

# AMERICAN ACADEMY OF PEDIATRICS

## JOINT COMMITTEE ON PHYSICAL FITNESS, RECREATION AND SPORTS MEDICINE

### DRUGS AND SPORTS\*

Young people today grow up with the notion that there is a drug to hasten recovery from practically every illness and that a healthy person can be even better off if he has something special in his diet or in his manner of living. The result of these beliefs and attitudes is a host of misconceptions about ways by which a healthy individual can be improved by a miracle drug, a special diet, a vitamin, a hormone, particular exercises, or some other procedure. There is no scientific basis for any such practices, although they are usually not actually hazardous. However, a number of drugs, including those allegedly capable of increasing performance, may indeed be harmful.

Some athletes and their coaches, in their eagerness to excel, are now using a variety of ergogenic aids in an attempt to increase work output and thus improve performance. Such attempts to enhance physical ability have involved the use of nutritional, physical, and pharmacological agents.

The subject of dietary measures to improve physical performance can be dealt with in a few words. There is no evidence to support claims that any special food, vitamin, or other nutritional supplements can improve athletic ability of an individual already receiving an adequate diet.

There also is no scientific evidence that the use of physical ergogenic aids (breathing oxygen, use of massage, ultraviolet light, mechanical devices, and so forth) will bring about better physical performance. Oxygen cannot be stored in the tissues, and so its inhalation before exercise has no effect on performance or rate of recovery. The use of massage, ultraviolet light, vibrating machines, ultrasound, or other mechanical devices never has been proven to have beneficial effects on performance, although

in moderation their use has no adverse effects.

The drugs receiving the most attention from athletes at the present time are the so-called anabolic steroids. These agents have been used therapeutically to treat individuals who are in need of an anabolic effect on nitrogen balance during recovery from a prolonged debilitating illness. Healthy athletes have begun to use such drugs to attempt to increase their strength and weight.

Anabolic steroids are more correctly described as androgenic-anabolic steroids because none of the anabolic steroids in use today are free of androgenic activity in humans, although tests in animals have been interpreted to indicate safety in man. There are exceptional instances when medical treatment of impaired physical development by hormones under a physician's supervision is indicated. However, when youths who have not achieved their full growth use so-called anabolic steroids to improve athletic performance, the androgenic component may hasten closure of the epiphyses and possibly cause precocious pubertal sexual development. In females there is the possibility of masculinization. Other ill effects attributed to such steroids are cholestatic hepatitis and prostatic hypertrophy. The use of androgenic-anabolic steroids is contraindicated during adolescence.

Before and during puberty or after 50 years of age, when endogenous testosterone production in males is not at maximal peak, the androgenic-anabolic steroids may cause an increase in muscle mass. However, in spite of this apparent beneficial result, these steroids are not recommended at any age because of the side effects.

Research has not demonstrated increases in strength, motor performance, anthropometric measurement, and working capacity

\* This statement was prepared in cooperation with the Academy's Committee on Drugs.

after the use of androstenedione—a popular anabolic agent—by young men. Athletes who claim gain in weight and increased athletic performance appear to have taken self-administered doses of steroids far beyond the therapeutically recommended amount of these drugs; the results are questionable at any age, and highly undesirable in adolescence.

There is some disagreement about the effects of amphetamines on athletic performance. These drugs have potent effects on the central nervous system. Among the actions are stimulation of the respiratory center, elevation of systolic and diastolic blood pressure, and predictable psychic results. Apparently, more work can be accomplished, but complex tasks are not improved. Physical performance is improved if the athlete is fatigued. Amphetamines produce prolonged alertness, a feeling of well-being, and decreased awareness of fatigue; but, an individual's judgment and, particularly, his own estimate of his performance are impaired. Misleading elevation of mood and increased confidence and initiative contribute to a sense of well-being.

The amphetamines are dangerous because of their hazardous effect of masking the signs of fatigue or exhaustion; thus, the drug may be harmful to the stressed athlete. Psychological dependence and tolerance may occur with chronic use; and, if increasing doses are taken, toxicity may be produced. In large dosage, amphetamines may cause cardiac arrhythmia. Central nervous system effects are wakefulness, loss of ability to concentrate, and increased motor and speech activity. Physical addiction would be extremely unlikely to happen.

The use of anorectic agents, diuretics, and restriction of fluid intake to make a

certain weight classification is not indicated for medical reasons.

Sedatives and tranquilizers are frequently used in preparation for athletic performance to allay tension and anxiety. Barbiturates are most commonly used for this purpose, but other tranquilizing drugs are also employed. While occasional use of a short-acting sedative to obtain restful sleep the night before a performance may be justifiable, the frequent use of "downers" in preparation for participation in sports is hazardous because of detrimental effects on performance and the possibility of psychological dependence.

The use of drugs as an aid to improve athletic performance cannot be condoned. No drug can safely make the athlete better than he normally would be. The facts and dangers regarding the use of anabolic steroids, stimulants, and sedatives should be made available to athletes, coaches, parents of young athletes, and physicians. All of them should know that the misguided use of ergogenic aids to improve athletic performance is contrary to good medical care, harmful to physical and mental health, and counter to ethical and sportsmanlike participation in athletics.

JOINT COMMITTEE ON PHYSICAL FITNESS,  
RECREATION AND SPORTS MEDICINE

EUGENE F. DIAMOND, M.D., *Chairman*  
(Disaster and Emergency Medical  
Care)

JOHN C. HEFFELFINGER, M.D.  
(Accident Prevention)

JOHN H. KENNEL, M.D. (Children  
with Handicaps)

JOHN R. PONCHER, M.D. (School  
Health)

THOMAS E. SHAFFER, M.D. (Youth)

MELVIN THORNTON, M.D. (AMA  
Committee on the Medical Aspects  
of Sports)

## DRUGS AND SPORTS

Eugene F. Diamond, John C. Heffelfinger, John H. Kennell, John R. Poncher, Thomas E. Shaffer and Melvin Thornton  
*Pediatrics* 1973;52;460

**Updated Information & Services**

including high resolution figures, can be found at:  
<http://pediatrics.aappublications.org/content/52/3/460>

**Permissions & Licensing**

Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:  
<http://www.aappublications.org/site/misc/Permissions.xhtml>

**Reprints**

Information about ordering reprints can be found online:  
<http://www.aappublications.org/site/misc/reprints.xhtml>

# American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®



# PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

## DRUGS AND SPORTS

Eugene F. Diamond, John C. Heffelfinger, John H. Kennell, John R. Poncher, Thomas E. Shaffer and Melvin Thornton  
*Pediatrics* 1973;52;460

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/52/3/460>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 345 Park Avenue, Itasca, Illinois, 60143. Copyright © 1973 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®

