Name: _____ Date: _____

Why Teen Sleep Clocks Run Late

Circle group

Many teens cannot fall asleep at ten o'clock. Then they have a hard time waking up for early class. Some adults blame screens or laziness. But scientists found another reason. In the teen years, the body clock moves later.

The clock is a small group of cells in the brain. It keeps a daily rhythm of about twenty-four hours. This is called the circadian rhythm. Light is its main cue. At night, darkness tells the brain to make melatonin. Melatonin is a hormone that helps you get ready for sleep. In puberty, melatonin comes later at night than it did before. A teen may not feel sleepy until eleven o'clock or later.

That is fine if school starts late. But many schools start early. A teen has to wake up when the body still thinks it is night. The lost sleep adds up over a week. Teens need about eight to ten hours a night. Too little sleep makes it hard to focus. It can also lead to a low mood.

Some schools tried later start times. Studies say the students slept more. There are also habits that help. Wake up at the same time every day, even on weekends. Get bright light in the morning. Dim the lights and use fewer screens before bed. Sleep helps a growing body grow.

Questions

1. What is the circadian rhythm?

_____

_____

2. What hormone does the brain make when it gets dark?

_____

_____

3. What happens to melatonin in puberty?

_____

_____

4. Why is an early school start hard for many teens?

_____

_____

5. How many hours of sleep do teens need?

_____

_____

6. Which two habits help a teen sleep?

_____

_____

7. Why is blaming laziness not the whole story?

_____

_____

Words to know

circadian: following a daily cycle of about twenty-four hours
melatonin: a hormone that helps the body get ready for sleep
hormone: a chemical messenger made in the body
puberty: the years when a child's body grows into an adult's

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Why Teen Sleep Clocks Run Late

Triangle group

Many teenagers complain that they cannot fall asleep at ten o'clock, and then they struggle to wake up for an early class. Adults often blame screens or laziness, but sleep researchers have found a biological reason too. During the teen years, the body's internal clock shifts later.

The clock is a small cluster of cells in the brain that keeps a daily rhythm of about twenty-four hours, called the circadian rhythm. Light is its main cue. In the evening, darkness signals the brain to release melatonin, a hormone that makes the body ready for sleep. During puberty, melatonin tends to rise later at night than it did in childhood. A teenager may not feel truly sleepy until eleven o'clock or later, even after a long day.

This would be harmless if school started late. Many schools begin early in the morning, however, which forces a teen to wake while the body is still in its night mode. Over a week, the missing sleep adds up. Teens generally need somewhere around eight to ten hours a night, and studies connect too little sleep with trouble concentrating and a low mood.

Some school districts have tried later start times, and several studies report that their students slept more. In the meantime, certain habits help. Keeping a steady wake-up time, even on weekends, anchors the clock. Bright light in the morning pulls it earlier, while dim lights and fewer glowing screens in the last hour before bed let melatonin do its work. Sleep is not a luxury for a growing body. It is part of how the body grows.

Questions

1. What is the circadian rhythm?

_____

_____

2. Which hormone does the brain release when darkness arrives?

_____

_____

3. What happens to the timing of melatonin during puberty?

_____

_____

4. Why is an early school start hard on many teenagers?

_____

_____

5. About how many hours of sleep do teens generally need?

_____

_____

6. Which two habits help a teenager's sleep clock?

_____

_____

7. Why is blaming laziness only part of the story?

_____

_____

Words to know

circadian: following a daily cycle of about twenty-four hours
melatonin: a hormone that helps the body get ready for sleep
hormone: a chemical messenger made in the body
puberty: the years when a child's body grows into an adult's
anchors: holds something steady so it does not drift

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Why Teen Sleep Clocks Run Late

Square group

Countless teenagers complain that they cannot drift off at ten o'clock and then struggle to wake up in time for an early class. Adults frequently blame screens or laziness, but sleep researchers have uncovered a biological explanation as well. Throughout the teenage years, the body's internal clock shifts toward later hours.

That clock is a small cluster of brain cells that maintains a daily rhythm of roughly twenty-four hours, known as the circadian rhythm. Light is its primary cue. When evening darkness arrives, the brain releases melatonin, a hormone that prepares the body for sleep. During puberty, melatonin tends to appear later at night than it did in childhood, so a teenager may not feel genuinely sleepy until eleven o'clock or afterward, even following a long and tiring day.

Such a pattern would be harmless if school began late in the morning. Many schools start early, however, which forces a teenager to wake while the body is still operating in its night mode. Across a single week, the missing sleep accumulates. Teenagers generally need somewhere around eight to ten hours each night, and studies have connected insufficient sleep with difficulty concentrating and with a low mood.

A number of school districts have experimented with later start times, and several studies report that their students slept more. Meanwhile, particular habits can help. Maintaining a consistent wake-up time, even on weekends, anchors the clock. Bright light in the morning nudges it earlier, whereas dim lighting and fewer glowing screens during the final hour before bed allow melatonin to do its work. Sleep is not a luxury for a growing body. It is part of how the body grows.

Questions

1. What is the circadian rhythm?

_____

_____

2. Which hormone does the brain release when evening darkness arrives?

_____

_____

3. How does the timing of melatonin change during puberty?

_____

_____

4. Why does an early school start cause problems for many teenagers?

_____

_____

5. Roughly how many hours of sleep do teenagers generally need each night?

_____

_____

6. Which two habits can help a teenager's sleep clock?

_____

_____

7. Why is blaming laziness only a partial explanation?

_____

_____

Words to know

circadian: following a daily cycle of about twenty-four hours
melatonin: a hormone that helps the body get ready for sleep
hormone: a chemical messenger made in the body
puberty: the years when a child's body grows into an adult's
anchors: holds something steady so it does not drift

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Why Teen Sleep Clocks Run Late

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Why Teen Sleep Clocks Run Late

Easier · 222 words · Flesch-Kincaid grade 2.9

1. A daily rhythm of about twenty-four hours kept by a clock in the brain.
2. Melatonin.
3. It comes later at night.
4. They must wake up when their body still thinks it is night, so they lose sleep.
5. About eight to ten hours a night.
6. Waking at the same time each day, getting morning light, or dimming lights at night.
7. The body clock really does move later in the teen years.

Triangle: Why Teen Sleep Clocks Run Late

This passage · 268 words · Flesch-Kincaid grade 7.2

1. A daily rhythm of about twenty-four hours kept by a clock in the brain.
2. Melatonin.
3. It tends to rise later at night.
4. They must wake while their body is still in its night mode, so they lose sleep.
5. Somewhere around eight to ten hours a night.
6. Keeping a steady wake-up time, getting bright morning light, or dimming lights before bed.
7. The body's clock really does shift later during the teen years.

Square: Why Teen Sleep Clocks Run Late

Harder · 278 words · Flesch-Kincaid grade 9.6

1. A daily rhythm of roughly twenty-four hours maintained by a cluster of brain cells.
2. Melatonin.
3. It tends to appear later at night than in childhood.
4. They are forced to wake while the body is still in its night mode, so lost sleep accumulates.
5. Around eight to ten hours.
6. A consistent wake-up time, bright morning light, or dim lighting before bed.
7. The internal clock genuinely shifts later during the teenage years.