The Epidemiology and Aetiology of Injuries in Sailing

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Abstract

Sailors are at risk of injury and an understanding of the risks and causes of injury are important in helping to reduce the frequency and severity. The aim of this paper is to review the literature on the epidemiology of sailing injuries and to provide information on the risks, distribution and mechanisms of injury in each of the main sailing classes, as well as suggested injury prevention strategies and recommendations for future injury surveillance. Injuries seem to be specific to the class of sailing, with elite Olympic class sailors reporting an incidence of ~0.2 injuries/athlete/year, with the lumbar and thoracic spine and the knee most commonly injured. Poor “hiking” technique and inadequate leg strength are thought to predispose the knee to injury. Injuries in novice and recreational sailing are predominantly acute in nature with contusions and abrasions typically occurring as a result of collisions with the boom or other equipment during maneuvers. The only report of injuries in Paralympic class sailing found a high rate of ~100 injuries/1,000 d of sailing, possibly due to severe sailing conditions. The majority of injuries were chronic in nature, predominantly sprains and strains of the upper extremity. The risk of windsurfing injuries range from 1.1 - 2.0 injuries/person/year, with the majority of injuries being acute, typically due to impact with equipment. Severe injuries are frequent, with competitive male windsurfers often admitted to hospital for treatment. Lower back injuries are also common to windsurfers and may be related to prolonged lordosis (lumbar extension) of the spine while “pumping” the sail. In professional big-boat sailing, America’s Cup studies have reported an incidence of ~2.2 injuries/1,000 h sailing, with one study reporting a higher incidence of injury during fitness training sessions (8.6 injuries/1,000 h fitness training). The main cause of injury seems to be non-specific overuse, with joint and ligament sprains and tendinopathies being most common. Grinders and bowmen are at greatest risk of injury, with the repetitive nature of “grinding” being a contributing factor. In Round the World off-shore racing, 1.5 injuries/person/Round the World race (amateur), and 3.2 injuries/person/race (professional) have been reported, with the majority being impact injuries (e.g. contusions, lacerations, fractures and sprains). Helmsmen experience mostly upper-limb overuse injuries as a result of “steering”, while mastmen and bowmen are at greater risk of acute injuries. Illnesses and non-injury related conditions account for a large proportion of medical conditions in these events.

Sailors of all classes and abilities seem to be at risk of injury, particularly from acute impacts with equipment that might be reduced by wearing protective clothing and more appropriate ergonomic boat design. High repetition activities, such as hiking, pumping, grinding and steering are major causes of overuse injury in experienced sailors. Informed coaching of correct technique and appropriate progression of physical and technical developments are required. Competitive sailors should undergo regular health screening with specific strengthening of high risk muscle groups, synergists and stabilisers. The scarcity of analytical studies on sailing injuries is a major concern, and there is a need for thorough prospective studies.