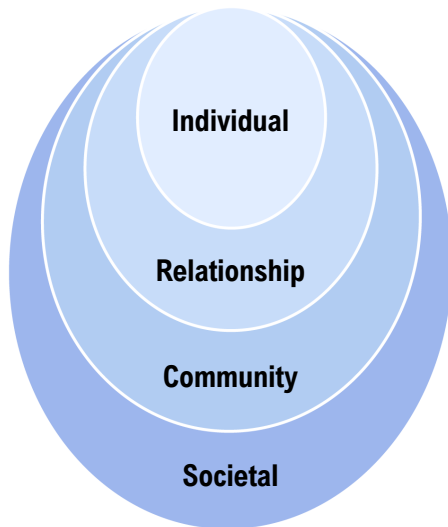## TOPIC: FACTORS THAT INFLUENCE WEIGHT

Social-Ecological Model of Health

◆ **Social-Ecological Model of Health:** a _____ framework showing factors that influence health.

  ‣ Developed by the _____.

Individual: biology, _____, etc. + personal choices.

Relationship: influence of _____ and family.

Community: available food options, _____ food influence.

Societal: _____, state, and local policies, economics.

Individual

Relationship

Community

Societal

◆ Looking at the actions we can take _____ these layers.

EXAMPLE

Listed below are the layers of the socio-ecological model of health. For each layer, provide one example from your own life on how these layers influence your diet.

  Individual: _____

  Relationship: _____

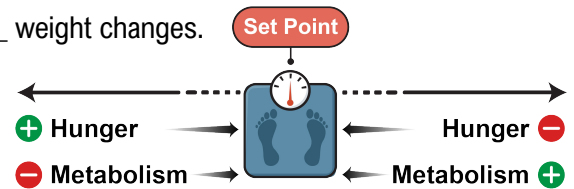 **Community:** _____

  Societal: _____

TOPIC: FACTORS THAT INFLUENCE WEIGHT

Genetic Influences on Weight

◆ BMI is roughly _____ genetically determined.

◆ _____ of genes have been found to influence weight - no _____ "obesity gene".

◆ **Set-Point Theory:** body has a "set-point" for weight & will _____ weight changes.

   ▸ Lost weight is regained _____ than expected from diet alone.

   ▸ Set points are partially _____ determined.

◆ **Thrifty Gene Hypothesis:** body protects more against _____nutrition than _____nutrition.

   ▸ Very good at storing _____ Calories, less good at _____ extra Calories.

   ▸ Some people have more "thrifty genes" making weight gain _____.

EXAMPLE

Below are two statements describing basic evidence that support genetic theories of weight. Identify which hypothesis or theory each statement supports.

1. As high-calorie food options have become more and more available, obesity rates have risen.

   _____

2. Many people describe maintaining a lower weight after weight loss as harder than losing weight in the first place. _____

TOPIC: FACTORS THAT INFLUENCE WEIGHT

Which of the following observations indicate that weight may be partially under genetic control?

    I.   Identical twin studies show similar body composition despite lifestyle differences.

    II. Obesity rates have risen dramatically in recent decades with changes in food and lifestyle.

    III. Children born of obese parents are much more likely to be overweight than the general population.

a) I & II.   b) I & III.   c) II & III.   d) I, II, & III.

Which of the following best describes our understanding of how genetics influences weight?

a) A person's weight is largely determined by whether they carry more set-point genes, or thrifty genes.

b) Most cases of obesity can be linked to one or two genes that have a large effect.

c) The large increase in obesity rates in recent years is some of the strongest evidence that exists for the set-point theory of weight.

d) In most cases, the genetic influence on a person's weight involves hundreds of genes all with small effect.

TOPIC: FACTORS THAT INFLUENCE WEIGHT

Hormonal Influences on Weight

◆ Largely regulated by the _____ through hormones.

◆ **Inputs to the hypothalamus:**

- **Ghrelin:** from stomach → cues _____.
- **Cholecystokinin (CCK):** from _____ intestine → cues _____.
- **Leptin:** from fat cells → regulates hunger and promotes _____.
   - People with obesity often display leptin _____.
- **GLP-1:** from _____ intestine → promotes _____.
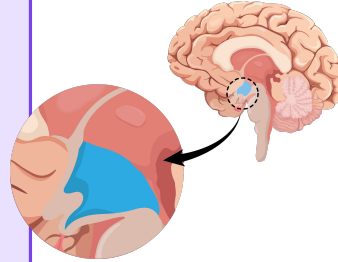
◆ **Outputs that influence weight:**

- Feelings of hunger and satiety.
- Hypothalamus signals to _____ gland releasing **Thyroxine** (T4).
   - Regulates BMR: ___ in thyroxin = ___ in BMR.
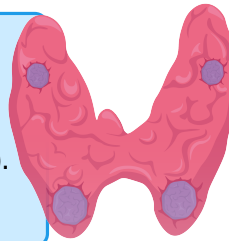
EXAMPLE

Match each hormone below to the main organ that releases it. Then, put a star next to each hormone that is associated with satiety. Put a box around each hormone that is associated with hunger.

1. Thyroxine: _____

2. Leptin: _____

3. Ghrelin: _____

4. CCK: _____

5. GLP-1: _____

Organs:
   a. Stomach.
   b. Thyroid.
   c. Fat cells.
   d. Small intestine
   e. Hypothalamus

Which of these hormones most directly influences metabolism? _____

PRACTICE

Which of the following is true about leptin?

a) Obese individuals often display insensitivity to leptin.

b) Leptin is released by the thyroid.

c) Leptin directly influences your metabolism by increasing your BMR.

d) Leptin is the primary hormone for hunger signaling.

TOPIC: FACTORS THAT INFLUENCE WEIGHT
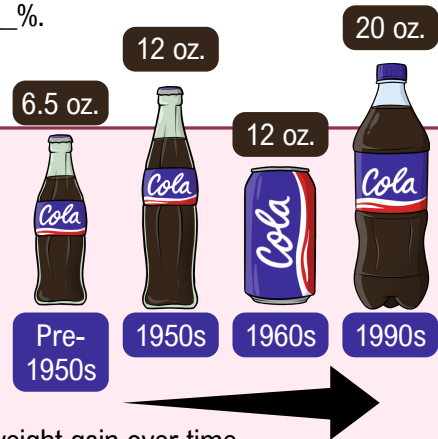
Environmental Influences on Weight

◆ Obesity rate in US today: ~_____%.   Obesity rate in 1970: _____%.

◆ Genetics have _____ changed.

◆ Possible environmental causes for increased obesity rates:

  ‣ ↑ access to _____ nutrient density, _____ calorie foods.

  ‣ ↑ in _____ sizes.

  ‣ ↑ in # of meals eaten _____ (especially _____ food).

  ‣ ↑ _____ lifestyles.

  ‣ Social effect: groups of friends often experience _____ weight gain over time.

  ‣ Government _____ may lead to processed foods that are cheaper than whole foods.

6.5 oz.   12 oz.   12 oz.   20 oz.

| Pre-1950s | 1950s | 1960s | 1990s |

PRACTICE

Which of the following statements regarding environmental factors that influence weight are true?

    I)   High-calorie, low-nutrient-density food is more common today than it was in the past.

    II) Genetics have changed to favor fat storage.

    III) Technology has made our lifestyles less active.

a) I & II.   b) I & III.   c) II & III.   d) I, II, & III.