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“Timing of Sports-Related Concussions Depend on Type of Sport and Competition Situation”

Sports-related concussions (SRC) are defined as mild traumatic brain injury during athletics resulting in the onset of neurological impairments and a constellation of symptoms such as headache, nausea, vomiting, dizziness, confusion, and lethargy. In the United States, over 44 million children participate annually in sports with an estimated 1.6 to 3.8 million suffering SRC. Our aim in this study is to stratify the SRC incidence within our metropolitan pediatric population by type of sport, time of year, and setting (i.e., practice vs game) to target opportunities for prevention and detection. We hypothesize temporal and situational injury patterns will vary by sport.

We performed a retrospective chart review of patients <18 years who were diagnosed with SRC at our stand-alone children’s hospital from January 2007 to December 2021. We performed t-test, chi-square vs Fischer’s exact (as deemed appropriate), and univariate and multivariate analyses for outcomes between sports, demographics, and setting.

688 children were included. SRC incidence was increased among football players during the fall months (Fig. 1). Children who sustained SRC at practice were more likely to be male ($p=0.0311$) and younger than those who sustained during competition (13.51 ± 3.0 vs 14.44 ± 2.32 , $p<0.0001$). Additionally, whereas most SRC were sustained during competition, cheerleading was more likely to have injuries during practice ($p<0.0001$).

SRC occurs at various times of year and situations depending on the sport. Dedication of sports medicine resources to these high frequency situations will aid awareness and prompt diagnosis of SRC symptoms, complications, and management.