

ORIGINAL RESEARCH

Injuries in Bouldering: A Prospective Study

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Objective.—Bouldering is a type of rock climbing in which the climber ascends small boulders with pads and spotters in lieu of ropes, with an emphasis on ascending the most difficult surface possible. We sought to investigate the prevalence and incidence of injuries, and we hypothesized boulderers who enlisted preventative measures and those who bouldered indoors would have fewer injuries.

Methods.—This cross-sectional cohort study assessed incidence and pattern of injury among indoor and outdoor boulderers over 1 year.

Results.—Spotting other boulderers resulted in few injuries, but both climbing and falling were associated with diffuse injuries. Finger and ankle injuries were common. Traditional preventative measures were ineffective, and there were few differences between indoor and outdoor boulderers.

Conclusions.—Bouldering outdoors has an increased risk of injury to the fingers. Preventative measures appear largely ineffective in reducing the number of injuries in both cohorts.

Key words: athletic injuries, epidemiology, cumulative trauma, disorders, mountaineering, injuries, tendon injuries

Introduction

Bouldering is a sport intimately related to rock climbing. Climbing sports can be conceptualized as having 2 different athletic goals: 1) successful ascent to a summit or 2) the gymnastic act of climbing itself. Athletes involved in bouldering focus completely on the latter to move over the most difficult section of rock possible. This is accomplished on boulders near to the ground, obviating the need for ropes and harnesses to catch a falling climber. Instead, the boulderer climbs above a specialized portable pad and is spotted very similarly to a gymnast (Figure 1). Therefore, a boulderer repeatedly attempts a short difficult section of rock, which is generally 8 to 15 feet high. It can take the boulderer anywhere from hours to

years to successfully solve this mini-climb or “boulder problem.” The boulderer repetitively attempts the sequence of climbing moves to create muscle memory, build strength, and improve efficiency of movement required for successful ascent. Although bouldering had modest beginnings circa the 1950s, the sport has exploded in popularity with specialized equipment, companies devoted to bouldering gear, boulder route guidebooks, professional bouldering guides, and restrictions to bouldering areas because of excessive demand.

As the number of people climbing recreationally has increased from 7.3 million to 9.2 million over the last decade,¹ investigators have begun to study the inherent danger of the sport, common injury patterns, and the use and efficacy of safety equipment. Despite this nascent attention to the epidemiological aspects of climbing, bouldering has been neglected. Unfortunately, there is reason to doubt that findings related to rock climbing are

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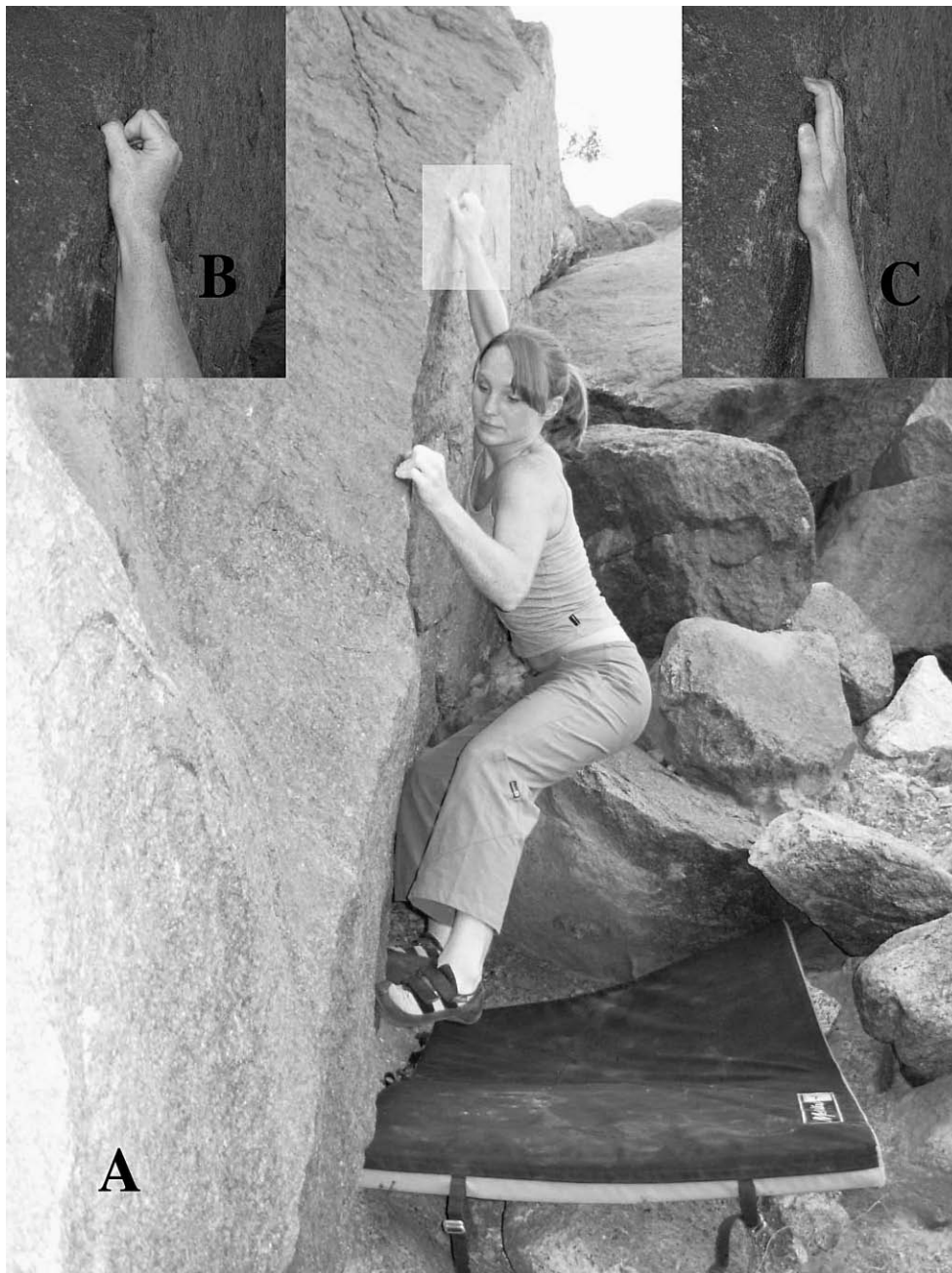


Figure 1. A. Typical bouldering layout with subject attempting problem above pad, spotter outside of photo; B. typical crimp grip; C. typical slope grip.

generalizable to bouldering. First, bouldering involves serial repetitive movements, which are typically more strenuous and powerful than traditional rock climbing. This “vertical sprinting” could exact a greater toll on connective tissue. If this is true, athletes could be at increased risk of overuse syndromes previously described in rock climbing.² Second, bouldering involves 3 different activities during which the boulderer can sustain in-

jury: 1) climbing the boulder, 2) falling, or 3) spotting others bouldering.

Despite its popularity and differentiation from rock climbing, there is little evidence to support an understanding of bouldering injuries. Although some injuries might overlap with other climbing forms, previous studies have either not directly addressed bouldering or excluded bouldering altogether.²⁻⁸ Several artificial models

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