

Injury patterns sustained during hill-walking, scrambling and rock-climbing in Snowdonia

OFF THE ROCKS



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Introduction/Background

Thousands of people per year enjoy the mountains of Snowdonia. Hill-walking is the commonest activity, but rock-climbing (involving technical equipment and ropes) and scrambling (a cross between climbing and hill-walking, utilizing little or no safety equipment) are also popular.

Accidents occur in all three activities; understanding the epidemiology of injury informs both the clinical management of mountain casualties, and injury prevention efforts. We wished to determine if the patterns of injury sustained during these three activities differs.

Method

We interrogated our database of casualties brought to our Emergency Department (ED) following assistance from Mountain Rescue (MRT) and/or Search & Rescue helicopter (SAR) between March 2004-Feb 2017. Data was analysed in R4. Each individual aspect of the injury pattern was analysed by logistic regression of activity category (Hill walking/Rock-Climbing/Scrambling), age, and sex. P-values were adjusted by the Holm-Bonferroni correction for multiple comparisons. Outcome data (death/discharge home from ED) was analysed using logistic regression.

Results

- From 1423 casualties on our database, 1004 were injured whilst either hill-walking (n=773), rock-climbing (n=132) or scrambling (n=99)
- Compared to hill-walkers, scramblers were more likely to injure their heads ($p=0.0025$), neck/spine ($p=0.0011$), and upper limbs ($p<0.0001$) whereas rock-climbers were more likely to injure their neck/spine ($p=0.0072$) and upper limbs ($p<0.0001$) and less likely to injure lower limbs ($p=0.0070$).
- There was no difference in deaths between the three activities, but both scramblers and rock climbers were less likely to be discharged home from the ED ($p=0.0004$ and $p<0.0001$ respectively).

Discussion

- Rock-climbers and scramblers sustain similar injuries, and are more likely to injure their heads, neck/spine and upper limbs (and less likely to injure lower limbs) than hill-walkers.
- Despite our database being the largest in the world recording hospital diagnosis in mountain casualties, our results only reached statistical significance for three parameters, but there is a clear trend sufficient to help guide both mountainside and EM clinicians: head and internal injuries are much more commonly seen in rock climbers and scramblers.
- Helmets are commonly used by rock-climbers but rarely by scramblers. Our data confirms that scramblers do sustain head injuries: we recommend they wear helmets.