

## RESEARCH LETTER

## A Five-year Consumer Protection Database Study Yielded Emergent Demographic and Dermatological Condition Information Associated with Rock Climbing for One Hundred and Sixty-Six Patients

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### ABSTRACT

**Introduction:** Rock climbing is a popular activity that poses various injury risks, including falls, equipment failures, physical stress from climbing, and contact with falling objects. We aimed to quantify emergent dermatological injuries and conditions

**Methods:** We used the NEISS database that collates data from over 100 emergency rooms and applied filters to analyze rock climbing injury and skin condition data from 2019 and 2023 for demographics, anatomical location, and types of injuries and conditions.

**Results:** A total of 166 patient vignettes with 186 injuries were included. The majority of the climbers with dermatological injuries were male (64%), with the most common injuries found to be contusions or abrasions ( $n = 109$ ) and the most common injury sites being the upper extremities ( $n = 61$ ) and the head/neck ( $n = 50$ ).

**Discussion:** These results emphasize the need for targeted preventive measures to reduce the incidence of dermatological injuries among rock climbers, considering that the severity and impact of these injuries can be significant (e.g., lacerations) and prevalent in cosmetically sensitive areas (head/neck). Additional research should also be performed at ambulatory and outpatient settings to identify less emergent dermatological conditions associated with the sport and allow for appropriate guidance for those conditions.

### INTRODUCTION

Rock climbing is a popular activity that poses various injury risks, including falls, equipment failures, physical stress from climbing, and contact with falling objects.<sup>1,2</sup> Previous studies have attempted to quantify climbing injuries between 1990 to 2016 using the National Electronic Injury Surveillance System (NEISS), a public consumer safety

database that sources injury data from nearly 100 emergency departments in the United States.<sup>1,2</sup> This database includes injuries related to multiple activities, including climbing and consumer products.<sup>3</sup> However, there has been limited focus on the specific dermatological conditions associated with rock climbing. Our study aims to address this gap by quantifying the types of dermatological injuries, their locations, and the demographic characteristics of affected

individuals using contemporary data from the NEISS between 2019 and 2023. By examining these variables, we hope to better understand the general epidemiological trends in rock climbing-related dermatological injuries and provide meaningful insights that can guide physicians in promoting safety habits among climbers.

## METHODS

We used the "mountain climbing" filter combined with injury-specific filters for "burns," "contusions and abrasions," "dermat[ology]," "laceration," "puncture," and "other [injuries]" to extract injury data from the database related to external and dermatological injuries. The "other injuries" category was further evaluated to determine dermatological relevance based on patient vignettes. Injury locations were categorized into upper extremities (shoulder to fingers), lower extremities (thigh to toes), head/neck, upper trunk, lower trunk, and other/unspecified.

## RESULTS

A total of 166 patient vignettes with 186 injuries/conditions were included. Our findings indicated that the majority of the climbers with dermatological injuries were male (64%), identified as white (56%), and had an average age of 26 years (SD = 16 years). The most common injuries were contusions or abrasions (n = 109, 59%), followed by lacerations (n = 68, 37%). Less common but notable injuries and conditions included frostbite (n = 4, 2%), cellulitis (n = 2, 1%), urticarial rash (n = 2, 1%), and sunburn (n = 1, 1%). The upper extremities (n = 61, 33%) were the most frequently affected injury site, followed by the head/neck (n = 50, 27%). Details on injury demographics and

location/type can be seen in Table 1 and Table 2, respectively.

## DISCUSSION

These results emphasize the need for targeted preventive measures to reduce the incidence of dermatological injuries among rock climbers, considering that the severity and impact of these injuries can be significant (e.g., lacerations) and prevalent in cosmetically sensitive areas (head/neck). Physicians can play an essential role in this effort by advocating for the use of protective equipment to minimize injury and exposure risk and educating patients on recognizing the signs of frostbite and other emergent dermatological conditions. Further research should be performed to monitor the effectiveness of current preventive strategies and establish the best practices for injury prevention in climbing and related sports. Additional research should also be performed at ambulatory and outpatient settings to identify less emergent dermatological conditions associated with the sport and allow for appropriate guidance for those conditions.

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3. NEISS Frequently Asked Questions: NEISS; 2024  
[Available from: <https://www.cpsc.gov/Research--Statistics/NEISS-Injury-Data/Neiss-Frequently-Asked-Questions>].