

## Steroid Use

### Headline

In 2002-2003, tenth and twelfth grade males who were highly involved with an athletic team were more likely than those who did not participate to have used steroids in the last year. In grade 12, the contrast was 5.1 percent for males participating in athletics compared with 2.2 percent for those not participating. ([See Figure 1](#))

### Importance

Anabolic-Androgenic steroids, the steroids commonly associated with athletes and body builders, are synthetically produced forms of the hormone testosterone. While doctors may prescribe steroids, youth may also take these substances illegally because of a desire for a more muscular or leaner appearance, or to enhance their strength, size, or aggressiveness in order to excel in athletics.

Steroid misuse or abuse has been associated with health problems and undesirable outcomes such as stunted growth, acne, insomnia, nausea/vomiting, hypertension, heart attack, liver damage or cancer, baldness, and increased risk of ligament and tendon injuries. Females may experience a deepened voice, increases in body and facial hair, menstrual irregularities, and an enlarged clitoris. Males may experience testicle shrinkage, infertility, and breast development. In addition several psychological effects, such as increased aggression and hostility, irritability, anxiety, paranoia, mood swings, depression, and suicidal thoughts may also occur.<sup>1</sup>

Adolescent steroid use has been associated with other risky behaviors such as drinking, use of other drugs, and tobacco smoking.<sup>2</sup> One study found steroid users to have higher levels of STDs and were more likely to drink and drive or get into a fight than were their non-using peers. In addition, youth often share needles when using steroids, running the risk of contracting HIV or other diseases.<sup>3</sup>

Anabolic steroid users have also been found to exhibit symptoms of dependence and withdrawal similar to other abused drugs.<sup>4</sup>

### Trends

Among twelfth graders, steroid use in the past year increased from 1.1% in 1992 to 2.1% in 2003.

Steroid use among eighth and tenth graders was fairly consistent throughout the 1990s, remaining around 1 percent. In 1999, however, steroid use in the past year rose significantly to 1.7 percent for both grades. Steroid use continued to rise for tenth

graders to 2.2 percent in 2000, before declining to 1.7 percent in 2003. Steroid use among eighth graders was 1.4 percent in 2003.

### **Differences by Gender**

Males are more likely than females to have used steroids in the last year. In 2003, 3.2 percent of twelfth grade males had used steroids in the last year, compared with 1.1 percent of twelfth grade females. In the tenth grade, 2.3 percent of males had used steroids, compared with 1.1 percent of females and in the eighth grade, 1.8 percent of males had used steroids, compared with 1.1 percent of females. ([See Table 1](#))

### **Differences by Race/Ethnicity**

For eighth, tenth, and twelfth graders, among whites, blacks, and Hispanics, blacks have had the lowest rates of steroid use in the past year. ([See Table 1](#))

### **Differences by Athletic Team Participation**

Tenth and twelfth grade boys who participate on an athletic team to a great extent are more likely than those who do not participate on an athletic team to have used steroids in the last year. In 2002-2003, 5.1 percent of twelfth grade boys who participated on an athletic team to a great extent had used steroids in the last year, compared with 2.2 percent of those who did not participate on an athletic team. Among tenth graders, 4.1 percent of boys who participated on an athletic team used steroids in the last year, compared with 1.8 percent of boys who did not participate on an athletic team. ([See Figure 1](#))

Note: Participation on athletic team was measured on a 5-point scale with the following categories: (1) Not at all, (2) Slight, (3) Moderate, (4) Considerable, or (5) Great Extent. In 2003, 37 percent of eighth graders, 34 percent of tenth graders, and 16 percent of twelfth graders reported participating on an athletic team to a “great” extent.

### **State and Local Estimates**

2003 estimates for lifetime illegal steroid use are available for high school students (grades 9-12) for select states and cities from the Youth Risk Behavior Survey (YRBS) at <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5302a1.htm#tab32> (See Table 33)

### **International Estimates**

None available

### **National Goals**

While steroids are not specifically mentioned, through its *Healthy People 2010* initiative, the federal government has set a national goal to increase the “proportion of adolescents not using alcohol or any illicit drugs during the past 30 days.”<sup>5</sup>

More information is available at:

<http://www.health.gov/healthypeople/document/html/objectives/26-10.htm>

Additionally, since 1988, the Office of National Drug Control Policy has issued a yearly report that includes long-term goals to achieve the ultimate objective of “a drug-free America.” The 2004 report outlines goals established in 2002 for “a 10 percent reduction in current use of illegal drugs by the 12-17 age group” in two years and “a 25 percent reduction for the same age group” in five years. The 2004 report also discusses the responsibility of professional athletes, coaches, owners, and union representatives to end the use of steroids in athletics, especially because the players are setting a dangerous and unhealthy example for many young Americans who look up to them. The report calls for more stringent drug policies in sports.

More information is available at:

<http://www.whitehousedrugpolicy.gov/publications/policy/ndcs04/index.html>

### **Definition**

Steroid use is defined as using steroids 1 or more times, without being instructed to do so by a doctor, in the past year.

### **Data Source**

Data for 2002/2003 by gender: Child Trends analyses of *Monitoring the Future National Survey Results on Drug Use, 1975-2003. Volume 1: Secondary school students*: (NIH Publication No. 04-5507). Bethesda, MD: National Institute on Drug Abuse. Tables D-73 and D-74. Online. Available at

[http://www.monitoringthefuture.org/pubs/monographs/vol1\\_2003.pdf](http://www.monitoringthefuture.org/pubs/monographs/vol1_2003.pdf)

Data for 1989-2003: *Monitoring the Future National Survey Results on Drug Use, 1975-2003. Volume 1: Secondary school students*: (NIH Publication No. 04-5507). Bethesda, MD: National Institute on Drug Abuse. Tables D-73 and D-74. Online. Available at

[http://www.monitoringthefuture.org/pubs/monographs/vol1\\_2003.pdf](http://www.monitoringthefuture.org/pubs/monographs/vol1_2003.pdf)

### **Raw Data Source**

The Monitoring the Future Survey

<http://www.monitoringthefuture.org>

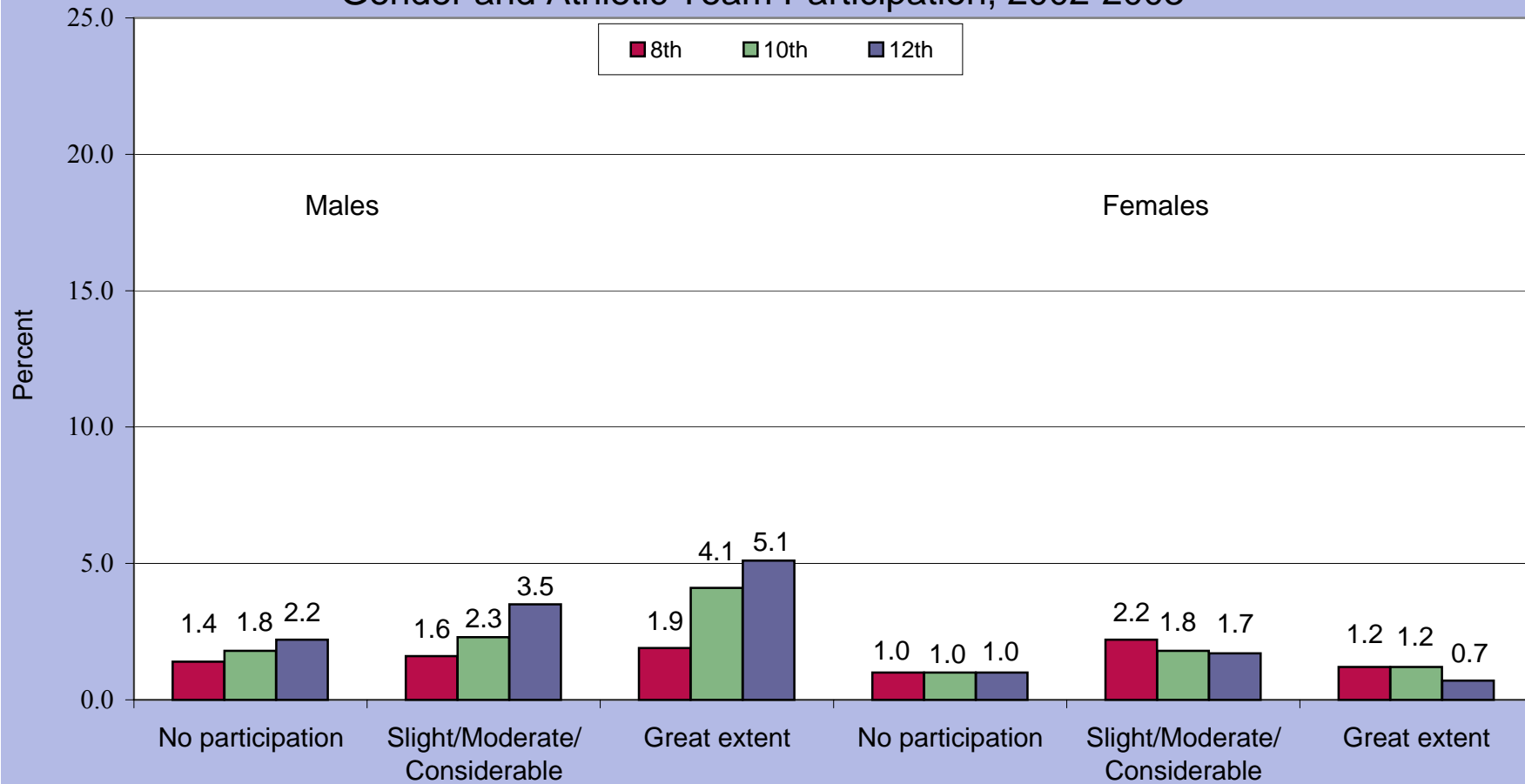
### **Next Update**

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- <sup>1</sup> American Academy of Pediatrics, Medical Library. *Steroids – Dangerous Side Effects*. 2002. [http://www.medem.com/MedLB/article\\_detaillb.cfm?article\\_ID=ZZZT6QV5M7C&sub\\_cat=405](http://www.medem.com/MedLB/article_detaillb.cfm?article_ID=ZZZT6QV5M7C&sub_cat=405)
- <sup>2</sup> Rufant, Robert H., Escobedo, Luis. G., and Heath, Gregory W. 1995. “Anabolic-Steroid Use, Strength Training, and Multiple Drug Use Among Adolescents in the United States.” *Pediatrics* 96(1): 23-28.
- <sup>3</sup> Trenhaile, Jay, Choi, Hee-Sok, Proctor, Theron B., and Work, Patricia, B. 1998. “The effect of anabolic steroid education in knowledge and attitudes of at-risk preadolescents.” *Journal of Alcohol & Drug Education* 43(2): 20-35.
- <sup>4</sup> Gonzalez, Alejandro, McLachlan, Sean, and Keane, Francis. 2001. “Anabolic steroid misuse: How much should we know?” *International Journal of Psychiatry in Clinical Practice* 5:159-167.
- <sup>5</sup> U.S. Department of Health and Human Services. *Healthy People 2010*. Washington, DC: January 2000. Goal 26-10. <http://www.health.gov/healthypeople/document/html/objectives/26-10.htm>

Figure 1

## Percentage of Students Who Have Used Steroids in the Last Year, by Gender and Athletic Team Participation, 2002-2003



Note: Participation on athletic team was measured on a 5-point scale with the following categories: (1) Not at all, (2) Slight, (3) Moderate, (4) Considerable, or (5) Great Extent. In 2003, 37 percent of eighth graders, 34 percent of tenth graders, and 16 percent of twelfth graders reported participating on an athletic team to a "great" extent.

Source: Child Trends analyses of *Monitoring the Future National Survey Results on Drug Use, 1975-2003. Volume 1: Secondary school students*: (NIH Publication No. 04-5507). Bethesda, MD: National Institute on Drug Abuse. Tables D-73 and D-74. Online. Available at [http://www.monitoringthefuture.org/pubs/monographs/vol1\\_2003.pdf](http://www.monitoringthefuture.org/pubs/monographs/vol1_2003.pdf)

Table 1

## Percentage of 8th, 10th, and 12th Graders Who Report Using Steroids in the Past Year, Selected Years 1989-2003

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Eighth</b>	-	-	1.0	1.1	0.9	1.2	1.0	0.9	1.0	1.2	1.7	1.7	1.6	1.5	1.4
<b>Gender</b>															
Male	-	-	1.8	1.7	1.4	1.8	1.3	1.1	1.3	1.6	2.5	2.2	2.3	1.8	1.8
Female	-	-	0.3	0.5	0.3	0.6	0.8	0.7	0.7	0.7	0.9	1.0	1.0	1.2	1.1
<b>Race<sup>1</sup></b>															
White	-	-	-	1.1	1.0	1.0	1.1	0.9	0.9	1.1	1.5	1.9	1.8	1.7	1.6
Black	-	-	-	0.7	0.6	0.8	0.9	0.7	0.6	0.7	0.8	0.7	0.8	1.2	1.2
Hispanic	-	-	-	1.2	1.1	1.1	1.3	1.5	1.4	1.4	1.8	1.8	1.5	1.5	1.7
<b>Parental Education<sup>2</sup></b>															
Less than high school	-	-	1.8	1.2	1.2	1.6	1.3	0.9	1.4	1.7	2.2	2.5	2.0	1.8	1.3
Completed high school	-	-	1.1	1.2	0.8	1.6	1.3	0.7	0.9	1.1	1.9	2.1	1.6	1.7	1.9
Some college	-	-	1.0	1.0	1.1	1.3	0.8	0.9	1.2	1.4	1.6	1.3	1.9	1.9	1.6
Completed college	-	-	0.7	0.9	0.8	0.8	0.8	1.2	0.9	1.1	1.4	1.6	1.5	1.0	1.3
Graduate school	-	-	1.0	1.3	0.6	0.9	1.5	0.9	1.2	1.1	2.0	1.6	1.7	1.6	1.0
<b>College Plans</b>															
None or under 4 years	-	-	2.2	2.4	2.2	2.5	2.2	1.5	2.4	2.8	4.0	3.6	3.1	3.6	2.7
Complete four years	-	-	0.8	0.9	0.7	1.0	0.9	0.8	0.8	1.0	1.4	1.5	1.5	1.3	1.3
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Tenth</b>	-	-	1.1	1.1	1.0	1.1	1.2	1.2	1.2	1.2	1.7	2.2	2.1	2.2	1.7
<b>Gender</b>															
Male	-	-	1.9	1.9	1.7	1.9	2.0	1.7	1.8	1.9	2.8	3.6	3.3	3.2	2.3
Female	-	-	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.7	0.8	1.0	1.2	1.1
<b>Race<sup>1</sup></b>															
White	-	-	-	1.0	1.0	1.0	1.2	1.3	1.3	1.3	1.5	2.1	2.3	2.4	2.3
Black	-	-	-	0.7	0.8	0.8	0.7	0.7	0.5	0.5	0.7	1.2	1.6	1.2	0.8
Hispanic	-	-	-	1.2	1.4	1.3	0.9	1.1	1.2	1.2	1.5	1.8	2.1	2.1	1.8
<b>Parental Education<sup>2</sup></b>															
Less than high school	-	-	0.7	0.9	1.5	1.8	1.2	1.7	1.7	1.3	1.2	2.3	1.6	1.6	1.9
Completed high school	-	-	1.3	1.1	1.0	0.9	1.1	0.7	1.1	1.1	1.7	2.2	2.1	2.0	1.9
Some college	-	-	1.0	1.2	1.1	0.8	1.6	1.2	1.4	1.7	2.0	2.0	2.3	2.8	1.9
Completed college	-	-	0.9	1.0	0.8	1.4	1.1	1.2	1.0	0.9	1.5	2.4	2.0	2.0	1.6
Graduate school	-	-	1.2	1.4	1.1	1.1	1.0	1.1	1.1	1.1	2.4	2.2	2.1	3.0	1.3
<b>College Plans</b>															
None or under 4 years	-	-	1.7	1.3	1.9	2.1	2.1	2.1	2.4	1.9	2.6	3.6	3.2	3.0	2.7
Complete four years	-	-	0.9	1.0	0.8	0.9	1.1	1.0	1.0	1.1	1.6	1.9	1.9	2.1	1.5
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Twelfth</b>	1.9	1.7	1.4	1.1	1.2	1.3	1.5	1.4	1.4	1.7	1.8	1.7	2.4	2.5	2.1
<b>Gender</b>															
Male	2.8	2.6	2.4	2.1	2.5	2.1	2.4	2.2	2.5	2.8	3.1	2.5	3.8	3.8	3.2
Female	0.9	0.3	0.2	0.1	0.1	0.5	0.6	0.4	0.5	0.3	0.6	0.9	1.1	1.3	1.1
<b>Race<sup>1</sup></b>															
White	-	1.6	1.3	1.3	1.2	1.1	1.4	1.3	1.2	1.5	1.7	1.8	2.1	2.5	2.4
Black	-	1.8	1.2	0.5	1.1	1.8	1.2	1.4	1.5	0.9	0.7	1.0	1.2	1.0	1.1
Hispanic	-	2.3	3.3	1.8	0.9	1.7	1.3	0.6	1.6	2.4	2.9	2.4	2.1	2.2	1.8
<b>Parental Education<sup>2</sup></b>															
Less than high school	0.6	1.1	2.0	2.1	1.1	2.8	1.1	1.5	3.4	3.0	1.5	1.3	2.1	3.6	2.9
Completed high school	2.1	2.0	0.6	0.9	1.3	1.7	1.3	1.9	1.4	1.4	0.8	1.6	3.2	3.0	1.3
Some college	2.6	2.3	1.6	1.3	1.5	1.1	1.1	1.3	1.1	1.1	2.5	1.9	1.9	2.8	2.7
Completed college	1.3	1.1	1.6	0.9	1.3	0.6	2.0	1.1	1.2	1.9	2.2	1.4	1.9	2.3	2.3
Graduate school	2.1	1.0	0.5	0.8	0.8	1.2	1.4	1.1	1.3	1.5	1.1	2.4	2.2	1.0	1.4
<b>College Plans</b>															
None or under 4 years	2.3	2.2	2.1	2.1	2.0	1.9	2.0	2.3	2.3	2.1	3.6	2.0	4.6	4.1	2.6
Complete four years	1.6	1.3	1.2	0.8	0.9	1.1	1.2	1.1	1.2	1.4	1.3	1.6	1.8	2.0	2.0

<sup>1</sup>Race estimates are based on two year averages of the year specified and the previous year in order to increase sample size and provide more stable estimates.

<sup>2</sup>Parental education is calculated by the Institute of Social Research as the average of the mother's and father's education. Child Trends has relabeled these results to reflect the educational level of the most educated parent. In those circumstances where the gap between mothers' and fathers' education is more than one level, this results in an underestimate of the most educated parent's education level.

Source: *Monitoring the Future National Survey Results on Drug Use, 1975-2003. Volume 1: Secondary school students* : (NIH Publication No. 04-5507). Bethesda, MD: National Institute on Drug Abuse. Tables D-73 and D-74. Online. Available at [http://www.monitoringthefuture.org/pubs/monographs/vol1\\_2003.pdf](http://www.monitoringthefuture.org/pubs/monographs/vol1_2003.pdf)