



Health Virtual Learning

Chapter 7.2 The Science Behind Sleep

Truman High School

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Lesson: 5/5/2020

Objective/Learning Target:

1. Explain the system that directs the body to sleep and wake.
2. Compare and contrast the five stages of sleep.
3. Describe the roles that dreams may play in health.
4. Summarize the effect of sleep on the body's systems.

The Body's Biological Clock

- Most circadian rhythms are controlled by the body's master biological "clock," the suprachiasmatic nucleus (SCN)

- The SCN controls...

- The sleep-wake cycle

- Body temperature

- Hormone levels

- Brain wave activity



Sleep and Circadian Rhythm

Your body's biological clock determines when you feel tired and when you feel awake.

Disruptions to Circadian Rhythm

- When the natural circadian rhythm is disrupted, the body's biological clock takes a while to readjust
- Jet lag is a fatigue that people feel after changing time zones when they travel



Stages of Sleep

Each night, you usually pass through five distinct stages of sleep.

NREM Sleep Stages	Stage 1: Falling asleep <ul style="list-style-type: none">- Eye movements slow- Overall loss in awareness, thought, responsiveness- Easily awakened
	Stage 2 <ul style="list-style-type: none">- Deeper sleep than Stage 1- High-voltage slow-waves begin appearing in EEG
	Stage 3 <ul style="list-style-type: none">- Deeper sleep than Stage 2- More high-voltage slow-waves appear in EEG
	Stage 4 <ul style="list-style-type: none">- Deepest state of sleep- A lot of high-voltage slow-waves in EEG
REM	Stage 5 <ul style="list-style-type: none">- Muscles cannot move- Most people awakened from REM sleep report dreaming

Think Further...

In what sleep stage do sleep spindles occur?

- Stage 2

What happens during REM sleep?

- Your breathing becomes shallow and more rapid
- Your heart rate and blood pressure rise
- Your eyes dart about rapidly
- Your muscles are temporarily paralyzed

Dreaming

- On most nights, you spend more than two hours dreaming
- Most dreams last between 5 and 20 minutes
- Dreams that occur during REM sleep are remarkably vivid



Sleep and the Immune System

Have you noticed that you are more likely to get a cold or other health problem when you don't get enough sleep?

How does the amount of sleep you get affect your immune system?