

PURPOSE

To introduce students to the three health pillars and the impact of nutrition, exercise, and sleep on their brain and overall health.

To increase students' awareness of the influence of media and tech in their lives, and its impact on health.

LEARNING OBJECTIVES

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

1. Understand the three pillars of health and how to make excellent choices in the short term to develop habits of health for the long term.
2. Understand the impact of nutrition, exercise, and sleep on mental and physical health.
3. Understand the impact of media and technology on mental and physical health.

MATERIALS & RESOURCES

- **Lesson 6 teenMEN** powerpoint
- **Pillars of Health: Case Study + Answer Key**
- **Healthy Habits Challenge!**

VOCABULARY

- **Health Pillars:** Nutrition, exercise, and sleep are three essentials in maintaining good health.
- **Nutrition:** Foods that nourish the body, necessary for health and growth.
- **Habit:** Something you do so often that it becomes natural to you.
- **Media:** Channels of communication between people and their intended audience.
- **Social media:** Websites and applications that enable users to create and share content or to participate in social networking.

- **Gaming:** The action or practice of playing video games.
- **Technology addiction:** Impulse control disorder that involves the obsessive use of mobile devices, the internet or video games. The disorder may also be referred to as digital addiction or internet addiction.

PREPARATION

- ☐ Print the **Pillars of Health: Case Study** to give one case study to each group.
- ☐ Print the **Health Habits Challenge** for each student.

PROCEDURE

Step 1 (5 minutes): Rapid Review

We learned in the last lesson that puberty is a hugely important time not only for your body, but for your brain. Let's do a rapid review!

teenMEN
Rapid Review

1. Name 5 things that will change in a young man's body because of the effects of testosterone:

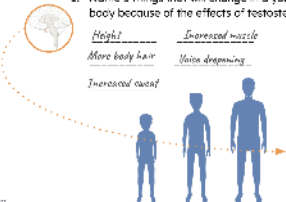
Height

Increased muscle

More body hair

Voice deepening

Increased sweat



Name 5 things that will change in a young man's body because of the effects of testosterone.

Possible Answers: 1. Make you more hairy. 2. Help you grow taller. 3. Build stronger bones and muscles. 4. Cause your voice to change and become deeper. 5. Cause your body to produce more sweat and odor. 6. Sharpen the brain, improve memory. 7. Mood changes

teenMEN Review

2. At 5 weeks old the human fetus is the size of an appleseed; the brain develops at five months.

TRUE or FALSE

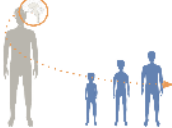


At 5 weeks old the human fetus is the size of an appleseed; the brain develops at five months. **False.** At just 5 weeks old a human fetus is the size of an apple seed but the brain has already begun to grow.

teenMEN Review

3. In puberty, the male body produces 5 times more testosterone than it did before the onset of puberty.

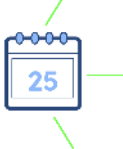
TRUE or FALSE



In puberty, the male body produces 5 times more testosterone than it did before the onset of puberty. **False.** More like 5x6... or, 30 times the amount.

teenMEN Review

4. The brain isn't fully mature until what age?



The brain isn't fully mature until what age?

Answer: 25

Of these five parts of the brain, which two are the last to mature:

teenMEN How do we

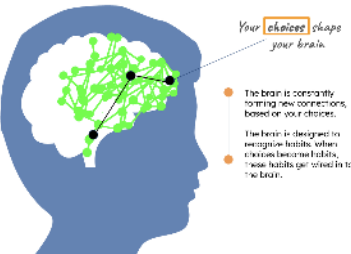
5. Of these five parts of the brain, which two are the last to mature:



Corpus Callosum
Amygdala
Pituitary gland
Prefrontal cortex
Cerebellum

Answers: Amygdala and Prefrontal cortex

Your choices in puberty **shape your brain**



Your **choices** shape your brain.

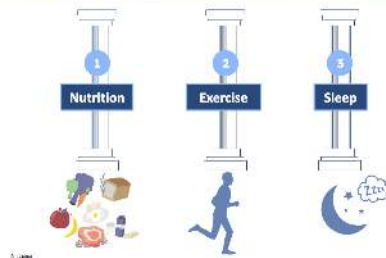
- The brain is constantly forming new connections, based on your choices.
- The brain is designed to recognize habits; when choices become habits, these habits get wired in to the brain.

Your choices shape your brain. The brain is constantly forming new connections, based on your choices. When choices become habits, these habits get hard-wired into the brain.

Step 2 (10 minutes): Health Pillars and the Brain

Since your brain is still developing and maturing, your choices now are shaping your brain, for life! We know that for men, testosterone is vital for the proper development and maturation of the brain and body. So, is there anything you can do to support your hormonal health? Yes!

The Three Pillars Supporting Your Health



This lesson, we’re going to focus on the three pillars of health: nutrition, exercise and sleep. These three things are called the “pillars” of health because they are the foundation of health. These three pillars are necessary to the proper development of the brain, our hormones and every system in the body. When we *don’t* do these things, we make it hard for our body to function at its best.

1. **Nutrition** is the first health pillar.



Good nutrition fuels every cell in your body. You’ve probably heard the phrase: “you are what you eat”? Of course, you are much more - and much more important - than simply what you eat, but there’s also some truth in that phrase. Here’s why...

Let’s say Blake buys french fries from the cafeteria most days for lunch. This means that Blake’s brain maturation, his eleven body systems, and all of his hormonal development during puberty are running on potatoes, salt and oil...

Blake is tired after lunch and finds it hard to focus in class. After school, he just wants to chill and play video games. Is Blake getting the nutrition his brain and body needs? No.

Our everyday choices create habits. A **habit** is something you do so often that it becomes natural for you. Remember: habits shape our brain. So, Blake needs to practice better nutrition habits. Let's look at the basic types of nutrition your body needs to grow and be strong each day.

Proteins: build and maintain cells, help make hormones.

Examples: Beef, chicken, fish, eggs.

Carbohydrates: provide energy, balance hormones.

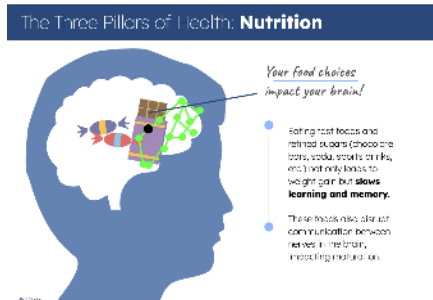
Examples: whole grain bread, quinoa, potatoes, pasta, oats

Healthy Fats: *avocado, nuts and seeds, etc.*

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

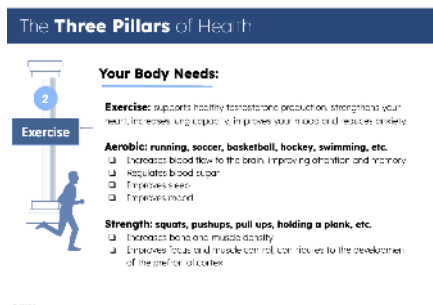
Examples: oranges, apples, blueberries, green leafy spinach, red tomatoes, carrots, yellow squash, etc.

Water: carries nutrients, energizes muscle, clears waste. Most adolescents don't drink enough water! *Teenagers should drink 1L to 2L of water every day.*



Your food choices have a **major impact** on your brain. A balanced diet is linked to better mental health, superior cognitive functioning and even higher intelligence! Junk food interrupts adolescent maturation and brain development. Eating a lot of saturated fat (fast foods) and refined sugars (chocolate bars, soda, sports drinks, energy drinks, sweets, etc.) slows learning and memory and disrupts the connections between nerve cells in the brain.

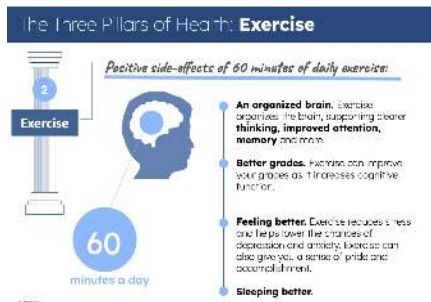
2. **Exercise** is the second pillar of health.



Exercise strengthens your heart, lungs, muscles and bones. Exercise also supports testosterone production.

Aerobic exercises are activities like playing basketball, soccer, hockey, swimming, etc. *Aerobic* basically means “air”, as it relates to exercises that improve the body's ability to take in and transport oxygen.

Strength-building exercises like squats, push ups, and pull ups, are also important as they build muscle and develop your brain. These exercises build focus and balance, developing the prefrontal cortex.



60 minutes of exercise every day is recommended for all teens. There are lots of positive side-effects of exercise, such as: clearer thinking, improved attention, better academic performance, better athletic performance and increased self-confidence. Exercise releases hormones called endorphins, which are chemical signals from the brain (in the pituitary gland) that increase feelings of wellbeing. As we know, hormones are all chemical messengers. The job of these hormones is to make you feel happier, more confident, and less stressed! So physical activity also exercises the hormones in your brain!

3. **Sleep** is the third pillar of health.



Sleep is absolutely essential for your body! Every part of your body is renewed

faster during sleep than when awake. Testosterone levels increase in sleep. This is why testosterone is higher in the morning.

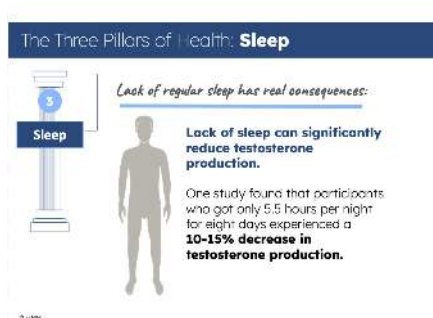


Lack of sleep makes it more difficult to concentrate. This impacts academic achievement in school. Lack of sleep also impacts emotional development in your brain, causing moodiness, aggressive behavior, increased risk-taking and poor decision-making.

Want to be better at sports? Go to bed early!

Sleep-deprived	10 Hours of Sleep
❑ Athletes were slower. ❑ Exhausted faster. ❑ Delayed reaction time in male athletes. ❑ Difficulty learning new skills and slower decision making. ❑ Research of middle and high school athletes revealed that a lack of sleep is associated with increased injury.	A study of men's basketball players who extended their sleep to 10 hours a night found several positive outcomes: ❑ The players ran faster in both half-court and full-court sprints. ❑ Their shooting improved by at least 10%. ❑ The athletes reported feeling better physically and mentally.

When it comes to sports, lack of sleep also slows your reaction time, accuracy and endurance in a game. If you want to be better at sports, the simplest thing you could do to improve in this area is focus on getting to sleep by 10pm.



Not getting enough sleep also impacts your body's testosterone production. One study found that participants who got only 5.5 hours of sleep for only eight days experienced a 10-15% decrease in testosterone production.



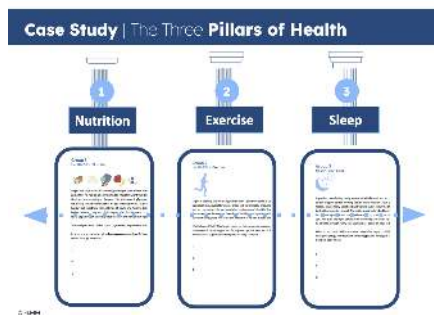
Here are 8 tips for getting better sleep:

1. Exercise during the day to sleep better at night.
2. Spend time outside: sunlight sets the body's internal clock.
3. Don't drink caffeinated beverages.
4. Keep a regular sleep schedule. Thinking you'll "catch up" on sleep by sleeping until noon on the weekends isn't the same thing for your body.
5. Keep your room cool and dark.
6. Take time away from screens before bedtime: the blue light inhibits the production of the sleep hormone, melatonin, telling your body to stay awake.
7. Set a bedtime and alarm on your phone and stick to it.
8. Put your phone *on sleep mode* so you don't get notifications as you're trying to fall asleep.

During sleep, your body builds and repairs your bones and muscles, regulates your growth hormones and keeps your immune system healthy. Getting 8-10 hours of sleep also helps keep your weight balanced as you crave less sugar and salt when your body is well rested. All of these things... and you don't even have to do anything but sleep!

Step 3 (10 minutes): Pillars of Health: Case Study

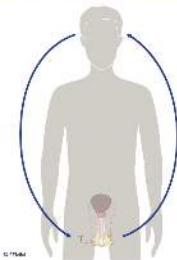
Divide students into groups of three. Give each group one of the **Pillars of Health: Case Study**. Have students read their case study and come up with three ways to help Logan improve his nutrition, exercise and sleep habits. When groups are finished, discuss the case studies together with the class, using the **Answer Key** provided in the materials.



Step 4 (8 minutes): Media, Technology and Health

Because the brain is the organizing center for your body, **things that affect your brain affect your physical and emotional health**. One of the things that can affect your brain is technology use.

Does technology influence the brain?



• YES! Because the brain directs all hormonal activity...

• **Things that affect your brain affect your physical & emotional health!**

Do you own a smartphone? They are pretty easy to get your hands on. Maybe you or your friends have had phones for a while. Phones and other screens and devices have both positive and negative aspects.

Technology use



What are the **positive and negative aspects** of media and technology use?

Technology gives us lots of opportunities to connect and have fun.

Positives 👍



- Allows us to connect with friends and family.
- Allows us to have fun together.
- Allows us to reach out for help.
- Allows us to learn in a way we wouldn't have been able to do before.

Maybe your grandparents live far away and you FaceTime them from your family's iPad or your phone. It's great to be able to do this! Technology can also help us learn many new things or see things in a way that we would never have been able to do 50 years ago.

Technology also carries risks. Adolescence is a critical time for brain development. While watching videos or texting with friends is fun, it's crucial to limit screen time. Here's why.



Have you ever heard of technology addiction? **Sometimes, when you're having a really good time doing something on a screen, it can be hard to notice how much time is being used.** Eventually, you might even start to feel like you "need" the device to feel good and that when it isn't in your hand, you are looking for it all the time. Technology is also sometimes used as an escape from things you do not want to do (e.g., homework, piano practice, chores, or other hard things you need to do). It's easy to be distracted from focused work when you have a million messages and sounds going off on your phone as every new snap or alert comes in. Phone use can even get in the way of your pillars of health.

You might skip a meal to keep gaming. Do you know that when you skip a meal, your body sees this as a mini-emergency? It starts to produce stress hormones. This might not be such a big deal once in a while, but if we do it a lot, it affects our blood sugar levels, which means that we can get cranky and irritable. Regularly skipping meals also affects your metabolism, making you gain or lose weight.

You might stay up really late at night to watch YouTube when you should have been asleep three hours ago! These can have very real effects on our body and brain. When

tech usage affects sleep, this can have negative effects on our ability to pay attention, learn, and remember things in school the next day. It can also make you feel more worried, frustrated or sad. Excessive screen time disrupts your sleep. You may stay up later interacting with your device. Your body releases a chemical called melatonin at night, in response to darkness. It helps your body fall asleep and stay asleep. Bright screen lights reduce melatonin production, keeping you awake.

You might start to watch pornography and find it hard to stop. Pornography is material that is designed to arouse sexual feelings by depicting nudity, sexual behavior, or any type of sexual information. Pornography is easier to get than ever, but that doesn't mean it's good for us. Pornography use is correlated to concentration problems, low motivation, depression, social anxiety, negative self-perception and lack of sensitivity towards others. Watching porn causes erosion to the prefrontal cortex, the region of the brain that controls major functions like impulse and willpower. Instead of normal and healthy development and maturation of this part of the brain, porn rewires the brain to a more juvenile state.

Porn can have serious effects on your ability to have healthy relationships. Over time, with increased usage, it can also have negative physical effects on your body. Porn objectifies both men and women; it trains your brain to view human beings only as objects of pleasure, or use, rather than human beings with special value.

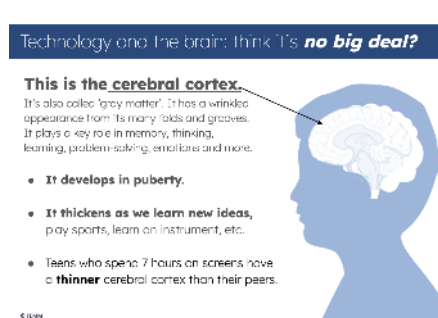
If you or someone you know is struggling in any of these areas (gaming, Youtube, porn), it's best to bring it up with a trusted adult and get some help. Know that you're not alone and that shame, lying about it or hiding the issue will only make the issue worse. As hard as it might be to talk about, it's a rising problem among teens and you'll be taking the responsible step to tell a trusted parent or mentor about what you're going through.

Given what you now know about how your brain responds to social media, computer games, online videos, and other forms of digital media, remember that you have the power to make choices about how you structure your device use.



Here are the top iHealth tips:

1. **Turn off notifications, put your phone on airplane mode or turn off your phone when doing homework.** Distraction is easy. Create a distraction-free zone.
2. **Put your phone on sleep mode 30-60 minutes before bed.**
3. **Schedule time to do things without phones** or other screens: **go outside, try a new hobby**, hang out with friends (without phones).
4. **Exercise**—you'll feel a natural boost of your brain's feel-good chemicals.
5. **Practice doing one thing at a time.** When you're doing homework: just do your homework. When you're watching a movie: watch the movie, don't check your phone. These small habits build mental focus and train the brain. Learning these habits now will serve you in relationships, school and your future career.



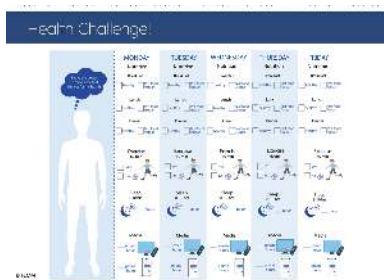
This is the cerebral cortex, the outer layer of the brain. The prefrontal cortex, which we learned about in a previous lesson, is one part of the cerebral cortex. The cerebral cortex is made up of tissue, called “gray matter”. Gray matter is wrinkled in appearance, from its many folds and grooves.

The gray matter of the **cortex thickens as neural connections are made**. In adulthood, **higher intellectual ability is associated with a thicker brain cortex**.

A study called the *Adolescent Brain Cognitive Development (ABCD)* study revealed that **adolescents who use screens more than seven hours a day had a thinner cortex than those who used screens less**. This thinning of the cortex can lead to subtle, cognitive problems and places people at risk for developing depression. Lots more studies are needed to understand this but one thing is for sure: **you have the power to take charge of your devices**.

CONCLUSION (2 minutes)

Hand out the **Health Habits Challenge** to students.



Today we learned more about how nutrition, exercise and sleep affect our body and mind. We also learned that what we consume through technology, needs to support the health of our body and mind. This week, we're going to take the health habits challenge. For nutrition, check if you choose healthy or if you choose fast food, fried food or processed sugar. For exercise, your goal is 60 minutes of activity a day. For sleep, the goal is 8 hours a night. For media, check your phone settings for screen time. Separately, add up any time spent watching TV or playing video games, etc. Fill in your checklist and next class we'll count up your points! *Offer a prize for the winner, or, make it a teacher versus students challenge to incentivize students.*

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