

PURPOSE

To expand students' knowledge of the male reproductive process, including the production of sperm and the hormone testosterone. To introduce the concept that this hormonal process is a sign of health.

LEARNING OBJECTIVES

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

1. Understand that the testicles produce sperm and the hormone testosterone.
2. Understand that the healthy function of the male reproductive system begins at puberty and happens continuously through life.

MATERIALS & RESOURCES

- [Lesson 3 teenMEN powerpoint](#)
- [Entry Ticket Activity: What Am I? + Two Truths and A Lie + Answer Key](#)
- [Worksheet: Relay to Race Review + Answer Key](#)

VOCABULARY

- **Human Reproduction:** When women and men together produce a human life.
- **Male Reproductive System:** The group of organs in the lower belly/pelvis that work together: in men, to produce sperm (male cell of reproduction) and testosterone.
- **Testicles (or testes):** 2 small organs that produce **sperm**, the male cell of reproduction. The testes also produce the male hormone, testosterone.
- **Scrotum:** A protective sac of skin, located outside the body, containing the testicles and part of the vas deferens.
- **Vas deferens:** A tube that transports sperm from the testicles to the urethra. There are 2 vas deferens, one for each testicle.
- **Urethra:** A tube that begins at the bladder (organ that holds urine) and ends at the penis. The urethra carries both urine and sperm out of the body. Urine and sperm cannot be released at the same time.

- **Penis:** The organ used for sexual intercourse. The penis also contains the urethra, which carries urine out of the body.
- **Anus:** The opening for waste matter from the digestive system to exit the body.
- **Hormones:** Chemical signals that travel in the bloodstream, directing the activity of every system. The body has many different hormones, produced in different parts of the body.
- **Testosterone:** The main male hormone, produced in the testes.

PREPARATION

- ☐ Print and cut out the **Entry Ticket Activity: What Am I? + Two Truths and A Lie** activity cards for each student.
- ☐ Print two copies of the **teenMEN Relay Race Review** and cut along the dotted lines.

Step 1 (5 minutes): Entry Ticket Activity: What Am I? + Two Truths and A Lie

Hand out the **What Am I? + Two Truths and A Lie** cards to students. One at a time, have each student read their card out aloud to the class. The rest of the class will guess: 1) which body system or part of the body the statements are about and 2) of the three statements, which two are true and which one is false. Complete as many cards as time permits.

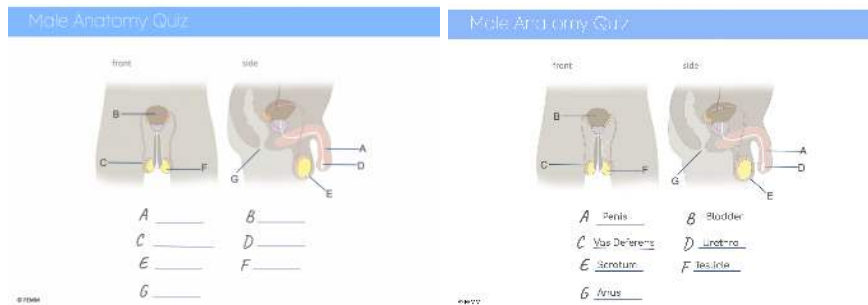


Review answers using the **Teacher's Answer Key** provided in the materials.

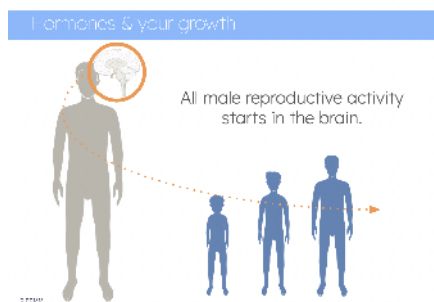
Step 2 (5 minutes): Review the Male Reproductive Anatomy

Last class, we went over the male reproductive anatomy. Let's review these important parts of the body!

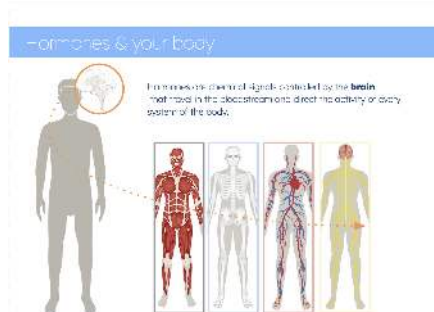
Review male reproductive anatomy using the **Male Anatomy Quiz** slide. Ask students to identify the labeled anatomy. **Clicking on the slide will reveal Answers A to G.**



Step 3 (15 minutes): Male reproductive system and hormones



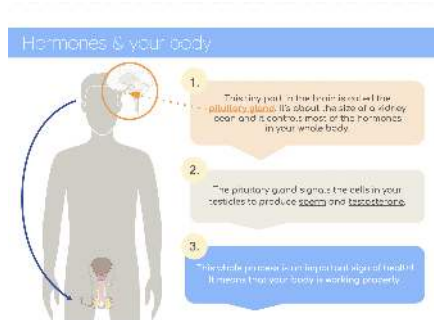
All the activity of the male reproductive system begins in the brain.



Who can tell me what a hormone is? Hormones are chemical signals that travel in the bloodstream directing the activity of every system in the body. The body has many

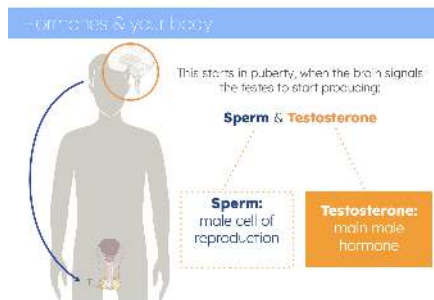
different hormones, produced in different parts of the body.

In puberty, the brain tells the reproductive system to produce sperm and testosterone.
How?



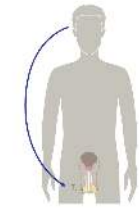
This tiny part of the brain, colored in orange on the slide, is called the pituitary gland. It's about the size of a kidney bean. It controls most of the hormones in your body. The pituitary gland sends a signal to the testes, to produce the male cell of reproduction, sperm, and the male hormone, testosterone.

This starts in puberty, as the reproductive system matures to adulthood.



When you were born, you had all of the parts of your reproductive system in place. But it isn't until a boy reaches puberty that all of his reproductive organs start to function in a fully mature way. Your body didn't produce sperm when you were a young boy. Boys do have testosterone but not as much as a fully grown man.

Sperm production in the testicles



Sperm are the **male** cell of reproduction.

They are made in the testicles.

They are one of the **smallest cells** in your body.

Each sperm (**spermatozoa**) contains your DNA.

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The testicles actually make millions of sperm. In fact, by the time your body is done making sperm when you are much older, you will have made about 525 billion sperm. Sperm are one of the smallest cells in your body, measuring about 0.05 millimeters! An individual sperm can only be seen under the microscope.

Sperm production in the testicles



Sperm have a head, a midpiece, and a tail.

It takes **75 days** for sperm to become fully mature.

Sperm move through different parts of the reproductive system during this time.

Sperm must be made at a temperature that is **lower** than the body's temperature.

Under a microscope you can see that sperm have a few distinct parts. Sperm have a head, a midpiece, and a tail. Each part serves a special function in human reproduction, to enter the female egg and join together to create a new life.

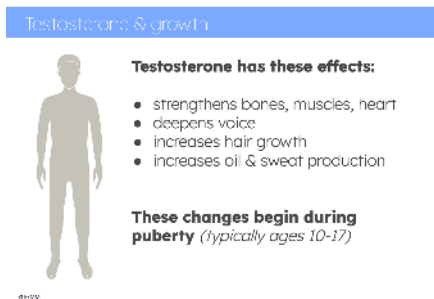
It takes about 75 days on average for sperm to grow and mature through the male reproductive system. Each part of the reproductive system contributes something unique to the development of sperm, and in a mature man, this process of sperm development is constantly happening. After sperm are made, they remain in the testicles for about two weeks before the cells die and are reabsorbed by the body. In the case of human reproduction, sperm enter the woman's reproductive system and when the sperm and egg join together, they create a new human being.

Sperms are delicate and must be made at a temperature that is about 3-5 degrees lower than body temperature. This is why the testicles hang outside the body in the scrotum. The scrotum contains small muscles, and just like any other muscle in the body they

have the ability to contract and move. When the body is cold, for instance, muscles raise the testes to bring them closer to the warmer groin region.



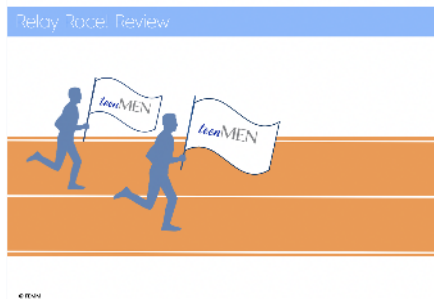
The two main jobs of the testicles are: 1) to produce sperm and 2) to produce testosterone. Special cells in the testes produce the hormone testosterone. Testosterone then enters the bloodstream and impacts the health of your whole body.



In puberty, the increased production of testosterone in the cells of the testicles, triggers growth and development in every part of your body. Some of the noticeable effects of testosterone on the body are: increased muscle development, strength, deeper voice, increased hair growth and sweat production.

All of the growth that you will do in the next several years, as your body grows from a boy's body to a man's body, will be impacted by the hormone testosterone.

Step 4 (10 minutes): teenMEN Relay Race Review



In a relay race, a team of athletes work together to each complete their part of the race. When one teammate has completed their part of the race, they pass the baton to the next person.

In this **teenMEN Relay Race to Review** there are three skill testing sections for each teammate to complete. These questions are to be answered by the individual for the team - **not with help from the rest of the team** (depending on class size, students may need to compete as pairs, in which case they will brainstorm answers together.) There is a Team Bonus Round at the end that will be answered by the whole team, as you race across the finish. Each correct answer is worth 1 point. The team with the most points wins.

Divide students into two teams. Arrange the two teams at one end of the room, while the teacher will stand at the other end of the room with the questions. Students will race to the teacher to receive their section, fill out their answers at the front of the room, then return to their team. The next student will race to the front of the room to receive their questions, and so forth until the Bonus Round when students work as a team to submit their answers.

CONCLUSION

All male reproductive activity is controlled by the brain. The brain lets your reproductive system know that it's time to mature and grow towards becoming a man. Sperm is the male cell of reproduction. Testosterone is the main male hormone. Testosterone has many important effects on the healthy growth of your body and we'll learn more about these in the next lesson!

REFERENCES

Betts, J. G., Young, K. A., Wise, J. A., Johnson, E., Poe, B., Kruse, D. H., Korol, O., Johnson, J. E., Womble, M., & DeSaix, P. (2022). *Anatomy and physiology*. OpenStax.

<https://openstax.org/details/books/anatomy-and-physiology>

Zamponi, V., Mazzilli, R., Mazzilli, F., & Fantini, M. (2021). Effect of sex hormones on human voice physiology: from childhood to senescence. *Hormones*, 20(4),

691-696, <https://doi.org/10.1007/s42000-021-00298-y>

Nassar, G.N. & Leslie, S.W. (2023). *Physiology, Testosterone*. StatPearls Publishing

<https://www.ncbi.nlm.nih.gov/books/NBK526128/>

Grymowicz, M., Rudnicka, E., Podfigurna, A., Napierala, P., Smolarczyk, R., Smolarczyk, K., & Meczekalski, B. (2020). Hormonal effects on hair follicles. *International Journal*

of Molecular Science, 21(15), 5342. <https://doi.org/10.3390/ijms21155342>