

Study finds most surfing injuries involve shoulder or knee, surgery usually not required

November 6 2019



Surfing a standing wave. A metaphor of this study, which investigated DNA methylation as a cyclical continuous process. Credit: CC0 Public Domain

Over the last few years, surfing has increased in popularity, with about 2.6 million recreational surfers in the United States. Efforts are under way to include competitive surfing in the Olympics. However, the

number of reports on surfing-related injuries is limited and does not mirror the trend in popularity, according to researchers at Hospital for Special Surgery (HSS).

Harry "Tate" Greditzer, MD, a radiologist at HSS and avid surfer himself, launched a study to determine the kinds of orthopedic injuries a recreational surfer might sustain and how often he or she required surgery. "The primary purpose of the study was to characterize MRI patterns of acute [surfing-related injury](#) at HSS, an urban musculoskeletal hospital," Dr. Greditzer said. "Secondarily, the purpose was to report the proportion of those injuries that required orthopedic surgical intervention."

Dr. Greditzer and colleagues found that shoulder injuries were the most common, followed by knee injuries. In the study, 17% of patients needed surgery for any type of surfing injury. The research was published online in the journal *Sports Health* on November 5.

The investigators noted that previous surfing studies from different regions of the world have described the incidence of injuries along with the type, location, and severity, but the results have been highly variable. Most prior studies have also utilized imaging modalities that are readily available in an emergency setting, but did not focus on high resolution soft tissue imaging modalities such as MRI, as in the HSS study.

HSS investigators conducted a retrospective review of medical records to identify patients with surfing-related injuries who came to HSS for treatment between January 1, 2009 and August 1, 2018. The researchers analyzed the data and reported on the body part injured, diagnosis, and surgical versus nonsurgical treatment.

The search yielded 109 patients with surfing-related injuries who had MRIs. A total of 90 patients came to HSS within six months of their

injury and were included in the final analysis. The median age was 36, with patients ranging in age from 12 to 66. Three-quarters of the patients were male.

Acute surfing injuries were diagnosed with an MRI in 72% of study patients. The following injuries were reported:

- Shoulder: 46%
- Knee: 28%
- Foot or ankle: 9%
- Spine: 6%
- Elbow: 6%
- Other (rib fracture; muscle strain or muscle laceration): 5%

"Although prior studies have shown that injuries related to surfing are primarily found in the head or lower extremities, our study found upper extremity injuries to be more common," said Peter Fabricant, MD, a pediatric [orthopedic](#) surgeon at HSS and study author. "The majority of upper extremity injuries occurred at the shoulder with anterior shoulder dislocation being the most common diagnosis. Of the presenting [knee injuries](#), a torn medial collateral ligament was the most frequent."

Only 17% of all the surfing injuries required surgery at HSS. This percentage may overestimate the number of surfing injuries in general that require surgery, the study authors noted. Tertiary care referral centers such as HSS tend to see a greater proportion of serious injuries requiring surgery.

The study authors noted that the overall diagnostic quality provided by MRI helps to elucidate the most serious soft tissue surfing injuries. However, the exclusive use of this imaging modality for diagnosis was a limitation of the study, as it would not account for other musculoskeletal surfing injuries that do not require an MRI.

"When compared to other extreme sports, surfing seems relatively safe," said Dr. Greditzer. "However, it's important to keep in mind that our study looked at recreational surfers. We did not include professional surfers, so the patients in our study were not able to generate as much speed, get barreled, or launch into the air like a professional or amateur can, where the potential for injury is much higher."

Dr. Greditzer, who has been surfing for more than 20 years, commented on injury prevention for beginning surfers. He says being a good swimmer is the most important attribute for anyone thinking of taking up the sport. He also recommends that beginners take a few lessons to learn the basics and use a soft foam surfboard to start.

More information: Bhumin J. Patel et al, When the Wave Breaks You: Magnetic Resonance Imaging Findings After Surfing Injuries, *Sports Health: A Multidisciplinary Approach* (2019). DOI: [10.1177/1941738119880863](https://doi.org/10.1177/1941738119880863)

Provided by Hospital for Special Surgery

Citation: Study finds most surfing injuries involve shoulder or knee, surgery usually not required (2019, November 6) retrieved 3 May 2024 from <https://medicalxpress.com/news/2019-11-surfing-injuries-involve-shoulder-knee.html>

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