

Abstract

Background: Gymnastics is a demanding sport that requires training with repetition and risk taking. To perfect a skill, repetition is paramount as these athletes reach for perfection and high scores. This repetition and risk predisposes gymnasts to a unique set of injuries; overuse or repetitive stress type injuries and traumatic sprains, fractures and dislocations. An estimated 122,023 girls are participating in USAG artistic gymnastics with a paucity of data on the types and patterns of injuries sustained.

Hypothesis/Purpose: Through analysis of the locations, types, and patterns of injury in club level gymnasts seen over a four-year period, we hope to increase awareness of the injury patterns and eventually reduce rates and unfavorable patterns of gymnastics injury.

Study Design: Descriptive Epidemiology Study.

Methods: A prospective epidemiological study obtained data from injured female, artistic club gymnasts who are competitive within the USA Gymnastics program and seeking treatment from a single physician. This data was collected over a period of four years from January 2012 through December 2015. Immediately prior to their appointment, gymnasts completed a survey regarding general medical and gymnastics history. The diagnosis and treatment were recorded and subsequently analyzed.

Results: 525 injuries (46.10% acute, 53.90% overuse) were treated over the 4 year study with nearly 60% of injuries coming from gymnasts training 15-20 hours per week (59.42%). The foot was the most commonly injured area followed by the ankle and the knee. Stress fractures were the most common type of injury, although injuries of acute and overuse onsets showed different patterns. 27 of the injuries (5.16%) required surgery, while 9.48% (49) reported their injury as a reinjury.

Conclusion: Overuse injuries are prevalent in gymnasts and likely cause as much or more participation interference as acute injuries. Stress fractures were significantly prevalent in the wrist and low back. The surgical treatment rate for overuse injuries matched that of acute injuries. Practice frequency did not correlate significantly with the prevalence of overuse injuries, nor did level. Differences in injury patterns were seen between gymnastics clubs; however the most prevalent differences were seen between competition levels. Xcel injuries presented a unique pattern.