SPORTS MEDICINE HANDBOOK 2005-06





THE NATIONAL COLLEGIATE ATHLETIC ASSOCIATION
P.O. Box 6222
Indianapolis, Indiana 46206-6222
317/917-6222
http://www.ncaa.org

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Compiled By: David Klossner, *Assistant Director of Education Outreach.*

Distributed to directors of athletics, senior woman administrators, faculty athletics representatives, head athletic trainers, team physicians, CHAMPS/Life Skills coordinators, individual student-athlete advisory committees and conference commissioners.

Note: Revisions to the guidelines contained in the NCAA Sports Medicine Handbook may be made on a yearly basis. Between printings of the handbook, revisions will be published in The NCAA News. It is important that persons using this handbook be aware of any such revisions. The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports suggests that such revisions be recorded in the handbook, thereby keeping this publication current. New guidelines and major revisions have been highlighted with blue shading.

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PREFACE

The health and safety principle of the National Collegiate Athletic Association's constitution provides that it is the responsibility of each member institution to protect the health of, and provide a safe environment for, each of its participating student-athletes. To provide guidance in accomplishing this objective and to assist member schools in developing a safe intercollegiate athletics program, the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports creates a Sports Medicine Handbook. The committee has agreed to formulate guidelines for sports medicine care and protection of student-athletes' health and safety for topics relevant to intercollegiate athletics, applicable to a large population of student-athletes, and not accessible in another easily obtainable source.

This handbook consists of guidelines for each institution to consider in developing sports medicine policies appropriate for its intercollegiate athletics program. In some instances, accompanying references to sports medicine or legal resource materials are provided for further guidance. These recommendations are not intended to establish a legal standard of care that must be strictly adhered to by member institutions. In other words, these guidelines are not mandates that an institution is required to follow to avoid legal liability or disciplinary sanctions by the NCAA. However, an institution has a legal duty to use reasonable care in conducting its intercollegiate athletics program, and guidelines may constitute some evidence of the legal standard of care.

These general guidelines are not intended to supersede the exercise of medical judgment in specific situations by a member institution's sports medicine staff. In all instances, determination of the appropriate care and treatment of student-athletes must be based on the clinical judgment of the institution's team physician or athletic health care team that is consistent with sound principles of sports medicine care. These recommendations provide guidance for an institution's athletics administrators and sports medicine staff in protecting student-athletes' health and safety, but do not establish any rigid requirements that must be followed in all cases.

This handbook is produced annually and sent to directors of athletics, senior woman administrators, faculty athletics representatives, athletic trainers, team physicians, CHAMPS/Life Skills coordinators, student-athlete advisory committees and conference commissioners at each member institution in the fall. Please view the NCAA Sports Medicine Handbook as a tool to help your institution develop its sports medicine administrative policies. Such policies should reflect a commitment to protecting your student-athletes' health and well being as well as an awareness of the guidelines set forth in this handbook.

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Sports Medicine Guidelines

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FOREWORD

Shared Responsibility for Intercollegiate Sports Safety

Participation in intercollegiate athletics involves unavoidable exposure to an inherent risk of injury. However, student-athletes rightfully assume that those who sponsor intercollegiate athletics have taken reasonable precautions to minimize the risks of injury from athletics participation. In an effort to do so, the NCAA collects injury data in intercollegiate sports. When appropriate, the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports makes recommendations to modify safety guidelines, equipment standards, or a sport's rules of play.

It is important to recognize that rule books, safety guidelines, and equipment standards, while helpful means of promoting safe athletics participation, are themselves insufficient to accomplish this goal. To effectively minimize the risks of injury from athletics participation, everyone involved in intercollegiate athletics must understand and respect the intent and objectives of applicable rules, guidelines, and standards.

The institution, through its athletics director, is responsible for establishing a safe environment for its student-athletes to participate in its intercollegiate athletics program.

Coaches should appropriately warn student-athletes about the sport's inherent risks of injury and instruct them how to minimize such risks while participating in games, practices, and training.

The team physician and athletic health care team should assume responsibility for developing an appropriate injury prevention program and providing quality sports medicine care to injured student-athletes.

Student-athletes should fully understand and comply with the rules and standard of play that govern their sports as well as follow established procedures to minimize their risk of injury.

In summary, all persons participating in, or associated with, an institution's intercollegiate athletics program share responsibility for taking steps to reduce effectively the risk of injury during intercollegiate athletic competition.



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GUIDELINE 1a

Sports Medicine Administration

October 1977 • Revised August 2000

The following components of a safe athletics program are an important part of injury prevention. They should serve both as a checklist and as a guideline for use by athletics administrators in the development of safe programs.

1. Preparticipation Medical Exam. Before student-athletes accept the rigors of any organized sport, their health should be evaluated by qualified medical personnel. Such an examination should determine whether the student-athlete is medically cleared to engage in a particular sport.

2. Health Insurance. Each student-athlete should be covered by individual, parental or institutional medical insurance to defray the costs of significant injury or illness.

3. Preseason Preparation. The student-athlete should be protected from premature exposure to the full rigors of sports. Preseason conditioning should provide the student-athlete with optimal readiness by the first practice.

4. Acceptance of Risk. Any informed consent or waiver by student-athletes (or, if minors, by their parents) should be based on an awareness of the risks of participating in intercollegiate sports.

5. Planning/Supervision. Safety in intercollegiate athletics can be attained only by appropriate planning for and supervision of practice, competition and travel.

6. Minimizing Potential Legal Liability. Liability must be a concern of responsible athletics administrators and coaches. Those who sponsor and govern athletics programs should accept the responsibility of minimizing the risk of injury.

7. Equitable Medical Care. Member institutions should neither practice nor condone illegal discrimination on the basis of race, creed, national origin, sex, age, disability, social status, financial status, sexual orientation or religious affiliation within their sports medicine programs.

Availability and accessibility to medical resources should be based on established medical criteria (e.g., injury rates, rehabilitation) rather than the sport itself.

Member institutions should not place their sports medicine staffs in compromising situations by having them provide inequitable treatment in violation of their medical codes of ethics.

Institutions should be encouraged to incorporate questions regarding adequacy of medical care, with special emphasis on equitable treatment, in exit interviews with student-athletes.

8. Equipment. Purchasers of equipment should be aware of and use safety standards. In addition, attention should be directed to maintaining proper repair and fitting of equipment at all times in all sports. Student-athletes should:

a. Be informed what equipment is mandatory and what constitutes illegal equipment;

b. Be provided the mandated equipment;

c. Be instructed to wear and how to wear mandatory equipment during participation; and

d. Be instructed to notify the coaching staff when equipment becomes unsafe or illegal.

9. Facilities. The adequacy and conditions of the facilities used for particular intercollegiate athletics events should not be overlooked, and periodic examination of the facilities should be conducted. Inspection of the facilities should include not only the competitive area, but also warm-up and adjacent areas.

10. Blood-Borne Pathogens. In 1992, The Occupational Safety and Health Administration (OSHA) developed a standard directed to minimizing or eliminating occupational exposure to blood-borne pathogens. Each member institution should determine the applicability of the OSHA standard to its personnel and facilities.

11. Emergency Care. See Guideline 1c.



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GUIDELINE 1b

Medical Evaluations, Immunizations and Records

July 1977 • Revised June 2004

Preparticipation medical evaluation. A preparticipation medical evaluation should be required upon a student-athlete's entrance into the institution's intercollegiate athletics program. This initial evaluation should include a comprehensive health history, immunization history as defined by current Centers for Disease Control and Prevention (CDC) guidelines and a relevant physical exam, with strong emphasis on the cardiovascular, neurologic and musculoskeletal evaluation. Subsequent to the initial medical evaluation, an updated history should be performed annually. Further preparticipation physical examinations are not believed to be necessary unless warranted by the updated history or the student-athlete's medical condition.

The American Heart Association has modified its 1996 recommendation for a cardiovascular screening every two years for collegiate athletes.[2] The revision[3] recommends cardiovascular screening as a part of the physical exam required upon a student-athlete's entrance into the intercollegiate athletics program. In subsequent years, an interim history and blood pressure measurement should be made. Important changes in medical status or abnormalities may require more formal cardiovascular evaluation.

Medical records. Student-athletes have a responsibility to truthfully and fully disclose their medical history and to report any changes in their health to the team's health-care provider. Medical records should be maintained during the student-athlete's collegiate career and should include:

1. A record of injuries, illnesses, new medications or allergies, pregnancies and operations, whether sustained during the competitive season or the off-season;

2. Referrals for and feedback from consultation, treatment or rehabilitation;

3. Subsequent care and clearances;

4. A comprehensive entry-year health-status questionnaire and an updated health-status questionnaire each year thereafter. Components of the questionnaire should consider recommendations from the American Heart Association (see reference Nos. 2 and 3) and the 3rd Edition Preparticipation Physical Evaluation (see reference No. 6).

5. Immunizations. It is recommended that student-athletes be immunized for the following:

a. Measles, mumps, rubella (MMR);

b. Hepatitis B; and

c. Diptheria, tetanus (and boosters when appropriate)

d. Meningitis

6. Written permission, signed by the student-athlete, that authorizes the release of medical information to others should be signed annually. Such permission should specify all persons to whom the student-athlete authorizes the information to be released. The consent form also should specify which information may be released and to whom.

Note: Records maintained in the athletic training facility are medical records, and therefore subject to state and federal laws with regard to confidentiality and content. Each institution should obtain from appropriate legal counsel an opinion regarding the confidentiality and content of

such records in its state.

Medical records and the information they contain should be created, maintained and released in accordance with clear written guidelines based on this opinion. All personnel who have access to a student-athlete's medical records should be familiar with such guidelines and informed of their role in maintaining the student-athlete's right to privacy.

Follow-up examinations. Those who have sustained a significant injury or illness during the sport season should be given a follow-up examination to re-establish medical clearance before resuming participation in a particular sport. This policy also should apply to pregnant student-athletes following delivery or pregnancy termination. These examinations are especially relevant if the event occurred before the student-athlete left the institution for summer break. Clearance for individuals to return to activity is solely the responsibility of the team physician or that physician's designated representative.



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GUIDELINE 1c

Emergency Care and Coverage

October 1977 • Revised July 2004

Reasonable attention to all possible preventive measures will not eliminate sports injuries. Each scheduled practice or contest of an institution-sponsored intercollegiate athletics event, as well as all out-of-season practices and skills sessions, should include an emergency plan. Like student-athlete well being in general, a plan is a shared responsibility of the athletics department; administrators, coaches and medical personnel should all play a role in the establishment of the plan, procurement of resources and understanding of appropriate emergency response procedures by all parties. Components of such a plan should include:

1. The presence of a person qualified and delegated to render emergency care to a stricken participant;

2. The presence or planned access to a physician for prompt medical evaluation of the situation, when warranted;

3. Planned access to early defibrillation;

4. Planned access to a medical facility, including a plan for communication and transportation between the athletics site and the medical facility for prompt medical services, when warranted. Access to a working telephone or other telecommunications device, whether fixed or mobile, should be assured;

5. All necessary emergency equipment should be at the site or quickly accessible. Equipment should be in good operating condition, and personnel must be trained in advance to use it properly. Additionally, emergency information about the student-athlete should be available both at campus and while traveling for use by medical personnel;

6. An inclement weather policy that includes provisions for decision-making and evacuation plans (See Guideline 1d);

7. A thorough understanding by all parties, including the leadership of visiting teams, of the personnel and procedures associated with the emergency-care plan; and

8. Certification in cardiopulmonary resuscitation techniques (CPR), first aid, and prevention of disease transmission (as outlined by OSHA guidelines) should be required for all athletics personnel associated with practices, competitions, skills instruction, and strength and conditioning. New staff engaged in these activities should comply with these rules within six months of employment.

9. A member of the institution's sports medicine staff should be empowered to have the unchallengeable authority to cancel or modify a workout for health and safety reasons (i.e., environmental changes), as he or she deem appropriate.



Guidelines To Use During a Serious On-Field Player Injury:

These guidelines have been recommended for National Football League (NFL) officials and have been shared with NCAA championships staff.

1. Players and coaches should go to and remain in the bench area once medical assistance arrives. Adequate lines of vision between the medical staffs and all available emergency personnel should be established and maintained.

2. Players, parents and non-authorized personnel should be kept a significant distance away from the seriously injured player or players.

3. Players or non-medical personnel should not touch, move or roll an injured player.

4. Players should not try to assist a teammate who is lying on the field (i.e., removing the helmet or chin strap, or attempting to assist breathing by elevating the waist).

5. Players should not pull an injured teammate or opponent from a pile-up.

6. Once the medical staff begins to work on an injured player, they should be allowed to perform services without interruption or interference.

7. Players and coaches should avoid dictating medical services to the athletic trainers or team physicians or taking up their time to perform such services.

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GUIDELINE 1d

Lightning Safety

July 1997 • Revised June 2003

The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports acknowledges the significant input of Brian L. Bennett, ATC, College of William and Mary, and Ronald L. Holle and Raul Lopez of the National Severe Storms Laboratory, in the development of this guideline.

Lightning is the most consistent and significant weather hazard that may affect intercollegiate athletics. Within the United States, the National Severe Storms Laboratory (NSSL) estimates that 100 fatalities and 400-500 injuries requiring medical treatment occur from lightning strikes every year. While the probability of being struck by lightning is extremely low, the odds are significantly greater when a storm is in the area and the proper safety precautions are not followed.

Prevention and education are the keys to lightning safety. Education begins with background information on lightning. The references associated with this guideline are an appropriate resource. Prevention should begin long before any intercollegiate athletics event or practice. The following steps are recommended by the NCAA and NSSL to mitigate the lightning hazard:

1. Designate a chain of command as to whom monitors threatening weather and who makes the decision to remove a team or individuals from an athletics site or event. An emergency plan should include planned instructions for participants as well as spectators.

2. Obtain a weather report each day before a practice or event. Be aware of potential thunderstorms that may form during scheduled intercollegiate athletics events or practices.

3. Be aware of National Weather Service-issued (NWS) thunderstorm "watches" and "warnings" as well as the signs of thunderstorms developing nearby. A "watch" means conditions are favorable for severe weather to develop in an area; a "warning" means that severe weather has been reported in an area and for everyone to take proper precautions.

4. Know where the closest "safe structure or location" is to the field or playing area, and know how long it takes to get to that safe structure or location.

Safe structure or location is defined as:

a. Any building normally occupied or frequently used by people, i.e., a building with plumbing and/or electrical wiring that acts to electrically ground the structure. Avoid using shower facilities for safe shelter and **do not use** the showers or plumbing facilities during a thunderstorm.

b. In the absence of a sturdy, frequently inhabited building, any vehicle with a hard metal roof (not a convertible or golf cart) and rolled-up windows can provide a measure of safety. A vehicle is certainly better than remaining outdoors. It is not the rubber tires that make a vehicle a safe shelter, but the hard metal roof which dissipates the lightning strike around the vehicle. DO NOT TOUCH THE SIDES OF THE VEHICLE!

5. Be aware of how close lightning is occurring. The **flash-to-bang method** is the easiest and most convenient way to estimate how far away lightning is occurring. Thunder always accompanies lightning, even though its audible range can be diminished due to background noise in the immediate environment, and its distance from the observer. To use the flash-to-bang method, count the seconds from the time the lightning is sighted to when the clap of thunder is heard. Divide this number by five to obtain how far away (in miles) the lightning is occurring. For example, if an individual

counts 15 seconds between seeing the flash and hearing the bang, 15 divided by five equals three; therefore, the lightning flash is approximately three miles away.

Lightning awareness should be increased with the first flash of lightning or the first clap of thunder, no matter how far away. This activity must be treated as a wake-up call to intercollegiate athletics personnel. The most important aspect to monitor is how far away the lightning is occurring, and how fast the storm is approaching, relative to the distance of a safe shelter.

Specific lightning-safety guidelines have been developed with the assistance of the National Severe Storms Laboratory (NSSL).

1. As a minimum, NSSL staff strongly recommend that by the time the monitor obtains a flash-to-bang count of **30** seconds (equivalent to six miles), all individuals should have left the athletics site and reached a safe structure or location. Athletics events may need to be terminated.

2. The existence of blue sky and the absence of rain are not protection from lightning. Lightning can, and does, strike as far as 10 miles away from the rain shaft. It does not have to be raining for lightning to strike.

3. If no safe structure or location is within a reasonable distance, find a thick grove of small trees surrounded by taller trees or a dry ditch. Assume a crouched position on the ground with only the balls of the feet touching the ground, wrap your arms around your knees and lower your head. Minimize contact with the ground, because lightning current often enters a victim through the ground rather than by a direct overhead strike. **MINIMIZE YOUR BODY'S SURFACE AREA, AND MINIMIZE CONTACT WITH THE GROUND! DO NOT LIE FLAT!** If unable to reach safe shelter, stay away from the tallest trees or objects (such as light poles or flag poles), metal objects (such as fences or bleachers), individual trees, standing pools of water, and open fields. Avoid being the highest object in a field. Do not take shelter under a single, tall tree.

4. A person who feels his or her hair stand on end, or skin tingle, should immediately crouch, as described in item 3.

5. Avoid using the telephone, except in emergency situations. People have been struck by lightning while using a land-line telephone. A cellular phone or a portable remote phone is a safe alternative to land-line phones, if the person and the antenna are located within a safe structure or location, and if all other precautions are followed.

6. When considering resumption of an athletics activity, NSSL staff recommends that everyone should ideally wait at least 30 minutes after the last flash of lightning or sound of thunder before returning to the field or activity.

7. People who have been struck by lightning **do not** carry an electrical charge. Therefore, cardiopulmonary resuscitation (CPR) is safe for the responder. If possible, an injured person should be moved to a safer location before starting CPR. Lightning-strike victims who show signs of cardiac or respiratory arrest need emergency help quickly. Prompt, aggressive CPR has been highly effective for the survival of victims of lightning strikes.

Note: Flash-to-bang count, weather watchers, real-time weather forecasts and commercial weather warning devices are all tools that can be used to aid in decision-making regarding stoppage of play, evacuation and return to play.



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GUIDELINE 1e

Catastrophic Incident in Athletics

July 2004

The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports acknowledges the significant input of Timothy Neal, ATC, Syracuse University, who originally authored this guideline.

Catastrophes such as death or permanent disability occurring in intercollegiate athletics are rare. However, the aftermath of a catastrophic incident to a student-athlete, coach or staff member can be a time of uncertainty and confusion for an institution. It is recommended that NCAA member institutions develop their own Catastrophic Incident Guideline to provide information and the support necessary to family members, teammates, coaches and staff following a catastrophe. Centralizing and disseminating the information is best served by developing a Catastrophic Incident Guideline. This guideline should be distributed to administrative, sports medicine, and coaching staffs within the athletics department. The guideline should be updated and reviewed annually with the entire staff to ensure information is accurate and that new staff members are aware of the guideline.

Components of a catastrophic incident guideline should include:

1. Definition of a catastrophic incident: The sudden death of a student-athlete, coach or staff member from any cause, or a disabling and/or quality of life altering injuries.

2. A management team: A select group of administrators that receive all facts pertaining to the catastrophe. This team works collaboratively to officially communicate information to family members, teammates, coaches, staff, the institution and media. This team may consist of one or more of the following: Director of Athletics, Head Athletic Trainer, University spokesperson, Director of Athletic Communications and University Risk Manager. This team may select others to help facilitate fact finding specific to the incident.

3. Immediate action plan: At the moment of the catastrophe, a checklist of whom to call and immediate steps to secure facts and offering support are items to be included.

4. Chain of command/role delineation: This area outlines each individual's responsibility during the aftermath of the catastrophe. Athletics administrators, university administrators and support services personnel should be involved in this area.

5. Criminal circumstances: Outline the collaboration of the athletic department with university, local and state law officials enforcement in the event of accidental death, homicide or suicide.

6. Away contest responsibilities: Catastrophies may occur at away contests. Indicate who should stay behind with the individual to coordinate communication and act as a university representative until relieved by the institution.

7. Phone list and flow chart: Phone numbers of all key individuals (office, home, cell) involved in the management of the catastrophe should be listed and kept current. Include university legal counsel numbers and the NCAA Catastrophic Injury Service Line Number (800-245-2744). A flow chart of whom is to be called in the event of a catastrophe is also useful in coordinating communication.

8. Incident Record: A written chronology by the management team of the catastrophic incident is recommended to critique the process and provide a basis for review and enhancement of procedures.

Sample guidelines may be found at: www.ncaa.org/health-safety

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GUIDELINE 1f

Dispensing Prescription Medication

May 1986 • Revised June 2000

Research sponsored by the NCAA has shown that prescription medications have been provided to student-athletes by individuals other than persons legally authorized to dispense such medications. This is an important concern because the improper dispensing of both prescription and non-prescription drugs can lead to serious medical and legal consequences.

Research also has shown that state and federal regulations regarding packaging, labeling, records keeping and storage of medications have been overlooked or disregarded in the dispensing of medications from the athletic training facility. Moreover, many states have strict regulations regarding packaging, labeling, records keeping and storage of prescription and nonprescription medications. Athletics departments must be concerned about the risk of harm to the student-athletes when these regulations are not followed.

Administering drugs and dispensing drugs are two separate functions. Administration generally refers to the direct application of a single dose of drug. Dispensing is defined as preparing, packaging and labeling a prescription drug or device for subsequent use by a patient. Physicians cannot delegate to athletic trainers the authority for dispensing prescription medications under current medication-dispensing laws, since athletic trainers are not authorized by law to dispense these drugs under any circumstances. The improper delegation of authority by the physician or the dispensing of prescription medications by the athletic trainer (even with permission of the physician), places both parties at risk for legal liability.

If athletics departments choose to provide prescription and/or non-prescription medications, they must comply with the applicable state and federal laws for doing so. It is strongly encouraged that athletics departments and their team physicians work with their on-site or area pharmacists to develop specific policies.

The following items form a minimal framework for an appropriate drug-distribution program in a college-athletics environment. Since there is extreme variability in state laws, it is imperative for each institution to consult with legal counsel in order to be in full compliance.

1. Drug-dispensing practices are subject to and should be in compliance with all state, federal and Drug Enforcement Agency (DEA) regulations. Relevant items include appropriate packaging, labeling, counseling and education, records keeping, and accountability for all drugs dispensed.

2. Certified athletic trainers should not be assigned duties that may be performed only by physicians or pharmacists. A team physician cannot delegate diagnosis, prescription-drug control, or prescription-dispensing duties to athletic trainers.

3. Drug-distribution records should be created and maintained where dispensing occurs in accordance with appropriate legal guidelines. The record should be current and easily accessible by appropriate medical personnel.

4. All prescription and over-the-counter (OTC) medications should be stored in designated areas that assure proper environmental (dry with temperatures between 59 and 86 degrees Fahrenheit) and security conditions.

5. All drug stocks should be examined at regular intervals for removal of any outdated, deteriorated or recalled medications.

6. All emergency and travel kits containing prescription and OTC drugs should be routinely inspected for drug quality and security.

7. Individuals receiving medication should be properly informed about what they are taking and how they

should take it. Drug allergies, chronic medical conditions and concurrent medication use should be documented in the student-athlete's medical record and readily retrievable.

8. Follow-up should be performed to be sure student-athletes are complying with the drug regimen and to ensure that drug therapy is effective.



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GUIDELINE 1g

Nontherapeutic Drugs

July 1981 • Revised June 2002

The NCAA and professional societies such as the American Medical Association (AMA) and the American College of Sports Medicine (ACSM) denounce the employment of nontherapeutic drugs by student-athletes. These include drugs that are taken in an effort to enhance athletic performance, as well as those drugs that are used recreationally by student-athletes. Examples include but are not limited to alcohol, amphetamines, ephedrine, (ma huang), anabolic-androgenic steroids, barbiturates, caffeine, cocaine, heroin, LSD, PCP, marijuana and all forms of tobacco. Use of such drugs is contrary to the rules and ethical principles of athletics competition.

The patterns of drug use and the specific drugs change frequently, and it is incumbent upon NCAA member institutions to keep abreast of current trends. The NCAA conducts drug-use surveys of student-athletes in all sports and across all divisions every four years. According to the 2001 NCAA Study of Substance Use Habits of College Student-Athletes, the percentage of student-athletes who use alcohol decreased by 10 percent (88.5-79.5) over the last 12 years, while the percentage of student-athletes who use marijuana during that same 12 years remained fairly constant (28 percent). The full results of the 2004 and past surveys are available to all member institutions and can be used to educate staff and plan educational and treatment programs for its student-athletes.

The NCAA maintains a banned drug classes list and conducts drug testing at championship events, as well as year-round random testing in sports. Some NCAA member institutions have developed drug-testing programs to combat the use of nontherapeutic substances. Such programs should follow guidelines established by the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports. While not all member institutions have enacted their own drug-testing programs, it is essential to have some type of drug-education program as outlined in Guideline 1h. Drug testing should not be viewed as a replacement for a solid drug-education program. Indeed, the most common drugs of abuse, alcohol and tobacco, are not included in NCAA drug testing. The use of spit or smokeless tobacco can drop by 30 percent due to a vigorous educational program.

All medical staff should be familiar with the regulations regarding dispensing medications as listed in Guideline 1f.

All member institutions, their athletics staff and their student-athletes should be aware of current trends in drug use and abuse, as well as the current NCAA list of banned drug classes. It is incumbent upon NCAA member institutions to act as a positive influence in order to combat the use of drugs in sport and society.

References

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GUIDELINE 1h

Institutional Alcohol, Tobacco and Other Drug Education Programs

August 2000 • Revised June 2003

The NCAA is committed to education in the area of drugs and alcohol abuse. The following are the minimum guidelines an institution should have in place to assure it is conducting an adequate drug-education program for its student-athletes.

In addition to the signing of the NCAA drug-testing consent form, each athletics department should conduct a drug and alcohol education program for all athletic teams. The program should raise the awareness of current student-athletes as well as educate those students who may transfer mid-year. The athletics director, coach, compliance officer and sports medicine personnel should also participate in the program.

This program should:

1. Review and develop individual team drug and alcohol policies.

2. Review the athletics department's drug and alcohol policy.*

3. Review institutional drug and alcohol policy.

4. Review conference drug and alcohol policy.

5. Review institutional or conference drug-testing programs (if any).

6. Review NCAA alcohol, tobacco and drug policy including tobacco ban, list of banned drug classes and testing protocol.

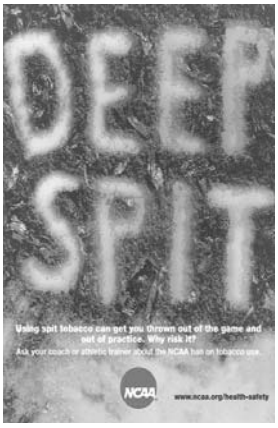
7. View the NCAA drug-education and drug-testing video.

8. Discuss nutritional supplements and their inherent risks.

9. Allow time for questions from student-athletes.

Schools are encouraged to contact The Center for Drug Free Sport or the NCAA, for specific banned drug and testing protocol questions. Drug Free Sport can be reached at www.drugfreesport.com.

The NCAA subscribes to the Resource Exchange Center (REC), which provides a confidential hotline and Web site to answer questions from student-athletes and athletics personnel on whether



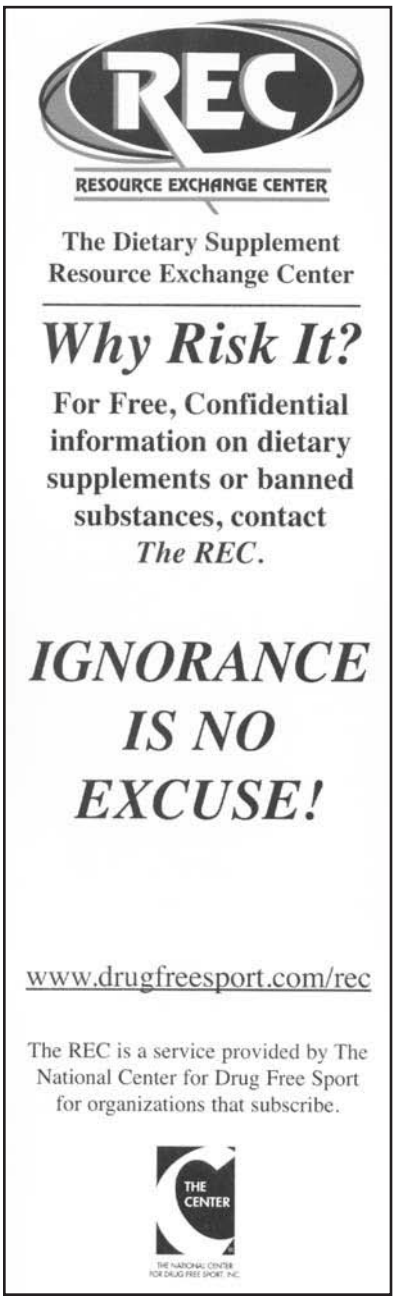




Posters that raise awareness of student-athletes about the NCAA tobacoo policy and banned drugs classes are available at www.ncaa.org/health-safety

nutritional supplements and medications contain banned substances. This service is free of charge to all member institutions. To access the REC, go to www.drugfreesport.com/rec. The password is ncaa1, ncaa2, or ncaa3, depending on your divisional classification.

*Each athletics department should have a written policy on alcohol, tobacco and other drugs. This policy should include a statement on recruitment activities, drug testing, discipline, and counseling or treatment options.





2

NCAA HEALTH AND SAFETY

MEDICAL ISSUES

Also Found on the NCAA Web Site at:
www.ncaa.org/health-safety

NCAA®

GUIDELINE 2a

Medical Disqualification of the Student-Athlete

January 1979 • Revised June 2004

Withholding a student-athlete from activity. The team physician has the final responsibility to determine when a student-athlete is removed or withheld from participation due to an injury, an illness or pregnancy. In addition, clearance for that individual to return to activity is solely the responsibility of the team physician or that physician's designated representative.

Procedure to medically disqualify a student-athlete during an NCAA championship. As the event sponsor, the NCAA seeks to ensure that all student-athletes are physically fit to participate in its championships and have valid medical clearance to participate in the competition.

1. The NCAA tournament physician, as designated by the host school, has the unchallengeable authority to determine whether a student-athlete with an injury, illness, or other medical condition (e.g., skin infection) may expose others to a significantly enhanced risk of harm and, if so, to disqualify the student-athlete from continued participation.

2. For all other incidences, the student-athlete's on-site team physician can determine whether a student-athlete with an injury or illness should continue to participate or is disqualified. In the absence of a team physician, the NCAA tournament physician will examine the student-athlete and has valid medical authority to disqualify him or her if the student-athlete's injury, illness or medical condition poses a potentially life threatening risk to himself or herself.

3. The chair of the governing sports committee (or a designated representative) shall be responsible for administrative enforcement of the medical judgment, if it involves disqualification.



Reference

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GUIDELINE 2b

Cold Stress

June 1994 • Revised June 2002

Cold exposure can be uncomfortable, impair performance and even become life-threatening. Conditions created by cold exposure include wind chill, frostbite and hypothermia. Wind chill can make activity uncomfortable and can impair performance when muscle temperature declines. Frostbite is the freezing of superficial tissues, usually of the face, ears, fingers and toes. Hypothermia, a significant drop in body temperature, occurs with rapid cooling, exhaustion and energy depletion. The resulting failure of the temperature-regulating mechanisms constitutes a medical emergency.

AMBIENT TEMPERATURE (°F)

WIND SPEED (MPH)	40°	35°	30°	25°	20°	15°	10°	5°	0°	-5°	-10°	-15°	-20°	-25°	-30°	-35°	-40°	-45°
Calm																		
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes; 10 minutes; 5 minutes

Courtesy of the National Weather Service

Hypothermia frequently occurs at temperatures above freezing. A wet and windy 30-50 degree exposure may be as serious as a subzero exposure. As the wind chill chart indicates, wind speed interacts with ambient temperature to significantly increase body cooling. When the body and clothing are wet (whether from sweat, rain, or snow or immersion), the cooling is even more pronounced due to evaporation of the water held close to the skin by wet clothing.

Cold exposure affects many body systems. The combination of cold air and the deep breathing of exercise can trigger an asthma attack (bronchospasm). Cold air is not dangerous to lung tissue, but it can cause coughing, chest tightness and discomfort, such as a burning sensation in the throat and nasal passages.

Physiological factors such as strength, power, endurance and aerobic capacity are reduced by a drop in muscle temperature or body core temperature. Musculoskeletal injuries may increase when exercising vigorously in the cold, especially in the absence of adequate warm-up.

Early recognition of cold stress is important. Shivering, a means for the body to generate heat, serves as an early warning sign. Excessive shivering contributes to fatigue and makes performance of motor skills more difficult. Other signs include numbness and pain in fingers and toes or a burning sensation of the ears, nose or exposed flesh. As cold exposure continues, the core temperature drops. When the cold reaches the brain, a victim may exhibit sluggishness, poor judgment and may appear disoriented. Speech becomes slow and slurred, and movements become clumsy. The victim wants to lie down and rest. This is a medical emergency. Transport as soon as possible. First

aid involves getting the victim warm and dry and, if possible, hydrated with a warm beverage.

Prevention of cold stress is primarily a matter of dressing properly to control the climate next to the skin. Inadequate energy and fluid intake can significantly decrease cold tolerance. To prevent cold problems, student-athletes should be instructed as follows:

Clothing

Dress in layers and try to stay dry. Layers can be added or removed depending on temperature, activity and wind chill. Begin with a wicking fabric next to the skin. Add lightweight pile or wool layers for warmth and use a windblock garment to avoid wind chill. Because heat loss from the head and neck may be as much as 50 percent of total heat loss, the head should be covered during cold stress conditions. Hand covering should be worn as needed. Mittens are warmer than gloves.

Moisture, whether from perspiration or precipitation, significantly increases body heat loss. Keep dry by wearing a wicking fabric next to the body, hands and feet. Polypropylene or wool wick moisture away from the skin and retain insulating properties when wet. Cotton is a poor choice for winter wear since it holds moisture and loses insulating properties when wet.

Energy/Hydration

Maintain energy levels via use of meals, energy snacks and carbohydrate/electrolyte sports drinks. Negative energy balance increases the susceptibility to hypothermia. Stay hydrated, since dehydration affects the body's ability to regulate temperature and increases the risk of frostbite. Fluids are as important in the cold as in the heat. Avoid alcohol, caffeine, nicotine and other drugs that cause water loss, vasodilatation or vasoconstriction of skin vessels.

Fatigue/Exhaustion

Fatigue and exhaustion deplete energy reserves. Exertional fatigue and exhaustion increase the susceptibility to hypothermia, as does sleep loss.

Warm Up

Warm up thoroughly and keep warm throughout the practice or competition to prevent a drop in muscle or body temperature. Time the warm-up to lead almost immediately to competition. After competition add clothing to avoid rapid cooling. Warm extremely cold air with a mask or scarf to prevent bronchospasm.

Partner

Never train alone. An injury such as a sprained ankle can become life threatening when it occurs during a cold-weather workout on an isolated trail.

Avoidance of cold injury is a matter of recognizing the potential for cold stress and dressing appropriately. While there is considerable variation in cold tolerance, repeated exposure increases tolerance. Adequate energy, hydration and warm-up will minimize problems, as will avoidance of fatigue. Training with a partner helps to ensure early recognition of dangerous conditions and problems. Considerations for canceling a practice or event should include specific environmental conditions, the experience and cold tolerance of the student-athletes and the factors associated with cold stress.



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GUIDELINE 2c

Prevention of Heat Illness

June 1975 • Revised June 2002

Practice or competition in hot and/or humid environmental conditions poses special problems for student-athletes. Heat stress and resulting heat illness is a primary concern in these conditions. Although deaths from heat illness are rare, constant surveillance and education are necessary to prevent heat-related problems. The following practices should be observed:

1. An initial complete medical history and physical evaluation, followed by the completion of a yearly health-status questionnaire before practice begins, should be required. A history of previous heat illness, and the type and duration of training activities for the previous month, also are essential.

2. Prevention of heat illness begins with aerobic conditioning, which provides partial acclimatization to the heat. Student-athletes should gradually increase exposure to hot and/or humid environmental conditions over a period of seven to 10 days to achieve heat acclimatization. Each exposure should involve a gradual increase in the intensity and duration of exercise until the exercise is comparable to that likely to occur in competition. When conditions are extreme, training or competition should be held during a cooler time of day. Hydration should be maintained during training and acclimatization.

3. Clothing and protective equipment such as helmets, shoulder pads, and shin guards increase heat stress by interfering with the evaporation of sweat as well as inhibiting other pathways for heat loss. Dark-colored clothing increases the body's absorption of solar radiation. Frequent rest periods should be scheduled so that the gear and clothing can be loosened to allow heat loss. During the acclimatization process, it may be advisable to use a minimum of protective gear and clothing and to practice in T-shirts, shorts, socks and shoes. Excessive tape and outer clothing that restrict sweat evaporation should be avoided. Rubberized suits should never be used.

4. To identify heat stress conditions, regular measurements of environmental conditions are recommended. Use the ambient temperature and humidity to assess heat stress (see Figure 1). Utilize the wet-bulb temperature, dry-bulb temperature and globe temperature to assess the potential impact of humidity, air temperature and solar radiation. A wet-bulb temperature higher than 75 degrees Fahrenheit (24 degrees Celsius) or humidity above 90 percent may represent dangerous conditions, especially if the sun is shining or the student-athletes are not acclimatized. **A wet-bulb globe temperature (WBGT) higher than 82 degrees Fahrenheit (28 degrees Celsius) suggests that careful control of all activity be undertaken.** The value for caution may need to be adjusted down when wearing protective equipment. (See reference No. 6)

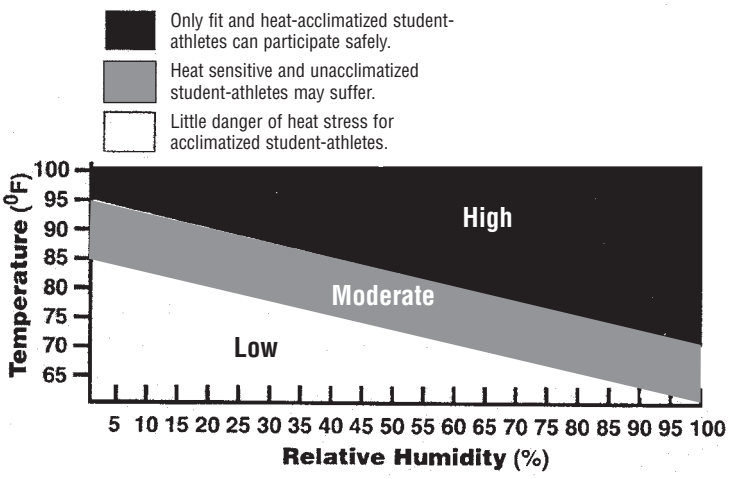
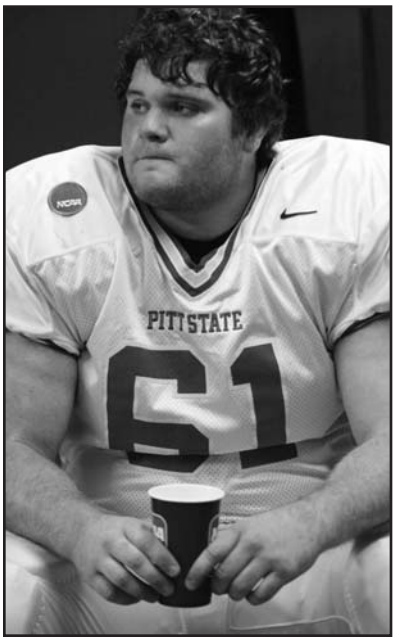


Figure 1: Temperature-Humidity Activity Index

5. Dehydration must be avoided not only because it hinders performance, but also because it can result in profound heat illness. Fluid replacement must be readily available. Student-athletes should be encouraged to drink as much and as frequently as comfort allows. They should drink one to two cups of water in the hour proceeding practice or competition, and continue drinking during activity (every 15-20 minutes). For activity up to two hours in duration, most weight loss represents water loss, and that fluid loss should be replaced as soon as possible. Following activity, the student-athlete should rehydrate with a volume that exceeds the amount lost during the activity. A two-pound weight loss represents approximately one quart of fluid loss. Urine volume and color can be used to assess general hydration. If output is plentiful and the color is "pale yellow or straw colored" the student-athlete is not dehydrated.



Water and carbohydrate/electrolyte drinks are appropriate for exercise in heat. Carbohydrate/electrolyte drinks enhance fluid intake, and the electrolytes aid in the retention of fluid. In addition, the carbohydrates provide energy and help maintain immune and cognitive function.

6. By recording the body weight of each student-athlete before and after workout or practice, progressive dehydration or loss of body fluids can be detected, and the potential harmful effects of dehydration can be avoided. Those who lose five percent of their body weight or more over a period of several days should be evaluated medically and their activity restricted until rehydration has occurred.

7. Some student-athletes may be more susceptible to heat illness. Susceptible individuals include those with: inadequate acclimatization or aerobic fitness, excess body fat, a history of heat illness, a febrile condition, inadequate rehydration, and those who regularly push themselves to capacity. Also, substances with a diuretic effect or that act as stimulants may increase risk of heat illness. These substances may be found in some prescription and over-the-counter drugs, nutritional supplements and foods.

Student-athletes should be informed of and monitored for signs of heat illness such as: cessation of sweating, weakness, cramping, rapid and weak pulse, pale or flushed skin, excessive fatigue, nausea, unsteadiness, disturbance of vision and incoherency. If heat illness is suspected, prompt emergency treatment is recommended. When training in hot and/or humid conditions, student-athletes should train with a partner or be under observation by a coach or athletic trainer.

First aid for heat illness

Heat exhaustion—Symptoms usually include profound weakness and exhaustion, and often dizziness, syncope, muscle cramps and nausea. Heat exhaustion is a form of shock due to depletion of body fluids. First aid should include rest in a cool, shaded environment. Fluids should be given orally. A physician should determine the need for electrolytes and additional medical care. Although rapid recovery is not unusual, student-athletes suffering from heat exhaustion should not be allowed to practice or compete for the remainder of that day.

Prevention of Heat Illness

Heatstroke—Heatstroke is a medical emergency. Medical care must be obtained at once; a delay in treatment can be fatal. This condition is characterized by a very high body temperature and usually (but not always) hot, dry skin, which indicates failure of the primary temperature-regulating mechanism (sweating), and possibly seizure or coma. First aid includes immediate cooling of the body without causing the student-athlete to shiver. Recommended methods for cooling include using ice, immersion in cold water, or wetting the body and fanning vigorously. Victims of heatstroke should be hospitalized and monitored carefully.

RISK FACTORS

Air temperature, humidity, and dehydration are common risk factors associated with heat illness. In addition, the following factors also put student-athletes at increased risk:

1. Nutritional supplements. Nutritional supplements may contain stimulants, such as ephedrine, ma huang or caffeine.* These substances can dehydrate the body and/or increase metabolism and heat production. They are of particular concern in people with underlying medical conditions such as hypertension, asthma and thyroid dysfunction.

2. Medication/drugs. Certain medications and drugs have similar effects. These substances may be ingested through over-the counter or prescription medications or with food. Examples include antihistamines, decongestants, certain asthma medications, Ritalin, diuretics and alcohol.

3. Medical conditions. Examples include illness with fever, gastrointestinal illness, previous heat illness, obesity or sickle cell trait.

4. Acclimatization/fitness level. Lack of acclimatization to the heat or poor conditioning.

5. Clothing. Dark clothing absorbs heat. Protective equipment limits heat dissipation.

*NOTE: Stimulant drugs such as amphetamines, ecstasy, ephedrine and caffeine are on the NCAA banned substance list and may be known by other names. A complete list of banned drug classes can be found on the NCAA Web site at www.ncaa.org/health-safety.

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GUIDELINE 2d

Weight Loss–Dehydration

July 1985 • Revised June 2002

There are two general types of weight loss common to student-athletes who participate in intercollegiate sports: loss of body water or loss of body weight (fat and lean tissue). Dehydration, the loss of body water, leads to a state of negative water balance called dehydration. It is brought about by withholding fluids and carbohydrates, the promotion of extensive sweating and the use of emetics, diuretics or laxatives. The problem is most evident in those who must be certified to participate in a given weight class, but it also is present in other athletics groups.

There is no valid reason for subjecting the student-athlete's body to intentional dehydration, which can lead to a variety of adverse physiological effects, including significant pathology and even death. Dehydration in excess of 3-5 percent leads to reduced strength and muscular endurance, reduced plasma and blood volume, compromised cardiac output (elevated heart rate, smaller stroke volume), impaired thermoregulation, decreased kidney blood flow and filtration, reduced liver glycogen stores and loss of electrolytes. Pathological responses include life-threatening heat illness, rhabdomyolysis (severe muscle breakdown), kidney failure and cardiac arrest.

With extensive dehydration, attempts at acute rehydration usually are insufficient for body fluid and electrolyte homeostasis to be restored before competition. For example, in wrestling this is especially true between the official weigh-in and actual competition.

All respected sports medicine authorities and organizations have condemned the practice of fluid deprivation. To promote sound practices, student-athletes and coaches should be educated about the physiological and pathological consequences of dehydration. The use of laxatives, emetics and diuretics should be prohibited. Similarly, the use of excessive food and fluid restriction, self-induced vomiting, vapor-impermeable suits (e.g., rubber or rubberized nylon), hot rooms, hot boxes and steam rooms should be prohibited. Excessive food restriction or self-induced vomiting may be symptoms of serious eating disorders (see Guideline 2f).

Dehydration is a potential health hazard that acts with poor nutrition and intense exercise to compromise health and athletic performance. The sensible alternative to dehydration weight loss involves: preseason determination of an acceptable (minimum) competitive weight, gradual weight loss to achieve the desired weight, and maintenance of the weight over the course of the competitive season. Standard body composition procedures should be utilized to determine the appropriate competitive weight. Spot checks (body composition or dehydration) should be used to assure compliance with the weight standard during the season.

Student-athletes and coaches should be informed of the health consequences of dehydration, educated in proper weight-loss procedures, and subject to disciplinary action when approved rules are violated.

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GUIDELINE 2e

Assessment of Body Composition

June 1991 • Revised June 2002

The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports acknowledges the significant input of Dr. Dan Benardot, Georgia State University, who authored a revision of this guideline.



Athletic performance is, to a great degree, dependent on the ability of the student-athlete to overcome resistance and to sustain aerobic and/or anaerobic power. Both of these elements of performance have important training and nutritional components and are, to a large degree, influenced by the student-athlete's body composition. Coupled with the common perception of many student-athletes who compete in sports where appearance is a concern (swimming, diving, gymnastics, skating, etc.), attainment of an 'ideal' body composition often becomes a central theme of training.

Successful student-athletes achieve a body composition that is within a range associated with performance achievement in their specific sport. Each sport has different norms for the muscle and fat levels associated with a given height, and the student-athlete's natural genetic predisposition for a certain body composition may encourage them to participate in a particular sport or take a specific position within a sport. For instance, linemen on football teams have different responsibilities than receivers, and this difference is manifested in physiques that are also different.

Besides the aesthetic and performance reasons for wanting to achieve an optimal body composition, there may also be safety reasons. A student-athlete who is carrying excess weight may be more prone to injury when performing difficult skills than the student-athlete with a more optimal body composition. However, the means student-athletes often used in an attempt to achieve an optimal body composition may be counterproductive. Diets and excessive training often result in such a severe energy deficit that, while total weight may be reduced, the constituents of weight also change, commonly with a lower muscle mass and a relatively higher fat mass. The resulting higher body fat percentage and lower muscle mass inevitably results in a performance reduction that motivates the student-athlete to follow regimens that produce even greater energy deficits. This downward energy intake spiral may be the precursor to eating disorders that places the student-athlete at serious health risk. Therefore, while achieving an optimal body composition is useful for high-level athletic performance, the processes student-athletes often use to attain an optimal body composition may reduce athletic performance, may place them at a higher injury risk, and may increase health risks.

Purpose of Body Composition Assessment

The purpose of body composition assessment is to determine the student-athlete's distribution of lean

(muscle) mass and fat mass. A high lean mass to fat mass ratio is often synonymous with a high strength to weight ratio, which is typically associated with athletic success. However, there is no single ideal body composition for all student-athletes in all sports. Each sport has a range of lean mass and fat mass associated with it, and each student-athlete in a sport has an individual range that is ideal for them. Student-athletes who try to achieve an arbitrary body composition that is not right for them are likely to place themselves at health risk and will not achieve the performance benefits they seek. Therefore, a key to body composition assessment is the establishment of an acceptable range of lean and fat mass for the individual student-athlete, and the monitoring of lean and fat mass over regular time intervals to assure a stability or growth of the lean mass and a proportional maintenance or reduction of the fat mass. Importantly, there should be just as much attention given to changes in lean mass (both in weight of lean mass and proportion of lean mass) as the attention traditionally given to body fat percent.

In the absence of published standards for a sport, one strategy for determining if a student-athlete is within the body composition standards for the sport is to obtain a body fat percent value for each student-athlete in a team (using the same method of assessment), and obtaining an average and standard deviation for body fat percent for the team. Student-athletes who are within 1 standard deviation (i.e., a Z-score of ± 1) of the team mean should be considered within the range for the sport. Those greater than or less than ± 1 standard deviation should be evaluated to determine the appropriateness of their training schedule and nutrient intake. In addition, it is important for coaches and student-athletes to use functional performance measures in determining the appropriateness of a student-athlete's body composition. Student-athletes outside the normal range of body fat percent for the sport may have achieved an optimal body composition for their genetic makeup, and may have objective performance measures (i.e., such as jump height) that are well within the range of others on the team.

Body composition can be measured indirectly by several methods, including hydrostatic weighing, skinfold and girth measurements (applied to a nomogram or prediction equation), bioelectrical impedance analysis (BIA), dual-energy x-ray absorptiometry (DEXA), ultrasound, computerized tomography, magnetic-resonance imagery, isotope dilution, neutron-activation analysis, potassium-40 counting, and infrared interactance. The most common of the methods now used to assess body composition in student-athletes are skinfold measurements, DEXA, hydrostatic weighing, and BIA. While hydrostatic weighing and DEXA are considered by many to be the "gold standards" of the indirect measurement techniques, there are still questions regarding the validity of these techniques when applied to humans. Since skinfold-based prediction equations typically use hydrostatic weighing or DEXA as the criterion methods, results from skinfolds typically carry the prediction errors of the criterion methods plus the added measurement errors associated with obtaining skinfold values. BIA has become popular because of its non-invasiveness and speed of measurement, but results from this technique are influenced by hydration state. Since student-athletes have hydration states that are in constant flux, BIA results may be misleading unless strict hydration protocols are followed. In general, all of the commonly used techniques should be viewed as providing only estimates of body composition, and since these techniques use different theoretical assumptions in their prediction of body composition, values obtained from one technique should not be compared with values obtained from another technique.

Concerns with Body Composition Assessment

1. Using Weight as a Marker of Body Composition—While the collection of weight data is a necessary adjunct to body composition assessment, by itself weight may be a misleading value. For instance, young student-athletes have the expectation of growth and increasing weight, so gradual increases in weight should not be interpreted as a body composition problem. A student-athlete who has increased resistance training to improve strength may also have a higher weight, but since this increased weight is likely to result from more muscle, this should be viewed as a positive change. The important consideration for weight is that it can be (and often is) misused as a measure of body composition, and this misuse can detract from the purpose of body composition assessment.

2. Comparing Body Composition Values with Others Athletes—Student-athletes often compare body composition values with other student-athletes, but this comparison is not meaningful and it may drive a student-athlete to change body composition in a way that negatively impacts both performance and health. Health professionals involved in obtaining body composition data should be sensitive to the confidentiality of this information, and explain to each student-athlete that differences in height, age, and gender are likely to result in differences in body composition, without necessarily any differences in performance. Strategies for achieving this include:

- Obtaining body composition values with only one student-athlete at a time, to limit the chance that the data will be shared.
- Giving student-athletes information on body composition using phrases such as "within the desirable range" rather than a raw value, such as saying "your body fat level is 18 percent".
- Providing athletes with information on how they have changed between assessments, rather than offering the current value.
- Increasing the focus on muscle mass, and decreasing the focus on body fat.
- Using body composition values as a means of helping to explain changes in objectively measured performance outcomes.

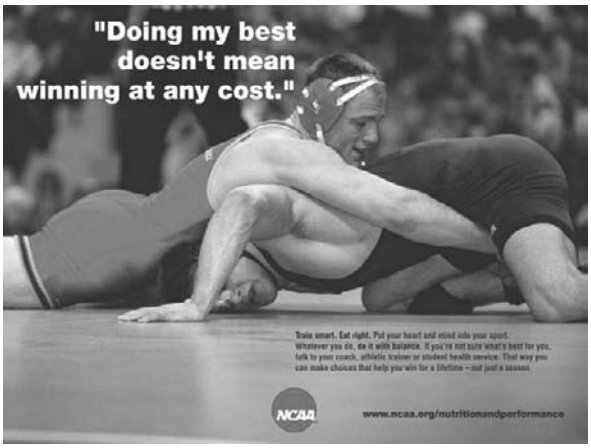
3. Seeking an Arbitrarily Low Level of Body Fat—Most student-athletes would like their body fat level to be as low as possible. However, student-athletes often try to seek a body fat level that is arbitrarily low and this can increase the frequency of illness, increase the risk of injury, lengthen the time the student-athlete can return to training following an injury, reduce performance, and increase the risk of an eating disorder. Body composition values should be thought of as numbers on a continuum that are usual for a sport. If a student-athlete falls anywhere on that continuum it is likely that factors other than body composition (training, skills acquisition, etc.) will be the major predictors of performance success.

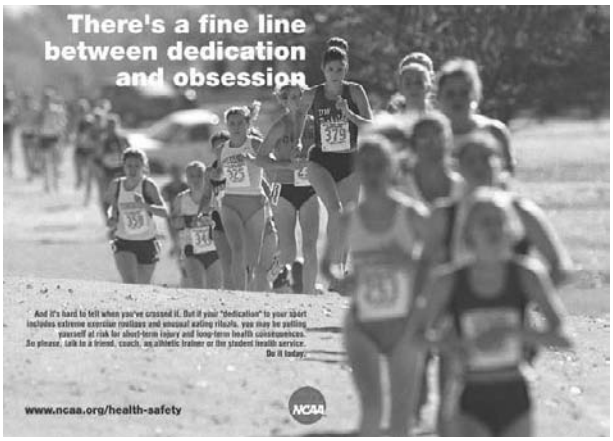
4. Frequency of Body Composition Assessment—Student-athletes who have frequent weight and/or skinfolds taken are fearful of the outcome, since the results are often (inappropriately) used punitively. Real changes in body composition occur slowly, so there is little need to assess student-athletes weekly, biweekly, or even monthly. If body composition measurements are sufficient and agreed upon by all parties, measurement frequency of twice a year should be sufficient. In some isolated circumstances where a student-athlete has been injured or is suffering from a disease state, it is reasonable for a physician to recommend a more frequent assessment rate to control for changes in lean mass. Student-athletes and/or coaches who desire more frequent body composition or weight measurement should shift their focus to assessments of objective performance-related measurers.

Summary

The assessment of body composition can be a useful tool in helping the student-athlete and coach understand the changes that are occurring as a result of training and nutritional factors. However, the body composition measurement process as well as the values obtained can be a sensitive issue for the student-athlete. A legitimate purpose for body composition assessment should dictate usage of these measurement techniques. Health professionals involved in obtaining body composition data should focus on using the same technique with the same prediction equations to derive valid comparative data over time. Institutions should have a protocol in place outlining the rationale for body composition measurements, who is allowed to measure the student-athlete, who is permitted to discuss the results with the student-athlete, and what frequency of body composition measurement is appropriate. The student-athlete should not feel forced or obligated to undergo body composition or weight measurement.

Everyone involved directly or indirectly with body composition measurement should understand that inappropriate measurement and usage of body composition might contribute to the student-athlete experiencing unhealthy emotional stress. This stress can lead to the development or enhancement of eating disorders in the student-athlete (see Guideline 2f). All coaches (sport or strength/conditioning) should be aware of the sizable influence they may have on the behaviors and actions of their student-athletes. Many student-athletes are sensitive about body fat, so care should be taken to apply body composition measurement, when appropriate, in a way that enhances the student-athlete's well being.





Posters encouraging responsible nutrition and exercise habits are available at www.ncaa.org/health-safety.

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GUIDELINE 2f

Nutrition and Athletic Performance

January 1986 • Revised June 2002

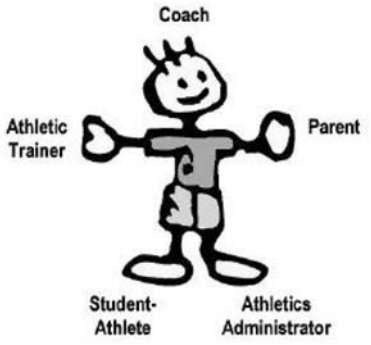
Athletic performance and recovery from training are enhanced by optimal nutrition. Proper nutrition includes adequate quality and quantity of food and fluid to provide energy and essential nutrients during training and competition. During the competitive season, energy and macronutrient needs (especially carbohydrate and protein intake) must be met in order to maintain body weight, replenish carbohydrate stores in muscle (glycogen), and provide adequate protein for building and repair of tissue. The following key points summarize current energy, nutrient and fluid recommendations for competitive student-athletes as recommended by the American College of Sports Medicine. These general guidelines should be specifically adjusted for each individual student-athlete by a sports nutrition expert.

Carbohydrates are important fuels for all student-athletes in order to replace muscle glycogen, prevent the loss of muscle mass, and prevent low blood sugar or hypoglycemia. The recommendations for adequate carbohydrate are between 4 to 5 grams (g) per pound of body weight per day. It is assumed that the predominant source of carbohydrates come from non-refined carbohydrates (whole grains, breads, pasta, fruits, and vegetables). Protein requirements are slightly higher in both endurance (0.5-0.7 g per lb. body weight per day) and strength-trained student-athletes (0.8 to 0.9 g per lb. body weight per day) above the typical recommended daily intake (0.4 g per lb. of body weight). Fortunately, this recommendation for protein is easily achieved in a well-balanced diet without additional supplements. Fat intake should be less than 30 percent of total daily calories in student-athletes and is an important source of essential fatty acids, fat-soluble vitamins, and energy.

In general, vitamin and mineral supplements are not required if a student-athlete is consuming adequate energy from a variety of foods to maintain body weight. However, the risk of micronutrient deficiencies are greatest in student-athletes restricting calories, engaging in rapid weight-loss practices, or eliminating specific foods or food groups from their diet. A multi-vitamin providing 100 percent of the daily recommended intake is appropriate for these student-athletes. Female student-athletes are especially prone to deficiencies in calcium and iron due to the menstrual cycle, avoidance of animal products, and/or energy restriction. The diets of long distance runners and vegetarians (especially females) should be evaluated as well as iron status. However, mega-doses of specific vitamins or minerals (10 –100 times the dose of daily requirements) are not recommended.

During periods of heavy training, adequate calories and fluid must be consumed. Strength training student-athletes need at least 20 to 23 calories per pound of body weight each day and endurance student-athletes have even higher energy requirements. Low energy intake can result in loss of muscle mass, risk of fatigue, injury and illness. A low caloric intake (less than 1800 to 2000 calories) in female student-athletes can lead to disruption of reproductive function.

The maintenance or attainment of an ideal body weight is sport-specific and represents an important part of a nutritional program. However, student-athletes in cer-



Please refer to page 111 for Web site link.

tain sports face a difficult paradox in their training/nutrition regimen; particularly those competing in "weight class" sports (e.g., wrestling, rowing), sports that favor those with lower body weight (e.g. distance running, gymnastics), sports requiring student-athletes to wear body contour-revealing clothing (track, diving, swimming, volleyball), and sports with subjective judging related to "aesthetics" (gymnastics, diving). These student-athletes are encouraged to eat to provide the necessary energy sources for performance, yet they often face self- or team-imposed weight restrictions. Emphasis on low body weight or low body fat may benefit performance only if the guidelines are realistic, the calorie intake is reasonable, and the diet is nutritionally well-balanced according to the Food Pyramid. The use of extreme weight-control measures can jeopardize the health of the student-athlete and possibly trigger behaviors associated with defined eating disorders.

NCAA studies have shown that at least 40 percent of member institutions reported at least one case of anorexia nervosa or bulimia nervosa in their athletics programs. Anorexia Nervosa is defined as self-imposed starvation in an obsessive effort to lose weight and to become thin. Bulimia Nervosa involves recurring binge-eating usually followed by some method of purging such as vomiting, diuretic or laxative abuse, or intensive exercise. The number of student-athletes who exhibit behaviors associated with disordered eating (but do not fit the diagnostic criteria of anorexia nervosa and bulimia nervosa) is even higher. Although eating disorders are much more prevalent in women (approximately 90 percent of the reports in the NCAA studies were in women's sports), eating disorders also occur in men.

The warning signs of the two most serious eating disorders include:

Anorexia Nervosa — Drastic loss in weight, a preoccupation with food, calories and weight, wearing baggy or layered clothing, relentless, excessive exercise, mood swings, and avoiding food-related social activities.

Bulimia Nervosa — Recurring binge eating usually followed by some method of purging, such as vomiting, diuretic or laxative abuse or intensive exercise. Warning signs — excessive concern about weight, bathroom visits after meals, depressive moods, strict dieting followed by eating binges, and increasing criticism of one's body. It is important to note that the presence of one or two of these warning signs does not necessarily indicate the presence of an eating disorder, but may indicate a subclinical form of disordered eating. Absolute diagnosis should be done by appropriate professionals.

Menstrual irregularities can be associated with eating disorders as well as other conditions. However, all student-athletes with menstrual irregularities should be seen by a physician (see Guideline 2k).

Eating disorders are often an expression of underlying emotional distress that may develop long before the individual was involved in athletics. It has been suggested that stress, whether it be from participating in athletics, striving for academic success, or pursuing social relationships, may trigger psychological problems, such as eating disorders, in susceptible individuals. Eating disorders can be triggered in such individuals by a single event or comments from a person important to the individual. In athletic performance, such triggering mechanisms may include offhand remarks about appearance or constant badgering about a student-athlete's body weight, body composition or body type. Coaches, athletic trainers and supervising physicians must be watchful for student-athletes who may be prone to eating disorders, particularly in sports in which appearance or body weight is a factor in performance.

Disordered eating can lead to semi-starvation and dehydration, resulting in loss of muscular strength and endurance, decreased aerobic and anaerobic power, loss of coordination, impaired judgment, and other complications that decrease performance and impair health. These symptoms may be readily apparent or may not be evident for an extended period of time. Many student-athletes have performed successfully while experiencing an eating disorder. Therefore, diagnosis of this problem should not be based entirely on a decrease in athletic performance.

Body composition and body weight can affect exercise performance but should not be used as the main criteria for participation in sports. Decisions regarding weight loss should be based on the following recommendations to reduce the potential of an eating disorder:

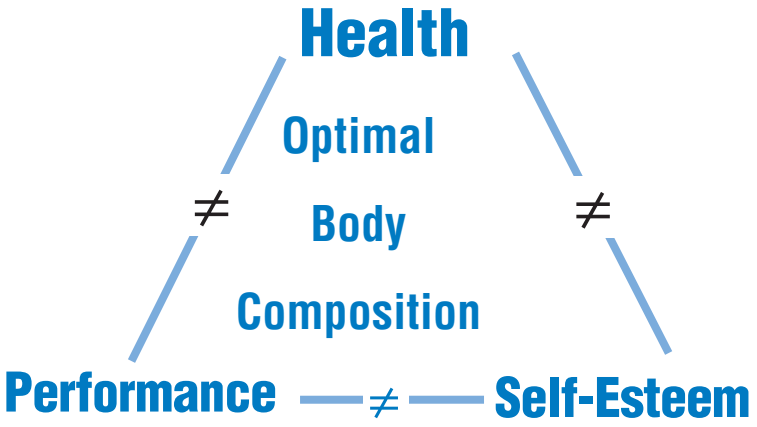
1. Frequent weigh-ins (either as a team or individually) are discouraged.

2. If weight loss (fat loss) is desired, it should start early-before the competitive season-and involve a trained medical or nutrition professional.

3. Weight loss should be agreed upon by the student-athlete and appropriate medical and nutritional personnel, with consultation from the coach.

4. A responsible and realistic weight loss plan should be developed on an individual basis.

Along with the NCAA Nutrition and Performance Web page, the American College of Sports Medicine has published position stands on the female athlete triad, nutrition and athletic performance. These materials are valuable resources for NCAA institutions.



For each student-athlete, there may be a unique optimal body composition for performance, for health, and for self-esteem. However, in most cases, these three values are NOT identical. Mental and physical health should not be sacrificed for performance. An erratic or lost menstrual cycle, sluggishness or an obsession with achieving a number on a scale may be signs that health is being challenged.

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GUIDELINE 2g

Dietary Supplements and Banned Substances

January 1990 • Revised June 2004

Nutritional and dietary supplements are marketed to student-athletes to improve performance, recovery time, and muscle-building capability. Many student-athletes use nutritional supplements despite the lack of proof of effectiveness. In addition, such substances are expensive and may potentially be harmful to health or performance. Of greater concern is the lack of regulation and safety in the manufacture of dietary supplements. Many compounds obtained from specialty "nutrition" stores and mail order businesses may not be subject to the strict regulations set by the United States Food and Drug Administration. Therefore, contents of many of these compounds are not represented accurately on the list of ingredients and may contain impurities or banned substances, which may cause a student-athlete to test positive. Positive drug-test appeals based on the claim that the student-athletes did not know the substances they were taking contained banned drugs have not been successful. Therefore, student-athletes should be instructed to consult with the university's sports medicine staff before taking ANY nutritional supplement.

It is well known that a high-carbohydrate diet is associated with improved performance and enhanced ability to train. The carbohydrate content of the diet should be 55-65 percent of total energy intake (about 5-10 gm/kg body weight). The lower end of the range should be ingested during regular training; the high-end during intense training. High-carbohydrate foods and beverages can provide the necessary amount of carbohydrate for the high caloric demand of most sports to optimize performance. Low-carbohydrate diets are not advantageous for athletes during intense training and may not enhance performance. A high-carbohydrate diet consisting of complex carbohydrates, fruits, vegetables, low-fat dairy products, and whole grains (along with adequate protein) is the optimal diet for peak performance.

Protein and amino acid supplements are popular with body-builders and strength-training student-athletes. Although protein is needed to repair and build muscles after strenuous training, most studies have shown that student-athletes ingest a sufficient amount without supplements. The recommended amount of protein in the diet should be 12-15 percent of total energy intake (about 1.4-1.6 gm/kg of body weight) for all types of student-athletes. Although selected amino acid supplements are purported to increase the production of anabolic hormones, studies using manufacturer-recommended amounts have not found increases in growth hormone or muscle mass. Ingesting high amounts of single



amino acids is contraindicated because they can affect the absorption of other essential amino acids, produce nausea, and/or impair kidney function and hydration status. A supplement which contains >30% of calories from protein is not a permissible substance for distribution according to current NCAA rules.

Other commonly advertised supplements are vitamins and minerals. Most scientific evidence shows that selected vitamins and minerals will not enhance performance provided no deficiency exists. Some vitamins and minerals are marketed to student-athletes for other benefits. For example, the antioxidants, vitamin E, C and beta-carotene are used by many student-athletes because they believe that these antioxidants will protect them from the damaging effects of aerobic exercise. Although such exercise can cause muscle damage, studies have found that training will increase the body's natural antioxidant defense system so that megadoses of antioxidants may not be needed. The mineral chromium has been suggested to increase muscle mass and decrease fat, but studies have not substantiated this claim. Similarly, magnesium is purported, but not proven, to prevent cramps. To obtain necessary vitamins and minerals, student-athletes should eat a wide variety of foods because not all vitamins and minerals are found in every food.

Other substances naturally occurring in foods, such as carnitine, herbal extracts and special enzyme formulations do not provide any benefit to performance. The high-protein diet has received recent attention, but data showing that this diet will enhance performance are weak, plus there is concern that such a diet will negatively affect health. Creatine has been found in some laboratory studies to enhance short-term, high-intensity exercise capability, delay fatigue on repeated bouts of such exercise and increase strength. Several studies have contradicted these claims, and, moreover, the safety of creatine supplements has not been verified. Weight gains of one to three kilograms per week have been found in creatine users, but the cause is unclear.

Many other "high-tech" nutritional or dietary supplements may seem to be effective at first, but this is likely a placebo effect — if student-athletes believe these substances will enhance performance, they may train harder or work more efficiently. Ultimately, most nutritional supplements are ineffective, costly, and unnecessary.

Student-athletes should be aware that nutritional supplements are not limited to pills and powders; "energy" drinks that contain stimulants are popular. Many of these contain large amounts of either caffeine or other stimulants, both of which can result in a positive drug test. Student-athletes should be wary of drinks that promise an "energy boost" because they may contain banned stimulants. In addition, the use of stimulants while exercising can increase the risk of heat illness.

Student-athletes should be provided accurate and sound information on nutritional supplements. It is not worth risking eligibility for products that have not been scientifically proven to improve performance and may contain banned substances. Given the above information and consistent with NCAA Bylaw 16.5.2 (Nutritional Supplements), which states, "An institution may provide only nonmuscle-building nutritional supplements to a student-athlete at any time for the purpose of providing additional calories and electrolytes, provided the supplements do not contain any NCAA banned substances," athletics staff should not distribute or endorse nutritional or dietary supplements.

Dietary Supplements and Banned Substances

The NCAA subscribes to the Resource Exchange Center (REC), which provides a confidential hotline and Web site to answer questions from student-athletes and athletics personnel on whether nutritional supplements and medications contain banned substances. This service is free of charge to all member institutions. To access the REC, go to www.drugfreesport.com/rec. The password is ncaa1, ncaa2, or ncaa3, depending on your divisional classification.



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Available at: www.acsm-msse.org

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GUIDELINE 2h

"Burners" (Brachial Plexus Injuries)

June 1994 • Revised June 2003

"Burners" or "stingers" are so named because the injuries can cause a sudden pain and numbness along the forearm and hand. The more formal medical terminology is transient brachial plexopathy or an injury to the brachial plexus. A brachial plexus injury may also involve injury to a cervical root. An injury to the spinal cord itself is more serious and frequently does not fall under this category of injury, although it shares certain symptoms; therefore, spinal cord injuries should be ruled out when diagnosing stingers.

The majority of stingers occur in football. Such injuries have been reported in 52 percent of college football players during a single season. As many as 70 percent of college football players have experienced stingers. Stingers also can occur in a variety of other sports, including basketball, ice hockey, wrestling and some field events in track.

Mechanism

The most common mechanism for stingers is head movement in an opposite direction from the shoulder either from a hit to the head or downward traction of the shoulder. This can stretch the nerve roots on the side receiving the blow (traction), or compress or pinch those on the opposite side. Contact to the side of the neck may cause a direct contusion to the brachial plexus. In Football, improper blocking and tackling techniques may result in a brachial plexus injury. Coaches, parents and student-athletes should be cautioned regarding the consequences of improper techniques which may result in cervical spine injuries or trauma to the brachial plexus.

Symptoms and Severity

Student-athletes who suffer burners may be unable to move the affected arm from their side and will complain of burning pain, and potentially, numbness traveling from the injured side of the neck through the shoulder down the arm and forehand, and sometimes into the hand. Weakness may be present in the muscles of the shoulder, elbow and hand.

Brachial plexus injuries can be classified into three categories. The mildest form (Grade 1) are neuropraxic injuries that involve demyelination of the axon sheath without intrinsic axonal disruption. Compete recovery typically occurs in a few seconds to days. Grade 1 injuries are the most common in athletics. Grade 2 injuries involve axonotmesis or disruption of the axon and myelin sheath with preservation of the epineurium, perineurium, and endoneurium, which can serve as the conduit for the regenerating axon as it regrows at a 1-7mm per day. Weakness can last for weeks but full recovery typically occurs. Grade 3 injuries, neurotmesis or complete nerve transections are rare in athletes. Surgical repair of the nerve is required in these cases and complete recovery may not occur.

These classifications have more meaning with regard to anticipated recovery of function than a grading on the severity of symptoms at the time of initial injury.

Treatment and Return to Play

Burner and stingers typically result in symptoms that are sensory in nature frequently involving the C5 and C6 dermatomes. All athletes sustaining burners should be removed from competition and examined thoroughly for injury to the cervical spine and shoulder. All cervical roots should be assessed for motor and sensory function. If symptoms clear within seconds to several minutes and are not associated with any neck pain, limitation of neck movement or signs of shoulder subluxation or dislocation, the athlete can safely return to competition. It is important to re-examine the ath-

lete after the game and for a few successive days to detect any reoccurrence of weakness or alteration in sensory exam.

If sensory complaints or weakness persists for greater than a few minutes, a full medical evaluation with radiographs and consideration for a MRI should be done to rule out cervical disk or other compressive pathology. If symptoms persist for greater than 2 to 3 weeks, an EMG may be helpful in assessing the extent of injury. However, an EMG should not be used for return to play criteria, as EMG changes may persist for several years after the symptoms have resolved. Shoulder injuries (acromioclavicular separation, shoulder subluxation or dislocation, and clavicular fractures) should be considered in the differential diagnosis of the athlete with transient or prolonged neurologic symptoms of the upper extremity. Any injured athlete who presents with specific cervical-point tenderness, neck stiffness, bony deformity, fear of moving his/her head, and/or complains of a heavy head should be immobilized on a spine board (as one would for a cervical spine fracture) and transported to a medical facility for a more thorough evaluation.

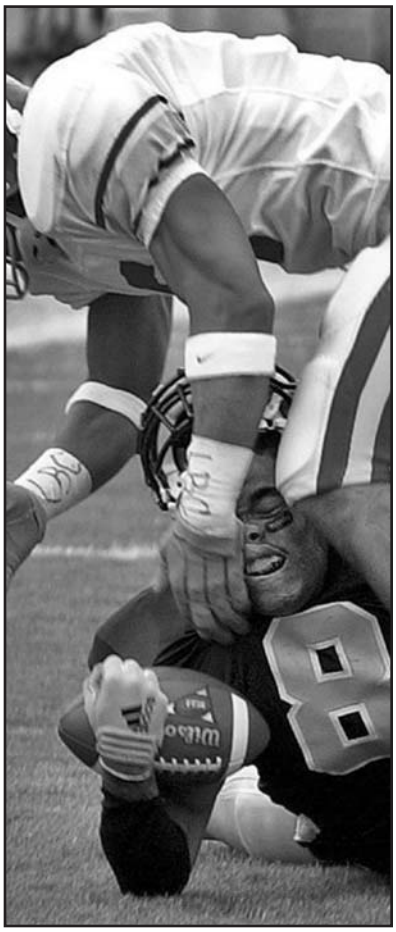
Bilateral symptoms indicate that the cord itself has been traumatized and may suggested transient quadriplegia. These athletes should also be immobilized and transported to a medical facility for a more thorough evaluation.

All athletes sustaining burners or stingers should undergo a physical rehabilitation program that includes neck and trunk strengthening exercises. The fit of shoulder pads should be rechecked and consideration of other athletic protective equipment such as neck rolls, and/or collars should be given. The athlete's tackling techniques should be reviewed.

Stinger assessment should be part of the student-athletes' preseason physical and mental history (see handbook Guideline No. 1B) so that these "at risk" athletes can be instructed in a prevention preventative exercise program and be provided with proper protective equipment.

Recurrent Burners

Recurrent burners may be common; 87 percent of athletes in one study had experienced more than one. Medical personnel should pay special attention to this condition. Although rare, risk of permanent nerve injury exists for those with recurrent burners. Therefore, participants should report every occurrence to their certified athletic trainers or team physician. Any player with persistent pain, burning, numbness and/or weakness (lasting longer than two minutes) should be held out of competition and referred to a physician for further evaluation.



A Word of Caution

Management of the student-athlete with recurrent burners can be difficult. There are no clear guidelines concerning return to play. Although some risk of permanent nerve injury exists, for those with recurrent episodes a review of the literature shows this risk to be small. The most important concern for student-athletes with recurrent burners is to stress the importance of reporting all symptoms to the attending medical personnel so that a thorough physical examination with particular attention to strength and sensory changes can be obtained. Any worsening of symptoms should provoke a more thorough evaluation.

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GUIDELINE 2i

Concussion or Mild Traumatic Brain Injury (mTBI) in the Athlete

June 1994 • Revised July 2004

Over 300,000 concussions occur every year, and participation in sport is a common cause of these injuries. These injuries are often difficult to detect, with athletes often underreporting their injury, minimizing their importance, or not recognizing that an injury has occurred. At the college level, these injuries are more common in certain sports such as football, ice hockey, men's and women's soccer, and men's lacrosse. However, they also account for a significant percentage of injuries in men's and women's basketball, women's lacrosse, and other sports traditionally considered "non-contact".

The incidence in helmeted versus non-helmeted sports is also similar. In the years 2000-2002, the rate of concussion during games per 1000 athlete exposures for football was 3.1, for men's ice hockey 2.4, for men's wrestling 1.6 and for men's lacrosse 1.4, respectively, 2.4 for women's ice hockey, 2.1 for women's soccer, 1.7 for men's soccer, 0.8 for field hockey, 0.8 for women's lacrosse, 0.7 for women's basketball, and 0.5 for men's basketball, accounting for between 6.4 and 18.3% of the injuries for these sports as reported by the NCAA Injury Surveillance System (ISS).



Assessment and management of concussive injuries, and return to play decisions remain some of the most difficult responsibilities facing the sports medicine team. There are potentially serious complications of multiple or severe concussions including second impact syndrome, post-concussive syndrome, or post-traumatic encephalopathy. Though there is some controversy as to the existence of second impact syndrome, where a second impact with potentially catastrophic consequences occurs prior to the full recovery after a first insult, the risks include severe cognitive compromise as well as death. Other associated injuries which can occur in the setting of concussion include seizures, cervical spine injuries, skull fractures, and/or intracranial bleed. Due to the serious nature of mild traumatic brain injury, as well as these serious potential complications, it is imperative that the health care professionals taking care of athletes are able to recognize, evaluate, and treat these injuries in a complete and progressive fashion.

Concussion or mild traumatic brain injury (mTBI) has been defined as "a complex pathophysiological process affecting the brain, induced by traumatic biomechanical forces." Although concussion most commonly occurs after a direct blow to the head, it can occur after a blow elsewhere that is transmitted

to the head. Concussions can be defined by the clinical features, pathophysiological changes and / or biomechanical forces that occur, and these have been described in the literature. The neurochemical and neurometabolic changes that occur in concussive injury have been elucidated, and exciting research is underway describing the genetic factors that may play a role in determining which individuals are at an increased risk for sustaining brain injury.

Most commonly, concussion is characterized by the rapid onset of cognitive impairment that is self limited and spontaneously resolves. The acute symptoms of concussion, listed below, are felt to reflect a functional disturbance in cognitive function instead of structural abnormalities, which is why diagnostic tests such as magnetic resonance imaging (MRI) and computerized tomography (CT) scans are most often normal. These studies may have their role in assessing and evaluating the head injured athlete whenever there is concern for the associated injuries of skull fracture, intracranial bleed, seizures, when there is concern for structural abnormalities or when the symptoms of an athlete persist or deteriorate.

Concussion is associated with clinical scenarios that often clear spontaneously, and may or may not be associated with loss of consciousness (LOC).

The sideline evaluation of the brain injured athlete should include an assessment of airway, breathing, and circulation (ABC's), followed by an assessment of the cervical spine and skull for associated injury. The sideline evaluation should also include a neurological and mental status examination and some form of brief neurocognitive testing to assess memory function and attention. This can be in the form of questions regarding the particular practice or competition, previous game results, and remote and recent memory, as well as questions to test the athlete's recall of words, months of the year backwards and calculations. Special note should be made regarding the presence and duration of retrograde or anterograde amnesia, as well as the presence and duration of confusion. A timeline of injury and the presence of symptoms should be noted. These sideline tests should be performed and repeated as necessary, but do not take the place of other comprehensive neuropsychological tests.

Once an injury occurs and an initial assessment has been made, it is important to determine an initial plan of action, which includes deciding on whether additional referral to a physician and/or emergency department should take place, as well as determining the follow-up care. The medical staff should also determine whether additional observation or hospital admission should be considered.

Follow up care and instructions should be given to the athlete, and ensuring that they are not left alone for an initial period of time should be considered. Athletes should avoid alcohol or other substances

Table 1
SIGNS AND SYMPTOMS OF mTBI

- Loss of consciousness (LOC)
- Confusion
- Post-traumatic amnesia (PTA)
- Retrograde amnesia (RGA)
- Disorientation
- Delayed verbal and motor responses
- Inability to focus
- Headache
- Nausea / Vomiting
- Excessive drowsiness
- Visual Disturbances (Photophobia, blurry Phono/ photophobia vision, double vision)
- Disequilibrium
- Feeling "in a fog", "zoned out"
- Vacant stare
- Emotional lability
- Dizziness
- Slurred/ incoherent speech

that will impair their cognitive function, and also avoid aspirin and other medications that can increase their risk of bleeding.

As mentioned previously, conventional imaging studies such as MRI and CT scans are usually normal in mTBI. However, these studies are considered an adjunct when any structural lesion, such as an intracranial bleed or fracture, is suspected. If an athlete experiences prolonged loss of consciousness, confusion, seizure activity, focal neurologic deficits, or persistent clinical or cognitive symptoms, then additional testing may be indicated.

There are several grading systems and return to play guidelines in the literature regarding concussion in sport (AAN, Torg, Cantu) However, there may be limitations because they presume that LOC is associated with more severe injuries. It has been demonstrated that LOC does not correlate with severity of injury in patients presenting to an emergency department with closed head injury, and has also been demonstrated in athletes with concussion. (Lovell '99) . It has been further demonstrated that retrograde amnesia (RGA), post traumatic amnesia (PTA), as well as the duration of confusion & mental status changes greater than 5 minutes may be more sensitive indicators of injury severity (Collins '03). More recent grading systems have been published which attempt to take into account the expanding research in the field of mTBI in athletes. Though it is useful to become familiar with these guidelines, it is important to remember that many of these injuries are best treated in an individual fashion (Cantu '01, Vienna Conference, NATA '04)

Several recent publications have endorsed the use of neurocognitive or neuropsychological testing as the cornerstone of concussion evaluation. These tests provide a reliable assessment and quantification of brain function by examining brain-behavior relationships. These tests are designed to measure a broad range of cognitive function including speed of information processing, memory recall, attention and concentration, reaction time, scanning and visual tracking ability, and problem solving ability. Several computerized versions of these tests have also been designed to improve the availability of these tests, and make them easier to distribute and utilize. Ideally, these tests are performed prior to the season as a "baseline" with which post-injury tests can be compared. Despite the utility of neuropsychological test batteries in the assessment and treatment of concussion in athletes, several questions remain unanswered. Further research is needed to understand the complete role of neuropsychological testing.

Given these limitations, it is essential that the medical care team taking care of athletes continue to rely on their clinical skills in evaluating the head injured athlete to the best of their ability. It is essential that no athlete be allowed to return to participation when any symptoms, including mild headache, persist. It has also been recommended that for any injury which involves significant symptoms, long duration of symptoms, or difficulties with memory function (either retrograde or antegrade) not be allowed to return to play during the same day of competition. The duration of time that an athlete should be kept

Table 2
SYMPTOMS OF POST-CONCUSSION SYNDROME

Loss of intellectual capacity	Fatigue
Poor recent memory	Irritability
Personality changes	Phono/ photophobia
Headaches	Sleep disturbances
Dizziness	Sleep disturbances
Lack of concentration	Depressed mood
Poor attention	Anxiety

out of physical activity is unclear, and in most instances, individualized return to play decisions should be made. These decisions will often depend on the clinical symptoms, as well as previous history of concussion, and severity of previous concussions. Additional factors include the sport, position, age, support system for the athlete, and the overall "readiness" of the athlete to return to sport.

Once an athlete is completely asymptomatic the return to play progression should occur in a stepwise fashion with gradual increments in physical exertion and risk of contact. After a period of remaining asymptomatic, the first step is an "exertional challenge" where the athlete exercises for 15-20 minutes in an activity such as biking or running where they increase their heartrate and break a sweat. If they do not experience any symptoms, this can be followed by a steady increase in exertion, followed by return to sport-specific activities that do not put the athlete at risk for contact. Examples include dribbling a ball or shooting, stickwork or passing, or other agilities. This allows the athlete to return to the practice setting albeit in a limited role. Finally, the athlete can be progressed to practice activities with limited then full contact and finally full contact. How quickly one moves through this progression remains controversial.

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GUIDELINE 2j

Skin Infections in Wrestling

July 1981 • Revised June 2004

Data from the NCAA Injury Surveillance System (ISS) indicate that skin infections are associated with at least 15 percent of the practice time-loss injuries in wrestling. It is recommended that qualified personnel examine the skin over the entire body, and the hair of the scalp and pubic areas of all wrestlers before any participation in the sport.

Open wounds and infectious skin conditions that cannot be adequately protected to prevent their exposure to others should be considered cause for medical disqualification from practice or competition.

Categories of skin conditions and examples include:

1. Bacterial skin infections
   - a. impetigo;
   - b. erysipelas;
   - c. carbuncle;
   - d. staphylococcal disease;
   - e. folliculitis (generalized);
   - f. hidradentitis suppurativa;

Note: An antibiotic resistant form of Staphylococcus aureus known as Methicillin-resistant Staphylococcus Aureus (MRSA) is moving from acute care settings out into the community. Outbreaks have been documented in organized collegiate sports.

2. Parasitic skin infections
   - a. pediculosis;
   - b. scabies;
3. Viral skin infections
   - a. herpes simplex;
   - b. herpes zoster (chicken pox);
   - c. molluscum contagiosum; and
4. Fungal skin infections
   - a. tinea corporis (ringworm).

Note: Current knowledge indicates that many fungal infections are easily transmitted by skin-to-skin contact. In most cases, these skin conditions can be covered with a securely attached bandage or nonpermeable patch to allow participation.

Besides identification of infected individuals and their prompt treatment, prevention can be aided through proper routine cleaning of all equipment, including mats and shared common areas, such as locker rooms.

Skin infections may be transmitted by both direct (person to person) and indirect (person to inanimate surface to person) contact. Infection control measures, or measures that seek to prevent the spread of disease, should be utilized to reduce the risks of disease transmission. Efforts should be made to improve student-athlete hygiene practices, to utilize recommended procedures for cleaning and disinfection of surfaces,



and to handle blood and other bodily fluids appropriately. Suggested measures include: promotion of hand hygiene practices; educating athletes not to pick, squeeze, or scratch skin lesions; encouraging athletes to shower after activity; educating athletes not to share protective gear, towels, or razors; ensuring recommended procedures for cleaning and disinfection of wrestling mats, athletic equipment, locker rooms, and whirlpool tubs are closely followed; and verifying clean up of blood and other potentially infectious materials is done according to the Occupational Health and Safety Administration (OSHA) Bloodborne pathogens Standard #29CFR1910.1030.

This guideline is intended for general information only. Team physicians, athletic trainers, coaches and others who work directly with wrestling should refer to the current year's NCAA Wrestling Rules Book or Wrestling Championships Handbook for specific rules regarding skin infections.

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GUIDELINE 2k

Menstrual-Cycle Dysfunction

January 1986 • Revised June 2002

The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports acknowledges the significant input of Dr. Anne Loucks, Ohio University, in the revision of this guideline.

In 80 percent of college-age women, the length of the menstrual cycle ranges from 23 to 35 days. Oligomenorrhea refers to a menstrual cycle that occurs inconsistently, irregularly and at longer intervals. Amenorrhea is the cessation of the menstrual cycle with ovulation occurring infrequently or not at all. A serious medical problem of amenorrhea is the lower level of circulating estrogen (hypoestrogenism), and its potential health consequences.

The prevalence of menstrual-cycle irregularities found in surveys depends on the definition of menstrual function used, but has been reported to be as high as 44 percent in athletic women. Research suggests that failure to increase dietary energy intake in compensation for the expenditure of energy during exercise can disrupt the hypothalamic-pituitary-ovarian (HPO) axis. Exercise training appears to have no suppressive effect on the HPO axis beyond the impact of its strain on energy availability.

There are several important reasons to discuss the treatment of menstrual-cycle irregularities. One reason is infertility; fortunately, the long–term effects of menstrual cycle dysfunction appear to be reversible. Another medical consequence is skeletal demineralization, which occurs in hypoestrogenic women. Skeletal demineralization was first observed in amenorrheic athletes in 1984. Initially, the lumbar spine appeared to be the primary site where skeletal demineralization occurs, but new techniques for measuring bone mineral density show that demineralization occurs throughout the skeleton. Some women with menstrual disturbances involved in high impact activities such as gymnastics and figure skating display less demineralization than women runners. Despite resumption of normal menses, the loss of bone mass during prolonged hypoestrogenemia is not completely reversible. Therefore, young women with low levels of circulating estrogen, due to menstrual irregularities, are at risk for low peak bone mass which may increase the potential for osteoporotic fractures later in life. An increased incidence of stress fractures also has been observed in the long bones and feet of women with menstrual irregularities.

The treatment goal for women with menstrual irregularities is the re-establishment of an appropriate hormonal environment for the maintenance of bone health. This can be achieved by the re-establishment of a regular menstrual cycle or by hormone replacement therapy although neither change has been shown to result in complete recovery of the lost bone mass. Additional research is necessary to develop a specific prognosis for exercise-induced menstrual dysfunction.

All student-athletes with menstrual irregularities should be seen by a physician. General guidelines include:

1. Full medical evaluation, including an endocrine work-up and bone mineral density test;

2. Nutritional counseling with specific emphasis on:

a. Total caloric intake versus energy expenditure.

b. Calcium intake of 1,200 to 1,500 milligrams a day; and

3. Routine monitoring of the diet, menstrual function, weight-training schedule and exercise habits.

If this treatment scheme does not result in regular menstrual cycles, estrogen-progesterone supplementation should be considered. This should be coupled with appropriate counseling on hormone replacement and review of family history. Hormone-replacement therapy is thought to be important for amenorrheic women

and oligomenorrheic women whose hormonal profile reveals an estrogen deficiency.

The relationship between amenorrhea, osteoporosis and disordered eating is termed the "female athlete triad". In 1997, the American College of Sports Medicine issued a position stand calling for all individuals working with physically active girls and women to be educated about the female athlete triad and develop plans for prevention, recognition, treatment and risk reduction. Recommendations are that any student-athlete who presents with any one component of the triad be screened for the other two components and referred for medical evaluation.

Other recommendations include:

- All sports medicine professional, including coaches and athletic trainers, learn to recognize the symptoms and risks associated with the female athlete triad.
- Coaches and others should avoid pressuring female athletes to diet and lose weight and should be educated about the warning signs of eating disorders.
- Sports medicine professionals, athletics administrators, and officials of sport governing bodies share a responsibility to prevent, recognize and treat this disorder.
- Sports medicine professionals, athletics administrators, and officials of sport governing bodies should work toward offering opportunities for educating and monitoring coaches to ensure safe training practices.
- Young, physically active females should be educated about proper nutrition, safe training practices, and the risks and warning signs of the female athlete triad.

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GUIDELINE 2I

Blood-Borne Pathogens and Intercollegiate Athletics

April 1988 • Revised August 2004

Blood-borne pathogens are disease-causing microorganisms that can be potentially transmitted through blood contact. The blood-borne pathogens of concern include (but are not limited to) the hepatitis B virus (HBV) and the human immunodeficiency virus (HIV). Infections with these (HBV, HIV) viruses have increased throughout the last decade among all portions of the general population. These diseases have potential for catastrophic health consequences. Knowledge and awareness of appropriate preventive strategies are essential for all members of society, including student-athletes.

The particular blood-borne pathogens HBV and HIV are transmitted through sexual contact (heterosexual and homosexual), direct contact with infected blood or blood components, and perinatally from mother to baby. In addition, behaviors such as body piercing and tattoos may place student-athletes at some increased risk for contracting HBV, HIV or Hepatitis C.

The emphasis for the student-athlete and the athletics health-care team should be placed predominately on education and concern about these traditional routes of transmission from behaviors off the athletics field. Experts have concurred that the risk of transmission on the athletics field is minimal.

Hepatitis B Virus (HBV)

HBV is a blood-borne pathogen that can cause infection of the liver. Many of those infected will have no symptoms or a mild flu-like illness. One-third will have severe hepatitis, which will cause the death of one percent of that group. Approximately 300,000 cases of acute HBV infection occur in the United States every year, mostly in adults.

Five to 10 percent of acutely infected adults become chronically infected with the virus (HBV carriers). Currently in the United States there are approximately one million chronic carriers. Chronic complications of HBV infection include cirrhosis of the liver and liver cancer.

Individuals at the greatest risk for becoming infected include those practicing risky behaviors of having unprotected sexual intercourse or sharing intravenous (IV) needles in any form. There is also evidence that household contacts with chronic HBV carriers can lead to infection without having had sexual intercourse or sharing of IV needles. These rare instances probably occur when the virus is transmitted through unrecognized-wound or mucous-membrane exposure.

The incidence of HBV in student-athletes is presumably low, but those participating in risky behavior off the athletics field have an increased likelihood of infection (just as in the case of HIV). An effective vaccine to prevent HBV is available and recommended for all college students by the American College Health Association. Numerous other groups have recognized the potential benefits of universal vaccination of the entire adolescent and young-adult population.

HIV (AIDS Virus)

The Acquired Immunodeficiency Syndrome (AIDS) is caused by the human immunodeficiency virus (HIV), which infects cells of the immune system and other tissues, such as the brain. Some of those infected with HIV will remain asymptomatic for many years. Others will more rapidly develop manifestations of HIV disease (i.e., AIDS). Some experts believe virtually all persons infected with HIV eventually will develop AIDS and that AIDS is uniformly fatal. In the United States, adolescents are at special risk for HIV infection. This age group is one of the fastest growing groups of new HIV infections. Approximately, 14 percent of all new HIV infections occur in persons aged between 12-24 years. The risk of infection is

increased by having unprotected sexual intercourse, as well as the sharing of IV needles in any form. Like HBV, there is evidence that suggests that HIV has been transmitted in household-contact settings without sexual contact or IV needle sharing among those household contacts[5,6]. Similar to HBV, these rare instances probably occurred through unrecognized wound or mucous membrane exposure.

Comparison of HBV/HIV

Hepatitis B is a much more "sturdy/durable" virus than HIV and is much more concentrated in blood. HBV has a much more likely transmission with exposure to infected blood; particularly parenteral (needle-stick) exposure, but also exposure to open wounds and mucous membranes. There has been one well-documented case of transmission of HBV in the athletics setting, among sumo wrestlers in Japan. There are no validated cases of HIV transmission in the athletics setting. The risk of transmission for either HBV or HIV on the field is considered minimal; however, most experts agree that the specific epidemiologic and biologic characteristics of the HBV virus make it a realistic concern for transmission in sports with sustained close physical contact, such as wrestling. HBV is considered to have a potentially higher risk of transmission than HIV.

Testing of Student-Athletes

Routine mandatory testing of student-athletes for either HBV or HIV for participation purposes is not recommended. Individuals who desire voluntary testing based on personal reasons and risk factors, however, should be assisted in obtaining such services by appropriate campus or public-health officials.

Student-athletes who engage in high-risk behavior are encouraged to seek counseling and testing. Knowledge of one's HBV and HIV infection is helpful for a variety of reasons, including the availability of potentially effective therapy for asymptomatic patients, as well as modification of behavior, which can prevent transmission of the virus to others. Appropriate counseling regarding exercise and sports participation also can be accomplished.

Participation by the Student-Athlete with Hepatitis B (HBV) Infection

Individual's Health—In general, acute HBV should be viewed just as other viral infections. Decisions regarding ability to play are made according to clinical signs and symptoms, such as fatigue or fever. There is no evidence that intense, highly competitive training is a problem for the asymptomatic HBV carrier (acute or chronic) without evidence of organ impairment. Therefore, the simple presence of HBV infection does not mandate removal from play.

Disease Transmission—The student-athlete with either acute or chronic HBV infection presents very limited risk of disease transmission in most sports. However, the HBV carrier presents a more distinct transmission risk than the HIV carrier (see previous discussion of comparison of HBV to HIV) in sports with higher potential for blood exposure and sustained close body contact. Within the NCAA, wrestling is the sport that best fits this description.

The specific epidemiologic and biologic characteristics of hepatitis B virus form the basis for the following recommendation: If a student-athlete develops acute HBV illness, it is prudent to consider removal of the individual from combative, sustained close-contact sports (e.g., wrestling) until loss of infectivity is known. (The best marker for infectivity is the HBV antigen, which may persist up to 20 weeks in the acute stage). Student-athletes in such sports who develop chronic HBV infections (especially those who are e-

antigen positive) should probably be removed from competition indefinitely, due to the small but realistic risk of transmitting HBV to other student-athletes.

Participation of the Student-Athlete with HIV

Individual's Health—In general, the decision to allow an HIV positive student-athlete to participate in intercollegiate athletics should be made on the basis of the individual's health status. If the student-athlete is asymptomatic and without evidence of deficiencies in immunologic function, then the presence of HIV infection in and of itself does not mandate removal from play.

The team physician must be knowledgeable in the issues surrounding the management of HIV-infected student-athletes. HIV must be recognized as a potentially chronic disease, frequently affording the affected individual many years of excellent health and productive life during its natural history. During this period of preserved health, the team physician may be involved in a series of complex issues surrounding the advisability of continued exercise and athletics competition.

The decision to advise continued athletics competition should involve the student-athlete, the student-athlete's personal physician and the team physician. Variables to be considered in reaching the decision include the student-athlete's current state of health and the status of his/her HIV infection, the nature and intensity of his/her training, and potential contribution of stress from athletics competition to deterioration of his/her health status.

There is no evidence that exercise and training of moderate intensity is harmful to the health of HIV-infected individuals. What little data that exists on the effects of intense training on the HIV-infected individual demonstrates no evidence of health risk. However, there is no data looking at the effects of long-term intense training and competition at an elite, highly competitive level on the health of the HIV-infected student-athlete.

Disease Transmission—Concerns of transmission in athletics revolve around exposure to contaminated blood through open wounds or mucous membranes. Precise risk of such transmission is impossible to calculate but epidemiologic and biologic evidence suggests that it is extremely low (see section on comparison of HBV/HIV). There have been no validated reports of transmission of HIV in the athletics setting[3,13] Therefore, there is no recommended restriction of student-athletes merely because they are infected with HIV, although one court has upheld the exclusion of an HIV-positive athlete from the contact sport of karate.[19]

Administrative Issues

The identity of individuals infected with a blood-borne pathogen must remain confidential. Only those persons in whom the infected student-athlete chooses to confide





have a right to know about this aspect of the student-athletes medical history. This confidentiality must be respected in every case and at all times by all college officials, including coaches, unless the student-athlete chooses to make the fact public.

Athletics Health-Care Responsibilities

The following recommendations are designed to further minimize risk of blood-borne pathogens and other potentially infectious organisms transmission in the context of athletics events and to provide treatment guidelines for caregivers. In the past, these guidelines were referred to as "Universal (blood and body fluid) Precautions." Over time, the recognition of "Body Substance Isolation," or that infectious diseases may also be transmitted from moist body substances, has led to a blending of terms now referred to as "Standard Precautions." Standard precautions, applies to blood, body fluids, secretions and excretions except sweat, regardless of whether or not they contain visible blood. These guidelines, originally developed for health-care, have additions or modifications relevant to athletics. They are divided into two sections; the care of the student-athlete, and cleaning and disinfection of environmental surfaces.

Care of the Athlete:

1. All personnel involved in sports who care for injured or bleeding student-athletes should be properly trained in first aid, and standard precautions.

2. Assemble and maintain equipment and/or supplies for treating injured/bleeding athletes. Items may include: Personal Protective Equipment (PPE) [minimal protection includes gloves; goggles, mask, fluid resistant gown if chance of splash or splatter]; antiseptics; antimicrobial wipes; bandages or dressings; medical equipment needed for treatment; appropriately labeled "sharps" container for disposal of needles, syringes, scalpels; and waste receptacles appropriate for soiled equipment, uniforms, towels and other waste.

3. Pre-event preparation includes proper care for wounds, abrasions, or cuts that may serve as a source of bleeding or as a port of entry for blood-borne pathogens or other potentially infectious organisms. These wounds should be covered with an occlusive dressing that will withstand the demands of competition. Likewise, care providers with healing wounds or dermatitis should have these areas adequately covered to prevent transmission to or from a participant. Student-athletes may be advised to wear more protective equipment on high-risk areas, such as elbows and hands.

4. The necessary equipment and/or supplies important for compliance with universal precautions should be available to caregivers. These supplies include appropriate gloves, disinfectant bleach, antiseptics, designated receptacles for soiled equipment and uniforms, bandages and/or dressings and a container for appropriate disposal of needles, syringes or scalpels.

5. When a student-athlete is bleeding, the bleeding must be stopped and the open wound covered with a dressing sturdy enough to withstand the demands of activity before the student-athlete may continue participation in practice or competition. Current NCAA policy mandates the immediate, aggressive treatment of open wounds or skin lesions that are deemed potential risks for transmission of disease. Participants with active bleeding should be removed from the event as soon as is practical. Return to play is determined by appropriate medical staff personnel and/or sport officials. Any participant whose uniform is saturated with blood must change their uniform before return to participation.

6. During an event, early recognition of uncontrolled bleeding is the responsibility of officials, student-

athletes, coaches and medical personnel. In particular, student-athletes should be aware of their responsibility to report a bleeding wound to the proper medical personnel.

7. Personnel managing an acute blood exposure must follow the guidelines for universal precaution. Gloves and other PPE if necessary should be worn for direct contact with blood or other body fluids. Gloves should be changed after treating each individual participant. After removing gloves, hands should be washed.

8. If blood or body fluids are transferred from an injured or bleeding student-athlete to the intact skin of another athlete, the event must be stopped, the skin cleaned with antimicrobials wipes to remove gross contaminate, and the athlete instructed to wash with soap and water as soon as possible. NOTE: Chemical germicides intended for use on environmental surfaces should never be used on student-athletes.

9. Any needles, syringes, or scalpels should be carefully disposed of in an appropriately labeled "sharps" container. Medical equipment, bandages, dressings, and other waste should be disposed of according to facility protocol. During events, uniforms or other contaminated linens should be disposed of in a designated container to prevent contamination of other items or personnel. At the end of competition, the linen should be laundered and dried according to facility protocol; hot-water at temperatures of 71°C (160°F) for 25 minutes cycles may be used.

Care of Environmental Surfaces:

1. All individuals responsible for cleaning and disinfection of blood spills or other potentially infectious materials (OPIM) should be properly trained on procedures and the use of standard precautions.

2. Assemble and maintain supplies for cleaning and disinfection of hard surfaces contaminated by blood or OPIM. Items include: Disposable gloves (PPE) [goggles, mask, fluid resistant gown if chance of splash or splatter]; supply of absorbent paper towels or disposable cloths; red plastic bag with the biohazard symbol on it or other waste receptacle according to facility protocol, properly diluted tuberculocidal disinfectant or freshly prepared bleach solution diluted (1:10 bleach/water ratio).

3. Put on disposable gloves.

4. Remove visible organic material by covering with paper towels or disposable cloths. Place soiled towels or cloths in red bag or other waste receptacle according to facility protocol. (Use additional towels or cloths to remove as much organic material as possible from the surface and place in the waste receptacle.)

5. Spray the surface with a properly diluted chemical germicide used according to manufacturer's label recommendations for disinfection, and wipe clean. Place soiled towels in waste receptacle.

6. Spray the surface with either a properly diluted tuberculocidal chemical germicide or a freshly prepared bleach solution diluted 1:10, and follow manufacturer's label directions for disinfection; wipe clean. Place towels in waste receptacle.

7. Remove gloves and wash hands.

8. Dispose of waste according to facility protocol.

Final Notes:

1. All personnel responsible for caring for bleeding individuals should be encouraged to obtain a Hepatitis B (HBV) vaccination.

2. Latex allergies should be considered. Non-latex gloves may be used for treating student-athletes and the cleaning and disinfection of environmental surfaces.

3. Occupational Safety and Health

Administration (OSHA) standards for Bloodborne Pathogens (Standard #29 CFR 1910.1030) and Hazard Communication (Standard #29 CFR 1910.1200) should be reviewed for further information.

Member institutions should ensure that policies exist for orientation and education of all health-care workers on the prevention and transmission of blood-borne pathogens. Additionally, in 1992, the Occupational Safety and Health Administration (OSHA) developed a standard directed to eliminating or minimizing occupational exposure to blood-borne pathogens. Many of the recommendations included in this guideline are part of the standard. Each member institution should determine the applicability of the OSHA standard to its personnel and facilities.

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GUIDELINE 2m

The Use of Local Anesthetics in College Athletics

June 1992 • Revised June 2004

The use of local injectable anesthetics to treat sports-related injuries in college athletics is primarily left to the discretion of the individual treating physician, since there is little scientific research on the subject. This guideline provides basic recommendations for the use of these substances, which commonly include lidocaine (Xylocaine), one or two percent; bupivacaine (Marcaine), 0.25 to 0.50 percent; and mepivacaine (Carbocaine), three percent. The following recommendations do not include the use of corticosteroids.

It is recommended that:

1. These agents should be administered only by a qualified clinician who is licensed to perform this procedure and who is familiar with these agents' actions, reactions, interactions and complications. The treating clinician should be well aware of the quantity of these agents that can be safely injected.

2. These agents should only be administered in facilities equipped to handle any allergic reaction including a cardiopulmonary emergency that may follow their use.

3. These agents should only be administered when medically justified, when the risk of administration is fully explained to the patient, when the use is not harmful to continued athletics activity and when there is no enhancement of a risk of injury.

The following procedures are not recommended:

1. The use of local anesthetic injections if they jeopardize the ability of the student-athlete to protect himself or herself from injury.

2. The administration of these drugs by anyone other than a qualified clinician licensed to perform this procedure.

3. The use of these drugs in combination with epinephrine or other vasoconstrictor agents in fingers, toes, earlobes, and other areas where a decrease in circulation, even if only temporary, could result in significant harm.



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GUIDELINE 2n

The Use of Injectable Corticosteroids in Sports Injuries

June 1992 • Revised June 2004

Corticosteroids, alone or in combination with local anesthetics, have been used for many years to treat certain sports-related injuries. This guideline is an attempt to identify specific circumstances in which corticosteroids may be appropriate and also to remind both physicians and student-athletes of the inherent dangers associated with their use.

The most common reason for the use of corticosteroids in athletics is the treatment of chronic overuse syndromes such as bursitis, tenosynovitis, and muscle origin pain (for example, lateral epicondylitis). They have also been used to try to prevent redevelopment of a ganglion, and to reduce keloid scar formation. Rarely is it appropriate to treat acute syndromes such as acromio-clavicular (AC) joint separations or hip pointers with a corticosteroid.

There is still much to be learned about the effects of intra-articular, intraligamentous or intratendinous injection of corticosteroids. Researchers have noted reduced synthesis of articular cartilage after corticosteroid administration in both animals and human models. However, a causal relationship between the intra-articular corticosteroid and degeneration of articular cartilage has not been established. Research also has shown that a single intraligamentous or multiple intra-articular injections have the potential to cause significant and long-lasting deterioration in the mechanical properties of ligaments and collagenous tissues in animal models. Finally, studies have shown significant degenerative changes in active animal tendons treated with a corticosteroid as early as 48 hours after injection.

This research provides the basis for the following recommendations regarding the administration of corticosteroids in college athletics.

It is recommended that:

1. Injectable corticosteroids should be administered only after more conservative treatments, including nonsteroidal anti-inflammatory



agents, rest, ice, ultrasound and various treatment modalities, have been exhausted.

2. Only those physicians who are knowledgeable about the chemical makeup, dosage, onset of action, duration and potential toxicity of these agents should administer corticosteroids.

3. These agents should be administered only in facilities which are equipped to deal with allergic reactions including cardiopulmonary emergencies.

4. Repeated corticosteroid injections at a specific site should be done only after the consequences and benefits of the injections have been thoroughly evaluated.

5. Corticosteroid injections only should be done if a therapeutic effect is medically warranted and the student-athlete is not subject to either short- or long-term significant risk.

6. These agents should only be administered when medically justified, when the risk of administration is fully explained to the patient, when the use is not harmful to continued athletics activity and when there is no enhancement of a risk of injury.

The following procedures are not recommended:

1. Intra-articular injections, particularly in major weight-bearing joints. Intra-articular injections have a potential softening effect on articular cartilage.

2. Intratendinous injections, since such injections have been associated with an increased risk of rupture.

3. Administration of injected corticosteroids immediately before a competition.

4. Administration of corticosteroids in acute trauma.

5. Administration of corticosteroids in infection.

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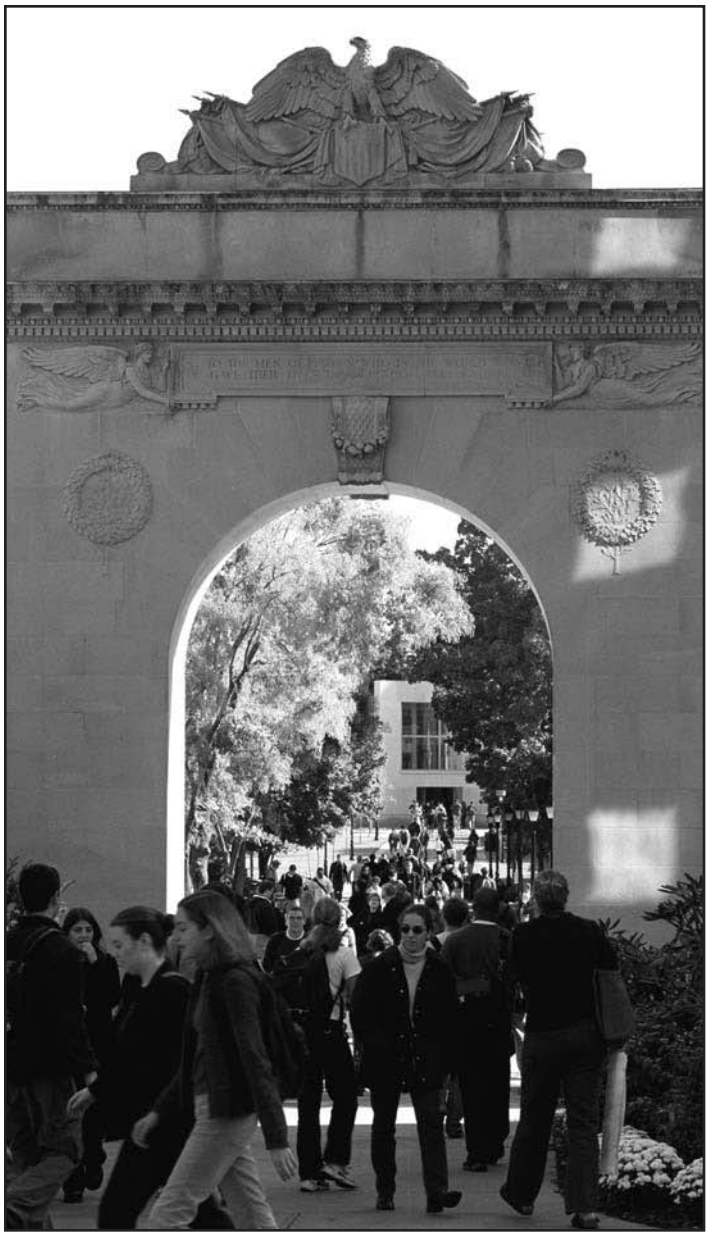
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GUIDELINE 3a

Participation by the Student-Athlete with Impairment

January 1976 • Revised August 2004

In accordance with the recommendations of major medical organizations and pursuant to the requirements of federal law (in particular, the Rehabilitation Act of 1976 and The Americans With Disabilities Act), the NCAA encourages participation by student-athletes with physical or mental impairments in intercollegiate athletics and physical activities to the full extent of their interests and abilities. It is imperative that the university's sports medicine personnel assess an impaired student-athlete's medical needs and specific limitations on an individualized basis so that needless restrictions will be avoided and medical precautions will be taken to minimize any enhanced risk of harm to the student-athlete or others from participation in the subject sport.

A student-athlete with impairment should be given an opportunity to participate in an intercollegiate sport if he or she has the requisite abilities and skills in spite of his or her impairment, with or without a reasonable accommodation. Medical exclusion of an impaired student-athlete from an athletics program should occur only when a mental or physical impairment presents a significant risk of substantial harm to the health or safety of the student-athlete and/or other participants that cannot be eliminated or reduced by reasonable accommodations. Recent judicial decisions have upheld a university's legal right to exclude an impaired student-athlete from competition if the team physician has a reasonable medical basis for determining that athletic competition creates a significant risk of harm to the student-athlete or others. When student-athletes with impairments not otherwise qualified to participate in existing athletics programs are identified, every means should be explored by member institutions to provide suitable sport and recreational programs in the most appropriate, integrated settings possible to meet their interests and abilities..

Participation Considerations

Before allowing any student-athlete with an impairment to participate in an athletics program, it is recommended that an institution require joint approval from the physician most familiar with the student-athlete's condition, the team physician, and an appropriate official of the institution as well as his or her parent(s) or guardian. The following factors should be considered on an individualized basis in determining whether he or she should participate in a particular sport:

1. Available published information regarding the medical risks of participation in the sport with the athlete's mental or physical impairment;

2. The current health status of the student-athlete;

3. The physical demands of the sport and position(s) that the student-athlete will play;

4. Availability of acceptable protective equipment or measures to reduce effectively the risk of harm to the student-athlete or others; and

5. The ability of the student-athlete (and, in the case of a minor, the parents or guardian) to fully understand the material risks of athletic participation.

Organ Absence or Non-function

When the absence or non-function of a paired organ constitutes the impairment, the following specific issues need to be addressed with the student-athlete and his/her parents or guardian (in the case of a minor). The following factors should be considered:

1. The quality and function of the remaining organ;

2. The probability of injury to the remaining organ; and

3. The availability of current protective equipment and the likely effectiveness of such equipment to prevent injury to the remaining organ.

Medical Release

When a student-athlete with impairment is allowed to compete in the intercollegiate athletics program, it is recommended that a properly executed document of understanding and a waiver release the institution for any legal liability for injury or death arising out of the student-athlete's participation with his or her mental or physical impairment medical condition. The following parties should sign this document: the student-athlete, his or her parents/guardians, the team physician and any consulting physician, a representative of the institution's athletics department, and the institutution's legal counsel. This document evidences the student-athlete's understanding of his or her medical condition and the potential risks of athletic participation, but it may not immunize the institution from legal liability for injury to the student-athlete.



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GUIDELINE 3b

Participation by the Pregnant Student-Athlete

January 1986 • Revised June 2002

The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports acknowledges the significant input of Dr. James Clapp, FACSM, in the revision of this guideline.

Assessing the risk of intense, strenuous physical activity in the pregnant student-athlete is difficult since there are no studies that have specifically addressed this topic. The American College of Obstetrics and Gynecology (ACOG) has recommended that following a thorough clinical evaluation, healthy pregnant women should be encouraged to engage in regular, moderate intensity physical activities. Women who exercise during pregnancy have improved cardiovascular function, limited weight gain and fat retention, improved attitude and mental state, easier and less complicated labor, and enhanced postpartum recovery. There has not been shown to be a greater risk of spontaneous abortion.

The fetus benefits from exercise during pregnancy in several ways; including an increased tolerance for the physiologic stresses of late pregnancy, labor and delivery. The baby tends to be more alert, less fussy, and may have increased cognitive function.

The safety to participate in each sport must be dictated by the movements and physical demands required to compete in that sport. Exercise in the supine position after the first trimester has been reported to result in relative obstruction of venous return and orthostatic hypotension. ACOG has recommended that pregnant women avoid supine positions during exercise as much as possible. The American College of Sports Medicine discourages heavy weight lifting or similar activities that require straining or valsalva.

High intensity exercise required for competition in nearly all sports has not been well studied and may increase fetal risk. Many medical experts recommend that women avoid participating in competitive contact sports after the 14th week of pregnancy. While direct fetal injury with abdominal trauma after the 14th week has not been documented in athletics competition, indirect support for this risk comes from documented fetal injury from falls and car accidents. Athletics activities associated with a high risk of falling should be avoided during pregnancy. Pregnant student-athletes who participate in non-contact endurance sports should consider participating at a non-competitive level.

Women who have medical conditions that place their pregnancies at high risk for complications should avoid physical activity until consultation with their obstetrician. Examples of these medical conditions include but are not limited to poorly controlled diabetes or hypertension, multiple gestation at risk for pre-term labor, pre-eclampsia, and cervical defects that increase the risk of a spontaneous abortion or pre-term labor.

The risks and benefits of athletics participation should be one of the objectives for the team physician in counseling the pregnant student-athlete. This includes the effects of pregnancy on competitive ability, the effects of strenuous physical training and competition on both the pregnant student-athlete and the fetus, and the warning signs to terminate exercise while pregnant. (Figure 1) The student-athlete should be informed that NCAA rules permit a one-year extension of the five-year period of eligibility for a female student-athlete for reasons of pregnancy.

If the student-athlete decides to compete, it is recommended that documentation outlining the student-athlete's medical condition, the potential risks of athletics participation during pregnancy, and

the student-athlete's understanding of these risks of participation to her and her baby be included in the student-athlete's medical record. This should be in the form of signed informed consent. It also is recommended that an institution obtain approval from the physician most familiar with the pregnant student-athlete's condition, the team physician and an appropriate official of the institution. These student-athletes may require close obstetric supervision. Following delivery or pregnancy termination, medical clearance is required to ensure the student-athlete's safe return to athletics. (See Follow-up or Exit Examination section of the Guideline 1b).

Figure No. 1
Warning Signs to Terminate Exercise While Pregnant

Vaginal Bleeding
Shortness of Breath Prior to Exercise
Dizziness
Headache
Chest Pain
Calf Pain or Swelling
Pre-term Labor
Decreased Fetal Movement
Amniotic Fluid Leakage
Muscle Weakness

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GUIDELINE 3c

The Student-Athlete with Sickle Cell Trait

October 1975 • Revised June 2001

Sickle cell trait is not in itself a disease. It is a descriptive term for a hereditary condition in which an individual has one normal gene for hemoglobin (A) and one abnormal gene for hemoglobin (S), giving the genetic type (AS). Sickle cell trait condition (AS) is not the same as sickle cell anemia disease (SS), in which two abnormal genes are present. Approximately eight to 10 percent of the U.S. black population has sickle cell trait, while less than one percent exhibit sickle cell anemia. Sickle cell trait is found in nonblack athletes as well as black athletes, although, in a much lower frequency. It is present in athletes at all levels of competition, including professional and Olympic. Sickle cell trait is not a barrier to outstanding athletics performance.

In general, sickle cell trait is a benign condition that does not affect the longevity of the individual. Persons who carry only the sickle cell trait do not have the associated anemia. Two situations that have not been found to affect the morbidity, mortality or athletics performance of people with sickle cell trait are:

1. Hyposthenuria (inability to concentrate urine normally); and

2. Hematuria.

However, the sickle cell trait has been linked definitively to splenic infarction with cases apparently more frequent in nonblacks. This situation typically occurs at altitude (usually greater than 5,000 feet), although a case has been described near sea level. Signs and symptoms of a splenic infarction include sudden acute pain in the lower ribs, weakness and nausea. It appears that strenuous physical exertion after a recent arrival at altitude is a common theme. Although there are more than two million people in the United States with sickle cell trait, only a few cases of splenic infarction are reported each year.

It has been suggested that the sickle cell trait is linked to two other medical problems that may elicit health and performance concerns. These include:

1. Exercise-related rhabdomyolysis; and

2. Exercise-associated sudden death.

Several anecdotal cases of exercise-related rhabdomyolysis (fatal and nonfatal) in athletes with sickle cell trait have been reported. However, exercise-related rhabdomyolysis also has been reported in nonsickle cell trait athletes. At this time, no direct causal evidence has been shown and the relationship is unclear.

There is a controversy in the medical literature concerning whether sickle cell trait increases the risk of exercise-associated sudden death. One study from a large population of recruits undergoing military basic training indicated a possible association of increased sudden unexplained deaths (heat injuries, rhabdomyolysis and sudden cardiac arrythmia) in black recruits with sickle cell trait. There have been no studies concerning athletes.

Acknowledging that no sports medicine body currently suggests any restrictions for the athlete with sickle cell trait, the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports has determined that the following points be considered by athletics health-care providers:

1. Team physicians and athletic trainers should familiarize themselves with the medical literature concerning sickle cell trait;

2. Serious medical problems associated with the sickle cell trait are rare even during athletics competition. No unwarranted restrictions or limitations should

be placed on the student-athlete with sickle cell trait;

3. If screening is done, it should be done on a voluntary basis with the informed consent of the student-athlete and should be offered to all student-athletes, since sickle cell trait is found in both black and nonblack individuals. If a test is positive, the student-athlete should be offered genetics counseling for concerns such as family planning, and an explanation of a possibly remote and unclear risk involved with physical exertion and altitude. This consultation should be documented in the student-athlete's medical record; and

4. All student-athletes, including those with known sickle cell trait, should be counseled to:

a. Avoid dehydration and acclimatize gradually to heat and humidity;

b. Condition carefully and gradually for several weeks before engaging in exhaustive exercise regimens;

c. Acclimate to altitude over an appropriate amount of time; and

d. Refrain from extreme exercise during acute illness, especially one involving fever.

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GUIDELINE 4a

Protective Equipment

June 1983 • Revised June 2002

Rules governing mandatory equipment and equipment use vary by sport. Athletics personnel should be familiar with what equipment is mandatory by rule and what constitutes illegal equipment; how to wear mandatory equipment during the contest, and when to notify the coaching staff that the equipment has become illegal during competition. Athletics personnel involved in sports with established equipment standards should adhere to those standards.

The NOCSAE mark on a helmet or HECC seal on an ice hockey face mask indicates that the equipment has been tested by the manufacturer in accordance with NOCSAE or HECC test standards. By keeping a proper fit, by not modifying its design, and by reporting to the coach or equipment manager any need for its maintenance, the student-athlete also is complying with the purpose of the standard.

The following list of mandatory equipment and rules regarding protective equipment use is based on NCAA sports rules. The most updated information should be obtained from relevant NCAA sports committees.

Sport	Mandatory Protective Equipment*	Rules Governing Special Protective Equipment
1. Baseball	**1.** A double ear-flap protective helmet while batting, on deck and running bases. Helmets must carry the NOCSAE mark. **2.** All catchers must have a built-in or attachable throat guard on their masks. **3.** All catchers are required to wear a protective helmet when fielding their position.	None
2. Basketball	None	Elbow, hand, finger, wrist or forearm guards, casts or braces made of fiberglass, plaster, metal or any other nonpliable substance shall be prohibited. Pliable (flexible or easily bent) material covered on all exterior sides and edges with no less than 0.5 inch thickness of a slow-rebounding foam shall be used to immobilize and/or protect an injury. The prohibition of the use of hard-substance material

Sport	Mandatory Protective Equipment*	Rules Governing Special Protective Equipment
Basketball (continued)		does not apply to the upper arm, shoulder, thigh or lower leg if the material is padded so as not to create a hazard for other players. Equipment that could cut or cause an injury to another player is prohibited, without respect to whether the equipment is hard. Equipment that, in the referee's judgment, is dangerous to other players, may not be worn.
3. Fencing	**1.** Masks with meshes (space between the wires) of maximum 2.1 mm and from wires with a minimum gauge of 1 mm diameter. **2.** Gloves, of which the gauntlet must fully cover approximately half the forearm of the competitor's sword arm. **3.** Jacket or vest and metallic lames. **4.** Ladies' chest protectors made of metal or some other rigid material. **5.** Underarm protector.	
4. Field Hockey	**1.** The following equipment is permitted for use only by goalkeepers: body and wrap-around throat protectors, pads, kickers, gauntlet gloves, helmet incorporating fixed full-face protection and cover for the head and elbow pads. **2.** Mouthguards for all players including goalkeepers. **3.** Wrap-around throat protector and helmet for player designated as a "kicking back." In the event of a defensive penalty corner, the "kicking back" must also wear a chest protector and distinguishing jersey.	Players shall not wear anything that may be dangerous to other players. Players have the option of wearing soft headgear subject to game official approval.

Sport	Mandatory Protective Equipment*	Rules Governing Special Protective Equipment
5. Football	**1.** Soft knee pads at least ½-inch thick must cover the knees and be covered by pants. No pads or protective equipment may be worn outside the pants. **2.** Face masks and helmets with a secured four- or six-point chin strap. All players shall wear helmets that carry a warning label regarding the risk of injury and a manufacturer's or reconditioner's certification indicating satisfaction of NOCSAE test standards. **3.** Shoulder pads, hip pads with tailbone protectors and thigh guards. **4.** An intra-oral mouthpiece of any readily visible color (not white or transparent) with FDA-approved base materials (FDCS) that covers all upper teeth. It is recommended that the mouthpiece be properly fitted.	Illegal equipment includes the following: **1.** Equipment worn by a player, including artificial limbs, that would endanger other players. **2.** Hard, abrasive or unyielding substances on the hand, wrist, forearm or elbow of any player, unless covered on all exterior sides and edges with closed-cell, slow-recovery foam padding no less than ½-inch thick, or an alternate material of the same minimum thickness and similar physical properties. Hard or unyielding substances are permitted, if covered, only to protect an injury. Hand and arm protectors (covered casts or splints) are permitted only to protect a fracture or dislocation. **3.** Thigh guards of any hard substances, unless all surfaces are covered with material such as closed-cell vinyl foam that is at least ¼-inch thick on the outside surface and at least ⅜-inch thick on the inside surface and the overlaps of the edges; shin guards not covered on both sides and all edges with closed-cell, slow-recovery foam padding at least ½-inch thick, or an alternate material of the same minimum thickness having similar physical properties; and therapeutic or preventive knee braces, unless worn under the pants and entirely covered from direct external exposure.



Sport	Mandatory Protective Equipment*	Rules Governing Special Protective Equipment
Football (continued)		**4.** Projection of metal or other hard substance from a player's person or clothing.
6. Gymnastics	None	None
7. Ice Hockey	**1.** Helmet with chin straps securely fastened. It is recommended that the helmet meet HECC standards. **2.** An intra-oral mouthpiece that covers all the upper teeth. **3.** Face masks that have met the standards established by the HECC-ASTM F 513-89 Eye and Face Protective Equipment for Hockey Players Standard.	**1.** The use of pads or protectors made of metal or any other material likely to cause injury to a player is prohibited. **2.** The use of any protective equipment that is not injurious to the player wearing it or other players is recommended. **3.** Jewelry is not allowed, except for religious or medical medals, which must be taped to the body.
8. Women's Lacrosse	**1.** The goalkeeper must wear a helmet with face mask, seperate throat protector, a mouth piece, a chest protector. **2.** All field players shall wear properly an intra-oral mouthpiece that covers all upper teeth. **3.** All field players shall wear protective eyewear that meet current ASTM lacrosse standards (effective January 1, 2005).	Protective devices necessitated on genuine medical grounds must be approved by the umpires. Close-fitting gloves, nose guards, eye guards and soft headgear may be worn by all players. These devices must create no danger to other players.
9. Men's Lacrosse	**1.** Protective helmet that carries the NOCSAE mark, equipped with face mask and chin pad, with a cupped four-point chin strap (high-point hookup). **2.** Intra-oral mouthpiece that covers all the upper teeth and is yellow or any other highly visible color. **3.** Protective gloves, shoulder pads, shoes and jerseys. Shoulder pads shall not be altered. **4.** Throat protector and chest protector are required for the goalie.	**1.** A player shall not wear any equipment that, in the opinion of the official, endangers the individual or others. **2.** The special equipment worn by the goalkeeper shall not exceed standard equipment for a field-player, plus standard goalkeeper equipment, which includes shin-guards, chest protectors and throat protectors.

Sport	Mandatory Protective Equipment*	Rules Governing Special Protective Equipment
10. Rifle	Shooters and range personnel in the immediate vicinity of the range required to wear hearing protection during smallbore. Shooters urged to wear shatterproof eye protection.	None
11. Soccer	Players shall wear shin guards under the stockings in the manner intended. The shin guards shall be professionally manufactured, age and size appropriate and not altered to decrease protection.	**1.** A player shall not wear anything that is dangerous to another player. **2.** Knee braces are permissible provided no metal is exposed. **3.** Casts are permitted if covered and not considered dangerous. **4.** A player shall not wear any jewelry, including earrings, chains, charms, watches, hair clips, bobby pins, tongue studs or items associated with piercing (visible or not visible). Exception: Medical alert bracelets or necklaces may be worn but must be taped to the body.
12. Skiing	Giant slalom racers must wear helmets designed for ski racing.	None
13. Softball	**1.** Catchers must wear foot-to-knee shinguards; NOCSAE approved protective helmet with face mask and built-in or attachable throat guard; and chest protector. **2.** A NOCSAE approved double-ear flap protective helmet must be worn by players while batting, running the bases or warming-up in the on-deck circle.	Casts, braces, splints and protheses must be well-padded to protect both the player and opponent and must be neutral in color. If worn by pitcher, cannot be distracting on nonpitching arm. If worn on pitching arm, may not cause safety risk or unfair competitive advantage.
14. Swimming and Diving	None	None

Sport	Mandatory Protective Equipment*	Rules Governing Special Protective Equipment
15. Track and Field	None	**1.** No taping of any part of the hand, thumb or fingers will be permitted in the discus and javelin throws, and the shot put, except to cover or protect an open wound. In the hammer throw, taping of individual fingers is permissible. Any taping must be shown to the head event judge before the event starts. **2.** In the pole vault, the use of a forearm cover to prevent injuries is permissible.
16. Volleyball	None	**1.** It is forbidden to wear any object that may cause an injury or give an artificial advantage to the player, including but not limited to headgear, jewelry and unsafe casts or braces. Religious medallions or medical identifications must be removed from chains and taped or sewn under the uniform. **2.** All jewelry must be removed. Earrings must be removed. Taping of earrings or other jewelry is not permitted. **3.** Hard splints or other potentially dangerous protective devices worn on the arms or hands are prohibited, unless padded on all sides with at least 1/2 inch thick of slow rebounding foam.
17. Water Polo	Cap with protective ear guards.	None
18. Wrestling	Protective ear guard.	**1.** Anything that does not allow normal movement of the joints and prevents one's opponent from applying normal holds shall be barred. **2.** Any legal device that is hard and abrasive must be covered and padded. Loose pads are prohibited. It is recommended that all wrestlers wear a protective mouth guard. **3.** Jewelry is not allowed.

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GUIDELINE 4b

Eye Safety in Sports

January 1975 • Revised August 2001

Eye injuries in sports are relatively frequent, sometimes catastrophic, and almost completely preventable with the use of appropriate protective devices. A sports eye protector may be a spectacle, a goggle, a face-supported protector, or a protector attached to a helmet. It comes with or without lenses, is capable of being held securely in place, and may protect the face as well as the eyes. Some forms can be worn over regular glasses. Sports eye protectors are specially designed, fracture-resistant units that comply with the American Society for Testing and Materials (ASTM), or the National Operating Committee on Standards for Athletic Equipment (NOCSAE) standards for specific sports.

Approximately one-third of all persons participating in sports require corrective lenses to achieve the visual acuity necessary for proper and safe execution of their particular sports activity. Athletes who need corrective eyewear for participation should use lenses and frames that meet the appropriate safety standards. At this time polycarbonate plastic is the only clear lens material that has been tested for sports and is recommended for all sports with the potential for impact. Other impact resistant lens materials may be available in the near future. Contact lenses are not capable of protecting the eye from direct blows. Student-athletes who wear contact lenses for corrective vision should wear appropriate sports safety eyewear for ocular protection.

The American Academy of Opthalmology recommends that head, face and eye protection should be certified by either the Protective Eyewear Certification Council (PECC http://www.protecteyes.org/), the Hockey Equipment Certification Council (HECC http://www.hecc-hockey.org/), the National Operating Committee on Standards for Athletic Equipment (NOCSAE http://www.nocsae.org/), or the Canadian Standards Association (CSA http://www.csa-international.org/). The cited Web sites will have more specific information on these standards. Certification ensures that the protective device has been properly tested to current standards.

Protective eyewear should be considered for all sports that have a projectile object (ball/stick) whose size and/or speed could potentially cause ocular damage. Eye protection is especially important for functionally one-eyed sports participants (whose best corrected vision in their weaker eye is 20/40 or worse). Eye protection devices are designed to significantly reduce the risk of injury, but can never provide a guarantee against such injuries.

Summary

1. Appropriate for eye protection in sports:

a. Safety sports eyewear that conforms to the requirements of the American Society for Testing and Materials (ASTM) Standard F803 for selected sports (racket sports, basketball, women's lacrosse, and field hockey).

b. Sports eyewear that is attached to a helmet or is designed for sports for which ASTM F803 eyewear alone provides insufficient protection. Those for which there are standard specifications include: skiing (ASTM 659), and ice hockey (ASTM F513). Other protectors with NOCSAE standards are available for football and men's lacrosse.

2. Not appropriate for eye protection in sports:

a. Streetwear (fashion) spectacles that conform to the requirements of American National Standards Institute (ANSI) Standard Z80.3.

b. Safety eyewear that conforms to the requirements of ANSI Z87.1, mandated by OSHA for industrial and educational safety eyewear.



References

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2. *Napier SM, Baker RS, Sanford DG, et al.: Eye Injuries in Athletics and Recreation. Survey of Opthalmology. 41:229-244, 1996.*

3. *Vinger PF: The Eye and Sports Medicine.In Duane TD, Jaeger EA (eds): Clinical Ophthalmology, vol. 5, chapter 45, J.B. Lippincott, Philadelphia, PA 1994.*

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GUIDELINE 4c

Transparent Eye Shield Exception Procedure for Football

June 2005

If an institution wishes to request an exception to Football Rule 1-4-5-s so that a player(s) may legally wear a nontransparent eye shield, it is asked to take the following steps:

1. Please review the list of diagnoses that are likely to be not acceptable for an exception in the box to the right.

2. If you believe an exception is in order, please call Nicole Boles at the NCAA national office at 317/917-6222.

3. The NCAA will send the institution an exception request form, which the institution must complete in its entirety (including all necessary signatures).

4. Once the institution has completed all the necessary information, the institution must document the exception in the student-athlete's medical record and report the exception to the game officials at each game during which the eye shield will be worn.

5. The NCAA will notify the conference office of the institution. Exceptions should be granted only for the length of medical necessity and the season in which the request is made. Institutions must submit a request for each season in which the player(s) participates.

6. Upon completion, return the form and any additional pages by mail or fax to: Nicole Boles, Playing Rules Administration, NCAA, P.O. Box 6222, Indianapolis, Indiana 46206-6222. Fax: 317/917-6800.

Diagnoses Likely Not to be Acceptable for an Exception

- Concussion or symptoms suggestive of concussion
- Post-concussive syndrome
- Headache without approvable underlying condition
- Migraine headache without acceptable treatment documentation
- Photophobia without approvable underlying medical and/or ocular condition
- Dry eye or tear film insufficiency
- Tearing
- Anisocoria
- Conjunctivitis
- Blepharitis
- Contact lens wear or overwear

Transparent Eye Shield Exception Procedure for Football



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GUIDELINE 4d

Mouth Guards

January 1986 • Revised August 1999

The NCAA Committee on Competitive Safeguards and Medical Aspects of Sports acknowledges the significant input of Dr. Jack Winters, past president of the Academy of Sports Dentistry, in the revision of this guideline.

The NCAA has mandatory equipment rules, including the use of mouthguards for selective sports. Various studies of "properly fitted mouthguards" indicate that they may reduce dental injuries when blows to the jaws or head are received.

The American Dental Association has urged the mandatory use of mouth guards for those engaged in athletics activities that involve body contact and endorsed their use "in sporting activities where a significant risk of oral injury may occur." It is important when considering the optimum protection for an athlete that a thorough medical history be taken and the demands of his or her position and sporting activity be considered.

Specific objectives for the use of "properly fitted mouthguards" as protective devices in sports are as follows:

1. "Properly fitted mouthguards" could reduce the potential chipping of tooth enamel surfaces and reduce fractures of teeth, roots or bones.

2. "Properly fitted mouthguards" could protect the lip and cheek tissues from being impacted and lacerated against tooth edges.

3. "Properly fitted mouthguards" could reduce the incidence of a fractured jaw caused by a blow delivered to the chin or head.

4. "Properly fitted mouthguards" could provide protection to toothless spaces, so support is given to the missing dentition of the student-athlete.

Stock, mouth formed and custom-fitted are three types of mouthguards recognized by the American Dental Association. All need to be properly fitted for maximum protection. Student-athletes should be advised as to which "properly fitted mouthguard" is best for them and how it is best maintained to assure the maximum fit and protection for daily practices and game-day wear. Medical staff personnel should regularly oversee and observe the student-athletes and the "properly fitted mouthguards."

In order to realize fully the benefits of wearing a mouth guard, the coach, student-athlete and medical staff need to be educated about the protective functions of a mouth guard and the game rules regarding mouth guard use must be enforced.





References

1. *American Dental Association. (1999). "Your Smile with a Mouthguard." 211 East Chicago Avenue, Chicago, IL, 60611.*

2. *Academy for Sports Dentistry. "Position Statement: 'A Properly Fitted Mouthguard' Athletic Mouthguard Mandates." http://www.acadsportsdent.org.*

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4. *Stenger, J.M. (1964). "Mouthguards: Protection Against Shock to Head, Neck and Teeth." Journal of the American Dental Association. Vol. 69 (3). 273-281.*

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GUIDELINE 4e

Use of the Head as a Weapon in Football and Other Contact Sports

January 1976 • Revised June 2002

Head and neck injuries causing death, brain damage or paralysis occur each year in football and other sports. While the number of these injuries each year is relatively small, they are devastating occurrences that have a great impact. Most of these catastrophic injuries result from initiating contact with the head. The injuries may not be prevented due to the forces encountered during collisions, but they can be minimized by helmet manufacturers, coaches, players and officials complying with accepted safety standards and playing rules.

The American Football Coaches Association, emphasizing that the helmet is for the protection of the wearer and should not be used as a weapon, addresses this point as follows:

1. The helmet shall not be used as the brunt of contact in the teaching of blocking or tackling;

2. Self-propelled mechanical apparatuses shall not be used in the teaching of blocking and tackling; and

3. Greater emphasis by players, coaches and officials should be placed on eliminating spearing.

Proper training in tackling and blocking techniques, including a "see what you hit approach", constitutes an important means of minimizing the possibility of catastrophic injury. Using the helmet as an injury-inflicting instrument is illegal, and should be strongly discouraged by coaches and game officials. This concern is not only in football, but also in other contact sports where helmets are used, e.g. ice hockey and men's lacrosse.

Football and all contact sports should be concerned with the prevention of catastrophic head injuries. The rules against butting, ramming and spearing with the helmet are for the protection of the helmeted player as well as the opponent. A player who does not comply with these rules in any sport is a candidate for a catastrophic injury.



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4. *Thomas BE, McCullen GM, Yuan HA: Cervical Spine Injuries in Football Players: J Am Acad Orthop Surg Sept-Oct; 7 (5), 338-47, 1999.*

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GUIDELINE 4f

Guidelines for Helmet Fitting and Removal in Athletics

(adapted from Illinois State Medical Society guideline)

June 1990 • Revised June 2001

Several sports, including football, men's lacrosse and ice hockey, require wearing tight-fitting, similarly constructed helmets. The following guidelines, while focused on football, are applicable to periodic evaluation, fitting and removal of protective helmets worn in any sport. These guidelines represent minimal standards of care that are designed to assist physicians, coaches, athletic trainers, paramedics, EMTs and hospital personnel who care for student-athletes.

Medical coverage of interscholastic and intercollegiate football teams entails many routine preventive and acute health-care duties for dedicated practicing professionals; however, an occasional, serious, on-the-field, life-threatening head and/or neck injury poses a difficult challenge. It is incumbent upon those individuals assigned to provide medical coverage to be prepared to handle each situation efficiently and expertly.

Proper on-the-field management of head and neck injuries is essential to minimize sequelae, expedite emergency measures and to prepare for transportation. The action of those in attendance must not compound the problem. For this reason, clear communication between the medical staff and emergency-transportation personnel should be maintained.

It is important that those involved in the medical management of teams engaged in collision sports like football, as well as the student-athlete, be knowledgeable about the helmet. The student-athlete should be instructed in the fitting, care and use of the helmet.

The resilient plastic shell is shaped spherically to deflect impacts. Interior suspension pads are designed to match the skull contour to ensure a snug crown fit. Various rigid and removable jaw and brow pads, along with the double-snap chin strap, help to hold the sides of the helmet firmly against the mandible and the forehead. When in place, the front edge of the helmet should be positioned about a finger's breadth above the eyebrows. Pressure on the helmet crown should be dissipated through the interior suspension padding over the top of the head.

The helmet should fit snugly without dependence on the chin strap. The helmet should not twist or slide when an examiner grasps the face mask and attempts to rock or turn the helmet with the wearer resisting the movement.

With a properly fitted helmet, the top of the head is separated from the helmet shell by a uniform, functional, shock-absorbing support lining. Daily evaluation of this support mechanism, including cheek and brow pads, for placement and resiliency should be taught to the student-athlete. Helmets that require air inflation should be inflated and inspected daily by those assigned to equipment care. Helmet shells should be examined weekly for cracking and be inspected closely again if the face mask has been bent out of shape. All helmets need to be reconditioned and the plastic loop attachments of the swing-away mask replaced on a yearly basis.

Although the helmet is designed for a stable fit for protection during play, removal of the helmet by others is relatively difficult. In the case of a head or neck injury, jostling and pulling during removal presents high potential for further trauma.

Unless there are special circumstances such as respiratory distress coupled with an inability to access the airway, the helmet should never be removed during the pre-hospital care of the student-athlete with a potential head/neck injury unless:

1. The helmet does not hold the head securely, such that immobilization of the helmet does not immobilize the head;

2. The design of the sport helmet is such that even after removal of the facemask, the airway cannot be controlled or ventilation provided;

3. After a reasonable period of time, the facemask cannot be removed; or

4. The helmet prevents immobilization for transportation in an appropriate position.

When such helmet removal is necessary in any setting, it should be performed only by personnel trained in this procedure.

Ordinarily, it is not necessary to remove the helmet on the field to evaluate the scalp. Also, the helmet can be left in place when evaluating an unconscious student-athlete, an individual who demonstrates transient or persistent neurological findings in his extremities, or the student-athlete who complains of continuous or transient neck pain.

Before the injured student-athlete is moved, airway, breathing and circulation (ABCs) should be evaluated by looking, listening and palpation. To monitor breathing, care for facial injury, or prior to transport regardless of current respiratory status, the facemask should be removed by cutting or unscrewing the loops that attach the mask to the helmet. These loops may be difficult to cut, necessitating the use of PVC pipe cutters, garden shears or a screwdriver. Those involved in the prehospital care of the injured student-athlete should have readily-available proper tools for easy facemask removal and should frequently practice removal techniques for facemasks and helmets. It should be noted that cold weather and old loops may make cutting difficult. The chin strap can be left in place unless resuscitative efforts are necessary. For resuscitation, the mouthpiece needs to be manually removed and a finger-swipe made of the mouth.

Once the ABCs are stabilized, transportation to an emergency facility by an experienced crew demands that the head be secure in the helmet and the neck immobilized by strapping, taping and/or using lightweight bolsters on a spine board. Care is needed to skillfully complete this maneuver to provide a stable unit of head, neck and spine. When moving an athlete to the spine board, the head and trunk should be moved as a unit, using the lift/slide maneuver.

At the emergency facility, satisfactory initial skull and cervical X-rays usually can be obtained with the helmet in place. Should removal of the helmet be needed to initiate treatment or to obtain special X-rays, specific protocol needs to be followed. With the head, neck and helmet manually stabilized, the chin strap can be cut. While maintaining stability, the cheek pads can be removed by slipping the flat blade of a screwdriver or bandage scissor under the pad snaps and above the inner surface of the shell. If an air cell-padding system is present, it can be deflated by releasing the air at the external port with an inflation needle or large gauge hypodermic needle. By rotating the helmet slightly forward, it should now slide off the occiput. If the helmet does not move with this action, slight traction can be applied to the helmet as it is carefully rocked anteriorly and posteriorly, with great care being taken not to move the head/neck unit. The helmet should not be spread apart by the earholes, as this maneuver only serves to tighten the helmet on the forehead and on the occiput regions. All individuals participating in this important maneuver must proceed with caution and coordinate every move.

If the injured student-athlete, after being rehabilitated fully, is allowed to participate in the sport again, refitting his helmet is mandatory. Re-education about helmet use as protection should be conducted. Using the helmet as an offensive, injury-inflicting instrument should be discouraged.



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3. *Inter-Association Task Force for the Cervical Spine. National Athletic Trainers' Association 2000. (2952 Stemmons Freeway, Dallas, Texas 75247, www.nata.org).*

4. *AOSSM Helmet Removal Guidelines. The American Orthopedic Society for Sports Medicine, 6300 N. River Road, Suite 200, Rosemont, IL 60018 www.sportsmed.org*

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GUIDELINE 4g

Use of Trampoline and Minitramp

June 1978 • Revised June 2002

The NCAA recognizes that the coaches and student-athletes in selected sports use the trampoline and minitramp for developing skills. The apparent safety record accompanying such use has been good, but the use of the trampoline can be dangerous. Therefore, these guidelines should be followed in those training activities in which student-athletes use the trampoline:

1. Trampolines should be supervised by persons with competence in the use of the trampoline for developing athletics skills. This implies that:

a. Fellow coaches, student-athletes, managers, etc., are trained in the principles and techniques of spotting with the overhead harness, "bungee system" and/or hand spotting on the trampoline;

b. New skills involving somersaults should be learned while wearing an overhead safety harness. (Exception: Use of the overhead system is not recommended for low-level salto activities such as saltos from the knees or back.) Those persons controlling the safety harness should have the necessary strength, weight and training for that responsibility;

c. Skills being encouraged should be commensurate with the readiness of the student-athlete, and direct observation should confirm that the student-athlete is not exceeding his or her readiness; and

d. Spotters are aware of the particular skill or routine being practiced and are in an appropriate position to spot potential errors. Accurate communication is important to the successful use of these techniques.

2. Potential users of the trampoline should be taught proper procedures for folding, unfolding, transporting, storing and locking the trampoline.

3. The trampoline should be erected in accordance with manufacturer's instructions. It should be inspected regularly and maintained according to established standards. All inspection reports, including the date of inspection and name of inspector, should be kept on file.

Minitramp

The minitramp, while different in nature and purpose from the trampoline, shares its association with risk of spinal cord injury from poorly executed and/or spotted tricks. Like the trampoline, the minitramp requires competent instruction and supervision, spotters trained for that purpose (spotting somersaults on the minitramp differs from the trampoline because of the running action preceding the somersault), emphasis on the danger of somersaults and dive rolls, security against unsupervised use, proper erection and maintenance of the apparatus, a planned procedure for emergency care should an accident occur, and documentation of participation and any accidents that occur. In addition, no single or multiple somersault should be attempted unless:

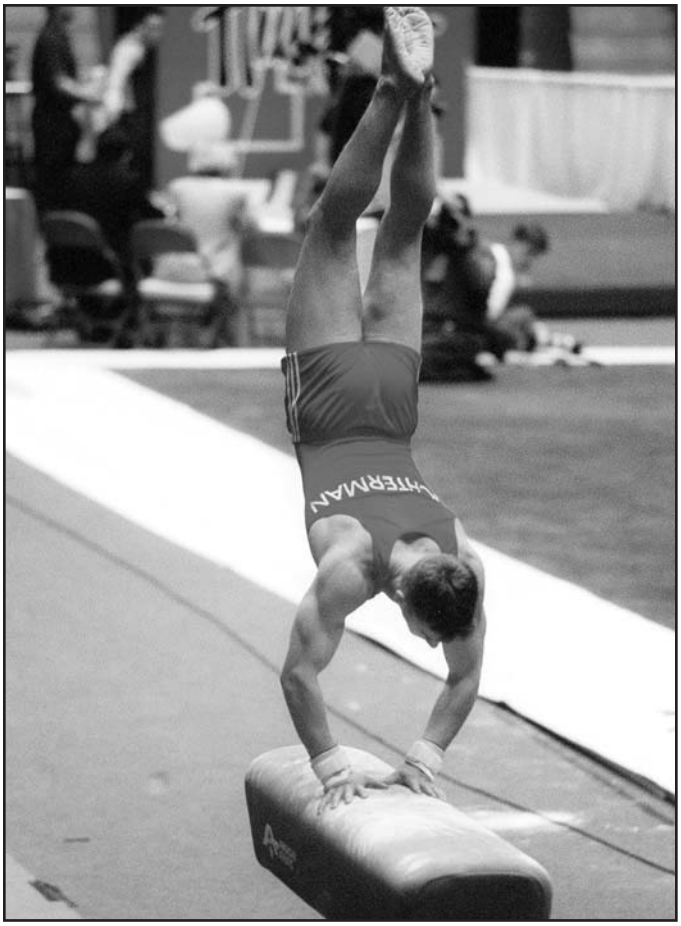
1. The student-athlete has demonstrated adequate progression of skill before attempting any somersault (i.e., on the trampoline with a safety harness, off a diving board into a swimming pool or tumbling with appropriate spotting);

2. One or more competent spotters who know the skill being attempted are in position and are physically capable of spotting an improper execution;

3. The minitramp is secured reasonably or braced to prevent slipping at the time of execution in

accordance with recommendations in the USA Gymnastics Safety Handbook; and

4. A mat is used that is sufficiently wide and long to prevent the performer from landing on the mat's edge and to provide proper footing for the spotter(s).



References

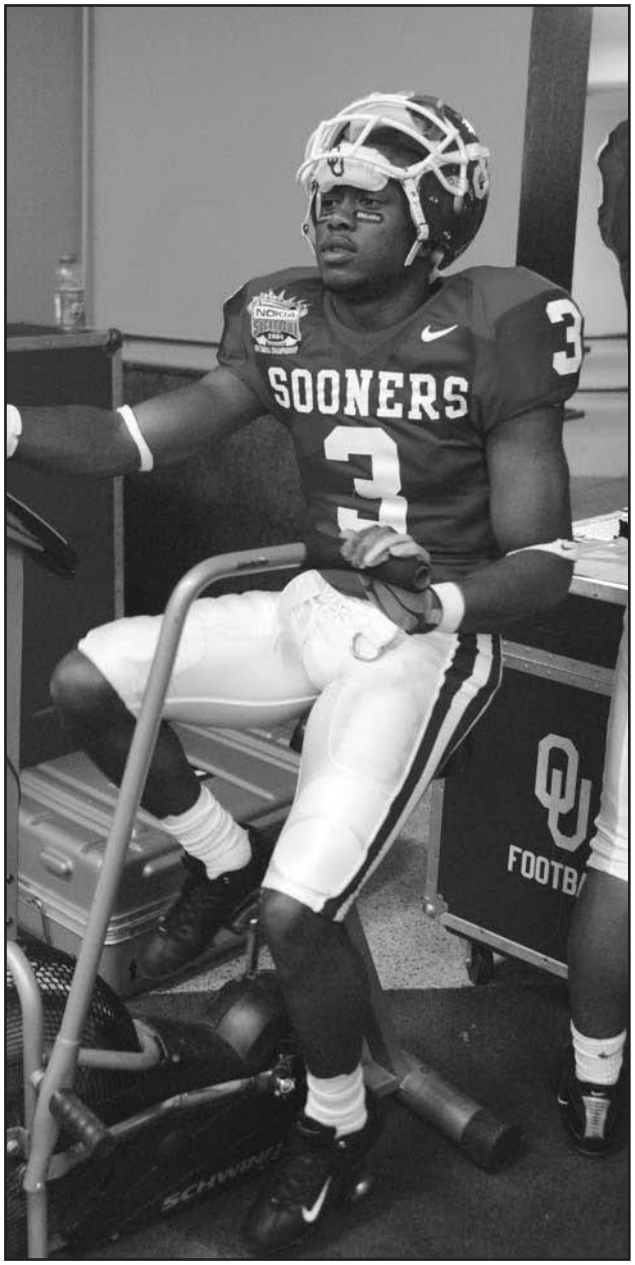
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NCAA HEALTH AND SAFETY

APPENDIXES

Also Found on the NCAA Web Site at:
www.ncaa.org/health-safety

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APPENDIX A

NCAA Legislation Involving Health and Safety Issues

This chart should be used as a quick reference for NCAA legislation involving health and safety issues that appears in the 2004-05 NCAA Divisions I, II and III Manuals. The comment section does not capture the full scope of the legislation; users are encouraged to review the full bylaw in the appropriate divisional manual. Because of the dynamic nature of the NCAA legislative process, the most current information on these and any new legislation should be obtained through the institution's athletics department compliance staff.

Regulations Involving Health and Safety Issues

Topic	Issue	NCAA Bylaw Cite	Comments
Banned Drugs	List of Banned Substances	31.2.3	Lists all substances currently prohibited by the NCAA.
	Drugs and Procedures Subject to Restrictions	31.2.3.1.1	List of drugs and procedures that are restricted.
	Effect on Eligibility	14.1.1.1	A positive test for use of a banned (performance enhancing or "street") substance results in loss of eligibility.
	Effect on Championship Eligibility	18.4.1.5	A positive test for a banned (performance enhancing or "street") substance results in loss of eligibility, including eligibility for participation in postseason competition.
	Transfer While Ineligible Due to Positive Drug Test	13.1.1.3.4	Institution at which student-athlete tested positive for use of a banned substance must report the test result to the institution to which the student-athlete is transferring.
	Knowledge of Use of Banned Drugs	10.2	Athletics department staff members or others employed by intercollegiate athletics department must report a student-athlete's use of banned substance.
Drug Testing	Banned Drugs and Drug-Testing Methods	18.4.1.5.2	NCAA Executive Committee is charged with developing a list of banned substances and approving all drug-testing procedures.
	Consent Form: Content and Purpose	14.1.4	Consent must be signed prior to competition or practice. Failure to sign consent results in loss of eligibility.

Drug Testing	Consent Form: Administration	30.5 14.1.4.2 3.2.4.6	Institution must administer consent form to all student-athletes each academic year at the time the intercollegiate squads report for practice. At this time, institutions must also distribute to student-athletes the official list of banned substances.
	Consent Form: Exception, Nonrecruited Student-Athlete	14.1.4.1 3.2.4.6.1.1	Nonrecruited student-athletes must sign form prior to competition.
	Effect of Non-NCAA Athletics Organization's Positive Drug Test	18.4.1.5.3	Executive Committee to develop method of testing student-athletes who previously tested positive to a test administered by a non-NCAA athletics organization.
	Failure To Properly Administer Drug-Testing Consent Form	30.5.1	Failure to properly administer drug-testing consent form is considered an institutional violation.
Drug Rehabilitation	Drug Rehabilitation Program Expenses	16.3.1.1 16.4.1	Permissible for institution to cover the costs of a student-athlete's drug rehabilitation program.
	Travel To and From Drug Rehabilitation Program	16.13.1	Permissible to file a waiver under Bylaw 16.13.1 to cover costs associated with a drug rehabilitation program.
Nutritional Supplements	Permissible Supplements	16.5.2	Institution may provide only non-muscle building nutritional supplements. See Bylaw for details.
	Impermissible Supplements	31.2.3	See list of banned substances for those supplements not considered in compliance with Bylaw 16.5.2.2.
Tobacco Use	Restricted Advertising and Sponsorship Activities	31.1.14	No tobacco advertisements in, or sponsorship of NCAA Championships or regular seasons events.
	Tobacco Use at Member Institution	11.1.5 17.1.7	Use of tobacco products is prohibited by all game personnel and all student-athletes in all sports during practice and competition.

Tobacco Use	Tobacco Ban Summer Baseball	30.14.19	No player, coach or game official may use any form of tobacco during practices or games in NCAA approved summer baseball leagues.
Medical Expenses	Permissible Medical Expenses	16.4.1	Permissible medical expenses are outlined. If expense is not on the list, refer to Bylaw 16.13.1 for waiver procedure.
	Eating Disorders	16.3.1.1	Institution may cover expenses of counseling related to the treatment of eating disorders.
	Transportation for Medical Treatment	16.4.1	Institution may cover or provide transportation to and from medical appointments.
	Summer Conditioning - Football	13.2.8	Institution may finance medical expenses for a prospect who sustains an injury while participating in non-mandatory summer conditioning activities that are conducted by an institution's strength and conditioning coach with department-wide duties.
Medical Waivers	Hardship Waiver	14.2.4	Under certain circumstances, a student-athlete may be awarded an additional season of competition to compensate for a season that was not completed due to incapacitating injury or illness.
	Five-Year Rule Waiver	30.6.1	Under certain circumstances, a student-athlete may be awarded an additional year of eligibility if he or she was unable to participate in intercollegiate athletics due to incapacitating physical or mental circumstances.
Medical Records and Consent Forms	HIPAA/Buckley Amendment Consent Forms	3.2.4.7; 14.1.5; 30.12	The authorization/consent form shall be administered individually to each student-athlete by the athletics director or the athletics director's designee before the student-athlete's participation in intercollegiate athletics each academic year. Signing the authorization/consent shall be voluntary and is not required by the student-athlete's institution for medical treatment, payment for treatment, enrollment in a health plan or for any benefits (if applicable) and is not required for the student-athlete to be eligible to participate. Any signed authorization/consent forms shall be kept on file by the director of athletics.

Student-Athlete Welfare and Safety	Time Restrictions on Athletically Related Activities	17.1.5	All NCAA sports are subject to the time limitations in Bylaw 17.
	Daily/Weekly Hour Limitation – Inside Playing Season	17.1.5.1	During the playing season, a student-athlete cannot engage in more than 20 hours of athletic related activity (see Bylaw 17.02.1) per week, with no more than four hours of such activity in any one day.
	Weekly Hour Limitations – Outside Playing Season	17.1.5.2	Outside of the playing season, student-athletes cannot engage in more than eight hours of conditioning activities per week.
	Skill Instruction Exception	17.1.5.2.1	Outside of the playing season, two of the student-athlete's eight hours of conditioning activity may be skill related instruction with coaching staff.
	Required Day Off	17.1.5.4	During the playing season, each student-athlete must be provided with one day on which no athletic related activities are scheduled.
	Voluntary Summer Conditioning	13.12.3.9	Prospects, who signed an NLI or received a written offer of admission to the institution, may engage in voluntary summer workouts conducted by an institution's strength and conditioning coach with department-wide duties
	Discretionary Time	17.02.14	Student-athletes may only participate in athletics activities at their initiative during discretionary time.
	Activities Prior to First Practice	17.11.2.2	Prior to participation in any preseason activities, all prospects and student-athletes shall be required to undergo a medical examination that is administered or supervised by a physician.
	5-Day Acclimatization Period	17.11.2.3	5-day acclimatization for conducting administrative and initial practices is required for first-time participants (freshman and transfers) and continuing student-athletes.
	Pre-season Practice Activities	17.11.2.4	Pre-season practice time limitations and general regulations.

	Out of Season Athletically Related Activities	17.11.6	Permissible summer conditioning activities.
Student-Athlete Welfare and Safety	Sport-specific Safety Exceptions (Archery; Equestrian; Fencing; Gymnastics; Rifle; Women's Rowing; Skiing; Swimming; Synchronized Swimming; Track and Field; Water Polo; and Wrestling.)	17.2.7 17.8.7 17.9.7 17.13.7 17.16.7 17.17.7 17.18.7 17.22.7 17.23.7 17.26.7 17.28.8 17.29.7	A coach may be present during voluntary individual workouts in the institution's regular practice facility (without the workouts being considered as countable athletically related activities) when the student-athlete uses sport-specific equipment. The coach may provide safety or skill instruction but cannot conduct the individual's workouts.
	Playing Rules Oversight Panel	21.3.1.5.1	The panel, subject to the discretion of the Executive Committee, shall be responsible for resolving issues involving player safety, financial impact or image of the game that do not have unanimous Division I, II or III support.

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APPENDIX B

NCAA Injury Surveillance System Summary

The NCAA Injury Surveillance System (ISS) was developed in 1982 to provide current and reliable data on injury trends in intercollegiate athletics. Injury data are collected yearly from a representative sample of NCAA member institutions, and the resulting data summaries are reviewed by the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports. The committee's goal continues to be to reduce injury rates through suggested changes in rules, protective equipment or coaching techniques, based on data provided by the ISS.

Sampling

Participation in the ISS is voluntary and limited to NCAA member institutions. ISS participants are selected from the population of institutions sponsoring a given sport. Selections are random within the constraints of having a minimum 10 percent representation of each NCAA division (I, II and III) and region (East, South, Midwest, West).

It is important to emphasize that this system does not identify every injury that occurs at NCAA institutions in a particular sport. Rather, it collects a sampling that is representative of a national cross section of NCAA institutions.

Injuries

A reportable injury in the ISS is defined as one that:

1. Occurs as a result of participation in an organized intercollegiate practice or game;

2. Requires medical attention by a team athletic trainer or physician; and

3. Results in restriction of the student-athlete's participation or performance for one or more days beyond the day of injury.

Exposures

An athlete exposure (A-E), the unit of risk in the ISS, is defined as one athlete participating in one practice or contest where he or she is exposed to the possibility of athletics injury.

Injury Rate

An injury rate is simply a ratio of the number of injuries in a particular category to the number of athlete exposures in that category. In the ISS, this value is expressed as injuries per 1,000 athlete exposures.

All Sports Figures

The following figures outline selected information from the 16 sports currently monitored by the ISS.

Figure Nos. 1-3 compare the practice and game injuries across 16 sports without regard to severity. Comparisons of injury rates between sports are difficult because each sport has its own unique schedule and activities. If such comparisons are necessary, it may be best to use the game data for which the **intensity** variable is most consistent.

Figure Nos. 4-7 examine two measures of severity found in the ISS—time loss and injuries that required surgery. These combined practice and game data are presented to assist in decisions regarding appropriate medical coverage for a sport; however, each severity category has some limitations that should be considered.

1. Time loss—Figure Nos. 4 and 5 evaluate the percentage or rate of reported injuries that caused restricted or loss of participation of seven days or more. Limitations to this type of severity evaluation include:

a. An injury that restricts participation in one sport may not restrict participation in another sport; and

b. Injuries that occur at an end of the season can only be estimated with regard to time loss.

2. Injuries that require surgery— Figure Nos. 6 and 7 evaluate the percentage or rate of reported injuries that required either immediate or postseason surgery. Limitations to this severity evaluation include:

a. The changing nature of surgical techniques and how they are applied;

b. The assumption that all sports had access to the same quality of medical evaluation; and

c. Injuries can occur that may be categorized as severe, such as concussions, that may not require surgery.

Any questions regarding the ISS or its data reports should be directed to: David Klossner, Assistant Director of Education Outreach, NCAA, P.O. Box 6222, Indianapolis, Indiana 46206-6222 (317/917-6222).



Figure 1
Practice Injury Rate Summary (All Sports)

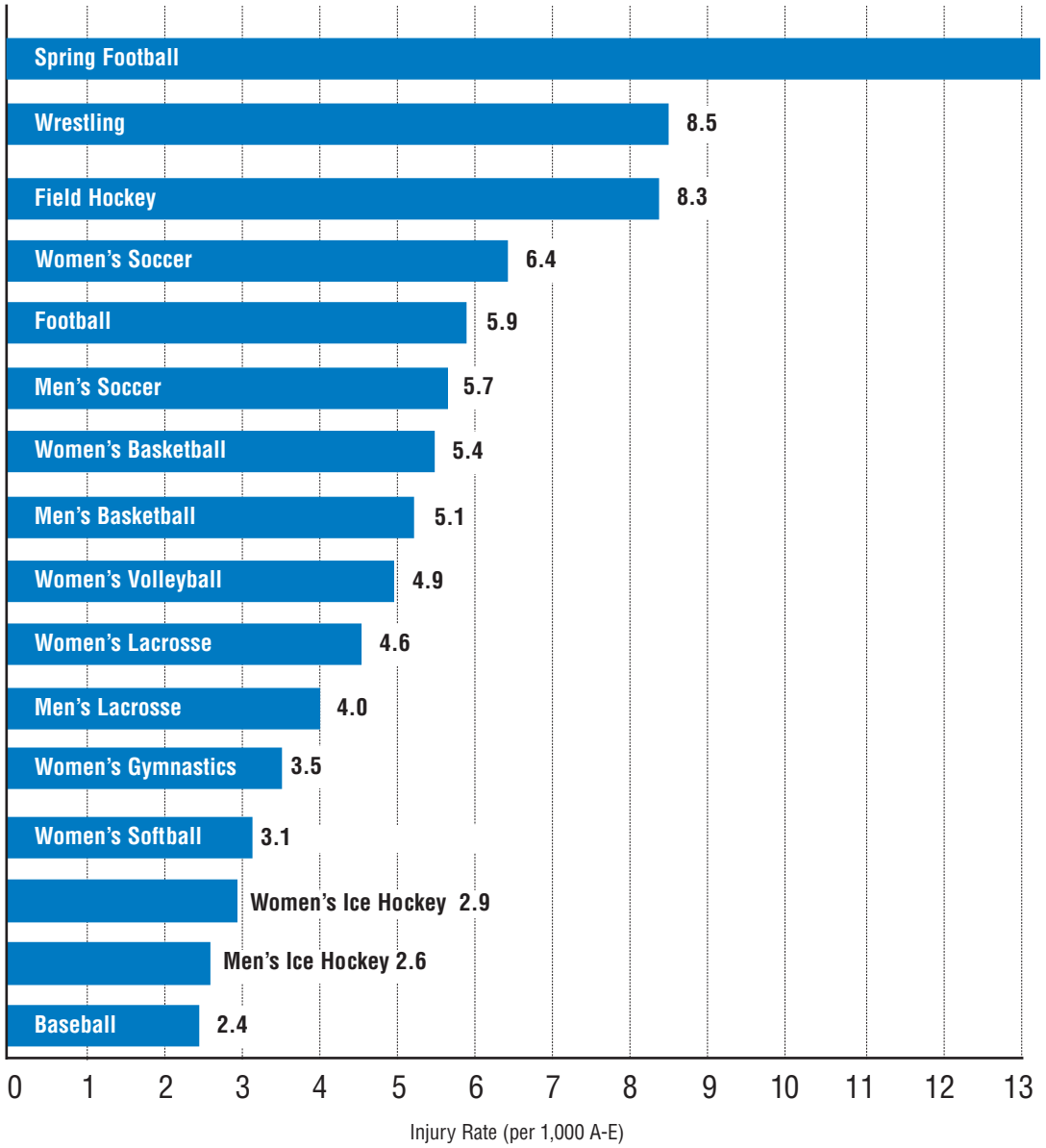


Figure 1 represents the average practice injury rate (expressed as injuries per 1,000 athlete-exposures) for all sports analyzed in the ISS in the 2004-05 season.

Figure 2
Game Injury Rate Summary (All Sports)

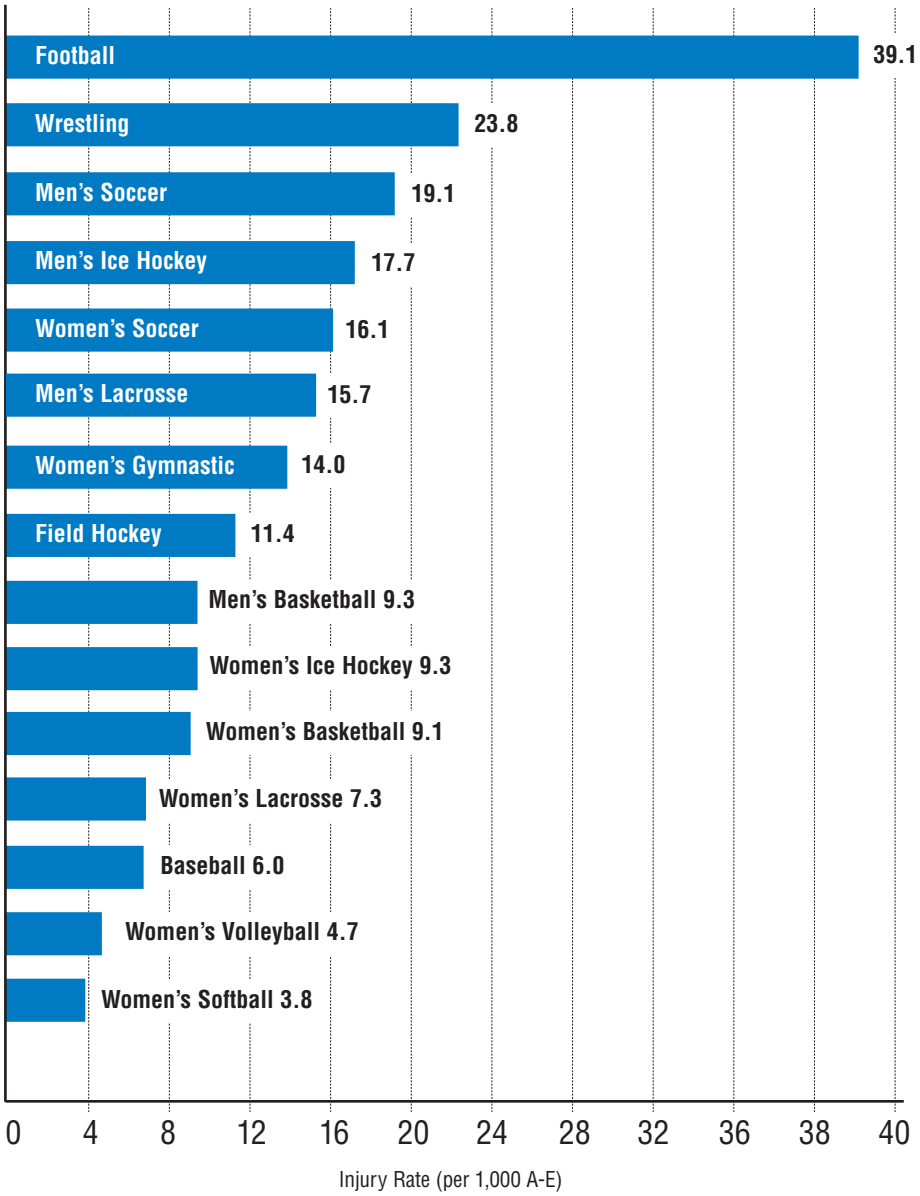


Figure 2 represents the average game injury rate (expressed as injuries per 1,000 athlete-exposures) for all sports analyzed in the ISS in the 2004-05 season.

Figure 3

Percentage of All Injuries Occurring in Practices and Games

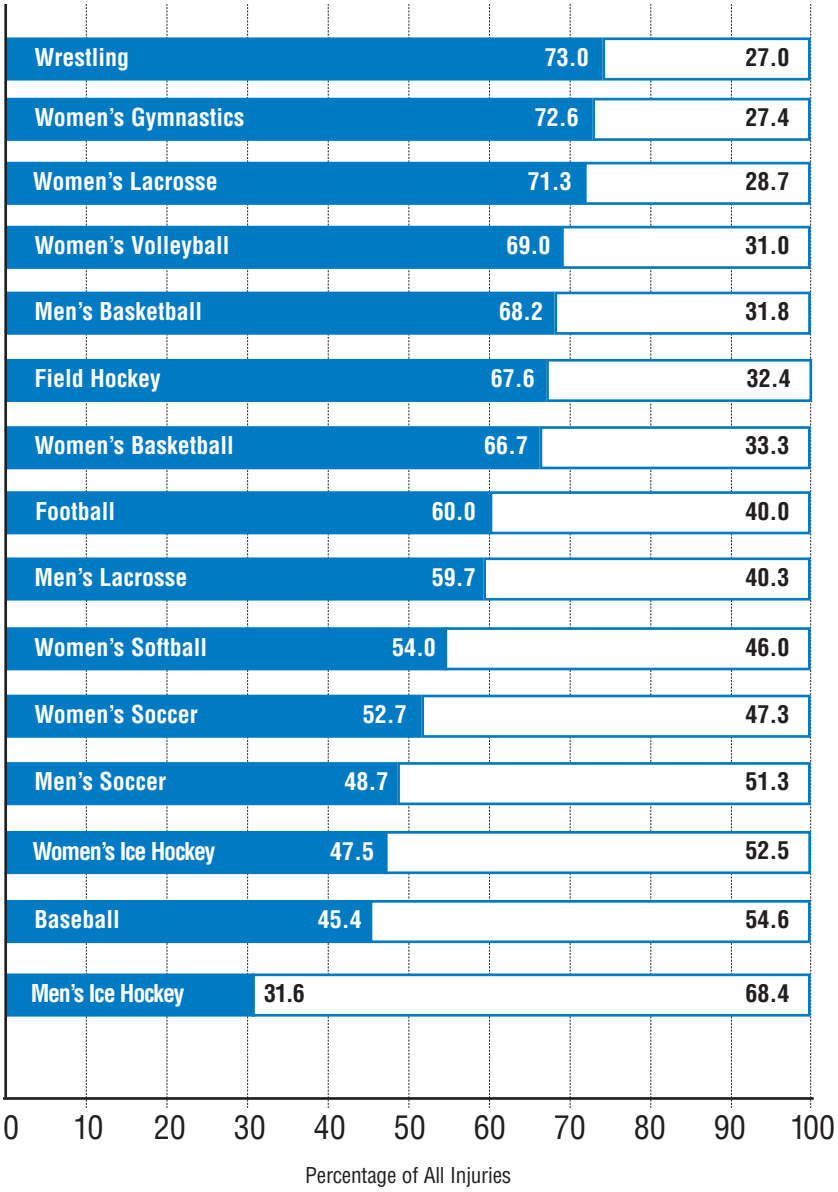


Figure 3 represents the percentage of all injuries that occurred in practices and in games in the 2004-05 season. The relatively few injuries that occurred in the weight room were not included in the practice and game percentages. It should be noted that these calculations are based only on the absolute number of injuries and do not take exposures into consideration.

Figure 4
SEVERITY - Practice Injuries Resulting in 7+ Days of Time Loss (Injury Rate)

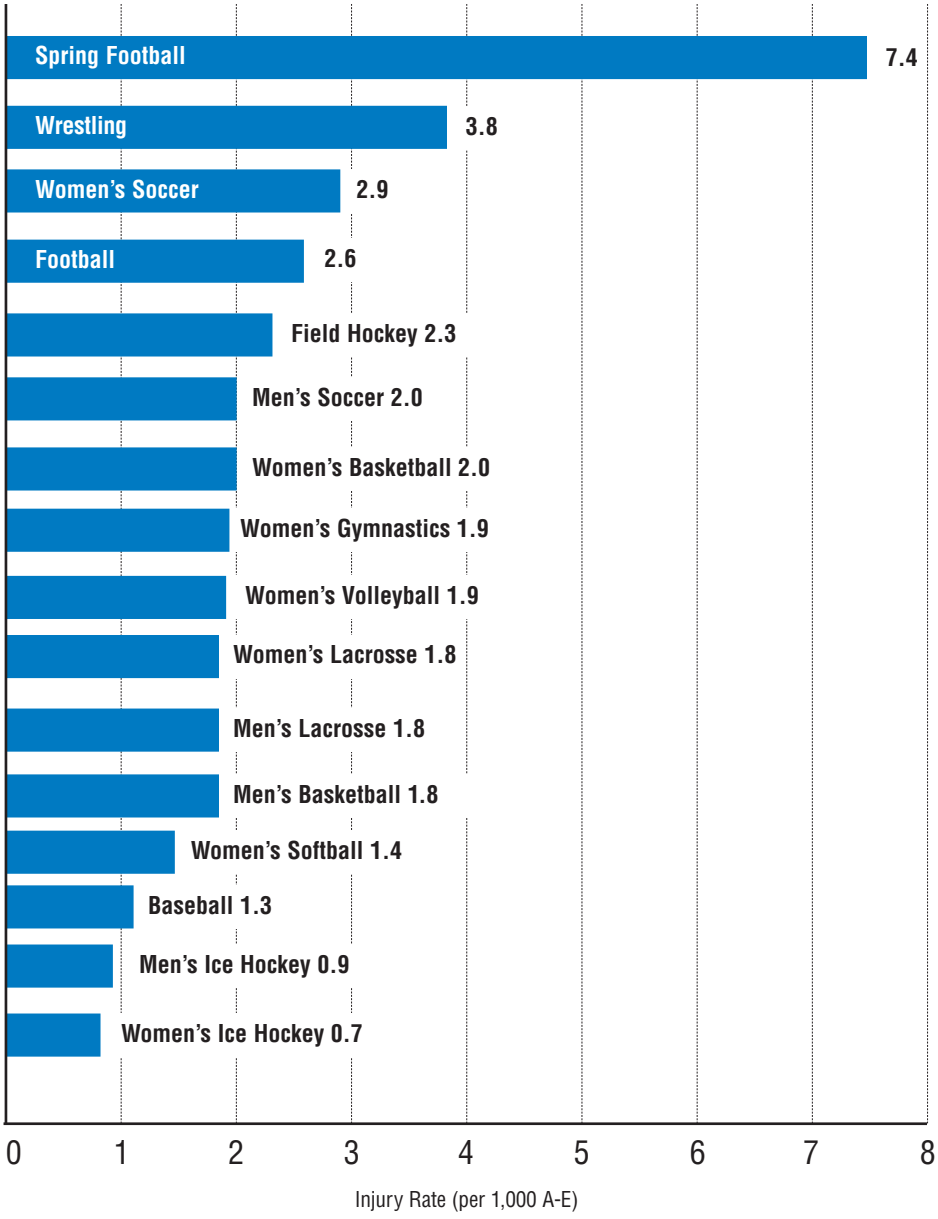


Figure 4 represents a measure of injury severity (time loss) in PRACTICE across all sports analyzed in the ISS in the 2004-05 season. Specifically, the rate of all injuries that caused restricted or missed participation for seven or more days are reported.

Figure 5

SEVERITY - Game Injuries Resulting in 7+ Days of Time Loss (Injury Rate)

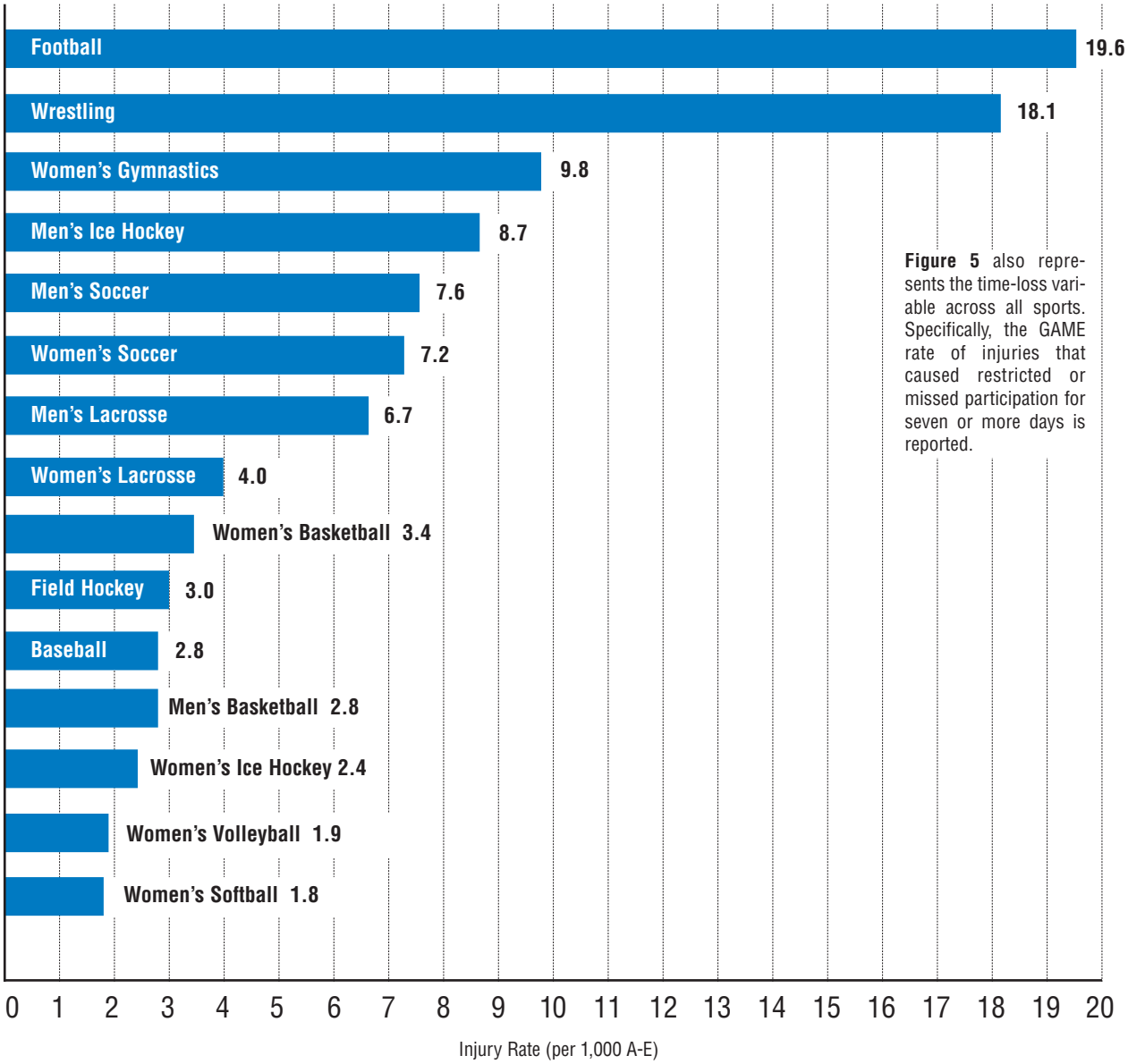


Figure 5 also represents the time-loss variable across all sports. Specifically, the GAME rate of injuries that caused restricted or missed participation for seven or more days is reported.

Figure 6
SEVERITY - Practice Injuries Requiring Surgery (Injury Rate)

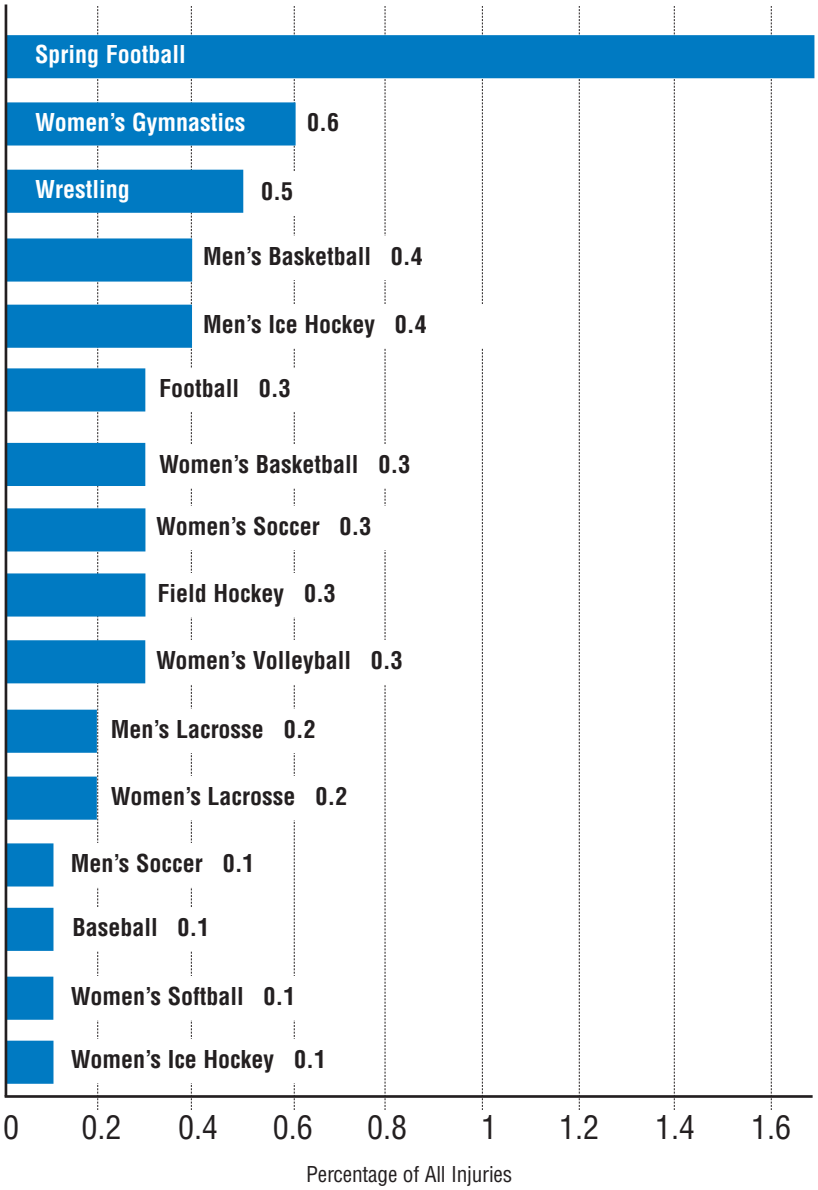


Figure 6 represents the PRACTICE rate of reported injuries requiring surgery across all sports analyzed in the ISS in the 2004-05 season.

Figure 7
SEVERITY - Game Injuries Requiring Surgery (Injury Rate)

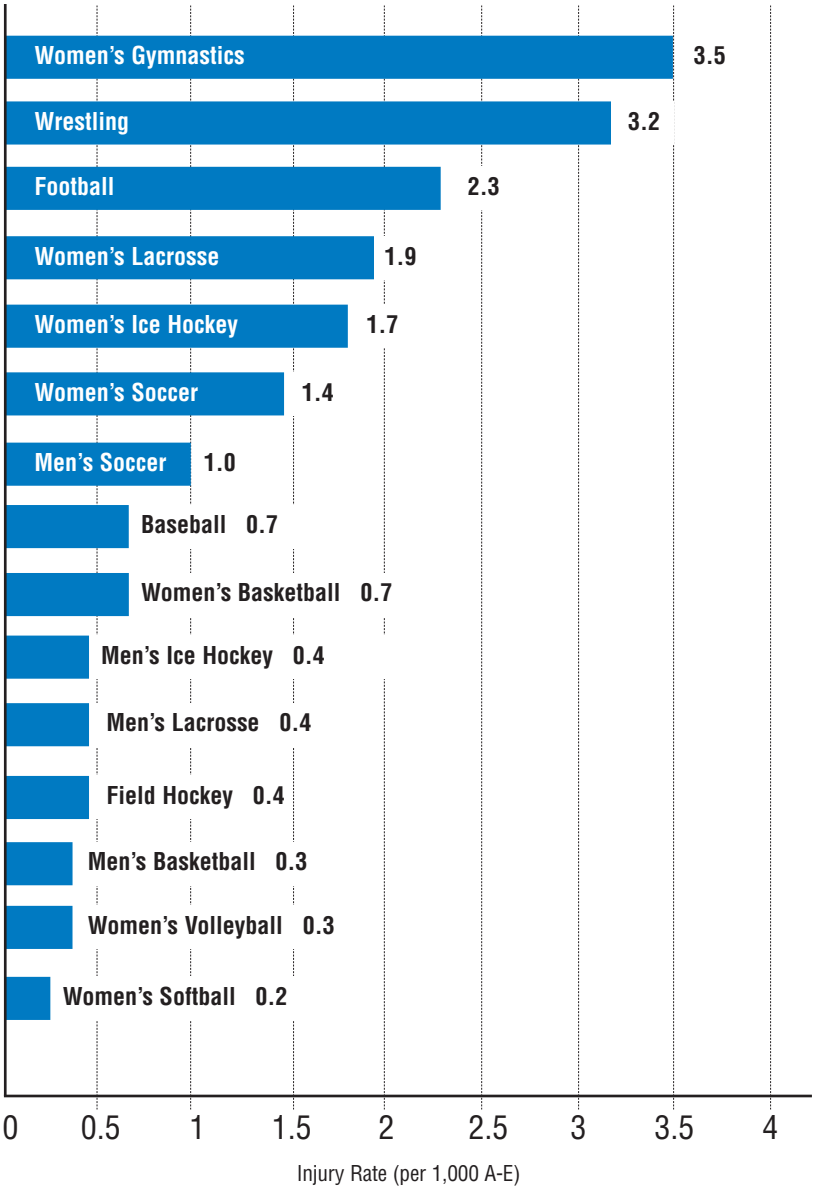


Figure 7 represents the GAME rate of reported injuries requiring surgery.

For more information about the NCAA Injury Surveillance System, visit our Web site at:
www.ncaa.org/iss

The website contains:

General Information

- ISS Methods, Definitions and Information
- ISS Updates
- HIPAA Updates
- NCAA Sponsorship and Participation Report

Data Collection

- Institution Participation Form
- Injury and Exposure forms
- Directions/Other Information
- Web Based Enhancement (To Launch August 2004)
- Participation & Student-athlete Consent Form

NCAA ISS Data

- Game comparison Across 16 Sports
- Practice comparison Across 16 Sports
- Sport Specific Injury Data
- Purchase ISS Data
- ISS Articles from The NCAA News

Catastrophic Injury

- National Center for Catastropic Sport Injury Research Web site

Contact Us

NCAA Injury Surveillance System
P.O. Box 6222
Indianapolis, Indiana 46206
Phone: 317/917-6960
Fax: 317/917-6364

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APPENDIX C

Acknowledgements

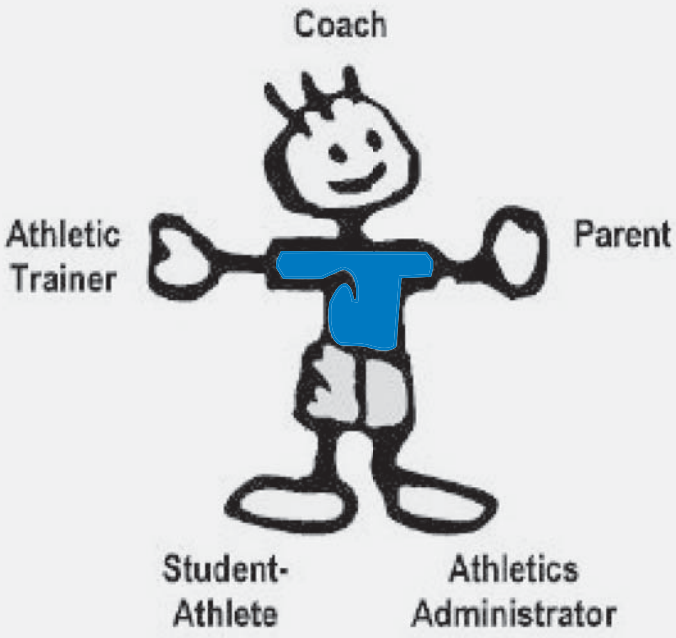
From 1974 to 2004, the following individuals have served on the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports and contributed to the information in the NCAA Sports Medicine Handbook:

John R. Adams
Western Athletic Conference
James R. Andrews, M.D.
Troy State University
Elizabeth Arendt, M.D.
University of Minnesota, Twin Cities
William F. Arnet
University of Missouri, Columbia
James A. Arnold
University of Arkansas, Fayetteville
Dewayne Barnes
Whittier College
Amy Barr
Eastern Illinois University
Fred L. Behling
Stanford University
Daphne Benas
Yale University
John S. Biddiscombe
Wesleyan University (Connecticut)
Carl S. Blyth
University of North Carolina, Chapel Hill
Cindy D. Brauck
Missouri Western State College
Donald Bunce, M.D.
Stanford University
Elsworth R. Buskirk
Pennsylvania State University
Peter D. Carlon
University of Texas, Arlington
Gene A. Carpenter
Millersville University of Pennsylvania
Marino H. Casem
Southern University, Baton Rouge
Nicholas J. Cassissi, M.D.
University of Florida
Rita Castagna
Assumption College
Charles Cavagnaro
University of Memphis
Kathy D. Clark
University of Idaho
Kenneth S. Clarke
Pennsylvania State University
Priscilla M. Clarkson
University of Massachusetts, Amherst
Donald Cooper, M.D.
Oklahoma State University
Kip Corrington
Texas A&M University, College Station
Lauren Costello, M.D.
Princeton University
Carmen Cozza
Yale University
Bernie DePalma
Cornell University
Jerry L. Diehl
National Federation of State High School Associations
Larry Fitzgerald
Southern Connecticut State University
Paul W. Gikas, M.D.
University of Michigan
Pamela Gill-Fisher
University of California, Davis
Gordon L. Graham
Minnesota State University-Mankato
Gary A. Green, M.D.
University of California, Los Angeles
Letha Griffin, M.D.
Georgia State University
Richard J. Hazelton
Trinity College (Connecticut)
Maria J. Hutsick
Boston University
Nell C. Jackson
State University of New York at Binghamton
John K. Johnston
Princeton University
Don Kaverman
Southeast Missouri State University
Janet R. Kittell
California State University, Chico
Fran Koenig
Central Michigan University
Olav B. Kollevoll
Lafayette College
Jerry Koloskie
University of Nevada, Las Vegas
Roy F. Kramer
Vanderbilt University
Michael Krauss, M.D.
Purdue University
Carl F. Krein
Central Connecticut State University
Russell M. Lane, M.D.
Amherst College

Acknowledgements

John Lombardo, M.D.
Ohio State University
William B. Manlove Jr.
Delaware Valley College
Arnold Mazur, M.D.
Boston College
Chris McGrew, M.D.
University of New Mexico
William D. McHenry
Washington and Lee University
Malcolm C. McInnis Jr.
University of Tennessee, Knoxville
Douglas B. McKeag, M.D.
Michigan State University
Kathleen M. McNally
La Salle University
Robin Meiggs
Humboldt State University
Dale P. Mildenberger
Utah State University
Melinda L. Millard-Stafford
Georgia Institute of Technology
Fred L. Miller
Arizona State University
Matthew Mitten
Marquette University
Frederick O. Mueller
University of North Carolina, Chapel Hill
David M. Nelson
University of Delaware
William E. Newell
Purdue University
Jeffrey O'Connell
University of Virginia
Roderick Paige
Texas Southern University
Joseph V. Paterno
Pennsylvania State University
Frank Pettrone, M.D.
George Mason University
Marcus L. Plant
University of Michigan
Nicole Porter
Shippensburg University of Pennsylvania
James C. Puffer, M.D.
University of California, Los Angeles
Margot Putukian
Princeton University
Ann Quinn-Zobeck
University of Northern Colorado
Joy L. Reighn
Rowan University
Frank J. Remington
University of Wisconsin, Madison
Rochel Rittgers
Augustana College (Illinois)
Darryl D. Rogers
Southern Connecticut State University
Richard D. Schindler
National Federation of State High School Associations
Kathy Schniedwind
Illinois State University
Brian J. Sharkey
University of Montana
Willie G. Shaw
North Carolina Central University
Gary Skrinar
Boston University
Bryan W. Smith, M.D.
University of North Carolina, Chapel Hill
Michael Storey
Bridgewater State College
Grant Teaff
Baylor University
Carol C. Teitz, M.D.
University of Washington
Patricia Thomas
Georgetown University
Susan S. True
National Federation of State High School Associations
Laurie Turner
University of California, San Diego
Jerry Weber
University of Nebraska, Lincoln
Christine Wells
Arizona State University
Kevin M. White
Tulane University
Robert C. White
Wayne State University (Michigan)
Sue Williams
University of California, Davis
G. Dennis Wilson
Auburn University
Mary Wisniewski
University of Chicago
Glenn Wong
University of Massachusetts, Amherst
Joseph P. Zabilski
Northeastern University
Connee Zotos
Drew University

NCAA
Nutrition & Performance Resource



The mission of this Web site is to promote a healthy and safe environment for student-athletes regarding optimal nutrition, positive body image and peak performance by providing education and awareness.

Visit:

www.ncaa.org/nutritionandperformance

Educational Posters

www.ncaa.org/health-safety

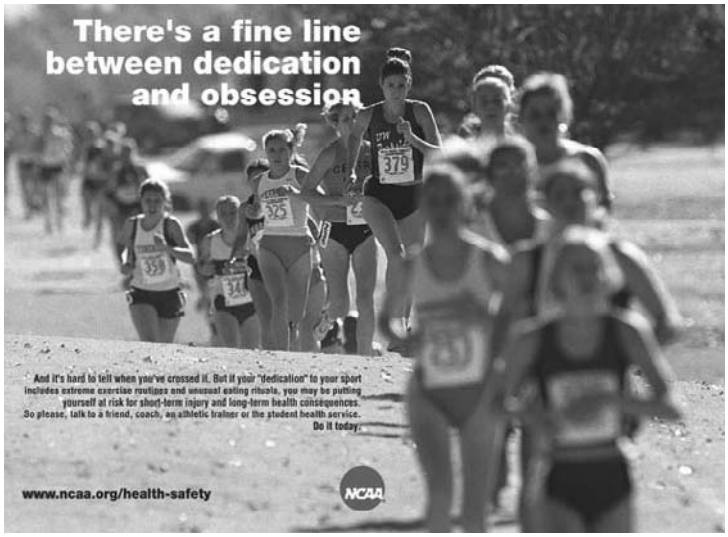




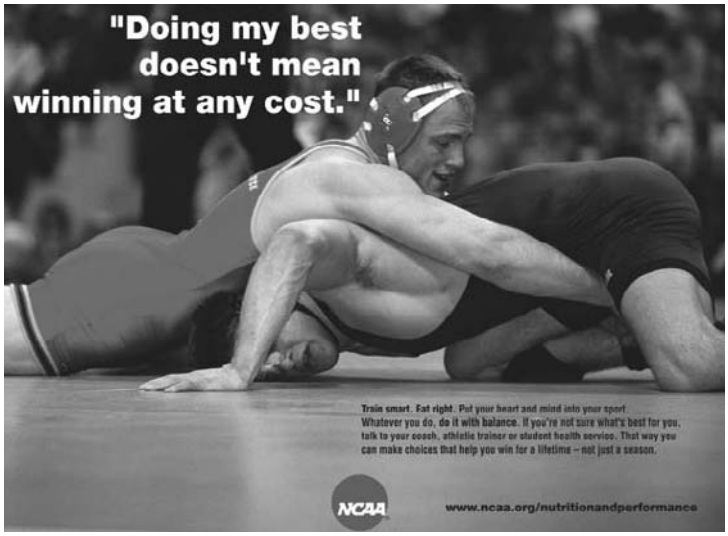


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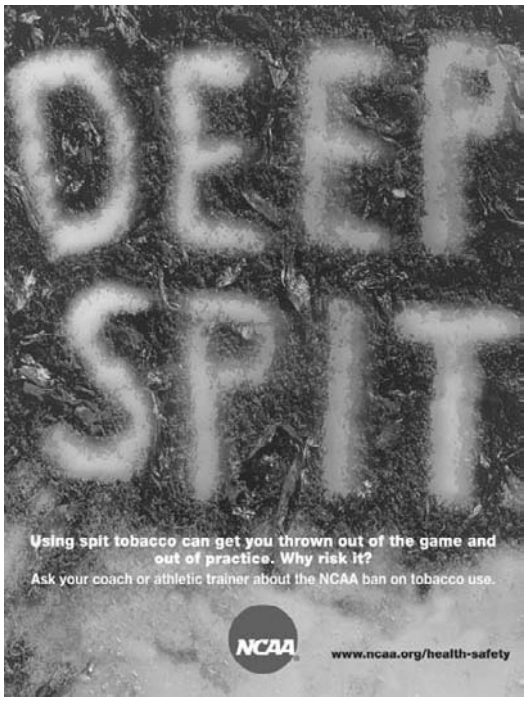


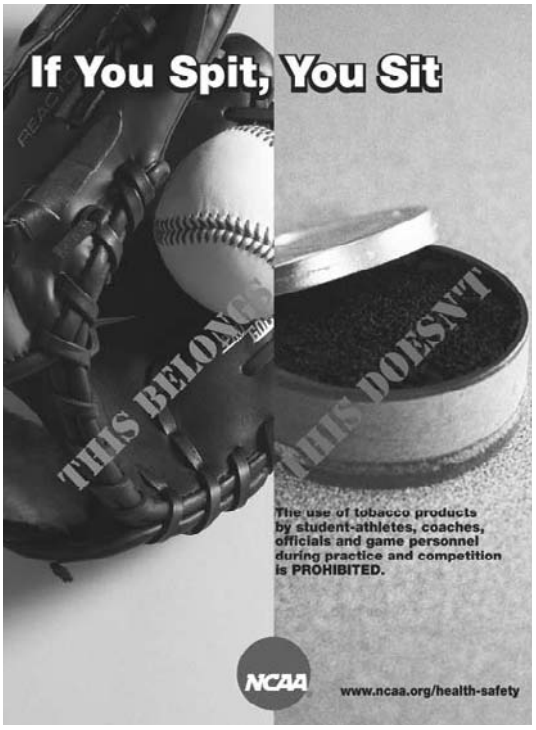




Educational Posters

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APPENDIX D

Banned Drug Classes

The following is the list of banned-drug classes, with examples of substances under each class:

Stimulants:

amiphenazole
amphetamine
bemigride
benzphetamine
bromantan
caffeine1 (guarana)
chlorphentermine
cocaine
cropropamide
crothetamide
diethylpropion
dimethylamphetamine
doxapram
ephedrine (ephedra, ma huang)
ethamivan
ethylamphetamine
fencamfamine
meclofenoxate
methamphetamine
methylenedioxy-
methamphetamine
(MDMA (ecstasy)
methylphenidate
nikethamide
pemoline
pentetrazol
phendimetrazine
phenmetrazine
phentermine
phenylephrine
phenylpropanolamine (ppa)
picrotoxine
pipradol
prolintane
strychnine
synephrine (citrus aurantium,
zhi shi, bitter orange)
and related compounds

Anabolic Agents:

Anabolic steroids
androstenediol
androstenedione
boldenone
clostebol
dehydrochlormethyl-
testosterone
dehydroepiandrosterone
(DHEA)
dihydrotestosterone (DHT)
dromostanolone
epitrenbolone
fluoxymesterone
gestrinone
mesterolone
methandienone
methenolone
methyltestosterone
nandrolone
norandrostenediol
norandrostenedione
norethandrolone
oxandrolone
oxymesterone
oxymetholone
stanozolol
testosterone2
tetrahydrogestrinone (THG)
trenbolone
and related compounds
Other Anabolic Agents
clenbuterol

Substances Banned for Specific Sports:

Rifle:
alcohol
atenolol
metoprolol
nadolol
pindolol
propranolol
timolol
and related compounds

Banned Drug Classes

Diuretics:

acetazolamide	flumethiazide	polythiazide
bendroflumethiazide	furosemide	quinethazone
benzthiazide	hydrochlorothiazide	spironolactone
bumetanide	hydroflumethiazide	triamterene
chlorothiazide	methyclothiazide	trichlormethiazide
chlorthalidone	metolazone	and related compounds
ethacrynic acid		

Street Drugs:

heroin	marijuana3	THC (tetrahydrocannabinol)3

Peptide Hormones and Analogues

corticotrophin (ACTH)
growth hormone(HGH, somatotrophin)
human chorionic gonadotrophin (hCG)
insulin-like growth hormone (IGF-1)
leutenizin hormone (LH)

All the respective releasing factors of the above-mentioned substances also are banned.

erythropoietin (EPO)	darbypoetin	sermorelin

Definitions of positive depends on the following:

[1] **for caffeine**—if the concentration in urine exceeds 15 micrograms/ml.

[2] **for testosterone**—if the administration of testosterone or the use of any other manipulation has the result of increasing the ratio of the total concentration of testosterone to that of epitestosterone in the urine to greater than 6:1, unless there is evidence that this ratio is due to a physiological or pathological condition.

[3] **for marijuana and THC**—if the concentration in the urine of THC metabolite exceeds 15 nanograms/ml.

Know the Differences!

If you're a collegiate student-athlete subject to drug testing, do you know that sports organizations have different rules about banned/prohibited drugs? Do you know the differences?

Drug Class (example)	NCAA[1]	USADA[2]
Alcohol	Banned in competition for rifle	Prohibited only in-competition for archery, shooting, skiing and other non-NCAA sports
Anabolic Steriods/Agents	Banned	Prohibited
Beta Blockers	Banned for rifle	Prohibited only in-competition for gymnastics, bowling, specified skiing disciplines, diving, wrestling and other non-NCAA sports. Prohibited both in-competition and out-of-competition for archery and shooting.
Beta-2 Agonists (e.g., asthma meds)	Banned or Restricted	Prohibited in- and out-of-competition. Specified Beta-2 Agonists require an Abbreviated TUE[3]; all others require the Standard TUE[3]
Dietary Supplements	WARNING[4]	WARNING[4]
Diuretics	Banned	Prohibited
Glucocorticosteroids (e.g., prednisone)	Not banned	Prohibited in-competition or local use requires an Abbreviated TUE[3]; Standard TUE[3] required for systemic use.
Hormones and related substances (e.g., growth hormone, EPO)	Banned	Prohibited
Local Anesthetics	Restricted	Allowed
Marijuana	Banned	Prohibited; tested for in competition
Masking Agents	Banned	Prohibited
Narcotics (except heroin)	Not banned	Specific drugs prohibited in-competiton. Others allowed.
Prohibited Methods	Banned, e.g. blood doping, chemical and physical manipulation.	Prohibited, e.g. blood doping, gene doping, 0_2 transport (i.e. RSR13); chemical and physical manipulation.
Stimulants	Banned (except pseudoephedrine)	Prohibited in-competition

BANNED or PROHIBITED: Drug class may not be used as shown (USADA requires approved TUE).

RESTRICTED: Drug class may be used under special circumstances defined by the organization.

NOT BANNED or ALLOWED: Category may be used, assuming the use is legal, appropriate or medically justified.

1. NCAA Bylaw 31.2.3.
2. The 2005 Prohibited List, 1 January 2005, World Anti-Doping Agency. List will be updated for 1 January 2006.
3. Abbreviated Therapeutic Use Exemption (TUE) and Standard TUE – a complete and legible form must be submitted to USADA by the athlete prior to using the medication. Some sports require specific medical records and test results. For more information contact USADA as indicated below.
4. DIETARY SUPPLEMENT WARNING - Some products sold as dietary supplements contain banned substances. No one can assure you that a supplement is 100% pure.

This information is for educational purposes only. This is not a complete listing. Contact the following organizations if you have any questions about specific drugs or supplement products. Information about dietary supplements is NOT available in USADA's Drug Reference Line™ and Drug Reference Online™ resources.

For a complete list of NCAA Banned Drug Classes, go to...

www.ncaa.org/health-safety

NCAA athletes contact:
877.202.0769 or
www.drugfreesport.com/rec

Olympic athletes contact:
800.233.0393 or
www.usantidoping.org/dro

Drug Free Sport

This document is available free of charge from The National Center for Drug Free Sport, the official administrator of NCAA Drug Testing, at www.drugfreesport.com.
Duplication is encouraged. Information is subject to change but is current as of June 1, 2005.

The NCAA salutes

360,000

student-athletes

participating in

23 sports

at 1,000

member institutions



NCAA 50922-7/05