

Build Strength with Protein

Discussion

1. Discuss the role of protein in the body.

Protein is the body's building block.

Protein helps you grow big and strong.

Protein supports and maintains body components, including:

- blood,
- organs,
- muscles,
- hair,
- skin, and
- nails.

2. What are some functions of protein?

- Helps body tissues grow.
- Helps repair body tissues.
- Aids proper function of red blood cells.
- Helps prevent infections.
- Regulates hormones and enzymes.

3. Talk about the amount of meat needed each day.

MyPlate Protein Recommendations:

Group	Age	Daily Recommendation
Children	2 to 3 years old	2 to 4 ounces
	4 to 8 years old	3 to 5½ ounces.
Girls	9 to 13 years old	4 to 6 ounces
	14 to 18 years old	5 to 6½ ounces
Boys	9 to 13 years old	5 to 6½ ounces
	14 to 18 years old	5½ to 7 ounces
Women	19 to 30 years old	5 to 6½ ounces
	31 to 59 years old	5 to 6 ounces
	60+ years old	5 to 6 ounces
Men	19 to 30 years old	6½ to 7 ounces
	31 to 59 years old	6 to 7 ounces
	60+ years old	5½ to 6½ ounces

4. Compare 1 ounce equivalents.

- 1 ounce of cooked meat, poultry, or fish
- ¼ cup cooked beans or peas
- 1 egg
- 1 tablespoon of peanut butter
- ½ ounce of nuts/seeds
- 1 deck of cards is about the size of 3 ounces of meat

Learner Objectives

Participants will be able to:

- discuss protein functions;
- identify plant and animal sources of protein;
- distinguish between involuntary and voluntary muscle movement; and
- identify one goal or action related to lean protein and/or physical activity.

Materials

- Hula hoops
- Jump rope
- Muscle man diagram



5. Discuss lean protein sources.

Remind students to choose lean meats because they are lower in fat. Encourage students to look for meat sources that are grilled or baked, rather than fried or breaded.

Have the students decide which of the two choices in the pairs below is the leaner protein choice.

- chicken nuggets or baked chicken
- tuna or fried catfish
- pork chop or tilapia
- turkey or steak

6. Compare protein sources.

Grilled vs. Fried	Calories	Protein	Carbs	Fat grams
Fried chicken breast, 4 ounces	136	25 grams	0 grams	3 grams
Grilled chicken breast, 4 ounces	200	34 grams	0 gram	6 grams
Fried fish sticks, 4 ounces	231	16 grams	18 grams	11 grams
Grilled fish (1 fillet)	363	36.3 grams	0 grams	23 grams
Chicken fried steak, 4 ounces	612	42 grams	37 grams	32 grams
Grilled lean hamburger, 4 ounces (97% lean)	173	30 grams	0 grams	5 grams

7. Brainstorm different sources of protein. (Meat is not the only source of protein.)

- almonds
- cashews
- eggs
- crabmeat
- flounder fish
- liver
- soybeans
- tofu
- lima beans
- peanuts
- trout
- tuna
- walnuts
- dairy products



8. Discuss the importance of physical activity and muscles.

- Physical activity makes muscles stronger (and larger).
- When muscles get stronger, you can exercise for a longer time.
- Examples: biking, running, walking.
- Strong muscles prevent injuries.

9. Brainstorm simple exercises for:

- Upper body
 - push-ups, pull-ups, tug-o-war
- Lower body
 - jumping, running, biking
- Core
 - sit-ups, hula hooping



Activity

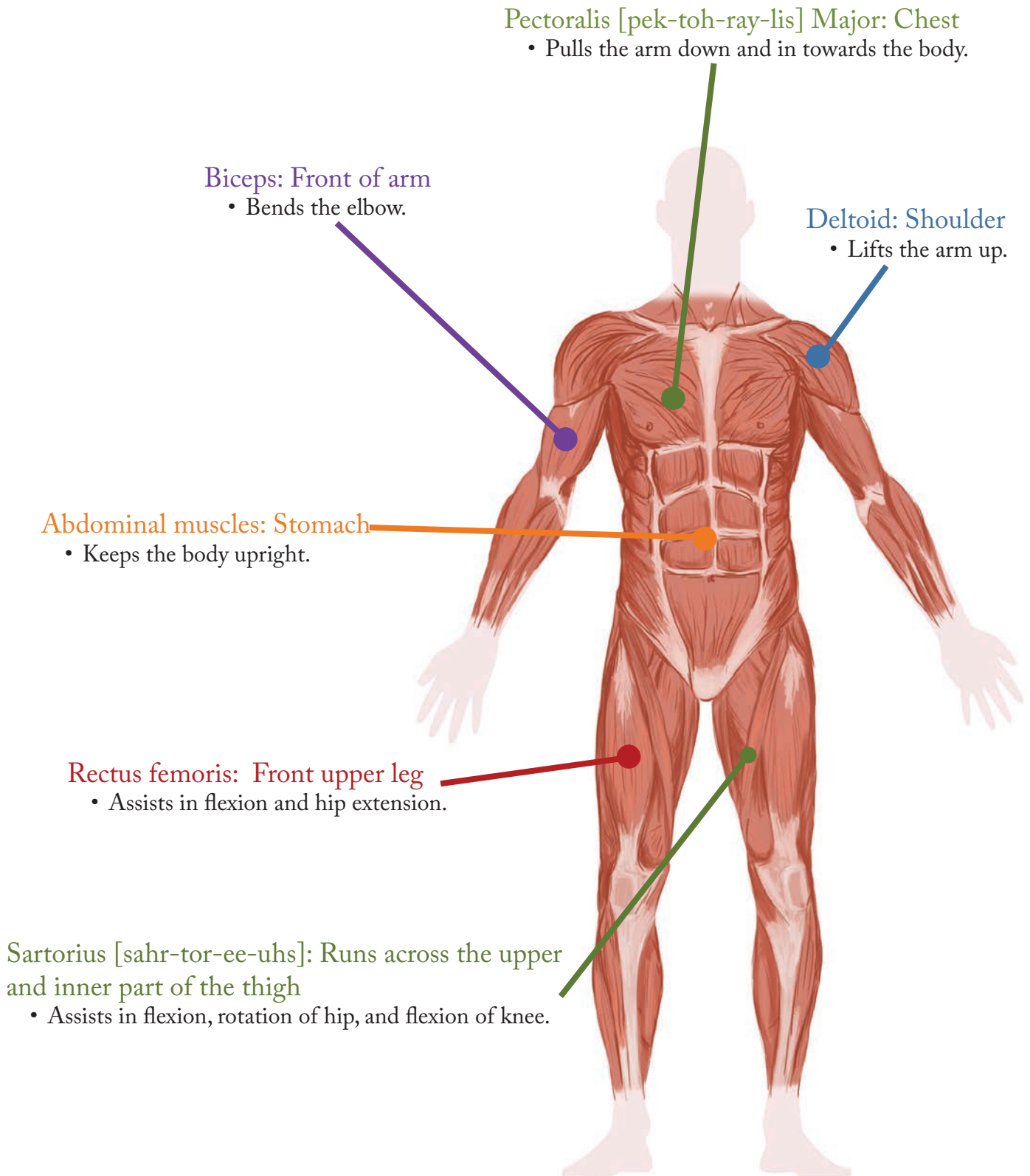
Shake and Move: Have youth participate in exercise challenges. Don't compare them to each other. Instead, have them do the challenge several times, trying to improve their score each time.

- Push-ups: Have youth see how many push-ups they can do in 1 minute.
- Jump rope: Have youth see how many times they can jump rope in 1 minute.
- Sit-ups: Have youth see how many sit-ups they can do in 1 minute.
- Hula-hoop: Have youth see how many times they can hula-hoop in 1 minute.



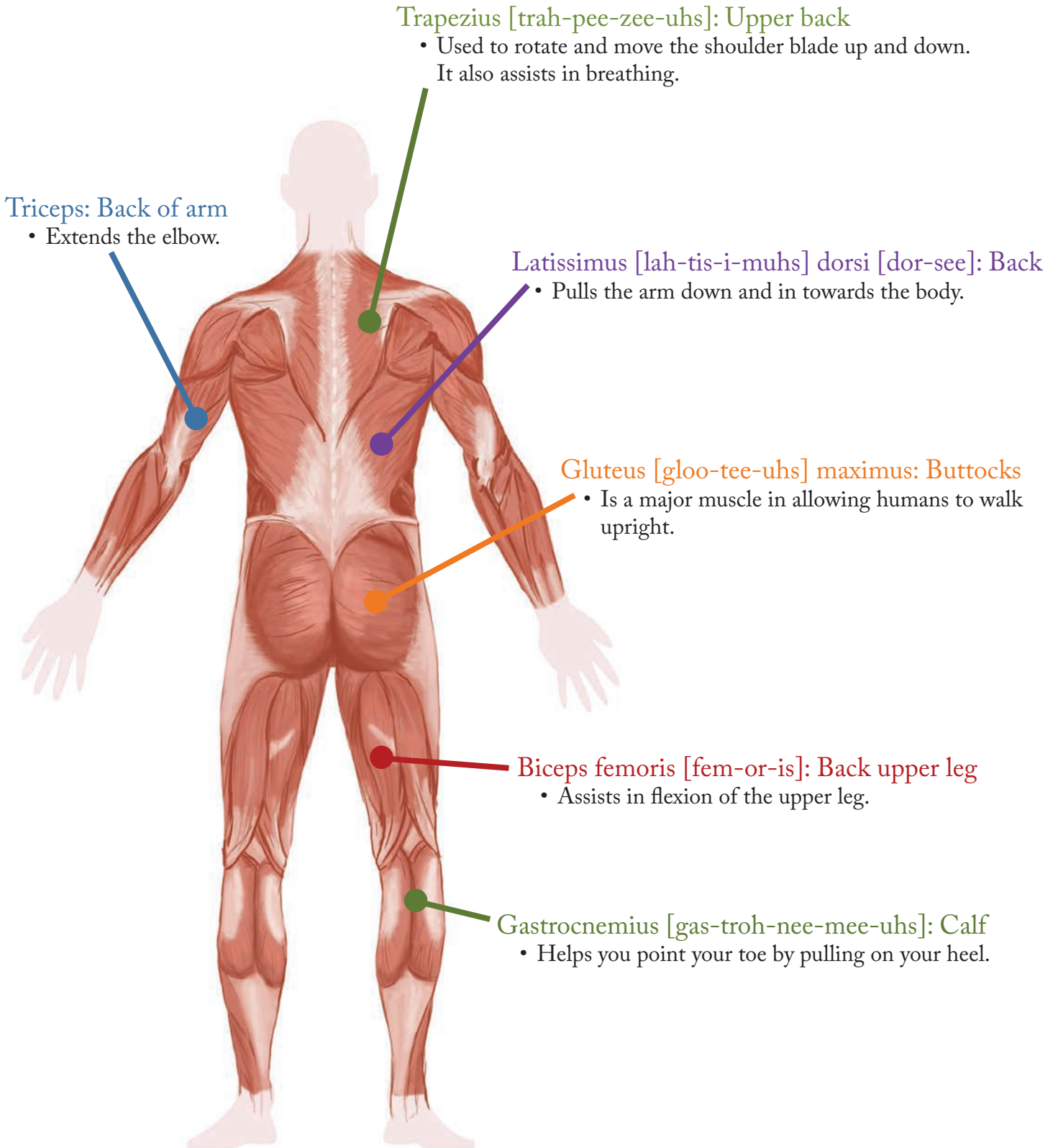
Name that Muscle (Front)

Play “Name that Muscle” to help youth learn major muscles of the body.



Name that Muscle (Back)

Play “Name that Muscle” to help youth learn major muscles of the body.



Resources

Types of Muscle

- **Skeletal (or voluntary) muscle** is the type of muscle you can see and feel. When you work out with weights, you are exercising skeletal muscle. Skeletal muscles attach to the skeleton and come in **pairs** because one muscle moves the bone in one direction and the other moves it back the other way. These muscles contract **voluntarily** — you think about contracting them, your brain sends the signal, and the muscles contract.
- **Smooth (or involuntary) muscle** can **stretch** and **maintain tension** for long periods of time. It is found in your digestive system, blood vessels, bladder, and airways. Your nervous system controls it without you having to think about it, so it contracts **involuntarily**. For example, your stomach and intestines work all day, but most of the time you're not aware of it.
- **Cardiac muscle** is found only in your heart, and is a **twitch** muscle that contracts **involuntarily**. Its big features are **endurance** and **consistency**. It can stretch in a limited way, like smooth muscle, and contract with the force of a skeletal muscle.

Strength vs. Power

- Muscle strength is the maximal force that a muscle can develop. Strength is directly related to the size of the muscle.
- The power of muscle contraction is how fast the muscle can develop its maximum strength. Muscle power depends on strength and speed [power = (force × distance)/time]. Muscle endurance is the capacity to generate or sustain maximal force repeatedly.

Worksheet

1 What is the role of protein?

2 Protein provides 4 calories per gram. If 1 cup of milk has 8 grams of protein, how many calories is the protein providing?

3 What are the three types of muscle?





4

What does it mean if a muscle is involuntary?
What is an example?

5

What is the name of the muscle of the chest?

6

Name two muscles in the upper arm.

7

What is one thing I can do today to increase the amount of lean protein I eat?



Kansas School Wellness Policy Model Guideline — Nutrition Education

Requirements achieved in this lesson:	Implementing	Transitioning	Modeling
	All students in grades K-12 will have the opportunity to participate in culturally relevant activities, as appropriate, and a variety of learning experiences that support development of healthful eating habits that are based on the most recent Dietary Guidelines for Americans and evidence-based information.	District administrators inform teachers and other school personnel about opportunities to participate in professional development on nutrition and on teaching nutrition.	The wellness committee, teachers and other school personnel participate in nutrition education-related professional development at least once a year.
Topic	Basic nutrient requirements for protein. Dietary guidelines and personal eating plans.		

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 - Fried fish sticks: <https://fdc.nal.usda.gov/fdc-app.html#/food-details/2555846/nutrients>
 - Grilled fish: <https://fdc.nal.usda.gov/fdc-app.html#/food-details/2341702/nutrients>
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Answer Key

1. Helps with growth and repair of body tissues, aids proper function of red blood cells, helps prevent infection, and regulates hormones and enzymes.
2. $8 \times 4 = 32$, 32 calories provided just from the protein.
3. Skeletal, smooth, cardiac
4. You do not have to think about contracting it. An example would be intestinal muscles.
5. Pectoralis
6. Deltoid, biceps
7. Answers vary

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In each case, credit Priscilla Brenes, MPH, Ph.D., and Malak Alsaati, *Build Strength With Protein*,
Kansas State University, December 2024.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF3008 rev.

December 2024

K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of K-State Research and Extension, Kansas State University, County Extension Councils, Extension Districts.