

**1. BE REGULAR:** The number-one improvement athletes can make to their diets is to structure their eating. Studies have linked regular meals with more consistent blood-sugar levels, lower cholesterol, and increased lean body mass.

**Recipe for Success:** Plan for three meals a day and two snacks in between. Eat every three to four hours to keep hunger at bay.

**2. SIMPLIFY:** "Eating well doesn't have to be about restrictions," says Leslie Bonci, director of sports nutrition at the University of Pittsburgh. "Rather than dwell on every calorie, focus on big-picture needs—proteins, carbohydrates, and fats."

**Recipe for Success:** Divide every meal into thirds. The first third should be protein, such as fish or chicken; the second, fruits and vegetables; the third, grains.

**3. DON'T JUST FILL, FUEL:** "A lot of people use exercise as a free pass to eat whatever they want," says dietitian Kelli Jennings of Apex Nutrition in Golden, Colorado. "Exercise should complement your diet, not sabotage it."

**Recipe for Success:** Jennings suggests distinguishing between daily eating and training nutrition, with an emphasis on performance calories on the days you exercise and healthy, whole-food nutrition on the days you don't.



## Get to Know Your Superfoods

Not everything we eat is created equal. Kelli Jennings of Apex Nutrition recommends keeping these staples on hand to fire up your performance.

**AVOCADOS:** The fruit's healthy fats help with bone mass, increase calcium and absorption of vitamin A antioxidants, and are powerful anti-inflammatory agents. They're also rich in phytochemicals, which may diminish cellular UV damage.

**Serving Suggestions:** Stir up some guacamole or dice over salads; also, try cooking with avocado oil, which has the highest smoking point of any plant-based oil.

**ALMONDS:** The nuts contain resveratrol, a natural anti-inflammatory, and lots of electrolytes (99 milligrams of magnesium, 257 milligrams of potassium, and 75 milligrams of calcium in a quarter cup) to help fight muscle fatigue and cramping. They've also been proven to inhibit LDL cholesterol from clogging arteries by as much as 50 percent.

**Serving Suggestions:** Always buy almonds with the skins on (they contain many of the nutrients), and add them

to smoothies or eat them straight; try substituting almond flour for wheat flour in waffles and sweet breads.

**COCONUT OIL:** Organic extra-virgin coconut oil has a high percentage of medium-chain triglycerides, healthy fats that are otherwise hard to get (think breast milk). They promote heart health, help stabilize blood sugar, and are an excellent energy source, digesting easily and providing quick-burning fuel.

**Serving Suggestions:** Stir-fry with it, use it as a butter substitute, or swallow a tablespoon after training.

**HONEY:** The bees' nectar is the ideal carb for workouts. It provides both fructose and sucrose, and its low glycemic index makes for slower, steadier energy release. Honey also promotes muscle retention during recovery and, in raw form, contains enzymes that aid in digestion.

**Serving Suggestions:** Mix with peanut butter for a perfect pre-race boost, or dissolve in milk or recovery smoothies.

**WHEY PROTEIN:** A by-product of cheese production, whey protein can help you retain muscle when used immediately after strenuous training. Look for whey supplements marked denatured, which provide the raw materials for cells to build glutathione, a powerful antioxidant.

**Serving Suggestions:** Mix a scoop of unsweetened whey—we like Natural Factor or Bluebonnet—into yogurt, oats, or shakes.

**KALE:** Not only does the leafy green have anti-inflammatory and cholesterol-lowering properties, but its surplus of glucosinolates makes it one of the best detoxifiers around, helping to purge toxins created during exercise.

**Serving Suggestions:** Steam as a side with dinner, toss into a stir-fry, or baste with olive oil and grill for a crispy snack.



## Make Weight

Athletes love to obsess about gear ounces, but the most obvious spot to drop pounds is around your gut. "It's not always about losing weight but losing body fat," says San Diego sports nutritionist Matt Fitzgerald, author of *Racing Weight*. "Getting leaner is a sure way for endurance athletes to improve." The most reliable way to find your ideal race weight and body composition is by tracking your performance over time. This quick-start program will get you in the ballpark.

**1. FIND YOUR CURRENT BODY-FAT PERCENTAGE.** A body-fat scale, like Tanita's FitScan Body Composition Monitor, is reasonably accurate and much more convenient than a definitive Dexa scan.

**2. DETERMINE YOUR TARGET BODY-FAT PERCENTAGE.** Use your current body-fat percentage and the chart at right to set a realistic goal. For instance, a 35-year-old man with 16

percent body fat might initially shoot for 12 percent. If you're more than ten percentage points away from your ideal range, split the difference.

**3. CALCULATE YOUR BODY-FAT MASS.** Multiply your weight by your body-fat percentage. For example, if you weigh 165 pounds: 165 lbs. x 0.16 = 26.4 lbs.

**4. CALCULATE YOUR LEAN BODY MASS.** Subtract your fat mass from your weight: 165 lbs. - 26.4 lbs. = 138.6 lbs.

**5. FIND YOUR TARGET LEAN-BODY-MASS PERCENTAGE.** Subtract your



target body-fat percentage from 100: 100 - 12 = 88 percent.

**6. CALCULATE YOUR TARGET RACE WEIGHT.** Divide your current lean body mass (step 4) by your target lean body mass (step 5): 138.6 ÷ 0.88 = 157.5 lbs.

### Ideal Race-Day Body Fat

AGE:	M20-29	M30-39	M40-49	M50+	W20-29	W30-39	W40-49	W50+
BODY FAT:	3-10%	5-12%	6-15%	8-17%	10-16%	11-17%	13-20%	14-22%

## Training Fuel: Getting It Right

You can't train the same way every day and expect to make gains. The same goes for your diet. A 150-pound runner may require only 2,500 calories on a rest day but take in 3,700 calories, with lots more carbohydrates, on endurance days. "The main points," says Boston nutritionist Nancy Clark, author of *Nancy Clark's Sports Nutrition Guidebook*, "are to eat enough carbs to fuel big workouts and to time meals appropriately before and after." Use this plan to ensure you get the calories you need.

	HIGH-INTENSITY DAY (3,700 cal)	ENDURANCE DAY (3,900 cal)	REST DAY (2,500 cal)
<b>Breakfast</b>	<ul style="list-style-type: none"> <li>&gt; 1 cup oatmeal with 2 cups low-fat milk, 2 tbsp walnuts, 3 tbsp raisins, and 1 tbsp brown sugar</li> <li>&gt; 12 oz orange juice</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 1 bagel with 2 tbsp peanut butter</li> <li>&gt; 10 oz coffee</li> </ul>	<ul style="list-style-type: none"> <li>&gt; ½ cup Grape-Nuts with 6 oz yogurt and ½ cup berries</li> <li>&gt; 1 English muffin with ½ tsp almond butter</li> <li>&gt; Coffee as desired</li> </ul>
<b>Snack</b>	None	<ul style="list-style-type: none"> <li>&gt; DURING RIDE: 2 Twizzlers, ¼ cup dried pineapple, 1 gel, and 3 Clif Shot Bloks</li> <li>&gt; POST-RIDE: Smoothie with 8 oz juice, 6 oz Greek yogurt, and ½ cup berries</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 1 fruit-and-nut bar (e.g., Kind)</li> </ul>
<b>Lunch</b>	<ul style="list-style-type: none"> <li>&gt; Sandwich with 4 oz turkey, 2 slices cheddar cheese, 1 oz light mayonnaise, lettuce, and tomatoes</li> <li>&gt; ½ cup grapes</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 2 slices French toast with 2 tbsp maple syrup</li> <li>&gt; 3 oz ham</li> <li>&gt; 1½ cups fruit salad</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 1 tuna sandwich with 2 slices whole-grain bread, 1 can tuna, and 3 tbsp mayonnaise</li> <li>&gt; 1 bowl minestrone soup</li> </ul>
<b>Snack</b>	<ul style="list-style-type: none"> <li>&gt; PRE-RIDE: 16 oz energy drink</li> <li>&gt; POST-RIDE: 16 oz chocolate milk</li> </ul>	<ul style="list-style-type: none"> <li>&gt; ½ cup hummus with 2 oz pita</li> <li>&gt; 15 baby carrots</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 10 oz decaf skim latte</li> </ul>
<b>Dinner</b>	<ul style="list-style-type: none"> <li>&gt; 5 oz salmon</li> <li>&gt; 2 potatoes</li> <li>&gt; 1½ cups steamed broccoli with ½ tsp butter</li> <li>&gt; ½ cup low-fat frozen yogurt with 1 banana and 2 tbsp chocolate syrup</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 6 oz chicken breast</li> <li>&gt; 1½ cups brown rice</li> <li>&gt; 1 cup peas</li> <li>&gt; 12 oz low-fat milk</li> <li>&gt; 2 oatmeal-raisin cookies</li> <li>&gt; 1 cup nuts and dried fruit</li> </ul>	<ul style="list-style-type: none"> <li>&gt; 2 burritos made with 2 whole-wheat tortillas, 1 cup refried beans, 1 oz low-fat cheese, lettuce, and salsa</li> <li>&gt; 12 oz beer</li> <li>&gt; Handful dry cereal (e.g., Oat Squares)</li> </ul>

COURTESY, JENNIFER L. HARRIS, THE NUTRITIONIST; COCONUT OIL: GETTY IMAGES; ALMONDS: GETTY IMAGES; KALE: GETTY IMAGES

JENNIFER L. HARRIS



## Avoid Race-Day Pitfalls

Ultra-cycling Hall of Famer Steve Born, 52, who finished the grueling Race Across America (RAAM) three times and won Southern California's 500-mile ultra-endurance cycling event the Furnace Creek 508, knows firsthand that no matter how hard you train, you risk failure—or worse—if you don't properly fuel. During his fourth attempt at RAAM, he overhydrated, voided all his electrolytes, and ended up in the emergency room after only 200 miles. Now, as the fueling guru for Hammer Nutrition, which makes performance bars and gels, Born helps others avoid painful lessons. Here are the six most common race-day mistakes—and advice on how to correct them.

**MISTAKE 1:** The night before a marathon, you load up with seconds of lasagna.

**Problem:** "Carbo-loading doesn't work," Born explains. "Your body can't process and store energy from additional food." Most of those extra calories will be eliminated, and those that aren't will only expand your waistline, not your energy stores.

**Solution:** Eat a regular-size meal rich in complex carbs, proteins, and healthy fats, such as pasta with garlic sauce and a salmon filet. The next morning, 300 to 500 calories three hours before the gun will suffice.

**MISTAKE 2:** You fill your race bottles with some new powdered energy drink you buddy has been raving about.

**Problem:** Just as you train your muscles, you need to prepare your stomach to function while exercising, and anything new can lead to digestive distress.

**Solution:** Practice your race-day nutrition plan in a variety of training conditions, experimenting with different products. During races, stick with what works.

**MISTAKE 3:** It's 100 degrees on race day, and you guzzle water like a camel.

**Problem:** "Drinking too much can be more dangerous than drinking too little," advises Born. Excess fluids not only lead to bloating and muscle cramps, they also dilute electrolytes, which in severe cases can lead to seizures, coma, or even death.

**Solution:** Replenish with no more than 20 to 25 ounces of fluid (two-thirds of a

Nalgene bottle) per hour. Sip, don't gulp. And use an electrolyte supplement such as Nuun or Endurelytes with a full spectrum of minerals, not just sodium.

**MISTAKE 4:** Your fitness watch says you're burning 800 calories an hour, so you cram down food.

**Problem:** Balancing your caloric budget doesn't work during exercise. "You can't replace everything you lose while you're performing," says Born. "But the body has tens of thousands of calories in fat stores."

**Solution:** In efforts longer than an hour, two-thirds of your energy comes from body fat. Supplement with 240 to 280 calories per hour.

**MISTAKE 5:** You've planned a regimen of bananas, PB&J's, and energy bars to fuel your race.

**Problem:** Solid foods are typically less nutrient-rich than liquid fuel, plus they take more energy to process. "You want your energy focused on forward progress, not digestion," Born says.

**Solution:** You can perform almost indefinitely on liquid fuel such as Sustained Energy or Perpetuum; use small amounts of solid foods for variety.

**MISTAKE 6:** After the event, queasy from all those energy-food calories, you decide to wait three hours until dinner.

**Problem:** Real carbo-loading happens the first hour or so after exercise, when your body is supercharged to process calories and store them as energy-rich glycogen in your muscles. After two hours, that energy won't go into your reserves.

**Solution:** Within 30 minutes of exercise, consume 30 to 90 grams of complex carbohydrates and 10 to 30 grams of protein (see "Smooth Recovery," below), and you'll build up a glycogen store.

## Smooth Recovery

With four of our six superfoods (see page 92) plus strawberries—which have lots of carbohydrates to replenish glycogen stores and antioxidants to counteract exercise-induced tissue damage—this shake is as healthy and rejuvenating as it is delicious. Drink it within 30 minutes of a workout for maximum benefit.

### Almond Butter Smoothie

1. Place 1 cup strawberries, ½ cup milk, ½ scoop (10 grams) unde-sweetened whey protein, ½ tablespoon coconut

oil, 1 tablespoon honey, and 1 tablespoon almond butter (or 2 tablespoons almonds) in a blender or food processor.

2. Blend until smooth, then add ice and blend again until thick and frothy. Serves 1.

Contains approximately 370 calories, with 42 grams carbohydrates and 14 grams protein.

## Rise and Shine

If breakfast is the most important meal, that's never truer than on race day. But choosing the right fuel depends on the type of event you're competing in. "Your specific needs come down to the differences in the time and the intensity you'll be going at," says Pamela Nisevich Bede, a nutritional consultant for Swim, Bike, Run, Eat. "It's also a question of what sits well with you, which you'll figure out over time." Below, what you should be eating and why.

### TEN-KILOMETER RACE

**On the Menu:** Two low-fat whole-grain pancakes with ½ cup berries, 12 ounces of coffee with 2 ounces skim milk, and 1 tablespoon honey an hour before the start. **In the Tank:** 320 calories, 9 grams protein, 7 grams fat, 57 grams carbohydrates, 7 grams fiber. **Here's Why:** A 10K is short and demands high intensity, so you'll perform best with small portions packing plenty of carbs.

### OLYMPIC-DISTANCE TRIATHLON

**On the Menu:** One cup oatmeal with ½ cup skim milk and three tablespoons each of raisins and brown sugar three hours before the start. **In the Tank:** 375 calories, 11.5 grams protein, 3 grams fat, 80 grams carbohydrates, 5 grams fiber. **Here's Why:** It might not seem like many calories for a tri, but you'll be refueling during the race. The fiber in oatmeal will help slow digestion, and carbs in the raisins and brown sugar will fuel muscles through all three events.

### LONG-DISTANCE MOUNTAIN-BIKE RACE

**On the Menu:** One cup whole-grain cereal with ½ cup skim milk and one banana, 16 ounces of coffee with 4 ounces skim milk, and one whole-grain bagel with 1 tablespoon apple butter three hours before the start. **In the Tank:** 640 calories, 23 grams protein, 3 grams fat, 130 grams carbohydrates, 11 grams fiber. **Here's Why:** An intense three-hour effort calls for a meal high in carbs and rich in protein and fat. Because mountain biking is less repetitive than other sports, racers can usually tolerate a greater variety of solids.

## Racing Fuel: Appraising the Bar

Energy food now comes in more flavors than Baskin-Robbins ice cream. With help from Beavercreek, Ohio, nutritional consultant Pamela Nisevich Bede, we fueled up with an old favorite and some new standbys to see what really works.

SNICKERS BAR	COST	CALORIES	COST/100 CAL	CARBS	PROTEIN	FAT
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	\$1	271	\$0.37	34.5 grams	4.3 grams	13.6 grams
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**THE GOOD:** The cheapest option for calories, and it's available everywhere; yumminess lessens taste fatigue during long hauls. **THE BAD:** All that fat takes too long to digest during short spurts; lots of empty calories.

POWERBAR GEL	COST	CALORIES	COST/100 CAL	CARBS	PROTEIN	FAT
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	\$1.25	110	\$1.14	27 grams	0 grams	0 grams
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**THE GOOD:** Great mix of fructose and glucose for lasting energy; easily digestible and has electrolytes, too. **THE BAD:** The most expensive option per calorie; some dislike the texture.

PROBAR HALO	COST	CALORIES	COST/100 CAL	CARBS	PROTEIN	FAT
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	\$1.60	150	\$1.06	24 grams	4 grams	3 grams
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**THE GOOD:** Dairy-free and organic for clean-burning energy; health food that tastes like candy. **THE BAD:** Slim on calories for an energy bar; 2 grams of fiber make it tougher to digest while going hard.

HAMMER SUSTAINED ENERGY	COST	CALORIES	COST/100 CAL	CARBS	PROTEIN	FAT
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	\$2.90	320	\$0.91	68 grams	10 grams	0.4 grams
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**THE GOOD:** Ample complex carb bagel for the buck; easily absorbed liquid loaded with electrolytes. **THE BAD:** The consistency, similar to milk, turns some stomachs.

HONEY STINGER WAFFLES	COST	CALORIES	COST/100 CAL	CARBS	PROTEIN	FAT
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	\$1.40	160	\$0.88	21 grams	0 grams	7 grams
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**THE GOOD:** Organic, slow-burning, and packed with micronutrients; tastes like dessert. **THE BAD:** Not very calorically dense; a bit fatty.

CLIF SHOT ROKS	COST	CALORIES	COST/100 CAL	CARBS	PROTEIN	FAT
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	\$3	270	\$1.11	37 grams	20 grams	4.5 grams
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**THE GOOD:** Contains whey protein for muscle maintenance; malt balls have never tasted so good. **THE BAD:** Chewy texture might be tough to swallow when parched; spendy candy.