

PURPOSE

To continue to build on students' existing knowledge of hormones and their relation to the three health pillars, with a focus on nutrition.

LEARNING OBJECTIVES

By the end of the lesson students will be able to:

1. Understand the relationship between the brain and hormone production.
2. Understand the importance of the health pillars in maintaining healthy hormones and a healthy body.
3. Understand the important role of nutrition for health.

MATERIALS & RESOURCES

- **Lesson 5 teenMEN** powerpoint
- **Entry Ticket Activity: Fuel and Mileage**
- **Digestion Demo** (snack suggested)
- **Health Challenge Checklist**

VOCABULARY

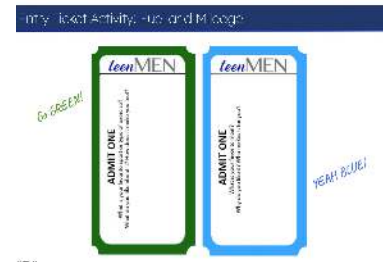
- **Health Pillars:** Nutrition, exercise, and sleep are three essentials in maintaining good health.
- **Nutrition:** Eating foods that nourish the body, necessary for health and growth.
- **Exercise:** Physical activity to improve health and fitness.
- **Habit:** Something you do so often that it becomes natural to you.

PREPARATION

- ☐ *Print and cut out the **Entry Ticket Activity**, one ticket for each student.*
- ☐ *Bring snacks for the **Digestion Demo** activity if you wish.*
- ☐ *Print the **Health Challenge Checklist** for each student.*

PROCEDURE

Step 1 (5 minutes): Entry Ticket Activity: Fuel and Mileage



Hand out one Entry Ticket to each student. Give students a minute to write down their responses.

Ask students who received a **blue** ticket: Is there a meal that you really love that you do not know how to make? If it's a meal that a family member makes, can they teach you how to make it? What do you like about this meal? Ask a few volunteers to share their answers.

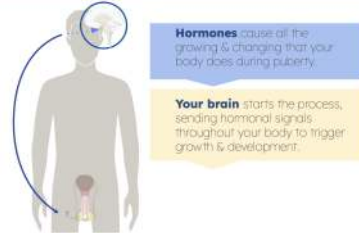
Ask students who received a **green** ticket: What's your favorite sport or type of exercise? What do you like about this activity? Is it about being around other people or do you like the challenge of getting better at something? Ask a few volunteers to share their answers.

Food is the fuel your body needs to do all of the physical activities that you enjoy! Good fuel gives your body more mileage, or energy, to live long and be healthy!

Step 2 (5 minutes): How can you help your body to do its job?

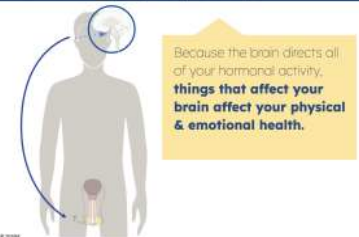
In previous lessons we learned about the body systems and how they all work together to keep our body healthy. We also learned about chemical messengers that help different body systems talk to each other. What are these chemical messengers called? *Hormones!*

Hormones & your growth



Some hormones are produced in the brain and these hormones communicate with other parts of the body to get them to produce different hormones. One example of this is in puberty, when your brain sends hormonal signals to your testicles to get them to produce testosterone.

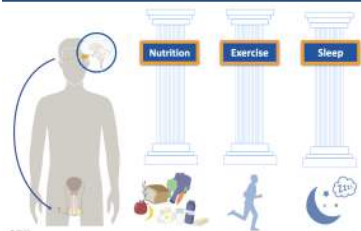
How can I help my body do its job?



The brain is the control center, telling every other part of the body what to do and when. Since your brain is the command center for all of your hormonal activity, things that affect your brain affect your physical and emotional health.

What happens if you give a car diesel fuel when it actually runs on gasoline? It will stop on the road and it can be a huge job to fix it after that. The same thing happens with your body. If you don't give your body the fuel it needs, it will stop working or it will not work very well. A better choice would be to give your body what it needs. How? Through what we call the three **pillars of health: nutrition, sleep, and exercise.**

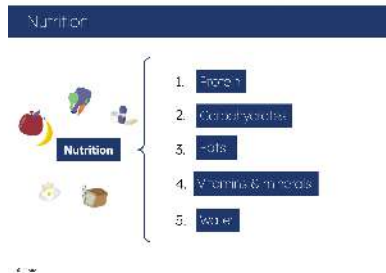
The Three Pillars of Health



Step 3 (15 minutes): Pillars of Health: *Nutrition*

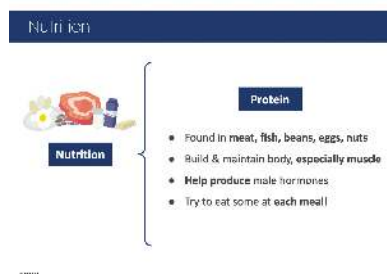
Your choices are important: food, sleep and exercise impact your hormones and your whole body. Because of our genetics and other things, we will all look and develop differently. But, good nutrition, exercise and sleep give your body the best chance to develop and grow to your full potential.

Let's start with the first pillar: **Nutrition**.



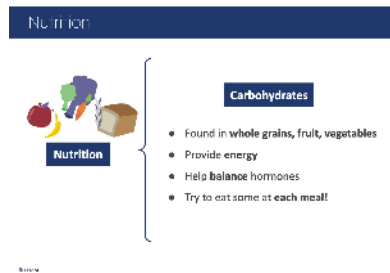
Nutrition is the nourishment that your body gets from the food you eat. Good nutrition supports a healthy body. Let's look at the different types of nutrients our body needs: proteins, carbohydrates, fats, vitamins and minerals and water. When we eat, our bodies break down the food and use the different nutrients in the food to fuel every part of our body. The digestive system breaks the food down, our cardiovascular system helps to transport the nutrients in our blood streams, and then our organs receive these nutrients and make things with them!

- **Proteins:** build and maintain cells, help make hormones.
What are some examples of foods you could eat that contain protein?
Meat, fish, beans, eggs, nuts, yogurt, etc.



- **Carbohydrates:** provide energy, balance hormones.
What are some examples of foods that you eat that are carbohydrates?

Whole wheat bread, pasta, rice, apples, bananas, broccoli and corn all contain carbohydrates.



Fats: provide energy, make and balance hormones.

You need fats like nuts, yogurt, avocados, etc. Your body doesn't need the kind of fat that's deep-fried, for example: french fries, potato chips or donuts can be a treat but are not a food group.

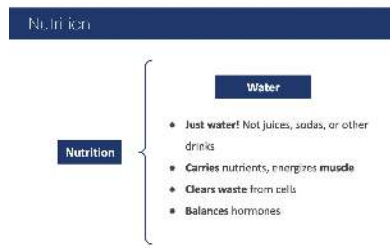


Vitamins & minerals: build and maintain cells, balance hormones.

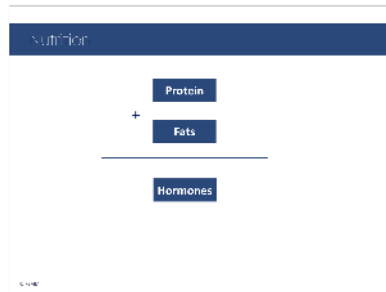
Vitamins and minerals are found in all unprocessed foods. Basically, if it comes in its natural state.



- **Water:** carries nutrients and clears waste.



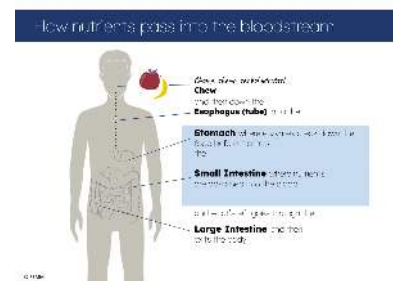
All hormones are made from protein and fats.



Protein is the building block for cells. Carbohydrates help to keep your hormones in balance. Micronutrients like minerals and vitamins help your body to produce hormones, too. If you are deficient in any one of these groups, it will be pretty tough for your body to make the hormones that it needs.

Step 4 (5 minutes): Digestion Demo

Good nutrition makes for good digestion! Eating foods that your body needs helps your body. Eating foods that your body doesn't really need or want for fuel, like a diet of potato chips, soda and candy, makes it hard for your body to get the nutrients it needs. It puts your body through all of the work of digestion for no nutritional reward!



Let's learn about two kinds of digestion: mechanical and chemical.

1. **Chewing.** Mechanical digestion is mostly what you do as you chew your food as you eat. Chewing your food actually helps your digestion.

2. **Esophagus.** The food molecules travel down the esophagus tube to the
3. **Stomach.** Here, the second kind of digestion happens: *chemical digestion*, as stomach enzymes break down the food molecules further.
4. **Small intestine.** In the small intestine, nutrient absorption happens. As the food molecules work their way through the small intestine, the blood grabs all of the nutrients (the good, useful stuff) and delivers them to where they are needed.
5. **Large intestine.** This is where waste is produced. Now that all nutrients have been taken out of the food, what's left exits the body through the anus.

Suggestion: Give each student a snack (something simple like a cookie or wheat thin cracker) for them to eat, as they name the parts and process of digestion: chewing (mechanical), esophagus, stomach (chemical), small intestine, large intestine, out.

As you are learning, what you choose to eat is important for your body and your growth! Your meals should contain all of the different types of nutrients. It's also important not to skip breakfast or lunch and to eat regular meals to help keep your body fueled.

CONCLUSION (5 minutes): Health Challenge Checklist

*Hand out the **Health Challenge Checklist** to each student. Encourage students to honestly complete the checklist each day. You can offer a prize if the whole class completes the challenge. Or, you can make it a teacher versus students challenge and pick one pillar to focus on to see how many days in a row the students can achieve healthy habits.*



This health checklist is a personal challenge to pay attention to your nutrition, exercise and sleep habits for one week. See if your mood is different when you eat nutritious food and exercise? The important thing is to be honest about your habits as you fill in this checklist this week. Don't forget to bring it to our next class!

REFERENCES

Centers for Disease Control and Prevention (n.d.). Take Charge of Your Health: A Guide for Teenagers. National Institute of Diabetes and Digestive and Kidney Diseases. <https://www.niddk.nih.gov/health-information/weight-management/take-charge-health-guide-teenagers>

Jenkins, M., Jefferds, M. E. D., Aburto, N. J., Ramakrishnan, U., Martorell, R., & Addo, O. Y. (2023). What do United States adolescents eat? Food group consumption patterns and dietary diversity from a decade of nationally representative data. *Current Developments in Nutrition*, 7(8), 101968. <https://doi.org/10.1016/j.cdnut.2023.101968>

Norris, S. A., Frongillo, E. A., Black, M. M., Dong, Y., Fall, C., Lampl, M., Liese, A. D., Naguib, M., Prentice, A., Rochat, T., Stephensen, C. B., Tinago, C. B., Ward, K. A., Wrottesley, S. V., & Patton, G. C. (2022). Nutrition in adolescent growth and development. *Lancet*, 399(10320), 172–184. [https://doi.org/10.1016/S0140-6736\(21\)01590-7](https://doi.org/10.1016/S0140-6736(21)01590-7)