6. Doctor on the sidelines

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The ability to coordinate emergency care and to put the athlete's health first are essential

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ABSTRACT

- Effectively managing on-field emergencies is the most important role of the doctor on the sidelines. Pre-event preparation is essential and should include a formulated plan for dealing with emergencies and access to emergency equipment such as a stretcher and a bag and mask.
- Game day injuries should be assessed by adhering as closely as possible to a normal clinical consultation, with a proper history and examination being performed for all injuries.
- The athlete with an on-field head injury should be treated as having a concomitant cervical spine injury until proven otherwise. Athletes with any symptoms after head injury should be comprehensively and continuously assessed.
- Return-to-play decisions are made by balancing the risk of injury recurrence, the potential severity of injury recurrence and the benefits of returning to the field (which are higher at elite than amateur level).
- There is currently a shortage of doctors willing to cover sports events in Australia, which is partially explained by inadequate remuneration, inadequate facilities provided at venues, inadequate training opportunities in sports medicine, and fear of the medicolegal consequences in taking on the role as a team doctor.

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The most evident role of a doctor on the sidelines of both amateur and professional sports is appropriate recognition and management of injury. As the professionalism of the team increases, so does the need for the team doctor to have additional skills to help minimise time lost from injury and maximise sporting performance.

Doctors for both amateur and professional teams require competence in the ability to recognise the need for emergency care and coordinate it. Care and management of less seriously injured athletes will often depend on the experience and skill of the team doctor. However, the old sports medicine maxim of "if in doubt, sit them out" is still a reasonable guide to management.

Preparing for game day

Adequate preparation is essential. This includes preparing an emergency plan for evacuation of injured athletes, and being aware of the facilities available at the venue (eg, stretchers, collars, examination room). For sports that involve body contact, such as all of the football codes, a stretcher must be available, and this stretcher should be able to be dismantled (for use with patients who have spinal injury). The minimum equipment that a doctor should have access to is a bag and mask, cervical collars and an intravenous cannula.

Most football leagues at national and state level supply an emergency pack (comprising cervical collars, airways, oxygen and

1 Principles for returning athletes to the field of play on game day after an injury

- If a major injury to limb, spine or viscera is suspected, a diagnosis should be made before risking return to play.
- If returning to play after injury carries a high risk of significant aggravation or long-term consequences, the player should not return.
- If the risk of aggravation or long-term consequences is mild to moderate, the player should be fully informed of these risks, and should accept them, before returning.
- If returning to the field, players should be able to perform at a standard close to their uninjured status. ◆

a bag and mask) to the team or venue, although soccer is a notable exception in Australia. Before accepting responsibility as doctor on the sidelines, the physician must consider these issues, as adequate preparation is vital to adequate and safe care of injured athletes in both amateur and professional sport.

The contents of a typical medical bag for a doctor on the sidelines has been described in authoritative sports medicine textbooks,[1] but will vary depending on the type of sport covered. Broad categories include:

- Basic diagnostic instruments (eg, stethoscope, sphygmomanometer, auriscope);
- Wound care items (eg, dressings, sutures, gloves, sharps disposal facility);
- Medications (eg, analgesics, bronchodilators);
- Simple injury aids (eg, slings, splints, tapes); and
- Emergency equipment (cervical collar, intravenous cannula).

Doctors on the sidelines of a mass participation event, such as a community fun run, need to be prepared for the manifestations of sudden cardiac death, heat stroke and all manner of medical emergencies, including asthma, diabetes and epilepsy.[2] Access to resuscitation equipment and facilities may be required, and this should be organised well in advance. At such events, doctors may be asked to assist in emergency treatment of a collapsed crowd member, and this also requires adequate preparation and a formulated plan to deal with such an emergency.

Guidelines for injury assessment

Effectively managing on-field emergencies is an essential part of athletic team care in body contact sports, such as all football codes. Serious body contact emergencies that may be encountered include head, neck and abdominal injuries. Although catastrophic injuries in sport are rare,[3] a general principle of management is that all athletes with on-field head injuries should be treated as having concomitant neck injuries until proven otherwise. In Australian football codes, the annual incidence of spinal cord injuries has not changed since records were first kept in 1960,[4,5] with most being seen in rugby, both league and union. Most athletes with spinal injury do not recover near-normality in function,[4] emphasising the need for a high degree of awareness when treating an athlete of any playing standard with a possible spinal injury.

Clinical consultations (history and examination) for injured athletes during matches must not be compromised, and a proper assessment must be made. It is also essential that adequate records are kept, and many elite-team physicians use recording devices (such as voice recorders or computers) for this purpose. The privacy of the athlete must also be protected as much as possible, with only emergency treatment being undertaken on the field of play.

Most sporting organisations require adherence to an infectious diseases policy,[6] with "blood rules" for injured players (removal from the field for actively bleeding players) and the use of gloves by treating doctors being mandatory.

On game day, difficulties can arise in judging the ability of injured athletes to return to play, as it is often not possible to make an appropriate investigation. In elite sports, pressure from the team, coach, fans, and the players themselves to have injured athletes return to the field as soon as possible may confound this situation. It is important to remember that the ethical obligation of the doctor, in both elite and amateur sports, is to be an advocate for the athlete.

Guidelines for returning athletes to play during game situations have not yet been developed because of the range of injuries and circumstances that are encountered, but general principles are shown in Box 1.

Assessing and managing on-field head injuries

Head injuries are relatively common in contact sports, and have the potential for serious and significant morbidity. Therefore, all sideline doctors, regardless of the level of sport they are covering, should have a formulated plan for dealing with head injuries. On-field head injuries require ABC (airway, breathing, circulation) assessment. Athletes with head injury, whether conscious or unconscious, should be removed from the field of play on a stretcher and with appropriate management of the cervical spine. It is important to recognise severe head injury, and guidelines for an urgent referral to a hospital with appropriate neurosurgical facilities are shown in Box 2.

The guiding principle for allowing athletes to return to play after head injury is that all head injuries should be treated with caution, with no athlete being returned to the field if there is a perceived risk of a more serious injury.[7] Concussion (generally defined as immediate and transient disturbance of neurological function induced by head trauma) is, in some respects, a retrospective diagnosis — the player needs to have recovered from the head injury to be diagnosed with concussion. Therefore, most athletes assessed with a head injury at a sporting venue will have an evolving head injury, with the most appropriate advice being that the athlete should not be returned to the field of play.

In elite sports, where there is pressure to return athletes to the field of play as quickly as possible, many team physicians now use neuropsychological testing (eg, the SCAT [sport concussion assessment tool][8]) to more accurately assess cognitive function and recovery from head injury. Such cognitive testing is only used when the athlete is considered to have recovered from the head injury (any post-injury symptom, such as headache, blurred vision

2 Indications for urgent referral following head injury[4]

- Prolonged loss of consciousness (more than 5 minutes).
- Increasing headache, nausea and vomiting.
- Convulsion with injury.
- Unequal pupils.
- Changing cardiovascular status (eg, increase in blood pressure).
- Changing neurological signs. ◆

3 Indications for neuropsychological assessment[9]

- Loss of consciousness for more than 5 minutes.
- Post-traumatic amnesia for more than 24 hours.
- Convulsion with injury.
- Post-concussion symptoms lasting longer than 2 weeks.
- Repeated concussions. ◆

and not feeling "right", should automatically preclude the athlete from returning to the field). With such testing, provided the athletes' cognitive function has returned to pre-injury level, a same-day return-to-play decision may be made after head injury.

Athletes who have a significant head injury and those with persistent symptoms may require formal neuropsychological testing. Indications for such testing are shown in Box 3.[9]

When assessing athletes who have had concussion in the surgery, classically on a Monday morning, it is very important to emphasise that there needs to be complete resolution of symptoms before contemplating a return to activity. Continuing symptoms require athletes to be assessed as having an ongoing closed head injury. Thus, a full and comprehensive neurological assessment needs to be undertaken. Principles for assessing head injury on a Monday morning after weekend sport are illustrated in the case study.

Recently, international consensus guidelines on managing concussion in sport have been developed.[8] It is uncertain whether individual sports should mandate these guidelines for regular use, as their efficacy has not been established, and they could potentially be used as a benchmark for the standard of on-field care in any future litigation.

Returning to play after injury

Being a doctor on the sidelines for sport requires some knowledge of the common injuries encountered in that sport. In most sports, lower limb injuries predominate. Muscle injuries, especially of the posterior thigh (hamstring) muscle group, groin injuries and knee injuries are the most commonly encountered.[10-12] Generally these injuries do not require emergency care and management, apart from a decision whether to return to play or not, can be deferred to a later time. It is traditional to use ice in these injuries, and there is some evidence to support this practice,[13] with the current recommendation being to apply ice for 20 minutes every hour for 4 hours.

One of the greater challenges in covering elite team sports is assessing whether a player has recovered sufficiently from an injury to participate in an upcoming competitive match. These return-to-play decisions rely on the experience, and often the intuition, of the team doctor. However, most professional athletes will have undergone an extensive rehabilitation program before returning to play, and successful completion of such a program can give some confidence that return to play will be successful.

In amateur sports, return-to-play decisions after injury are often made by players themselves in consultation with the coach and any rehabilitation professionals to whom players might have had access. In most cases (and this is also true for professional sports), an incorrect return-to-play decision may not have significant long-term health consequences, but may lead to a recurrence of the injury.[14] This is especially the case with the many soft-tissue injuries that are common in the football codes, where rates of recurrent injury can be as high as 30%.[10,14,15] However, caution is needed if the injury involves a joint — especially a weight-bearing joint — as an inappropriate return-to-play decision can have significant long-term consequences, such as arthritis in the hips and knees.[16,17] Athletes involved in football codes have been shown to have an incidence of hip arthritis 10 times higher than age-matched controls.[17]

Injury rehabilitation

Coordinating the rehabilitation pathway is one of the more important roles of the professional team doctor, and professional teams have recently increased expenditure on rehabilitation. For all doctors on the sidelines, the general principles of rehabilitation are:

- First, restore anatomy if possible;
- Next, restore range of motion;
- Finally, gradually increase functional capacity.[18]

With increased awareness of the common injuries that elite athletes incur, and their causes,[19] more effort has been put into injury prevention programs. A recent example of this is a demonstrated reduction in the incidence of hamstring injury by changing the nature of the training regimen.[20]

Use of local anaesthetic

There is some evidence that the use of local anaesthetic to alleviate pain from injury to allow early return to competition is increasing.[21] Probably the most common example of this practice is the injection of the acromio-clavicular joint of the shoulder in body-contact sports. Such use of local anaesthetic increases the potential

Case — an athlete with possible concussion

A 25-year-old man visits his local general practitioner on a Monday morning. He states that he was knocked out in a football game 2 days previously, and has had a headache since the incident. He is concerned by his injury, but also wishes to return to playing as soon as possible.

The assessment should include:

- Obtaining a full history of the incident (this may require the recollection of a witness);
- Determining current and previous symptoms;
- Examining for any associated skull or neck injury; and
- Performing a full neurological examination (limbs, fundi, eyes), specifically looking for any focal signs.

Subsequent management is dependent on the symptoms and signs elicited.

Focal neurological signs: refer urgently to a neurosurgical unit for immediate assessment.

Suspected fracture: order a plain x-ray series, ensuring adequate views are performed.

Residual symptoms: explain that these are a contra-indication to returning to activity, and schedule a subsequent assessment (referral to a practitioner with expertise in this area, such as a sports physician, to perform this assessment would also be a reasonable course of action).

Complete resolution of symptoms: recommend a graduated return to activity; warn the athlete that symptoms might recur on resumption of activity, and that he should have further review if this happens. ◆

Evidence-based practice tips

- Although catastrophic injuries are uncommon, the ability to coordinate emergency care is the most important role of a doctor on the sidelines (evidence level IV).[4]
- Adequate preparation is the secret to success in dealing with sporting emergencies (evidence level IV).[4]
- Although there is little evidence on which to base return-to-play decisions for on-field head injuries, the overriding guiding principle of management is that the athlete must be fully recovered from the injury before returning to play (evidence level III).[8]
- Guidelines for returning to play after injury have not yet been developed, but doctors should adhere to the principle of "first do no harm" (evidence level IV).[4] ◆

for an adverse outcome, such as re-injury or a more severe injury, as the athlete does not have the usual protective mechanism of pain to prevent doing further damage. This risk probably increases if the injection is given to a weight-bearing joint. To avoid potential future litigation, this practice requires a high level of informed consent between the athlete and doctor. It is safest to avoid such procedures because of the potential for subsequent long-lasting or even permanent disability. Guidelines for the use of local anaesthetic would be difficult to establish because of possible medicolegal consequences, an inadequate evidence base, and the difficulty of quantifying benefits for players.

Drugs in sport

Team physicians for elite-level sports need to understand the drugs in sport policy issued and monitored by the national government under the auspices of WADA (World Anti-Doping Agency).[22] Doctors covering amateur sports should understand the effects of recreational drugs,[23] as athletes are generally of the age where the use of these drugs can be appealing. Educating amateur athletes about the possible affects of recreational drugs in relation to sporting activity is important. For all sports coverage, it is important to be aware of any medical drug that an athlete is taking when dealing with any subsequent medical problem or injury.

Medicolegal considerations

Any doctor undertaking team or event coverage should check with their medical defence organisation that they have appropriate cover. Doctors covering amateur or school events are generally covered under existing policies, while those covering professional teams generally need to arrange additional insurance, but each doctor should check with his or her insurer. Currently, the expectation is that doctors will self-insure for the team or event they cover even if they receive little or no remuneration. Accordingly, the number of athletic team or event doctors will probably diminish.

In elite sports, the team doctor is usually paid by the relevant club, with most consultations being outside of any third-party insurer, including Medicare. However, this is not universal, and the source and adequacy of remuneration will vary according to the resources of the team.

Sports medicine training

The Australasian College of Sports Physicians (ACSP) has a 4-year training program within which each candidate needs to complete at least 1 year as a team physician for a body contact sport.[24] Other training is available, such as university-based Master of Sports Medicine programs and Sports Medicine Australia programs. In Australia, most doctors for elite-level football teams in any code, and all members of the ACSP will have undertaken an emergency medicine and trauma course. The role of sports doctor has traditionally fallen to the sports enthusiast, but with increasing professionalism of the sports, the need for adequate training of doctors is becoming more important.

Finally, the American College of Sports Medicine has team physician statements covering issues such as female athletes, returning to play and sideline preparedness. These are an accessible and useful resource for doctors wishing to further explore the role of being a team physician.[25]

Conclusion

Being a doctor on the sidelines is demanding, but the many different skills and roles required make it a unique and satisfying experience.

Competing interests

None identified.

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