

PURPOSE

To teach the anatomy of the male reproductive system in detail.

To help students understand that the healthy function of the male reproductive system produces hormones that are vital to overall health.

LEARNING OBJECTIVES

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

1. Identify the anatomical parts of the male reproductive system.
2. Have a deeper understanding of how the parts of the male reproductive system function together.
3. Understand the important role of the reproductive system in producing testosterone, which is vital to overall health.

MATERIALS & RESOURCES

- **Lesson 2 teenMEN powerpoint**
- **Activity: “Entry Ticket”**
- **Worksheet: Male Anatomy**

VOCABULARY

- **Hormonal Axis:** The system of communication between a man’s brain and his testes which regulate his reproductive system and overall health.
- **Human Reproduction:** When a woman and a man together produce a new human life. This requires a cell from both a man (sperm) and a woman (egg or ovum).
- **Male Reproductive System:** The group of organs in the lower abdomen/pelvis that work together to produce testosterone and the male cell of reproduction.

- **Testicles (or testes):** Two small organs, located in the scrotum that produce **sperm**, the male cell of reproduction. The testes also produce testosterone.
- **Epididymis:** the duct/tube at the back of the testes which serves as the passageway of the sperm from the testes to the vas deferens. It has a significant function since it stores and matures sperm.
- **Vas deferens:** A tube that transports sperm from the testicles to the urethra. There are two vas deferens, one for each testicle.
- **Scrotum:** A protective sac of skin, located outside the body, containing the testicles and part of the vas deferens.
- **Seminal vesicles:** a pair of glands on either side of the bladder that contribute fluid to semen, to help nourish and transport sperm.
- **Urethra:** A tube that transports sperm out of the body through the penis. It also carries urine out of the body.
- **Penis:** The organ used for sexual intercourse. It allows for the passage of urine or semen out of the body - though not at the same time, through the urethra.
- **Semen:** The fluid containing sperm; semen is transported and released from the body through the urethra - this is called **ejaculation**.

PREPARATION

- ☐ Print the **Entry Ticket Activity** and cut out the tickets. Print enough copies to ensure one ticket for each student.
- ☐ Print the **Male Anatomy Worksheet** for each student.

PROCEDURE

Step 1 (10 minutes): **Entry Ticket Activity**

Hand out one Ticket per student to fill in at their desk. Have students write their answer on the back of the ticket or on a separate piece of paper if they need more space.

Entry Ticket

ADMIT ONE Chemical messages sent in the bloodstream are also called...	ADMIT ONE What is homeostasis? How do you know it's happening? Give an example.
ADMIT ONE How many of the 11 body systems can you name?	ADMIT ONE Give one example of homeostasis that happens when you exercise.
ADMIT ONE What is the name of the protective body system that comes from the Latin 'tegere' to mean 'to cover'?	ADMIT ONE Describe a body system that helps you stay healthy.

Give students two minutes and then review answers together using the following slide.

Answers

ADMIT ONE Chemical messages sent in the bloodstream are also called... <u>Hormones!</u>	ADMIT ONE What is homeostasis? Homeo means 'same' and stasis means 'steady', so homeostasis is how the body balances itself internally despite external changes.
ADMIT ONE How many of the 11 body systems can you name? <u>Integumentary</u> <u>Digestive</u> <u>Skeletal</u> <u>Circulatory</u> <u>Respiratory</u> <u>Reproductive</u>	ADMIT ONE Give one example of homeostasis that happens when you exercise. <u>Sweat! As your temperature increases, your body cools itself down by sweating.</u>
ADMIT ONE What is the name of the protective body system that comes from the Latin 'tegere' to mean 'to cover'? <u>Integumentary</u>	ADMIT ONE Describe a body system that helps you stay healthy. <u>Respiratory</u>

Answers:

1. Chemical messages sent in the bloodstream are also called...? Hormones!
2. What is homeostasis? Homeo means 'same' and stasis means 'steady', so homeostasis is how the body balances itself internally despite external changes.
3. How many of the 11 body systems can you name?

<u>Integumentary</u>	<u>Endocrine</u>
<u>Digestive</u>	<u>Muscular</u>
<u>Skeletal</u>	<u>Nervous</u>
<u>Circulatory</u>	<u>Lymphatic</u>
<u>Respiratory</u>	<u>Urinary</u>
<u>Reproductive</u>	

4. Give one example of homeostasis that happens when you exercise. Sweat! As your temperature increases, your body cools itself down by sweating.
5. What is the name of the protective body system that comes from the Latin 'tegere' to

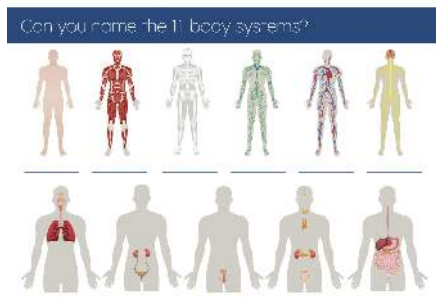
cover'? Integumentary.

6. Sketch a quick diagram that explains homeostasis. (See slide).

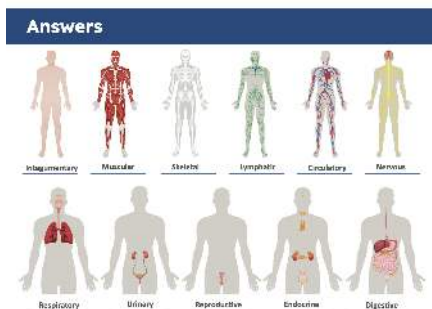
Step 2 (5 minutes): Review 11 Body Systems

In our last class, we learned about the 11 systems of the body and how they all work together to make sure we grow to full **maturity**.

Can you remember the names of the different body systems? *Ask students to raise their hand to name the 11 body systems shown on the slide.*

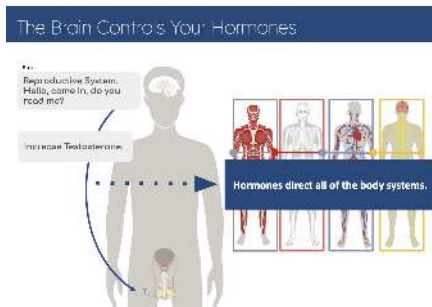


Review answers on the following slide.

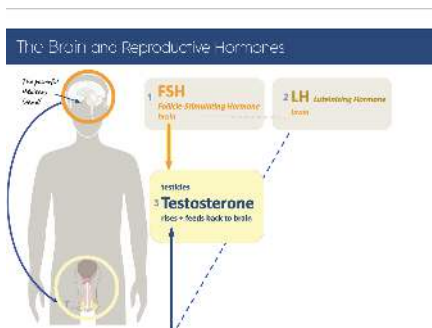


Step 3 (5 minutes): The Brain Controls Your Hormones

What does every body system need? Clear *signals from the brain*. What are these signals or “text messages” sent by the brain called? *Hormones!*



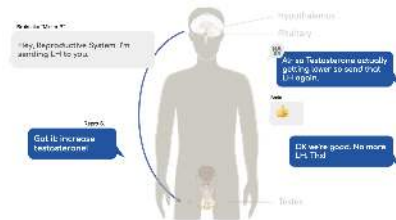
Hormones direct all of the growth and change in your body, through puberty and beyond. The **Hormonal Axis**, the system of communication between your brain and your reproductive system, regulates hormones, including testosterone. Testosterone is the main male hormone, and is important to your overall health as you go through puberty! Testosterone wires your brain, strengthens your bones and muscles and influences your mood. Let's take a closer look.



In the brain is the Pituitary Gland (circled in orange). The powerful pituitary gland is called the “master gland” as it controls the secretion of most hormones in the body.

The pituitary gland produces a hormone called Luteinizing Hormone (LH). LH launches the production of testosterone in the testicles. The pituitary gland also produces Follicle Stimulating Hormone (FSH), which helps produce sperm.

When testosterone levels increase, this feeds back to the brain to inhibit the release of LH and FSH. The brain is constantly sending hormonal messages back and forth to control this process.



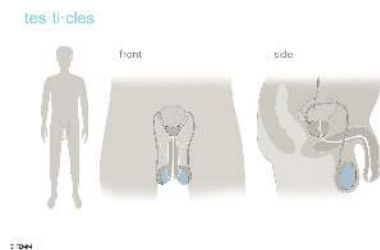
If we think of hormones like text messages, it's an ongoing conversation between the brain and your reproductive system.

Step 4 (10 minutes): Male Reproductive Anatomy

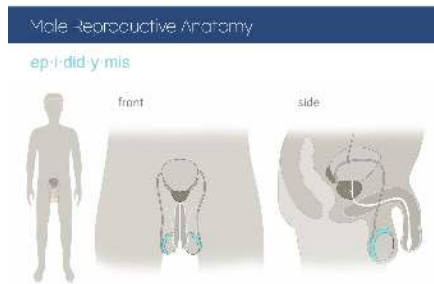


Let's review the different parts of the male reproductive system to better understand how this system of the body works to support your health. *Reference the slides below to define and describe the anatomy of the male reproductive system.*

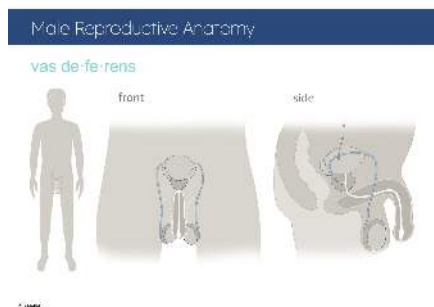
Male Reproductive Anatomy



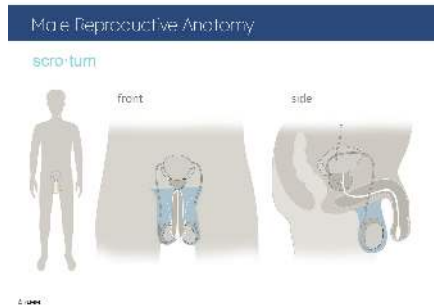
The **testicles (or testes)** are the pair of organs, highlighted on the slide in light blue, that produce **sperm**, the male cell of reproduction. The testicles are also where the main male hormone, **testosterone**, is produced.



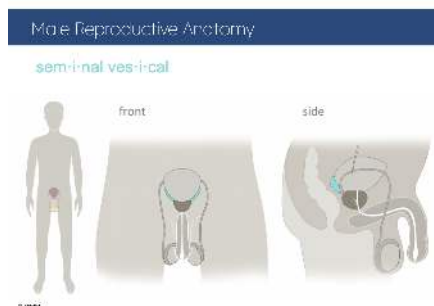
Attached to each testicle is the **epididymis**, a coiled tube or passageway. Sperm is made in the testicles and travels through the epididymis. Here's an amazing fact: in adult males, the length of the epididymis (if it was uncoiled) is about 20 feet long! It takes sperm about 4 to 6 weeks to travel through the complex of the epididymis. Given how long it takes sperm to travel through the epididymis, it makes sense that a main function of the epididymis is to *mature sperm* as well as connect the testicles to the vas deferens.



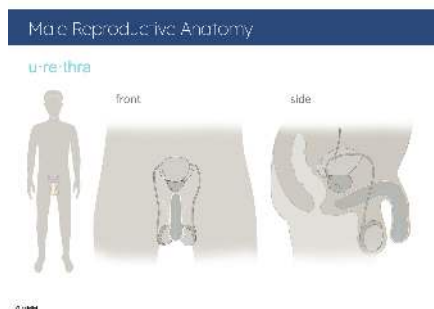
Vas deferens: A tube that transports sperm from the testicles and out the penis through the urethra. There are two vas deferens tubes, one for each testicle. The vas deferens begins at the epididymis and stretches upwards, crossing over the urethra behind the bladder, to the prostate. Here, the vas deferens joins with the seminal vesicles to form the ejaculatory duct, which passes through the prostate and empties into the urethra.



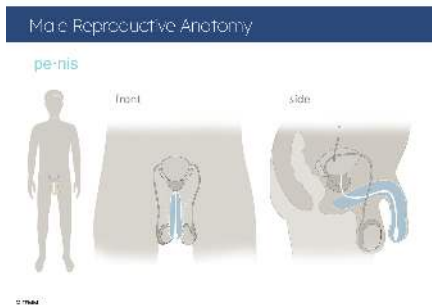
The **scrotum** is the protective sac that encloses the testes, epididymis and part of the vas deferens. The scrotum works to draw all of these parts toward or away from the body to regulate temperature. For example, when it's very hot out, the scrotum will actually detect this and regulate the position of the testes so that they are kept at an ideal temperature. The ideal temperature for the scrotum is around 93.2°F (34°C). This is 5.4°F (3°C) below our normal body temperature of 98.6°F (37°C). Isn't it crazy what the body can do!?



Seminal vesicles: a pair of glands on either side of the bladder that contribute fluid to semen, to help nourish and transport sperm.



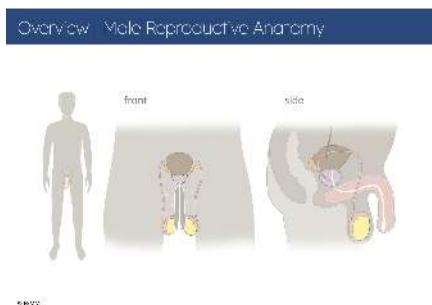
The **urethra** is a tube that begins at the bladder (organ that holds urine) and ends at the tip of the penis. The urethra is the tube that allows either urine or seminal fluid to pass out of the body. *Note that urine and seminal fluid are not released at the same time.



Penis: The organ that allows for the passage of urine out of the body. It is also the organ used for sexual intercourse.

- **Semen:** The fluid containing sperm; semen is transported and released from the body through the urethra during **ejaculation**.

Let's review.



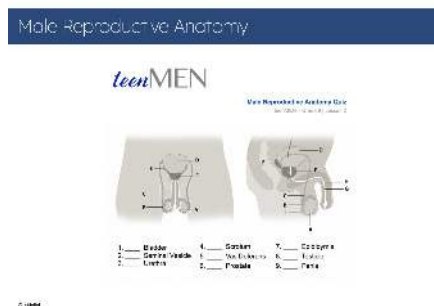
Sperm is made in the _____ (*testes* or **testicles**) which are enclosed by the _____ (**scrotum**). Sperm is stored and matured in the _____ (**epididymis**) and travels through the _____ (**vas deferens**). The seminal vesicles are two glands that secrete fluid, to help nourish and transport sperm. The _____ (**urethra**) is the tube through which urine exits the body; it is also the tube through which semen exits the body.

The testicles are highlighted in yellow. The epididymis are attached to the testes,

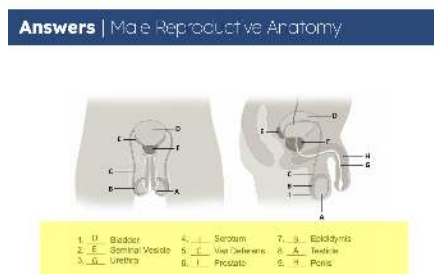
differentiated in pink. The scrotum is presented in gray, around the testicles. The vas deferens, two tubes, are also in pink. The bladder is the brown organ, but it is not part of the reproductive system, even though it is very close by; it is actually part of the urinary system. The urethra is the tube shown in white that travels through the penis, which is also presented in pink on the slide.

Step 5 (5 minutes): Male Anatomy Quiz: Worksheet

Hand out the **Male Anatomy Quiz Worksheet**. Have students label the reproductive anatomy by filling in the blanks.



Give students a couple of minutes and then review the answers together as a class, using the following slide or with the **Answer Key** provided in the materials.



CONCLUSION

The male reproductive system is an important body system that is vital to our overall health. The male reproductive system is responsible for developing the male cell of reproduction, sperm; and the hormone testosterone. The way that our reproductive systems are growing right now is **a sign of health** that our hormones are working well.

We can continue to help our bodies become as healthy as possible with the healthy choices we make. We'll learn more about this in the upcoming lessons.

REFERENCES

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