

## Fueling your body for exercise and endurance

A nutritionally-sound diet should consist of macronutrients (ie, carbohydrate, protein, fat) in the following ratio:

Carbohydrate: 45% - 65%

Protein: 10% - 25%

Fat: 20% - 35%

You can calculate grams of macronutrients to meet your caloric needs:

[A kcal is a food calorie]

1 gram of carbohydrate = 4kcal

1 gram of protein = 4kcal

1 gram of fat = 9kcal

For a 2000 calorie/day (kcal/day) requirement, the range of macronutrients is:

Carbs:  $2000 \text{ kcal/day} \div 4 \text{ kcal/gram} \times 45\% \text{ grams/day} = \mathbf{225 \text{ grams/day}}$  to  $2000 \div 4 \times 65\% = \mathbf{325 \text{ grams/day}}$

Protein:  $2000 \text{ kcal/day} \div 4 \text{ kcal/gram} \times 10\% \text{ grams/day} = \mathbf{50 \text{ grams/day}}$  to  $2000 \div 4 \times 25\% = \mathbf{125 \text{ grams/day}}$

Fat:  $2000 \text{ kcal/day} \div 9 \text{ kcal/gram} \times 20\% \text{ grams/day} = \mathbf{44 \text{ grams/day}}$  to  $2000 \div 9 \times 35\% = \mathbf{77 \text{ grams/day}}$

The range allows for flexibility across activity levels, body size, food preferences, and health-related dietary issues. These are also the dietary recommendations for recreational exercisers. Prior to exercise, eat for energy and to improve performance with a small meal 2 to 3 hours before exercise or a small snack 1 hour before. The meal or snack should consist of moderate – high carbohydrate, moderate protein, and low fat.

Small meal examples:

- Tuna (1 can), 1 slice whole grain toast, fruit
- Turkey sandwich, fruit, vegetables
- 1 cup rice, 1 egg, vegetables

Small snack examples:

- Apple with 1 ounce cheese
- ½ ounces nuts and ¼ cup raisins
- Banana and 1 tablespoon peanut butter
- Greek yogurt (plain, non-fat) with ½ cup fruit
- Hummus and vegetables

ENDURANCE EXERCISE (next page)



Endurance exercise, lasting more than 90 minutes will require modifications to sustain energy throughout the period of activity.

- 3 – 4 hours before exercise, consume 300-600 calories, moderately high in carbohydrate (~70 - 120 grams), moderate protein, low fat, low fiber
  - Turkey sandwich, fruit
  - Peanut butter and jelly sandwich
  
- Every 45 – 60 minutes during exercise: 30 – 60 grams of carbohydrate, fluids and electrolytes
  - Banana, orange, or apple
  - Energy gel or beverage
  
- After exercise: 300 – 400 calories, carbohydrate (~70 – 100 grams) and protein (~6 – 10 grams) AND fluid replacements – 2 cups/pound lost
  - Chocolate milk (1.5 – 2 cups)
  - Smoothie with yogurt and fruit