



Calories

Energy Needs

Your body needs calories for energy to assist with a variety of functions, whether you're moving, sitting or sleeping. Resting metabolism, also called basal metabolic rate, is the average amount of calories your body needs at rest based on factors like age, gender, height, weight, and lean muscle mass. Not getting enough fuel from calories or nutrients can make it harder for the body to function and gradually cause damage to the body.

Organ	% of calories needed	Calories needed per day
Heart	12%	168
Kidneys	12%	168
Liver	23%	322
Brain	23%	322
Lean muscle mass	30%	420
Total	100%	1400

A 150 pound individual uses 95 calories per hour while sleeping—that's nearly 800 calories used during 8 hours of sleep!

Clark, Nancy (2013). *Sports Nutrition Guidebook*, 5th edition.

Dieter's Dilemma

Dieting is often used as a means of controlling body weight and can start a cycle of dieting to be thin (i.e. counting calories, restricting food intake, fasting or skipping meals, cutting out certain foods) followed by increased food cravings, loss of control leading to overeating, and regaining lost weight. According to the National Eating Disorders Association:

- 95% of all dieters regain their lost weight in 1-5 years.
- 35% of "normal dieters" progress to pathological dieting. Of those, 20-25% progress to partial or full-syndrome eating disorders.

Hunger Cues

How often do you eat when you're not hungry? How often do you wait to eat when you are hungry? Food to our bodies is like wood to a fire. When the flames of a fire decrease, people add logs of wood to a fire—they don't calculate how many logs of wood the fire needs, count the number of logs the fire consumes during the day, or check a clock to see if it's time to add wood to the fire. When the flames of a fire decrease, that's a visual cue the fire needs more wood to produce heat. Similarly, people experience hunger cues letting them know when their bodies need food for energy.

There's no set time of day when a person *should* eat or *has* to eat, however, it can help to fuel the body within 1-2 hours of waking up and every 2-4 hours afterwards to maintain energy levels. There's also no specific time of day when people should stop eating since people have different schedules. If you get hungry at night, have a small snack to hold you over until morning.

	Needs	When to eat	Not eating enough	Eating too much
Fire	Need logs to keep fire burning	Add log or two when fire is low	Fire burns out over time	Smothers fire
Body	Requires calories to function properly	Eat small meal or snack when hungry	Decreased energy, difficulty concentrating, dizziness	Feel tired, bloated



Calories

Famine Metabolism

In a famine, carbohydrate deficiencies occur first because the body is able to store only small amounts of carbohydrate. Since brain cells must have carbohydrates (glucose) to function, the body has a back-up plan. When carbohydrate stores are depleted, the body switches to obtaining glucose through a complicated process that requires breaking down stored protein and fat and converting some of the by-products to glucose. As ketones, another by-product of this conversion, increase (resulting in ketosis), appetite is suppressed. Loss of appetite in response to famine is considered adaptive as hunger triggers searching for food, which wastes energy.

Herrin, M & Larkin, M (2013). Nutrition Counseling in the Treatment of Eating Disorders. New York, NY: Routledge

Minnesota Starvation Experiment

A study conducted in the 1940's observed the physical and psychological effects of semi-starvation on healthy young men. Here were some of their symptoms:

Physical

- Decreased basal metabolic rate (energy required by body in state of rest)
- Decreased body temperature, respiration & heart rate
- Edema (fluid retention) in arms and legs
- Dizziness, tiredness, weakness
- Muscle soreness
- Hair loss
- Decreased bowel movements
- Dry, rough skin
- Increased feelings of cold
- Decreased appetite
- Decreased sexual interest

Psychological

- Decreased concentration, comprehension and judgment capabilities
- Increased depression, anxiety, and hysteria
- Irritability and severe emotional distress
- Increased preoccupation of food
- Development of food rituals and food hoarding
- Decreased sexual interest
- Social withdrawal and isolation
- Food primary topic of conversation, reading, & day-dreams
- Increased interest in meal planning and cooking

Ask Yourself

Do you diet, count calories, or skip meals to reduce how much you eat?

Do you worry about the weight, shape or size of your body?

Do you exercise because you feel like you have to?

Do you ever feel out of control when you are eating?

Do you worry about not being physically fit or muscular enough?

Do you feel ashamed, disgusted, or guilty after eating?

If you answered "yes" to any of these questions, you may be experiencing eating or exercise behaviors and attitudes that are taking a toll on your physical, mental and emotional well-being. For help, consider the following Student Life resources:

Student Wellness Center	Counseling & Consultation Service	Student Health Service
Free nutrition coaching	Free individual & group counseling	Medical care and evaluation
swc.osu.edu	ccs.osu.edu	shs.osu.edu