

2.8 EXPLORE AN ISSUE: DRUG TESTING

Understanding the Issue

(Page 143)

Understanding Concepts

1. Kelly Guest was banned from competing because tests showed trace concentrations of the banned muscle-building steroid *nandrolone* in his urine.
2. Five substances banned by the IOC include growth hormone, caffeine, cocaine, morphine, and marijuana.
3. (a) The first urine sample is used to determine the concentration of banned substances, if any, in an athlete. The second urine sample is used to confirm the result of the first measurement, if requested by the athlete.
(b) Drug tests may produce false positives in the following ways:
 - Athletes may take nutritional supplements that they believe are free of banned substances that then convert to banned compounds within the body.
 - Some farm animals are routinely injected with steroids or vitamins that can increase the concentrations of banned substances in the bodies of athletes who eat meats.
 - Poppy seeds on breads, bagels, and pastries contain trace amounts of morphine that can lead to a positive test for banned opiates.
4. Blood testing has been introduced to measure the concentration of substances like erythropoietin (EPO), a drug that boosts muscle endurance by increasing the concentration of oxygen in blood.

TAKE A STAND: DISCIPLINING ATHLETICS

(Page 143)

Student opinions will vary.

Evidence for the statement	Evidence against the statement
<ul style="list-style-type: none">– Many athletes use banned performance enhancing drugs to gain an unfair competitive advantage over their opponents.– Drug tests are the only objective way to determine if an athlete has used banned performance-enhancing drugs.– Modern technology precisely measures the concentration of banned substances in body fluids, experimental error is very low, and false positive test results are rare.– The concentrations of banned substances in common foods, beverages, and over-the-counter medications are very low, and would not cause tests to indicate banned drug use.	<ul style="list-style-type: none">– There are many cases in which athletes have unjustly lost competitions because of errors in drug testing.– Banned substances are sometimes ingredients in non-banned medicine preparations, and are also found in common foods and beverages.– Experimental error in test procedures may account for positive results.– Eating meats from animals that were fed steroids or vitamins could result in positive test results in some athletes.– Compounds in non-banned nutritional supplements could be chemically changed to banned substances within the cells of an athlete's body.

Web sites:

http://abcnews.go.com/sections/world/DailyNews/olympicsdrugs_000911.html

<http://maxmag.maxsportsinternational.com/science/issue40/40sci1.htm>