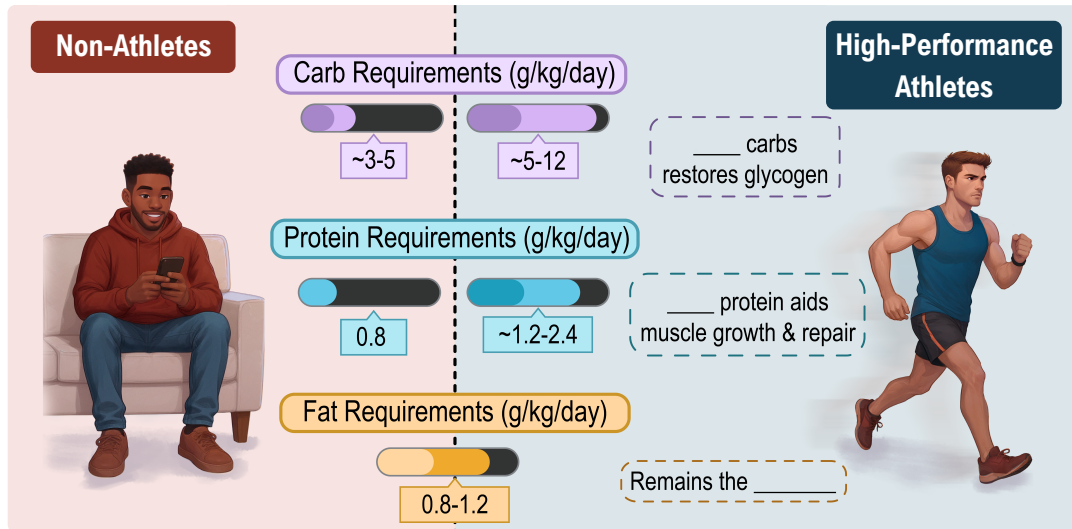


TOPIC: NUTRITION & PHYSICAL ACTIVITY

How Does Physical Activity Affect Macronutrient Needs?

- ◆ Physical activity _____ energy needs, but in most cases, _____ beyond typical dietary guidelines.
 - *High-performance* athletes that *vigorously* exercise *may* benefit from increasing *carb* & *protein* intake.



PRACTICE

Which of the following statements is true for elite athletes?

- a) They have higher fat requirements than the average person because they need more energy.
- b) They have higher protein requirements than the average person to aid in growth, recovery, & repair.
- c) Their carbohydrate needs are the same as the general population.
- d) Options b) & c).
- e) All of the above.

TOPIC: NUTRITION & PHYSICAL ACTIVITY

Timing Meals Around Exercise

- ◆ **Before exercising**, it's especially important to consume carbs & protein (meal digestion takes ~2-4 hours).
 - Endurance athletes may **"carb load"** to *maximize* _____ stores in the days before an event.
- ◆ **During long exercises >1-hour**, simple carbs (e.g. sports drinks) may be consumed every _____ - _____ minutes.
- ◆ **30-45 minutes after exercising**, eat a meal high in carbs & protein (in a ____:____ ratio).

~2-4 Hours Before Exercising	During Long Exercises (>1hr)	~30-45 mins After Exercise
		

PRACTICE

Femi has just played a full 90-minute soccer game. Which of the following would be the most beneficial for him to eat 45 minutes after the game has ended?

- a) A grilled chicken breast with steamed broccoli.
- b) A salad with lettuce, spinach, carrots, tomatoes, avocado, & an olive oil vinaigrette.
- c) A whole-wheat bagel with peanut butter & a glass of chocolate milk.
- d) Pasta with tomato sauce.

PRACTICE


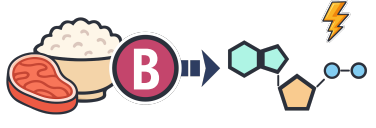
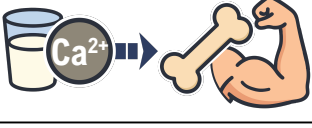
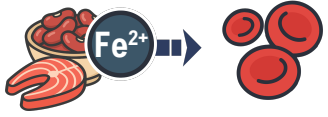
Who would gain the most benefit from carbohydrate loading?

- a) Brian, who is planning on running a 5k tomorrow morning.
- b) Natalie, who is preparing for an iron man triathlon the next day.
- c) Steve, who is about to play basketball for 45 minutes.
- d) Christine, a track athlete who has a 400-meter race coming up.

TOPIC: NUTRITION & PHYSICAL ACTIVITY

The Role of Micronutrients in Athletic Performance

◆ Physically active athletes may have *slightly* _____ micronutrient requirements.

Example Micronutrients	Details	Image
Vitamin <input type="text"/> & Vitamin <input type="text"/>	Physical activity increases production of dangerous free radicals; vitamin E & C are _____.	
<input type="text"/> -vitamins	Required for metabolizing carbohydrates & fat, which are both used to produce ATP.	
Calcium	Calcium (muscle contractions & bones) & iron (hemoglobin component for _____ transport) are key minerals for exercise.	
Iron		

Note: While exercise may increase micronutrient needs, supplements are usually NOT necessary with a healthy diet.

EXAMPLE

Sonia has noticed that she has recently been getting fatigued very easily during exercise. She gets plenty of carbohydrates in her diet, but her doctor thinks she might be deficient in certain B vitamins. Why could this be causing her to feel fatigued?

- a) B vitamins release energy after the first ~3 minutes of exercise.
- b) B vitamins are necessary for the metabolism of carbohydrates, which are required for energy.
- c) B vitamins directly provide energy for activity lasting longer than ~10 minutes.
- d) B vitamins help the lungs efficiently take in oxygen.

PRACTICE

What might be a symptom of an active person who does not get enough calcium in their diet?

- a) Muscle cramps.
- b) Fatigue during exercise.
- c) Decreased bone density (and eventually osteoporosis).
- d) All of the above.