

PRE-WORKOUT

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WHAT YOU NEED TO KNOW TO:

- **Optimize your fuel, hydration and comfort before training and events.**
- **Achieve adequate total carbohydrates based on your level of training.**
- **Create a winning nutrition strategy that works for you.**

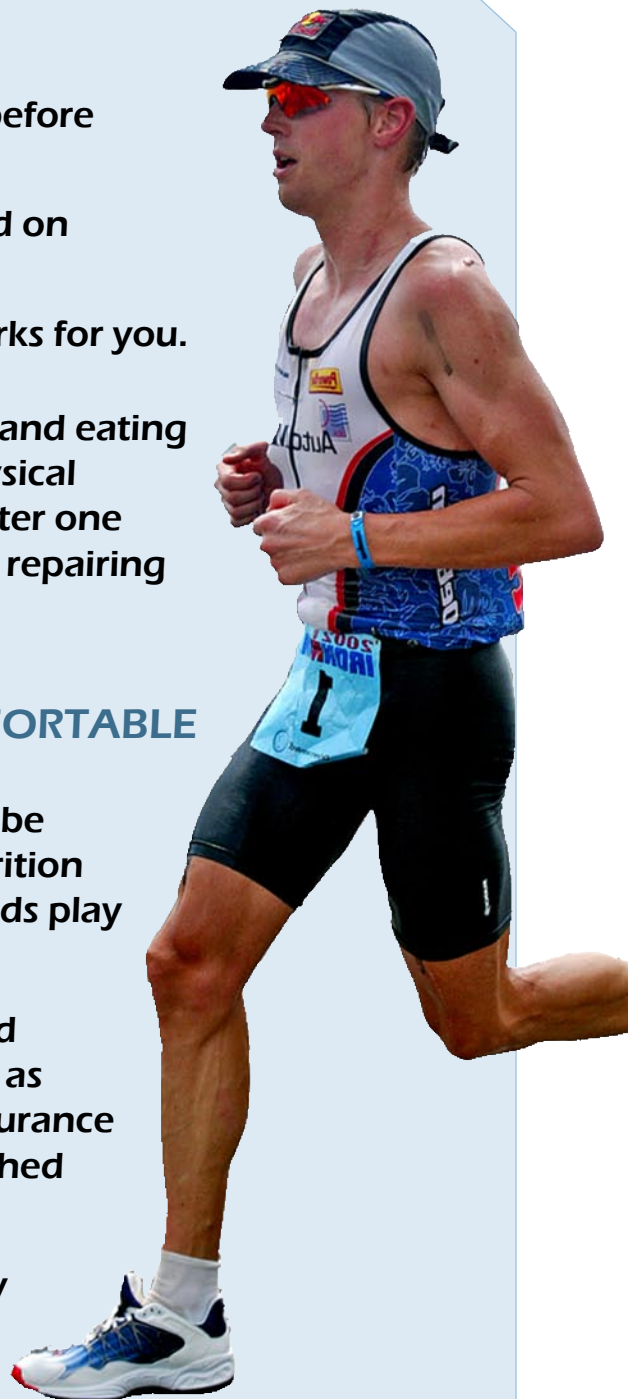
Every meal is important for athletes. Training and eating go hand in hand in a cycle of preparation, physical exertion and recovery. The food consumed after one session provides the essential raw material for repairing the body and fueling the next workout.

BEING FUELED, HYDRATED AND COMFORTABLE

The #1 pre-workout goal of every athlete is to be fueled, hydrated and comfortable. Sports nutrition strategies emphasizing carbohydrates and fluids play a critical role in helping you achieve this goal.

Carbohydrates, the principal fuel for speed and endurance, are stored in the muscles and liver as glycogen, and are quickly used up during endurance activity. So carbohydrates need to be replenished prior to each workout.

Likewise, fluids, which are essential to virtually all body functions—from cooling to nutrient delivery—also need to be restored prior to each workout.



TRAINING ON EMPTY

Training when dehydrated or with low muscle glycogen stores is a performance killer. You will likely experience:

- Early fatigue/loss of energy
- High level of perceived exertion
- Loss of muscle coordination
- Difficulty concentrating
- Hunger pangs
- Impaired training performance in the short term
- Less than optimal results in the long term

A WINNING SPORTS NUTRITION STRATEGY

Consuming the right foods and fluids before exercise improves performance. To ensure that you're going into a workout prepared, you need to consume optimal amounts of carbohydrate and fluid. It's what your body will be relying upon during exercise. The window of opportunity for topping off fuel/fluid levels is one to four hours prior to working out.

Key Benefits:

- Helps optimize muscle and liver glycogen levels.
- Prevents gastrointestinal discomfort and hunger.



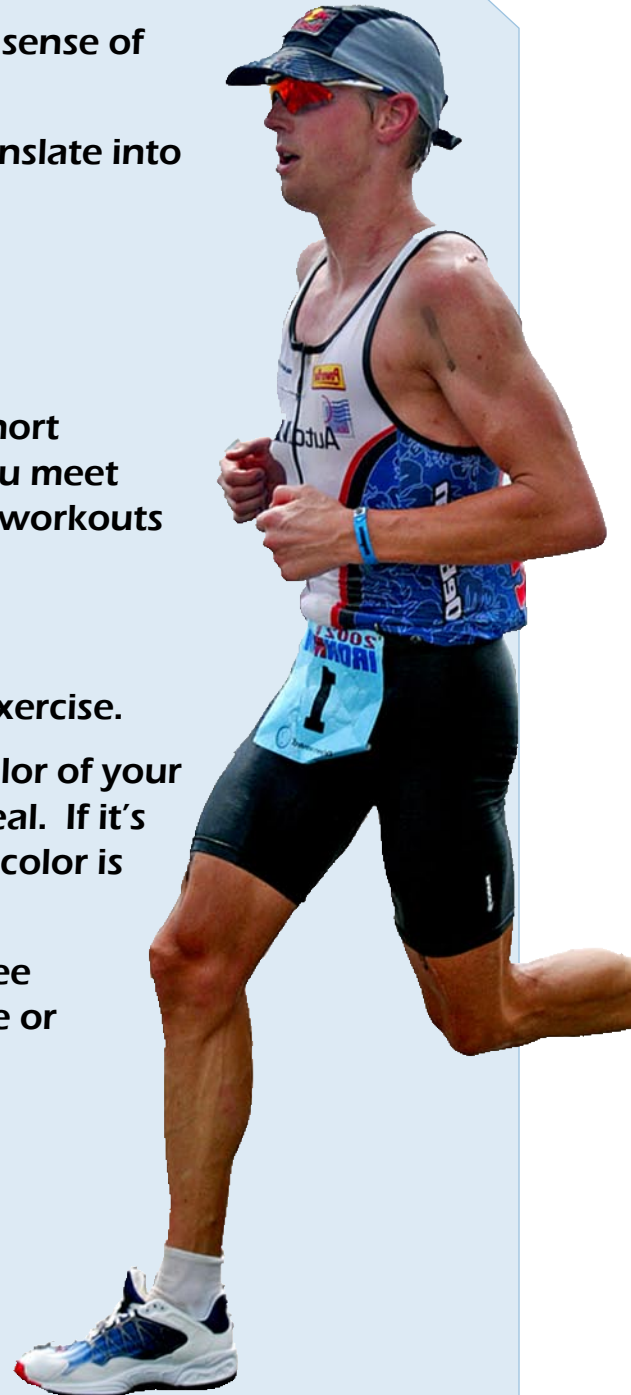
- Improves overall psychological outlook and sense of well being.
- Promotes effective training sessions that translate into better performances.

GETTING HYDRATED

While water is suitable for hydrating before short workouts, the use of sports drinks can help you meet both fluid and carbohydrate needs for longer workouts or events.

Key Strategies:

- Correct any fluid deficit **before** starting to exercise.
- Check hydration status by examining the color of your urine. A light color, like lemonade, is the ideal. If it's clear, you're probably overhydrating. If the color is dark, like apple juice, drink more fluid.*
- Drink an extra 16 ounces of fluid two to three hours before exercise.^{1,2} Choose water, juice or a sports drink.
- If you are thirsty, most athletes do fine with another 8 to 16 ounces of fluid just before exercise.²



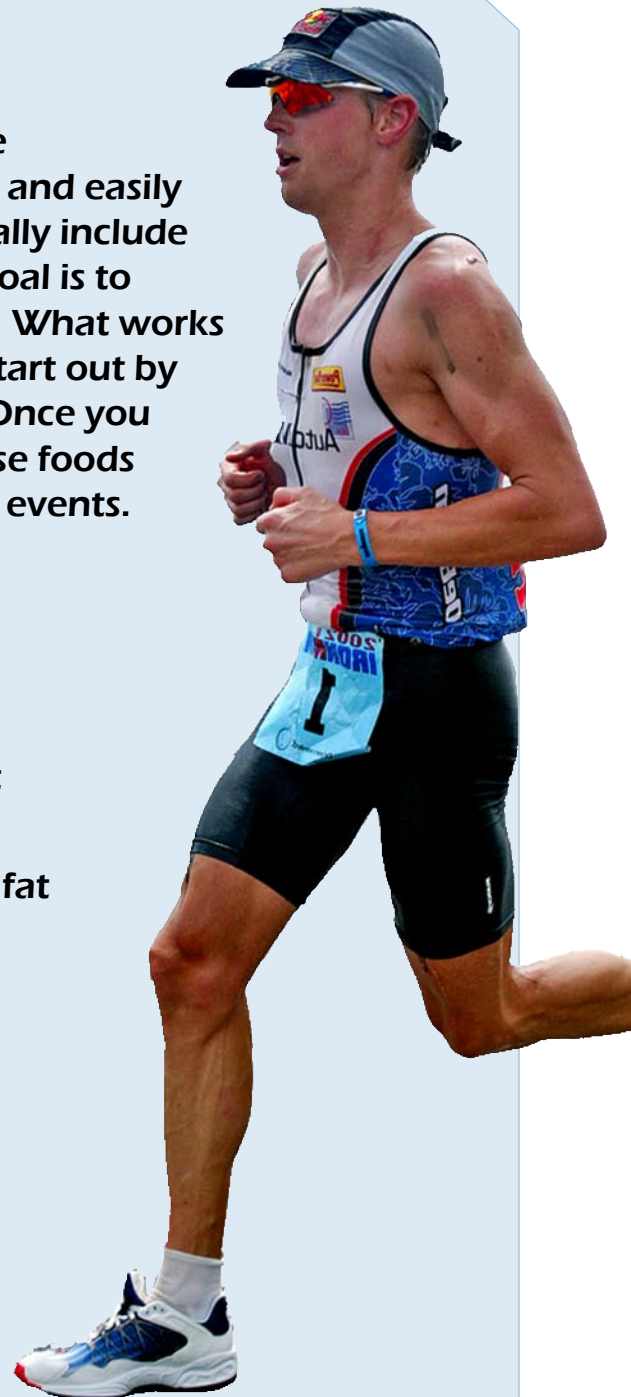
* Multivitamin supplements can cause urine to be bright yellow.

MEALTIME

Foods best suited for the pre-exercise meal are carbohydrate-rich, low to moderate in protein and easily digested. Foods that are easily digested typically include low-fat and low-fiber choices. However, the goal is to create a nutrition strategy that works for you. What works for one athlete may not work for others. So, start out by experimenting with your pre-workout meal. Once you figure out what works, make sure to keep these foods on hand and accessible prior to workouts and events.

Sample Pre-Workout Foods:

- Hot/cold cereals with low-fat milk
- Fruit and low-fat yogurt
- Sandwiches made with lean meat or peanut butter/jelly
- Pasta and rice-based dishes with low added fat
- Energy bars



TIMING YOUR CARBOHYDRATE

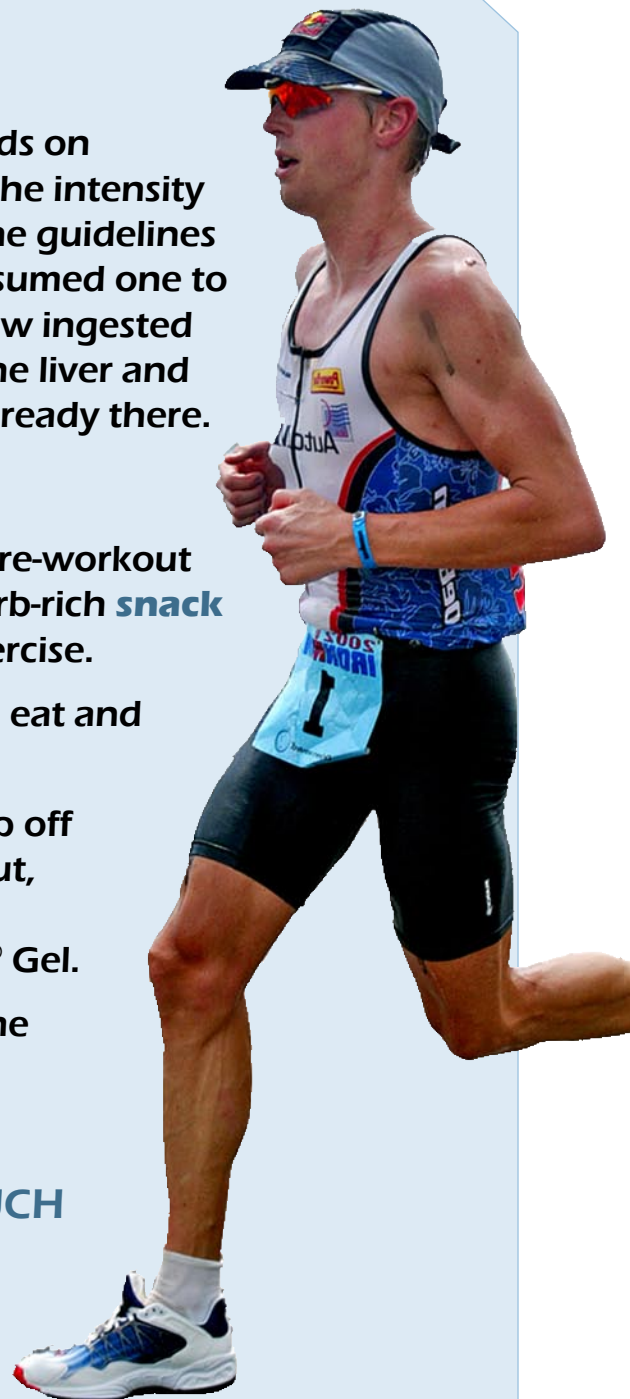
The ideal timing of a pre-workout meal depends on individual comfort and preference, as well as the intensity of exercise planned. Generally, sports medicine guidelines suggest that a meal or series of snacks be consumed one to four hours before exercise.¹ The goal is to allow ingested carbohydrates to be absorbed and stored in the liver and muscles as glycogen, adding to the reserves already there.

Practical Tips:

- Most athletes find that the right time for a pre-workout **meal** is two to four hours beforehand. A carb-rich **snack** can be consumed up to one hour before exercise.
- The closer to your workout, the less you can eat and still be comfortable.
- For early morning workouts or to further top off fuel supplies in the hour before your workout, have a carb-rich snack such as POWERBAR® PERFORMANCE Energy Bar or POWERBAR® Gel.
- For higher intensity exercise, allow more time for digestion.

FOR ENDURANCE ATHLETES, HOW MUCH CARBOHYDRATE IS ENOUGH?

Research suggests that endurance performance is improved when athletes consume a substantial amount of



carbohydrate (as much as 200-300 grams) as part of their pre-workout meal.¹ However, the type and amount of food you can comfortably consume differs by individual. So, experiment to find what works best for you.

PRE-WORKOUT MEAL - EXAMPLE A

4 tbsp natural peanut butter

3 tbsp strawberry jam

2 slices bread

1 medium banana

½ cup yogurt-covered raisins

1 cup 1% fat milk

1 POWERBAR® PERFORMANCE Energy Bar

8 oz POWERBAR® ENDURANCE Sport Drink

Totals: 249 grams carbohydrate, 44 grams protein

PRE-WORKOUT MEAL - EXAMPLE B

1 bagel (small)

3 tbsp low-fat cream cheese

½ cup egg substitute (cooked)

1 cup 1% fat milk

½ cup raisins

Totals: 123 grams carbohydrate,
38 grams protein



HOW MUCH CARBOHYDRATE IS NEEDED DAILY?

Recommended total daily carbohydrate needs vary depending on your bodyweight, training goals, and the intensity and duration of workouts.³

Use these estimates as a starting point:

- For light training: 2.5 to 3.5 grams of carbs/per pound of bodyweight/per day (g/lb/day)
- For moderate to heavy training: 3.5 to 6 g/lb/day
- For extreme training (4 to 6+ hours/day): 5 to 6 g/lb/day

BODYWEIGHT (POUNDS)	DAILY CARBOHYDRATE NEEDS (GRAMS/DAY)		
	LIGHT TRAINING	MODERATE – HEAVY TRAINING	EXTREME TRAINING
100	250-350	350-600	500-600
125	300-450	450-750	625-750
150	375-525	525-900	750-900
175	425-600	600-1050	875-1050
200	500-700	700-1200	1000-1200

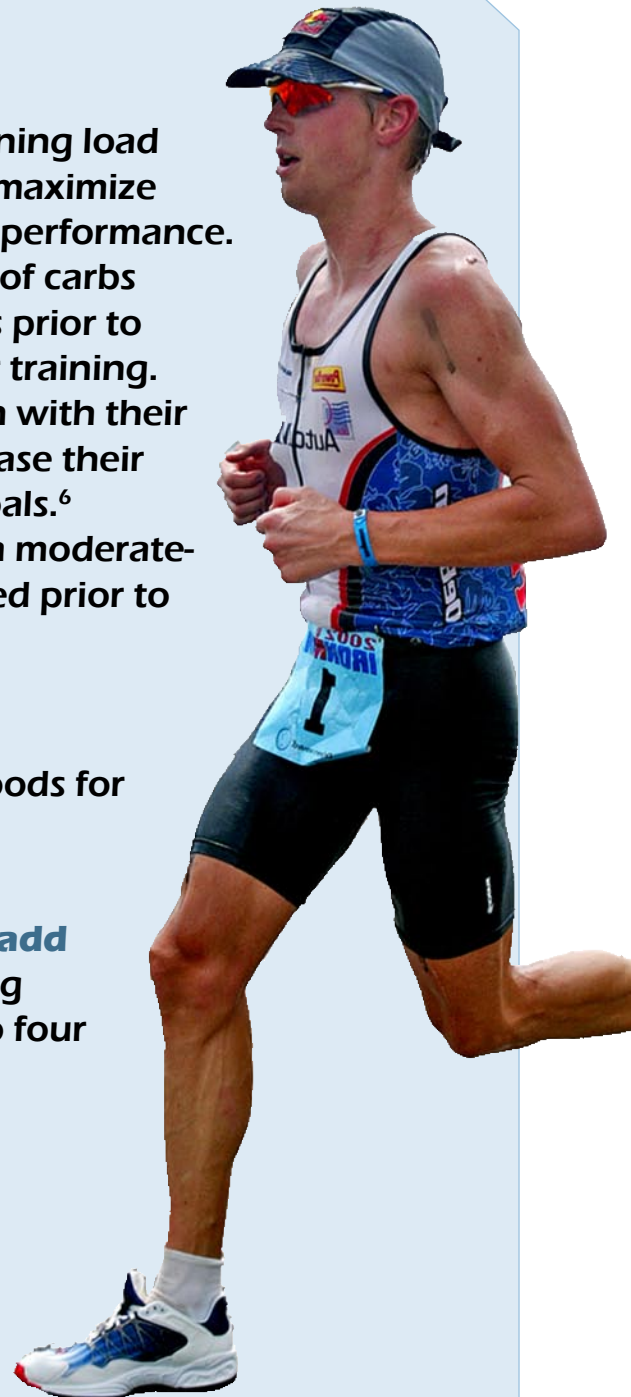


LOAD THE CARBS

Before an important event, reducing your training load and increasing your carbohydrate intake can maximize precious muscle glycogen stores and improve performance. To boost glycogen stores eat 3.5 to 4.5 grams of carbs per pound of bodyweight for two to four days prior to the event, while simultaneously tapering your training. Although this might not be a problem for men with their high caloric intake, women may need to increase their calories before an event to reach their carb goals.⁶ Carb-loading protocols also typically suggest a moderate-to-hard bout of fatiguing exercise be performed prior to increasing carbohydrate intake.³

For effective carb loading:

- Men should **substitute** carbohydrate-rich foods for foods higher in fat.
- Women should substitute carbs in place of higher-fat foods. Women also may need to **add** more carb-rich foods to their diets, increasing calories by 30 to 35% per day in the three to four days before an event.⁶



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REFERENCES

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