Traumatic Orthopaedic Injuries in Competitive Road Cycling

Christopher L. Stockburger*; Amanda Spraggs-Hughes, BA[1];*
Christopher M. McAndrew, MD, MS[1]
[1]Washington University in Saint Louis, Saint Louis, Missouri, USA

Purpose: There is a scarcity of data on the traumatic injury rates of competitive cyclists. This study sought to document injury rates in competitive road cyclists. It was hypothesized that gender, race category level, and years of experience would correlate with risk of traumatic crashes.

Methods: A survey-based cohort study of competitive cyclists was conducted. Competitive road cyclists were enrolled and answered questions with regard to the prior year. Student t test was utilized to determine significance of safety perception, crash rates in training and racing, as well as gender, years of experience, and competitive level.

Results: The cohort (351 competitive cyclists, including 46 professionals) averaged 1.4 hours/day of riding, 8000 miles/year, and 30 race days/year. On a visual analog scale (VAS) of safety (0 being very safe, 100 being very dangerous), cyclists perceive training to be significantly safer than racing (training safety mean VAS = 35.5, racing safety mean VAS = 59.5; P <0.01). There was no significant difference in reported number of crashes in training (mean 0.94 crashes/year) and racing (mean 0.96 crashes/year; P = 0.77). The most common perceived causes of crashes in training were motor vehicles (77%) and road conditions (54%). The most common perceived causes of crashes in races were other riders taking risks (95%), race-course design (53%), and personal risk taking (48%). At least 1 crash was reported over the past year in 70% of participants. A total of 75 fractures were reported, with upper extremity the most prevalent. The most common orthopaedic injury was shoulder separation (n = 18, 5.1%), and the most common fracture was a clavicle fracture (n = 16, 4.5%). There was no difference in crash number by gender (P = 0.99), or when comparing people with <5 years of racing (n = 147) to those with >5 years of racing (n = 198; P = 0.26). There was a significantly higher total crash number in professionals (n = 46, mean = 2.69/year) compared to other competitive levels (n = 305, mean = 1.78/year; P = 0.01). Despite this, the crashes per mile ridden were similar across competitive level (professional mean 2.4 crashes/10,000 miles, non-professional mean 3.5 crashes/10,000miles; P = 0.24).

Conclusion: Cycling is a dangerous sport, with a high rate of fracture and orthopaedic injuries. The shoulder girdle is the most common site of injury. The crash volume is equivalent between racing and training. Increased years of experience and gender did not correlate with crash rate. Professional cyclists had significantly more crashes than other competitive cycling levels, but crashes per mile were consistent across race level.

See pages 401 - 442 for financial disclosure information.