Injuries Sustained by Recruits During Basic Training in Irish Army

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Abstract
The incidence of recruit injuries during basic training in the Irish Army is, to date undocumented. In this retrospective cohort study, the medical records of 415 recruits are examined. The lower limb predominated as the anatomical site of the majority of injuries. The overall incidence of male 'first time' injuries was 56.66 per 1000 man-week training. The corresponding female figure was 99.26. Female recruits lost an average of 8.2 days per injury, while the male figure was 5.69 days. The injured female recruit was also more likely to sustain a further injury than her male colleague. Risk factors and possible prevention strategies are discussed.

Introduction
During the recruitment embargo there was little opportunity to study the incidence and nature of injuries sustained by recruits in the Irish Army. However, this situation changed with the recent recruit intake which also resulted in increasing numbers of females joining the army. No study of the effects of recruit training from an injury and gender perspective in the Irish Defence Forces exists to date. The parameter chosen for the investigation of the incidence of injury in this recruit population is that of the 'first time' injury. The rational for calculating the first time injury incidence, rather than overall injury rate, was the possibility that subsequent injuries could be influenced by the primary event.

Methods
415 recruits embarked on basic training in the Southern Brigade during 2000 and 2001. The syllabus of training lasts approximately sixteen weeks. Physical training involves conditioning, local muscle endurance and aerobic training of increasing duration, frequency and intensity. Each individual's medical file was examined and details of injury, its nature and timing in the recruit training schedule, as well as medical disposal of the recruit were noted. Where the medical file was unavailable, or incomplete the patient was excluded from the research. Independent 2-sample t tests were conducted to investigate if males and females differed with respect to numbers of days lost per injury and weeks to injury. Tukey's honestly significant difference (HSD) test was used for post-hoc comparisons. Chi-square tests were used to test for differences in percentages of individuals presenting with first and second time injuries and gender. Separately for first and second time injuries, chi-square tests were used to determine if there were associations between injury type and gender.

Results
Table 1 outlines the gender and outcome of all those embarking on the course. A total of 21 recruits (17 male, 4 female) were excluded because of inadequate records.

The various diagnoses, listed according to anatomical location, are illustrated in Table 2.

The majority of injuries sustained by the recruits involved the lower limb. Consequently, the injuries to head/neck and upper limb are not discussed further. Table 3 records the number and percentage of injuries sustained to the other anatomical regions and outlines the breakdown by gender group. On statistical analysis the differences in injury distribution by gender for first and second injury were not significant (p>0.05). As shown in Table 4, the incidence of 'first time' injuries, and the average number of days lost per injury for female recruits was nearly 1.75 and 1.5, respectively, times greater than that of the males. However, these differences were not statistically significant on analysis (p>0.05 in both instances). The proportion of second or subsequent injury to 'first time' injury for the two groups is as follows: Males 1:2.7, Females 1:1.0.

Discussion
The first finding of interest was the fact that less than 100% medical records were available for the study. The recent reductions in Medical Corps personnel may be a factor in this less than perfect medical filing system. Perhaps computerisation of medical records may offer a solution in the future.
Other studies have identified the lower limb as the area most affected by injury in military recruits.23 The finding that 71% of all injuries sustained by recruits involved the lower limb is comparable to the findings in the Norwegian Defence Forces where the figure was 63%6 and in the U.S. Army with a figure of 80%6. Among the female recruits the ankle was the most common site of injury while in the male it was the knee. This gender difference has not been found in another similar study7.

Unlike other studies there is no recorded incidence of a stress fracture in this group of recruits8. Second injury may be related to the first, through the adoption of compensatory postures or movements. In this context it is interesting to speculate that this may be the reason behind the rise in the number of back injuries as second/subsequent injuries. Further research is required in this area, but if borne out, then more attention will have to be paid to rehabilitation and physiotherapy post injury than presently is the case.

The overall incidence of 'first time' injury among male recruits was 56.96 per 1000 man-week training in this study compares with an overall rate of 27.8 among male recruits in the USA8. While the Irish figure appears significantly higher, the duration, location and syllabi of training were different. The corresponding figure for female recruits injuries is 99.26 (Irish) and 63.0 (US). This study found that female recruits suffered 1.75 times the rate of 'first time' injuries compared to their male colleagues. (Irish) and 63.0 (US). This study found that female recruits suffered 1.75 times the rate of 'first time' injuries compared to their male colleagues.

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