

# Sports health care for elite high school basketball: pre-event planning and event coverage

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*This paper reports on the pre-event planning and event coverage for an elite level high school basketball exposure camp. Sixty-one (61) of the best male basketball athletes in Ontario were assembled for three days of intense training and games. This paper is not a study of the current literature data on type and/or frequency of basketball injuries. Data from this one event on athlete demographics, types and frequency of injuries as well as sports health care service usage are included. Information on event organization will serve to assist future sports event health care planners in the organization of their sport health care teams. (JCCA 1998; 42(2):101-106)*

*Cet article traite de la planification préliminaire et du déroulement d'un camp d'entraînement destiné à des joueurs d'élite de basket-ball de niveau collégial. Soixante et un (61) athlètes masculins classés parmi les meilleurs joueurs de basket-ball de l'Ontario ont été réunis pour trois jours d'entraînement intensif et de matchs. Cet article ne constitue pas une étude des données existantes sur le type de traumatismes qu'entraîne la pratique du basket-ball ou leur fréquence. Il comprend des données sur cet événement particulier, qui fournissent des renseignements sur les athlètes, sur les types de traumatismes causés par la pratique du basket-ball et leur fréquence, de même que sur l'utilisation des services de santé pour les sportifs. L'information donnée sur l'organisation de ce camp d'entraînement aidera les responsables de la planification des soins de santé lors d'événements sportifs à mettre sur pied des équipes soignantes pour les athlètes. (JACC 1998; 42(2):101-106)*

KEY WORDS: athletic injury, basketball, adolescent.

MOTS CLÉS: traumatismes sportifs, basket-ball, adolescents.

## Introduction

Sports exposure camps are designed both to assist in the development of young athletes as well as to provide them the opportunity to showcase their talents to college and

university coaches. This paper is written to report on the sports health care service planning and usage during an elite level high school basketball exposure camp.

Throughout 1997, the top male high school basketball players in Ontario were identified by provincial coaches and through junior level development programmes. In the fall of that year, the best-ranked sixty-one [61] players were brought together for an intensive three day exposure camp. The activities consisted of basketball practice and drill sessions, competitive games and life skills classroom presentations.

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Of the student-athletes participating in the camp, two [2] were in their second year of high school, five [5] were in third year, thirty-three [33] were in fourth year and twenty-one [21] were in their fifth and final year. (Note: In the province of Ontario, students normally attend high school for five years, beginning in grade nine.)

### Pre-event planning and facilities

While basketball is not usually classified as a contact sport, when played at a highly competitive level it becomes a collision sport. Impact with other players and the floor is a frequent cause of injury. In addition, sprains, especially to the ankle, are not infrequent. The risk of injury at this elite level is high necessitating sports health care services.

Besides having an excellent understanding of the physical demands of the sport, the sports health care planners must also be able to anticipate both the type and frequency of injuries so that appropriate staffing, equipment and supplies are available when needed.<sup>1</sup> Reviewing injury rate and frequency, if available, will help planners prepare for event coverage providing information which will assist with determining staff, supplies and equipment requirements.

While there are a great number of studies reporting on the epidemiology of injuries in basketball, there are few papers providing data on high school basketball and virtually none which report injury data resulting from elite level male high school players. This lack of specific information adds to the difficulty in accurately predicting the services and supplies which would be needed at a camp for this group of athletes.

Basketball, in general, has been reported to produce as great as the second highest injury rate in competitive sports because of the physical contact involved. In North America, the high school sports of football and wrestling surpass basketball in injury rate.<sup>2</sup> One explanation for the high injury rate in basketball is the players' high centres of gravity resulting from the preferred body type. Relatively incidental contact under the basket, especially when the centre of gravity is raised due to elevation of the arms, can lead to loss of balance and heavy collision with either the floor or an opponent.<sup>3</sup>

Cumulative data for the sport of basketball show that ankle sprains comprise more than fifty percent [50%] of the major injuries to all players.<sup>4</sup> Regarding boys' high

school basketball specifically, recent injury survey results indicate that over one-fifth [1/5] of all players sustained at least one time-loss injury each year. Approximately thirty-eight [38%] to forty-two percent [42%] of these injuries were to the ankle and foot with an additional eleven [11%] to fourteen percent [14%] involving the hip/thigh. Injuries to the areas of the face/scalp, knee, and forearm/wrist/hand comprised approximately ten percent [10%] each of the remaining reported conditions.<sup>5,6</sup>

The most common type of injury reported was sprains, at a rate of forty-four percent [44%], followed by general trauma ranging from twenty-two [22%] to twenty-six percent [26%]. Of note was that close to sixty percent [60%] of the injuries occurred during practice and, of those injuries which occurred during game situations, fifty-nine percent [59%] occurred during the second half of the game.<sup>5,6</sup> This is most likely due to fatigue which may be coupled with increasing intensity as the end of the game nears.

Dental and orofacial injuries have also been shown to have a high occurrence rate in basketball. One recent study reported that up to thirty-four percent (34%) of all injuries in basketball were to the dental or oral areas.<sup>7</sup>

Recognizing the sports injury risk involved, the organizers of the camp realized and understood the need for and importance of high calibre sports medical pre-planning as well as for on-site coverage.<sup>8</sup> Prior to the camp, a medical director and staff were carefully selected and appointed. The sports health care staff consisted of one experienced sports medicine physician, one dentist with a particular expertise in sports dentistry and three certified athletic therapists. The medical doctor and dentist were on 24 hour call and were accessible to the athletes within minutes, if needed. The athletic therapists were on site for the full duration of the camp. One of the therapists stayed over night at the camp hotel, where a suite served as a medical and therapy room.

The main activity area was a college gymnasium which housed two, side-by-side regulation hardwood basketball courts. The therapy area was located immediately adjacent to the courts. In this room were three taping tables as well as areas for supply storage and record keeping.

Due to the short duration of the camp (three days) and the very full daily schedule, which allowed only minimal non-programmed time, it was decided not to have the athletic therapy area equipped with electrical modalities.

Figure 1



## 1997 NIKE EXPOSURE CAMP MEDICAL FORM

**PLEASE PRINT CLEARLY (Forms must be returned at check-in)**

Player Name \_\_\_\_\_ Birth Date \_\_\_\_\_

Address \_\_\_\_\_

Postal Code \_\_\_\_\_ Telephone \_\_\_\_\_

Emergency/Contact & Phone Number \_\_\_\_\_

Health Card Number \_\_\_\_\_

Special Medication \_\_\_\_\_ Reason \_\_\_\_\_

Allergies or serious injury within the last year: \_\_\_\_\_

Have you ever been hospitalized? \_\_\_\_\_ If so, when and for what? \_\_\_\_\_

Have you ever had any surgery? \_\_\_\_\_ If so, when and for what? \_\_\_\_\_

Have you had any injuries in the past year that have prevented you from practicing or playing basketball?  
 \_\_\_\_\_ If so, when and what were they?  
 \_\_\_\_\_

Do you have any injuries or conditions that could be made worse by playing basketball? \_\_\_\_\_

Do you wear any bracing or other prescribed devices while playing? \_\_\_\_\_

Do you wear contact lenses? \_\_\_\_\_

Are you currently being treated for, or have you ever been treated for:

	YES	NO
High blood pressure	_____	_____
Cardiac problems	_____	_____
Thyroid condition	_____	_____
Respiratory problems	_____	_____
Rheumatic fever/heart murmur	_____	_____
Infectious diseases	_____	_____

I certify that the information on the medical history form, and all other information provided, is true.

Parent/Guardian Signature: \_\_\_\_\_ Date \_\_\_\_\_

For a camp of longer duration, however, the provision of follow-up treatment modalities should be considered by the organizers. Issues of parental consent to treatment of minors would have to be carefully addressed.

Prior to registering at the camp, each athlete was sent a medical history questionnaire (see Figure 1) which was to be completed before being allowed to participate in camp activities. Medical conditions, past and present injuries, medications and allergies were identified. On arrival, members of the health care staff were able to review these histories and to discuss identified conditions with specific athletes to ensure that intense activity was not contraindicated.

The issue of insurance is one which, in this day and age, cannot be overlooked. In the province of Ontario, hospital care and doctor-provided services are covered by a government health care plan for all residents. All of the members of the sports health care staff at the camp were covered by professional liability insurance.

### Camp operations

Camp programming extended from seven a.m. until eleven p.m. Over the three days of the camp, each athlete was on court for twelve [12] hours of basketball related activity. These included four [4] hours of practice and drill sessions as well as four [4] regulation games for each athlete. The on-court groups were small which made for minimal down time during drills for each athlete.

All of the on-court activities were of very high intensity. More than fifty [50] university and college coaches from seventeen [17] American and nineteen [19] Canadian universities and colleges attended the camp to scout potential recruits. The fact that so many coaches from universities as far away as the Pacific coast were in attendance attested to the high calibre of the athletes and also added to the competitiveness of the games and practices.

Staff communications, both routine and emergency, were facilitated by the use of multi-channel walkie-talkie radios. Key members of the programming staff, members of the security team and two members of the on-site health care staff were equipped with radios. In the event of an emergency, the security staff, after being informed by radio of the nature of the situation, would be able to contact the appropriate emergency response service via either cell phone or telephone. The security staff would provide road directions, meet the arriving response team

and direct them to the site of the emergency. This communication system was developed so that, in the event of an emergency, all members of the medical staff could remain available to assist with managing the emergency situation. No one would have to leave the site to locate a telephone, secure assistance, direct the arriving response team or obtain equipment.

The sports health care staff were represented at most of the pre-camp planning meetings. This allowed them input into decisions and arrangements which might have a bearing on the health of the athletes. For example, members of the health care staff were able to offer advice on menu selection for camp meals as well as on the provision of on-court beverages. Rehydration during and after basketball activities was facilitated by the provision of a popular sports drink. Large cooler dispensers were located in each corner of the gymnasium. Athletes were encouraged to drink freely. Beverage bottles were not used. Rather, individual paper cups were supplied to help prevent the possible spread of disease.

During the life skills sessions, the athletes received two presentations which included information on injury prevention, conditioning and flexibility, nutrition and hydration, as well as other aspects of sports health care. Instructors for these presentations were the doctors and the head athletic therapist. These sessions were rated very highly by the athletes during a post-camp survey.

**Figure 2**  
**Conditions Assessed and Treated During Camp**  
(Number of Athletes = 61)

Conditions	Cases
Contusions	13
Other*	8
Joint sprains	6
Muscle strains	4
Cramping/	
Dehydration	4
Tendinitis	3
Illness	3
<b>Total</b>	<b>41</b>

(\*Other conditions = shin splits - 2, Osgood-Schlatter - 2, headache - 1, thigh and calf tightness - 1, laceration - 1)



### Services provided by the sports health care team

Assessments done and treatments provided by the medical and/or therapy staff were recorded by the attending staff members on charts developed for the camp. Athletes' charts were filed, during the camp, according to their camp-assigned teams.

The numerous visits to the therapy facility solely for the purpose of obtaining ice bags for injuries which had been previously assessed were not recorded.

During the camp, athletes and staff presented with forty-one [41] individual complaints. Figure 2 shows the incidence of various conditions with which athletes and camp staff presented. The most prevalent of these were contusions with thirteen [13] individual occurrences. Muscle strains and muscle cramping conditions were seen four [4] times each. There were only three injuries to facial areas reported. These were all contusions of mild to moderate grade.

Somewhat surprising was that only six [6] joint sprains were assessed and treated. Four [4] of these resulted from ankle inversions. None of these occurred to athletes who were wearing prophylactic ankle braces. These four injuries represent eight percent [8%] of the forty-nine [49] athletes who did not use ankle braces. The small number of ankle injuries may be due to a number of reasons which include i) the brief duration of the camp, ii) the high skill level of the athletes, and iii) the fact that each athlete was equipped with new, mid-height basketball shoes which may have an influence on preventing injuries.<sup>9</sup>

For the above cases, fifty-two [52] visits were made to the health care staff for assessment and treatment. During the course of the camp, one athlete was transported to a local health centre by the camp security staff and two athletes were seen and treated by the camp physician. The athletic therapists were able to provide supportive taping for athletes who required this service. Over the course of the camp, there were fifty-five [55] visits for taping.

As often as possible, athletes who were injured were provided with follow-up advice and the names of health care professionals in their home communities whom they could contact. In addition, the members of the health care staff were available and were sought out by the athletes for consultation on a variety of personal health-related concerns.

Of interest is the reported use of braces by athletes as collected from their pre-camp medical forms. Twenty

**Figure 3**  
**Considerations for Planning Sports Health Care Services for High Level Sports Events**

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Staff doctors: medical, chiropractic, dental
orthopaedic surgeon
Staff therapists: athletic therapist, physiotherapist,
massage therapist
Licensing/professional credentials
Emergency procedures and protocols
Emergency transportation
Access to parents/guardians
Communications
Supplies (field and clinical)
Therapy equipment (field and clinical)
Location of Health Care/Therapy "clinic"
Pre-event screening/health histories
Recording systems
Ice supply
Athlete nutrition
Beverages
Overnight staff
Insurance/legal waiver/consent to treat
Venue safety assessment
Satisfaction survey/debriefing

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percent [20%] of the athletes indicated that they routinely used some type of ankle brace when practising and playing basketball. These were worn either prophylactically or post-injury. From observation of the athletes, no one type of brace appeared to be dominant.

### Recommendations for future events

In planning for this camp, the sports medical staff was able to consult with health care staff members who had been involved with similar United States based elite basketball camps. The information they provided on the type and frequency of athlete requests for sports health care service allowed for a more accurate estimation of staff, equipment and supplies requirements.

When preparing for a camp, or event similar to this, the subjects or areas listed in Figure 3 must be carefully considered and addressed. Depending on the specific event, some of the headings listed in Figure 3 become more or less important. Each subject, though, should be carefully considered by the organizers and experienced sports health care professionals before deciding on

whether or how each area will be handled for the event and what services will be required. Ideally, careful planning will help prepare for every eventuality and should eliminate the possibility of unexpected service requests by the camp participants.

Sports health care team member debriefing following the event is a useful and often neglected component of the successful event coverage operation. During the event itself, staff should be encouraged to make notes about the various elements and aspects which went very well and those which were deficient. Ideas for improvements should be recorded. If the event is to be held again, it is often helpful to conduct a survey of both participants and staff as to their satisfaction with the various aspects of the camp operations. The sports health care services should be included in this questionnaire.

Shortly after the completion of the event, the staff should meet together in order to share and review their notes and ideas, discuss the data from the satisfaction surveys and produce a report which may be submitted to the event organizers, passed on to the next group who will run the event or keep amongst themselves for future reference. This simple process will help to ensure continuous improvements in the quality of service offered and should prevent mistakes in planning and/or operations from reoccurring.

For this camp, the sports health care staff made several recommendations. To address the number of cases involving muscle cramps, changes to the menu and beverage selection were suggested. Recommended improvements to the medical form (Figure 1) included a description of the type of braces worn as well as a statement of consent for examination and treatment.

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