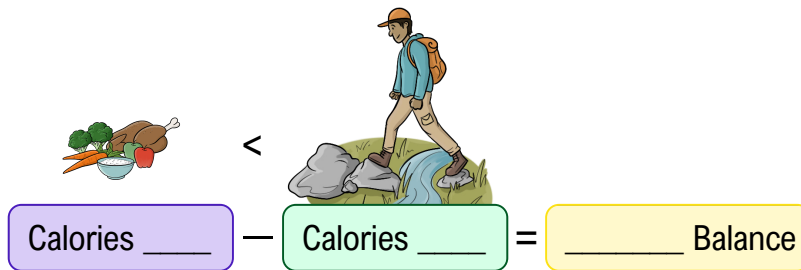


TOPIC: ENERGY BALANCE

Energy Balance

- ◆ To maintain weight, Calorie _____ must equal Calorie _____.



◆ Energy balance:

- Intake ____ Expenditure
- _____ weight.

◆ Positive balance:

- Intake ____ Expenditure
- _____ weight.

◆ Negative balance:

- Intake ____ Expenditure
- _____ weight.

- ◆ Calculating _____ is straightforward (but is not necessarily easy).
- ◆ Calculating _____ is more complex: different between people and can change!
- Individual variation (genetics); _____ changes; _____ changes.

EXAMPLE

Joey is a college sophomore who ran track in high school. On an average day, she consumes 2,300 Calories and burns approximately 2,100 Calories. Assuming she maintains this level of consumption and expenditure:

- a. How would you describe her energy balance? _____
- b. Will she lose weight, gain weight, or maintain her current weight? _____

PRACTICE

Which of the following is true if intake is less than expenditure?

- a) You are consuming more Calories than you are burning.
- b) You are in a positive energy balance.
- c) You are burning more Calories than you are consuming.
- d) You are gaining weight.

PRACTICE

If someone has a positive energy balance, they are:

- a) Gaining weight.
- b) Losing weight.
- c) Maintaining weight.

TOPIC: ENERGY BALANCE

Energy Intake

◆ Energy intake comes from the _____ in the foods we eat.

- ▶ Different _____ nutrients have different caloric content.

Greek Yogurt: 1 serving = 1/2 cup (110g)



Fats:

Calories/ gram

2.5 grams fat

2.5 g x ____ Cal/g = _____

Carbohydrates:

Calories/ gram

3 grams carbs

3 g x ____ Cal/g = _____

Protein:

Calories/ gram

14 grams protein

14 g x ____ Cal/g = _____

Total = _____ + _____ + _____ = _____

Alcohol

____ Calories/ gram

1 martini = 23 grams alcohol

23 g x ____ Cal/g = _____



EXAMPLE

Mikel buys a granola bar. While opening the package, he rips the top of the nutrition label, so he is unable to read the number of Calories. The rest of the nutrition label is shown below. How many Calories are in Mikel's granola bar?

Total Fat	7 g
Saturated Fat	1 g
Trans Fat	0 g
Cholesterol	0 mg
Sodium	140 mg
Total Carbohydrate	29 g
Dietary Fiber	0 g
Total Sugars	11 g
Incl. Added Sugars	11 g
Protein	3 g

TOPIC: ENERGY BALANCE

PRACTICE

If a beer contains 14 grams of alcohol and 13 grams of carbohydrates, how many Calories does it contain?

- a) 98 Calories. b) 52 Calories. c) 150 Calories. d) 147 Calories.

PRACTICE

If a serving of cookies contains 6 grams of fat, 19 grams of carbohydrates, and 2 grams of protein, how many Calories does one serving contain?

- a) 54 Calories. b) 138 Calories. c) 130 Calories. d) 202 Calories.

TOPIC: ENERGY BALANCE

Energy Expenditure

◆ **Total Energy Expenditure** (____): total _____ used in one day.

- Calorie use can be broken into ____ basic functions.

1. Digesting, absorbing, & metabolizing food: **Thermic Effect of Food** (____).

- Energy ____.
- 5-15% of energy use.

2. Basic body functions: **Basal Metabolic Rate** (____).

- Varies by body size: ____ mass → greater BMR
 - 50-____% of energy use.
-
- Body composition: lean body mass ____ fat.
 - Sex: M ____ F
 - Increased age in adulthood: ____ BMR
 - Very low calorie intake: ____ BMR
 - Individual variation.

3. Physical activity.

3a. Calories used in exercise: **Exercise Activity Thermogenesis** (____).

3b. Calories used by muscles outside of exercising: **Non-Exercise Activity Thermogenesis** (____).

- Walking, _____, doing chores, working, fidgeting etc.

◆ ____ + ____ = 15-50% of energy use.

EXAMPLE

Listed below are four people, along with their weight and body fat composition. Based only on this information and your knowledge of BMR, order the individuals from likely lowest to greatest BMR on the lines below.

- a) Person A weighs 160 lbs. with 20% body fat.
- b) Person B weighs 300 lbs. with 40% body fat.
- c) Person C weighs 120 lbs. with 20% body fat.
- d) Person D weighs 160 lbs. with 3% body fat.

____ < ____ < ____ < ____

TOPIC: ENERGY BALANCE

PRACTICE

Which of the following would most directly increase your basal metabolic rate (BMR)?

- a) Exercise-based movements.
- b) Advanced age (over 60 years old).
- c) Non-exercise movements like fidgeting.
- d) Increasing lean body mass.

PRACTICE

Which of the following would typically represent the greatest calorie expenditure for an individual?

- | | | | |
|---------|----------|---------|---------|
| a) EAT. | b) NEAT. | c) TEF. | d) BMR. |
|---------|----------|---------|---------|

PRACTICE

People often recommend small changes for improving health outcomes, such as taking the stairs instead of the escalator or intentionally parking further away from a store in a parking lot. These changes would most directly affect which of the following?

- | | | | |
|---------|----------|---------|---------|
| a) EAT. | b) NEAT. | c) TEF. | d) BMR. |
|---------|----------|---------|---------|