



Human Body Systems

Virtual Learning

9-12th PLTW[®] HBS

PLTW[®] 4.4.3 Performance Enhancers

April 29, 2020



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Lesson: April 29, 2020

Objective/Learning Target:

Students will be able to describe performance enhancing drugs (PEDs) and treatments, and how they are used by some athletes to improve athletic performance during sports competitions. (*Reference: PLTW[®] 4.4.3 Performance Enhancers*)



Let's Get Started/Warm Up Activities:

Before we start our lesson today, watch the following videos:

- [What do Performance-Enhancing Drugs do to Your Body?](#)
- [The Science of Doping: How Testosterone-Boosting Drugs Work](#)



Lesson/Activity:

Watch this video:

[SciShow: Performance Enhancing Drugs](#)

Activity #1:

You've heard about performance enhancing drugs, but do you know how they work? Or why they are considered cheating for many sports events?

- As you are watching the video, take at least 10 good notes about performance enhancing drugs on a piece of paper or in your notebook.
- Focus on the science behind performance enhancers, including steroids, blood doping, and more.



Lesson/Activity continued:

Watch this video:

[WADA: Anti-Doping Social Science Research](#)

Activity #2:

On your piece of paper or notebook, answer the following while watching the video:

1. What does “WADA” stand for, and what is their role with regards to performance enhancing drugs used in sports activities?
2. Do you think an organization like WADA is necessary? Explain why or why not.



Lesson/Activity continued:

Go to this website: [Drugs in Sports](#)

Activity #3:

On your piece of paper or notebook, define the following terms:

- a. Doping
- b. Stimulants
- c. Anabolic steroids
- d. Human growth hormone (HGH)
- e. Blood doping
- f. Erythropoietin (EPO)
- g. Synthetic oxygen carriers
- h. Blood transfusion
- i. Diuretics



Lesson/Activity Answers:

Activity #1 Answers:

Question(s): You've heard about performance enhancing drugs, but do you how they work? Or why they are considered cheating for many sports events? As you are watching the [video](#), take at least 10 good notes about performance enhancing drugs on a piece of paper or in your notebook.

Answers: Answers will vary. Notes should be focused on the science behind performance enhancers, including steroids, blood doping, etc.



Lesson/Activity Answers:

Activity #2 Answers:

On your piece of paper or notebook, answer the following while watching the [video](#):

1. What does “WADA” stand for, and what is their role with regards to performance enhancing drugs used in sports activities?
 - a. In 1999, an internationally independent organization, the World Anti-Doping Authority (WADA), was established. WADA works to coordinate the fight against doping in sport internationally
2. Do you think an organization like WADA is necessary? Explain why or why not.
 - a. Answers will vary. Generally speaking, there are as many different Performance Enhancing Drugs (PEDs) as there are sports, and it’s a big job trying to keep track of them all. WADA and other organizations help organize and develop tests for PEDs.



Lesson/Activity Answers:

Activity #3 Answers:

Click [HERE](#) to view the definitions of the following terms:

- a. Doping
- b. Stimulants
- c. Anabolic steroids
- d. Human growth hormone (HGH)
- e. Blood doping
- f. Erythropoietin (EPO)
- g. Synthetic oxygen carriers
- h. Blood transfusion
- i. Diuretics



Practice:

Watch video: [Controversial Article: Why We Should Allow Performance Enhancing Drugs in Sports](#)

Practice: According to WADA, there have been athletes throughout the history of sports who have used performance enhancing drugs (PEDs) like anabolic steroids, HGH, EPO, synthetic oxygen carriers, and diuretics to cheat during sports events. However, there are people who believe that some PEDs *should* be allowed in sports events.

- Now that you have researched PEDs, read the article above, and on your paper or in your notebook, write a paragraph about your own personal beliefs about whether or not PEDs should be used in sports competitions.



Practice Answers:

Practice Answers:

Question: Now that you have researched PEDs, read the [article](#) above, and on your paper or in your notebook, write a paragraph about your own personal beliefs about whether or not PEDs should be used in sports competitions.

Answer: Answers will vary.

- Against PEDs: In surveys taken about PED use, most Americans believe that PEDs should not be used in competitive sports. There are many reasons for this: 1) Many PEDs have side effects that can affect your overall health, 2) PEDs give someone an unfair advantage during a competition, and 3) PEDs are “unnatural” and only athletes who do not dope should play in sports.
- For PEDs: However, some people who are for PEDs rationalize that if a person takes aspirin for pain, why can't a person take PEDs to improve performance? Also, many times, it is not “all or nothing”: Many people think that some PEDs should be allowed but not all.



Additional Practice and/or Resources:

Learn More:

[Performance Enhancing Drugs Flashcards](#)

Test your knowledge by clicking on the link above.

[Doping for Gold: Performance Enhancing Drugs](#)

In order to achieve the best possible results in sports, some athletes resort to performance-enhancing drugs (PEDs) as shortcuts to succeed and increase their ability to perform, even Olympic athletes! Check out this video.

[CNN Explains: Performance Enhancing Drugs](#)

CNN explains why athletes might use PEDs and how they can do the body more harm than good.