

PRINCIPLES AND ETHICAL GUIDELINES

A. Competence

Sports medicine professionals must be knowledgeable, educated, and experienced in the prevention and care of health problems, particularly those related to the sports for which they are responsible. (See also Appendix 1, *Olympic Movement Medical Code*.)

B. Sports Knowledge

Sports medicine personnel should have an in-depth knowledge of the sports for which they are responsible, including rules of competition. They must also understand the training process and the physical and mental demands training places upon an athlete. An active, wellness-oriented lifestyle enhances this understanding and improves rapport with coaches and athletes.

C. Confidentiality

An athlete has the right to expect the medical staff to observe confidentiality. When serving as a team physician, the physician is responsible to the athlete, the team administration and the coaches, so there must be clear guidelines concerning the disclosure of medical information. Disclosures should be made only to responsible personnel and only for determining the athlete's fitness to participate. Ideally, medical information should be considered privileged, until the athlete gives permission to release information to the team, the coach, or the media.

D. Communication

There must be mutual respect among all members of the medical staff and open communication concerning roles and responsibilities. In addition, medical personnel must communicate openly with coaches, athletes, parents, and family physicians.

E. Participation

The primary care team physician is responsible for determining an athlete's fitness to participate. This may occur during the pre-participation examination or after an injury is sustained in training or competition. The team physician may decide to involve special consultants to assist in these decisions.

F. Coordination

The primary care providers are responsible for coordinating the health care process among all persons involved in the sports programme, including the coach, other health professionals and para-professionals, sports scientists, administrators, families and family physicians, and the athletes themselves. Athletes must be instructed in health and safety practices and must bear a large degree of responsibility for their own welfare.

THE SPORTS MEDICINE TEAM

The sports medicine team is a group of health professionals whose major responsibility is the health and safety of the athletes. The size and scope of the health care team depends upon its locale, availability of other facilities and personnel, funding, and the number of athletes to be cared for.

A. Organisation

The health care team may be organised into a **Primary Care Team** and a **Secondary Support Team**:

PRIMARY CARE TEAM

Primary Care Sports Medicine Physician (M.D., D.O.)

Coaching Staff Physiotherapist Administration

SECONDARY SUPPORT TEAM

<i>Medical Specialists</i>	<i>Allied Health Professionals</i>	<i>Scientists</i>
Internal Medicine/ Cardiologist	Mental health practitioner Podiatrist	Physiologist Biomechanist
Orthopedist	Dentist	Strength coach
Physical Medicine & Rehabilitation	Nutritionist Nurse	
General Surgeon	Laboratory Personnel	
Ophthalmologist	Health educator	
Radiologist	Legal consultant Orthotist Chiropractor	

B. Responsibilities

1. Preventing Illnesses and Injuries

- a. Pre-participation assessment of athlete's health and fitness.
- b. Conditioning programmes—assess suitability and scientific rationale.
- c. Safety factors—inspect and approve training surfaces, equipment and personal athletic gear.
- d. Educate coach and athlete in safe practices (e.g. hygiene and safety).
- e. Environmental monitoring—check ambient temperature and humidity, assure that adequate fluids are available and that athletes and coaches are following safety guidelines.

2. Evaluating and Treating Illnesses and Injury

- a. Initial management
- b. Referral network—a referral system with written policies and procedures for referral must be in place.

3. Rehabilitation

Written guidelines must be in place covering an athlete's return to activity, including practice and competition.

4. Record-Keeping

Clear patient records, referral forms and consultation reports, and a daily treatment log must be maintained.

5. Legal

- a. Standards of care for sports medicine practices must be followed.
- b. Consent for care must be clearly spelled out, and informed consent obtained (in writing) for procedures; parental consent must be obtained for care of minors.
- c. Confidentiality of information and disclosure of information guidelines must be in place.
- d. Medications should only be prescribed with informed consent and explanation of possible side-effects; avoid prescribing medications banned by IAAF and the World Anti-Doping Agency (WADA).

References

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PRE-PARTICIPATION EXAMINATION

Every participant in sports should receive a thorough pre-participation medical examination (PPE) by a knowledgeable sports physician. The examination may vary depending on the local system and administrative/legal requirements, but should encompass a detailed medical history and complete physical examination. The IAAF also recommends a physical examination prior to participation in major international competitions.

A. Primary Objectives

There are several primary objectives in conducting the pre-participation examination. These include:

1. Detect Potentially Disabling or Life-threatening Conditions (both medical and musculoskeletal)

Such conditions are primarily cardiovascular, some of which may be clinically silent and not readily detected (see also Chapter 14, Part 1, *Cardiovascular Evaluation of Athletes*).

2. Screen for Conditions that Predispose to Illness or Injury

The PPE allows the physician to screen for medical and musculo-skeletal conditions that may predispose to illness or injury during training and competition. These may include acute or chronic conditions (especially those that have been untreated), injuries that have not been completely rehabilitated, and congenital-developmental abnormalities. Detection of these conditions allows for rehabilitation or other therapeutic interventions such as management of exercise-associated asthma.

3. Meet Administrative Requirements

The PPE is conducted in order to meet administrative requirements of the appropriate sports or governmental agencies.

B. Secondary Objectives

1. Assess General Health

The PPE may be the only contact that the athlete has with a health care provider, especially those athletes with limited access to health care. Many young athletes may have chronic and untreated health problems that may require on-going management.

2. Entry into the Health Care System

The PPE may establish a relationship with the health care system, and provide an opportunity to develop an ongoing health resource for the athlete.

3. Discuss Health and Lifestyle Issues

The interview offers an opportunity to discuss and counsel regarding a wide variety of topics, including nutrition and use of supplements, weight control practices, alcohol and substance abuse, proper training methods, and sexually transmitted diseases. Confidentiality must be assured by having a private interview room, either in a private office or in a private examination room as a part of group processing.

C. Personnel Qualifications

The examination should be carried out by a qualified physician, which may include a primary care sports physician, family practice physician, pediatrician, or orthopedic surgeon. Allied health professionals that may support the physician include the physiotherapist, nurse, and in some cases such specialists as physiologists and nutritionists.

D. Examination Formats

1. Private Office

The primary care physician's office is best for the PPE, especially if the physician is the athlete's personal physician. This allows for the use of complete medical records, knowledge of the athlete's history, and better physician-athlete rapport.

2. Medical Team

A team approach to the PPE can be valuable if there are cost considerations, the athlete does not have a personal physician, the athlete's personal physician does not feel qualified, or if the institution or team requires an organised system for a large number of athletes.

The team physician may organise primary care physicians, pediatricians, specialists such as orthopedists, and various para-professionals (physiotherapists, nurses, etc.).

a. Organisation of the Medical Facility (see Table 2-1)

Table 2-1. Medical facility organisation.

Stage	Purpose
Waiting area	Sign-in, registration, including careful instructions about filling out required forms
Vitals station	Height, weight, blood pressure, vision
Office examination	History review, physical examination performed by one physician for a given student-athlete
Specialty offices	Orthopedic assessment, cardiology evaluation, etc.
Optional stages	Educational and rehabilitation areas

b. Facilitating the Examination Process (see Table 2-2)

Table 2-2. Steps to facilitating the examination process.

Provide athletes in advance with information about the detailed nature of the examination and the appropriate attire to wear to lessen privacy concerns and increase efficiency.
Ensure separate areas for examining male and female athletes
Have a private individual counseling room for discussion of sensitive issues to maintain confidentiality and facilitate better communication
Enhance familiarity and continuity of care by enlisting the assistance of as many primary physicians as possible for the athletes being examined
Establish a clear protocol for referral to primary physicians, specialists, rehabilitation, or other medical evaluations for every athlete who is not cleared for participation because of illness or injury. If there is a team physician, he or she should keep—and follow up on—a list of athletes who are disqualified or who require further evaluation before final clearance. If the athlete is not cleared for the desired sport, the evaluating physician should counsel the athlete concerning alternate permissible activities.

E. Medical History (see Appendix 3, *Pre-participation Physical Evaluation*)

A complete medical history is the most important part of the PPE, and should be obtained from the athlete and, when appropriate, the athlete's parents. The physician must ensure that the athlete and parents understand the questions and provide help if there is a possibility of illiteracy, or if interpreters are required.

The medical history should include the following specific information:

1. A history of any significant medical diseases including cardiovascular disease, pulmonary disease, diabetes, mononucleosis, hypertension, anemia, hepatitis, ulcers or sexually transmitted diseases. Any weight changes, especially in the past six months, should be noted.

2. A history of any medications for acute conditions or chronic disease. The proper use of this medication should be reviewed with the athlete to ensure that the therapy is maintained. Unintentional misuse of the medications, especially of non-steroidal anti-inflammatory drugs, should be discussed. Athletes should be aware that prolonged use of non-prescription medications may cause significant bleeding disorders, liver or kidney injury, or other side effects. Supplement use should be determined, and the athlete made aware of their potential untoward use, including the possibility of their containing banned substances.

3. Medications for exercise-induced bronchospasm or other pulmonary disease should be discussed with the patient. Athletes with asthma or exercise-induced bronchospasm should be made aware of the need to obtain a Therapeutic Use Exemption (TUE) if involved in national or international competition (see also Chapter 14, Part 2, *Asthma and Exercise-Induced Bronchospasm*).

4. For female athletes, a history of any oral contraceptive use should be obtained and the age of menarche and the menstrual cycle should be discussed. A history of pregnancy, deliveries, and sexually transmitted disease should be obtained. Determine if there is a relationship between missed periods and heavy training activities. Determine if severe menstrual cramps regularly limit routine activities or athletic participation.

5. A history of drug use, including alcohol, recreational drugs, and/or tobacco. Short- and long-term effects of these drugs should be discussed.

6. Banned substances should be discussed with the athlete to prevent any inadvertent use. The athlete should be provided with a list of banned substances or a resource where information concerning banned substances can be obtained. (See Chapter 15, *Drugs in Sports/Doping Control*.)

7. A history of allergies. This should include allergies to medications, foods, and stings (Hymenoptera, e.g. bees, wasps, yellow jackets; ants). Appropriate actions and medications for life-threatening emergencies use should be addressed. Seasonal environmental allergies should also be discussed.

8. A cardiovascular history, particularly for athletes under the age of 30. Any history of cardiovascular disease, syncope or near syncope, arrhythmias, chest pain, fatigue, hypertension or pertinent family history should be obtained. Hypertrophic cardiomyopathy, outflow tract obstruction, conduction abnormalities and arrhythmias or valvular problems including aortic stenosis or mitral valve prolapse should be diagnosed when possible. A history of Marfan's syndrome, sickle cell anemia, Wolff-Parkinson-White syndrome or other syndromes should be obtained.

9. A neurological history. Determine if the athlete has ever been unconscious, had a severe head injury or concussion, or has a history of seizures, cervical spinal cord neuropraxia with transient quadriplegia, cervical spinal stenosis, congenital fusions, cervical instability, or cervical or lumbar disc disease.

10. A history of environmental trauma including hyperthermia, hypothermia, altitude sickness or other. Heat problems may include frequent muscle cramps, heat exhaustion, heat stroke and/or difficulty acclimatizing to heat.

11. A pulmonary history including any history of asthma, exercise induced bronchospasm, and seasonal/environmental allergies.

12. A history of skin problems should include any infectious diseases such as herpes simplex, scabies, pubic lice, molluscum contagiosum, impetigo, and sexually transmitted disease.

13. A history of previous injuries. Most athletic injuries are recurrent injuries, so it's important to ask, "Were you injured last season?" Inquire about the mechanism of injury, treatment obtained, and whether the injury was rehabilitated adequately. Ask about any fractures, dislocations, or significant joint disease. If any current abnormalities are found on examination, provide the athlete with a plan to obtain a definitive diagnosis and treatment.

14. An ophthalmologic history to determine whether the patient wears glasses, contact lenses, or protective eye wear. Problems with vision or eyes should be discussed. Especially important is whether there have been previous eye injuries including orbital fracture, hyphema, eyelid or globe laceration, or surgery. Depth of field is very important in triple jumpers, long jumpers, and relay runners.

15. A history of immunisations. Diphtheria, tetanus, and pertussis (DTP), and polio are standard children's vaccines in many countries. Measles, mumps, rubella (MMR), and hemophilus are also frequently given. Everyone should have an updated tetanus immunisation. Hepatitis B immunisation may be considered for sexually active individuals and immunoglobulin for non-immunised individuals exposed to infections. Requirements for additional immunisations will vary depending upon the travel destination. As an example, hepatitis A immunisation is highly recommended for athletes travelling to endemic regions.

16. The use of any protective equipment such as braces, pads, and eye protection should be ascertained and discussed.

17. A history of current training volume and intensity (if any). E.g. how many hours training per week, how many kilometres run per week, how many strengthening sessions per week, etc.

F. Physical Examination (see Appendix 3, *Preparticipation Physical Evaluation*)

The examining physician should start by measuring the athlete's height and weight; for junior athletes these measurements should be compared to a standard growth chart. The measurement of body composition can be important in determining the need for counseling about diet, disordered eating, and weight management (gain, maintenance, or loss). The IAAF book *Too Thin to Win?* is an excellent resource about proper and disordered eating. Counseling about the Female Athlete Triad may be provided to the athlete. The following components should comprise the remainder of the examination:

1. Visual acuity should be determined using a standard Snellen Eye Chart. Cases of unusually poor vision (including eye loss) should be discussed with the athlete and his/her parents. Options for visual correction, protective lenses, or eye wear should be discussed. Anisocoria (unequal size) of the pupils should be noted, as this could be important following a head injury.

2. The cardiovascular system should be evaluated. Blood pressure should be measured and the pulse should be checked for rate and rhythm. A large blood pressure cuff should be used for athletes with biceps greater than 33 cm in diameter.

3. The heart should be auscultated in both the seated and supine positions. Functional murmurs can often be differentiated from pathological murmurs such as hypertrophic cardiomyopathy and aortic stenosis by maneuvers such as deep inspiration, Valsalva's maneuvers, rising from a squatting position, and lying on the left side. Although murmurs are frequent in adolescents, questionable murmurs should be evaluated to obtain a definitive diagnosis. Athletes exhibiting signs

of mitral or aortic valve stenosis, aortic insufficiency, prolapsing mitral valve or coarctation of the aorta, or any suspicion of post-infectious carditis should be examined by a cardiologist. (See also Chapter 14, Part 1, *Cardiovascular Evaluation of Athletes*.)

4. When equipment and personnel are available, an electrocardiogram at rest may be done during the initial evaluation.

5. The lungs should be auscultated and any abnormalities recorded. The abdomen should be examined for pain, masses, or organomegaly with particular attention given to the liver and spleen.

6. The skin should be observed and palpated. Particular attention should be given to any infectious disease or suspicious nevi or lesions.

7. Male athletes should be examined for any undescended testicles, presence or absence of the testicles in the scrotum, or any masses. Testicular cancer is the leading cause of cancer deaths in men 20–35 years of age. The examiner should check for inguinal, femoral, or lower abdominal hernias.

8. Whether a genitourinary examination is performed on a female athlete will depend on the athlete's age, cultural practices, and whether she has other routine medical care. Adult and sexually active females should have a Pap and pelvic examination at least once a year. All women should receive instructions about self breast examination.

9. Tanner-Whitehouse staging of pubertal status should be a part of the examination for all pre-pubertal and pubertal athletes.

10. The musculoskeletal examination should be thorough. The cervical-thoracic and lumbar spine, hips, and all extremities should be checked for normal range of motion, strength and endurance. The general habitus should be observed and any asymmetry, acute or chronic swelling or joint enlargement, surgical scars, or other abnormalities should be noted. Leg length inequality with a disparity in strength or flexibility makes an athlete more susceptible to acute strains and overuse syndromes.

The athlete should have full range of motion of the spine. A neurological examination should be performed including Spurling's axial compression test, Lhermitte's sign, deep tendon reflexes of the biceps, triceps, brachial radialis, patella and achilles, and sensory examination of the upper and lower extremities. Special attention should be given to any indication of peripheral nerve entrapment or nerve root injury.

A shoulder examination should include tests for full range of motion with emphasis on the rotator cuff, deltoid, and trapezius. The cervical, thoracic, and scapular musculature should be evaluated.

The elbows should be checked for full range of motion and particularly in throwers, the medial and lateral compartments examined for pain, asymmetries, or neurological entrapment syndromes. For throwers, the hands and wrists should also be checked.

Knee examination should test for full range of motion and especially for ligamentous stability.

Ankle and foot examination should include tests for stability, significant gait abnormalities due to pronation, genu valgus or varus, leg length differences, or other manifestations of malalignment syndromes.

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SPORTS RULES AND ATHLETE SAFETY

The rules of athletics are designed primarily to ensure that competition is fair and equitable for all participants. However, IAAF rules concerning the competition facilities, equipment, and environmental conditions have been put into place in an effort to provide optimal safety and health for the athlete. The health care team that is involved in athletics should be familiar with these rules, and be prepared to evaluate the competition venues, equipment, and meeting conduct, and ensure that rules pertaining to safety and health are enforced. Further, many incidents that occur during the competition may cause specific and serious injuries that will require prompt, appropriate action by the health providers (see Chapter 8, *Emergency Care*). Staff, equipment, supplies, and evacuation services must be in place to meet these emergencies, even though they are uncommon.

A. Administration

1. International Officials (Rule 105)

At Olympic Games, World Championships, World Cups, Continental, Area, and Regional Championships, the IAAF shall appoint a Medical Delegate (Rule 113) and a Doping Control Delegate (Rule 114). Their responsibilities are to ensure that adequate facilities, staff, and equipment are available for medical care and emergency management, and that doping control facilities and staff are suitable to meet IAAF requirements. For more details, the Medical Delegate and the medical care organisation should refer to the *IAAF Medical Handbook for Track and Field and Road Racing: A Practical Guide* (2006). The Doping Control personnel should refer to the current edition of the *Procedural Regulations for Doping Control*.

B. Competition Rules with Medical Implications

1. Shoes (Rule 143.2)

Competitors may compete in bare feet or with footgear on one or both feet. (Athletes who run barefoot on surfaces to which they are not accustomed may develop severe blisters. Running barefoot during road or cross-country races subjects athletes to possible puncture wounds, lacerations, or frost-bite during cold weather.)

The shoes must not be constructed so as to give an athlete any unfair additional assistance, including the incorporation of new technology that will give the athlete any unfair advantage.

The shoe may have up to 11 spikes; spikes must not project more than 9 mm, except in the high jump and javelin throwing where it shall not exceed 12 mm.

The sole may be up to 13 mm thick in the high jump and long jump, and the heel no more than 19 mm in the high jump.

2. Obstruction (Rule 163.2)

Any competing runner or walker who jostles or obstructs another competitor, so as to impede his or her progress, shall be liable to disqualification. (Spike wounds or lower leg lacerations can occur whether there is outright interference or not. These will require wound care and tetanus prophylaxis.)

3. Assistance to Athletes (Rule 144)

In general, athletes may not be given assistance during competition. However, Rule 144.2 (b) states: “Physiotherapy and/or medical examination/treatment necessary to enable an athlete to participate or continue participation once on the competition area may be provided by members of the official medical staff appointed by the Organising Committee and clearly identified by arm-bands, vests or similar distinctive apparel. Accredited team medical personnel approved by the Medical or Technical Delegate specifically for the above purpose may be permitted in medical treatment areas outside the competition area. In neither case shall the intervention delay the competition or an athlete’s trial in the designated order. Such attendance or assistance by any other person whether during the competition or immediately before the competition once athletes have left the Call Room is assistance.”

C. Equipment and Facilities

1. Starting Blocks (Rule 161.1)

Starting blocks must be rigid, and capable of being fixed to the track by pins or spikes. The foot-plates on the frame may be adjustable, but must allow no movement during the start. They must be secured by clamps or a locking mechanism. (The locking mechanisms should be checked to assure that they will not slip, as a slipping block may cause a hamstring injury.)

2. Hurdles (Rule 168.2)

The top bar should be made of wood, the edge rounded, and firmly fixed at the extremities. The bar should be 7 cm wide and between 1.0 and 2.5 cm thick. A force of at least 3.6 kg and not more than 4.0 kg applied at the centre-top edge is required to overturn the hurdle. (A damaged, rough cross-bar may cause abrasions; a hurdle that is too heavy to tip when struck may cause the athlete to fall.)

The hurdles have five different height settings. In newer hurdles the weights are automatically adjusted when the height setting is changed; with older hurdles this must be done manually. If the weights are in the rearmost position with the lowest height of 76.2 cm, the force against a young competitor may be up to 6–7 kg.

3. Steeplechase (Rule 169)

The hurdles are 0.914 m high for men and 0.762 m high for women, and weigh 80–100 kg. The height and depth of the water jump are now the same for men and women. The water jump area should be covered with a synthetic surface, “or matting or synthetic padding, fixed in place, to allow spikes or shoes to grip satisfactorily.”

4. Vertical Jumps-Jumping and Landing Areas

a. High Jump (Rule 182.10)

The landing area shall measure not less than 5 m x 3 m, but it is recommended that it should not be less than 6 m x 4 m x 0.7 m in major international competitions

b. Pole Vault (Rule 183.11)

The landing area shall measure not less than 5 m x 5 m. For major international competition the landing area shall not be smaller than 6 m long (excluding the front pieces) x 6 m wide x 0.8 m high. The front pieces must be 2 m long.

The sides of the landing area nearest the box shall be placed 10 to 15 cm from the box and shall slope away from the box at an angle of approximately 30 degrees.

The stop board's upper edge shall be rounded with a radius of 5 up to 50 mm.

(Most injuries in the vertical jumps occur when the athlete strikes the ground outside the landing area, or falls from the landing pad onto the ground. Some older landing pads that are too small, as well as makeshift pads, have been responsible for severe injuries, including concussions, skull or cervical fractures, and quadriplegia.)

5. Horizontal Jumps—Takeoff and Landing Areas

a. Long Jump (Rule 185.5; 185.6)

The distance from the take-off board and the far end of the landing area shall be at least 10 m. The board shall be between 1 m and 3 m from the nearer end of the landing area.

b. Triple Jump (Rule 186.3; 186.4)

The distance from the take-off board to the far end of the landing area shall be at least 21 m. The distance from the take-off board to the nearer end of the landing area shall be: for men—13 m; for women—11 m for international competition. For other competition, the distance shall be appropriate for the level of competition.

(The landing area for both long and triple jumps should be filled with fine sand and should not contain any materials [rocks, gravel, debris] that could cause injury.)

6. Throwing Events (Rules 187–193)

a. Associated Risks

Most severe and fatal injuries in athletics are associated with the throwing events. Although the discus and hammer are thrown from protective cages, an implement may still strike officials, athletes, or spectators who venture imprudently into the field in or around the landing area. While landing areas are usually marked by flags and defined by chalk lines, these do not restrain errant implements from flying far beyond these boundaries. Everyone must be cautioned repeatedly to remain alert not only during the competition, but especially during the warm-up period, as well as during training.

b. Cage and Landing Sector

The landing sector for both discuss and hammer has been narrowed to 34.92°.

For the hammer cage, the height of the netting panels must be at least 7 m at the rear of the cage. Two movable netting panels 2 m wide and 10 m high are attached at the front of the cage and adjusted separately for left- and right-handed throwers. The netting shall be of sufficient strength to prevent the implement from passing through the panel. Note that hammer throwing is now also a women's event; the women's hammer weighs 4 kg.

c. Taping of the Hand

Tape on the hand may be used only to cover an open cut or wound. A physician may be called upon to verify the need for such taping.

7. Long Distance, Road Race, Cross-Country and Race Walking

a. Safety (Rules 230.8; 240.8; 250.8)

Roads used for the competition are closed in both directions, that is, not open to motorised traffic.

b. Medical (Rules 230.8 c, d; 240.8 b, c)

- i. A hands-on medical examination during the progress of an event by designated medical personnel clearly identified by the Organising Committee shall not be considered as assistance.
- ii. A competitor must retire at once from the race if ordered to do so by a member of the official medical staff appointed by the Organising Committee. Such staff shall be clearly identified by armbands, vests, or similar distinctive apparel.

c. Refreshments

i. Track events (Rule 144.4)

Events of 5000 metres or longer: may provide water and sponges if weather conditions warrant.

ii. Road Races and Cross-country (Rule 240.9 a–e; 250.8)

Water and suitable refreshments must be at the start and finish of all races.

- a) Races up to 10 km: drinking/sponging or refreshment stations at approximately 2–3 km intervals if weather conditions warrant.
- b) 10 km or longer: refreshments every 5 km; drinking/sponging stations (water only) midway between refreshment stations, or more frequently if weather conditions warrant.

iii. Race Walks (Rule 230.9 a–f)

Water and other suitable refreshments must be available at the start and finish of all races.

- a) All events on the track or road: drinking/sponging stations at suitable intervals.

- b) Over 20 km: refreshments at 5 km and thereafter every 5 km or every lap; drinking/sponging stations mid-way between refreshments.

(Drinking and refreshment stations are usually the responsibility of the road race/race walk management team. However, it is important to ensure that drinking water is available at all drinking/sponging stations, and not sponges alone. Sponging is ineffective in lowering core temperature, although it may produce transient skin sensations of coolness. Drinking fluids is critical.)

Current rules do not address the issue of scheduling races to minimise heat injury, other than to recommend that races be held in April–May or September–December. This is hardly adequate advice for tropical climates or the Southern hemisphere! Races should be held in the early morning or late afternoon–early evening, and not the heat of the day. Guidelines issued by the American College of Sports Medicine should be followed as closely as possible (see Appendix 4, *ACSM Position Stand on Heat and Cold Illnesses During Distance Running*). The team physician, medical committee, or IAAF Medical Delegate may need to become the athletes' advocate with the Organising Committee, insisting that distance races, road races, and race walks be held under the safest possible conditions, including scheduling, adequate drinking stations, and emergency personnel and facilities.

