Sports Injuries in British Troops deployed on Operation Resolute (Bosnia)

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SUMMARY: This study presents epidemiological data on sports injuries in deployed British troops in Bosnia, during the first five months of Operation Resolute. A retrospective analysis was carried out of sports injuries seen in one practice in the divisional rear area during April 1996. They account for a significant morbidity in deployed troops and are a major cause of manpower wastage and of medical repatriations. The continuous monitoring of sports injury should be a central part of the epidemiological surveillance of deployed troops. Their occurrence during operations can be minimised by judicious restrictions on those sports, such as football, which are known to have an adverse injury profile.

Introduction

Following the signing of the Dayton Peace Agreement on 15 December 1995, British troops deployed rapidly into Bosnia-Herzegovina as part of the NATO-commanded peace implementation force, or IFOR. The British mission was known as Operation Resolute.

By 15 January 1996 Britain had 10,830 troops in the region, and a steady-state level of approximately 10,000 deployed British troops was maintained for the rest of the year.

The onset of warmer weather during March and April, and the attainment of the first series of the Dayton peace objectives, allowed commanders to encourage the playing of organised sports. Three rugby sevens tournaments took place in the British divisional area during March and April 1996. Numerous football and rugby matches were organised on an *ad hoc* basis, and there was much emphasis on individual and team running.

From early March onwards it was apparent that sports injuries were becoming a serious cause of routine morbidity amongst British troops. Increasingly, personnel were being repatriated to UK with severe bone and soft tissue injuries caused by sport. We therefore undertook an in-theatre epidemiological analysis of this problem.

Methods

During May 1996 we carried out an analysis of sports injuries reported in British troops during the first 19 weeks of Operation Resolute, i.e. from 20 December 1995 (D-Day) to 28 April 1996 (D+ 130).

To obtain an overview of sports injuries throughout the military theatre of operations, we interrogated the primary care epidemiological database, which had been in place since D-Day. To calculate incidence rates we obtained force population data for the first five months of

Operation Resolute from the G1 Personnel Cell at Headquarters Multinational Division Southwest, Split.

For greater clinical detail on the range and impact of sports injuries being encountered in theatre, we carried out a retrospective analysis of appropriate consultations at Divulje Barracks (Split) Medical Centre during April 1996. This focused analysis also enabled us to calculate manpower losses attributable to sports injury.

Results

Figure 1 shows consultations for sports injury in deployed British troops during Weeks 1-19 of Operation Resolute, as recorded in the health database. There were 626 consultations during this winter period, representing one consultation for every sixteen British personnel in theatre. One hundred and seventy five of these sports injury consultations took place at the Divulje Barracks (Split) Medical Centre, the mean being 9 consultations per week. The sharp rise in the incidence of sports injuries from the beginning of March onwards (Week 11) can be clearly seen.

Figure 2 shows sports injury as a proportion of total injuries. This proportion was 11% during the overall period of the study, but increased as the weather improved. By April 1996 over one third of all injuries presenting to Divulje Barracks Medical Centre were due to sport.

Figure 3 charts the steadily increasing consultation rate for sports injuries in Divulje Barracks during Weeks 1-19 of Operation Resolute. There were wide fluctuations in this rate, with troughs corresponding to periods of bad weather and of intense military activity. Overall, however, the incidence increased steadily as the operation progressed.

Divulje Barracks Medical Centre ran clinics seven days

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Fig 1. Operation Resolute 1995/96. Consultations for sports injury.

Fig 2. Operation Resolute 1995/96. Injuries Weeks 1-19 by category.

a week, and the breakdown of injury consultations during each day of April 1996 is shown in Figure 4. The mid-point practice population during this month comprised 1,428 British troops. During April there was a total of 70 consultations at the medical centre as a result of sports injury, or 1 consultation for every 20 personnel normally based at the barracks. Analysis of the medical records established that 44 of these were initial consultations, and 17 were follow-up consultations. Medical notes were not available for nine patients, for administrative reasons or on account of posting.

Table 1 gives a breakdown of the 44 initial consultations according to the type of sport which had caused the injury. Almost half of the sports injury consultations at Divulje Barracks were as a result of football.

The 44 consultations led to diagnosis of 45 separate injuries. The distribution of these injuries by anatomical

Fig 3. Operation Resolute 1995/96. Consultation rates for sports injury.

site is shown in Table 2. Lower limb injuries accounted for 72% of all injuries seen.

In terms of outcome, sports injuries at Divulje Barracks during April 1996 were a significant cause of manpower loss. A total of 202 days of restricted duties were prescribed. Some were hospitalised locally, the combined period of hospitalisation following sports injury amounting to 48 days during April. Three sports injury casualties from Divulje Barracks required repatriation to UK for specialist surgery. Although not followed up by the investigators, it is unlikely that they would have been redeployed on Operation Resolute.

Fig 4. Divulje Barracks (Split) Medical Centre. Injury consultations during April 1996.

Table 1
Initial consultations for sports injury at Divulje Barracks by cause, April 1996

Sport	Number (%) of consultations
Football	21 (48)
Running	12 (27)
PT (organised)	6 (14)
Rugby	3 (7)
Abseiling	1 (2)
Volleyball	1 (2)
Total consultations	44 (100)

Table 2
Sports injuries at Divulje Barracks by site of injury April 1996

Site of injury	Number (%)
Leg (excluding ankle)	17 (38)
Knee	8 (18)
Ankle	7 (16)
Upper limb	5 (11)
Back	4 (9)
Abdomen	2 (4)
Chest/ribs	1 (2)
Face	1 (2)
Total injuries	45 (100)

Discussion

This study demonstrates that sports injuries are a significant cause of manpower wastage during military operations, often involving loss of the fittest personnel in a unit. Many studies have demonstrated the high cost of managing sports injuries, in terms of healthcare resources utilised (1,2). These costs are a serious resource burden on the Defence Medical Services at a time of financial stringency.

Whilst sport is to be encouraged as a means of promoting fitness and high morale, most sports injuries are avoidable (3,4,5), and when occurring in the workplace they reflect sub-optimal management of the workforce. Their impact can and should be minimised by means of primary preventive strategies (6). Central to this

concept is the need for timely and accurate epidemiological data on the incidence of sports injuries, to enable medical personnel to advise commanders appropriately. The continuous, theatre-wide monitoring of sports injury should therefore form a central part of the epidemiological surveillance of deployed troops.

The case of football warrants special discussion. The injury profile of football is among the worst of any major team sport (7,8,9,10). Participation in most sports involves a trade-off between improved personal fitness and the possibility of physical injury (11,12,13), at times rendering the individual unfit for work. In the case of football this trade-off commonly works to the

disadvantage of the employer, especially where the game is habitually played in a confined area and on an improvised or unprepared surface (14,15).

The finding in this survey that 72% of football injuries involved damage to the lower limb is consistent with Tointon's 1984 study of hospitalised servicemen which reported that 67% of football injuries proceeding to hospitalisation involved injury to the lower limb (16). This has serious implications in terms of continued Army service, since combat fitness is defined by an individual's ability to march a specified distance (17).

Although football is the most commonly played sport in the Armed Services (18), it is not a recognised component of any military fitness programme. For this reason football during military operations tends to be an *ad hoc* activity which occurs on improvised pitches, often of concrete. During the early months of the IFOR operation, at least one German unit imposed an outright ban on the playing of football, following an unacceptably high level of severe football injuries (Dr M Kannewischer, personal communication). British commanders need to be advised by their medical staffs that where operational effectiveness is being compromised such a control measure would be responsible and realistic, and not simply draconian.

Acknowledgement

We thank Cpl Park AGC of the G1 Personnel Cell, Headquarters Multinational Division Southwest, for providing us with daily force population data.

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