Sports Dentistry: Prevention and Treatment of Oral Injuries in Contact Sports

LARISSA BOM ROCCA LAPORT
Universidade Severino Sombra

Abstract- ***Sports dentistry is an emerging discipline dedicated to preventing and treating oral and maxillofacial injuries, which are particularly frequent in contact sports. Athletes engaged in activities such as football, rugby, hockey, and martial arts are exposed to a higher risk of traumatic impacts that can result in dental fractures, avulsions, luxations, and soft tissue injuries. Preventive strategies, including the consistent use of custom-made mouthguards, regular dental check-ups, and targeted education programs, have proven effective in reducing the incidence and severity of these injuries. When prevention fails, rapid and specialized treatment is essential to restore oral health, preserve aesthetics, and maintain the athlete's confidence and performance. Advances in biomaterials, restorative dentistry, and emergency protocols have enhanced the prognosis of traumatic injuries, while interdisciplinary collaboration between dentists, physicians, and coaches ensures a comprehensive approach to athlete care. The integration of sports dentistry into athletic training and medical teams highlights the recognition of oral health as a key factor in overall well-being and career longevity. Emphasizing prevention through education and access to specialized treatment not only protects athletes from debilitating injuries but also contributes to optimal performance and quality of life.***

Keywords: Sports Dentistry, Oral Injuries, Contact Sports, Prevention, Treatment, Mouthguards.

I. INTRODUCTION

Sports dentistry has become increasingly relevant due to the growing awareness of oral injuries sustained during athletic activities. Contact sports are particularly associated with dental trauma because of the high frequency of collisions, falls, and direct blows to the face. These injuries are not only painful and disruptive but also affect the athlete's self-esteem, nutrition, and career progression (Glendor, 2009). Epidemiological studies demonstrate that athletes who do not use protective devices are two to three times more likely to suffer from oral injuries compared to those who consistently wear custom-fitted mouthguards (Newsome, Tran & Cooke, 2001). Standard mouthguards, often available commercially, provide limited protection and poor retention, while professionally designed devices ensure greater comfort, durability, and effectiveness. This makes the promotion of custom-made mouthguards a fundamental strategy in sports dentistry (Ranalli, 2000).

The role of sports dentists extends beyond the fabrication of protective devices. Education programs targeting athletes, coaches, and parents play a pivotal role in raising awareness of the importance of oral protection. Preventive interventions also involve regular dental examinations to identify vulnerabilities such as caries, periodontal problems, or malocclusion, which may exacerbate trauma risks. By integrating preventive care into routine training and medical assessments, sports dentistry contributes to minimizing the likelihood of severe injuries (Andrade et al., 2010).

Despite preventive efforts, traumatic injuries remain common in contact sports. Dental fractures and luxations are among the most frequent, while avulsions require immediate and specialized care to maximize the chance of reimplantation and survival of the tooth (Glendor, 2009). Emergency protocols recommend immediate storage of avulsed teeth in physiological media, such as milk or saline solution, and rapid referral to a dental professional. Advances in adhesive dentistry and biomaterials have significantly improved the prognosis of fractured or luxated teeth, enabling conservative management that preserves both

function and aesthetics (Newsome, Tran & Cooke, 2001).

Soft tissue injuries, such as lacerations of the lips, tongue, and gingiva, also require prompt management to prevent infection and scarring. Maxillofacial fractures, though less frequent, represent serious outcomes that often demand interdisciplinary intervention with maxillofacial surgeons (Sane & Ylipaavalniemi, 1988). This collaboration underscores the importance of sports dentistry within the broader sports medicine framework, ensuring that athletes receive comprehensive and coordinated care.

The psychological impact of oral injuries should not be underestimated. Athletes may experience anxiety, reduced confidence, and performance decline following traumatic dental events. Restoring oral health through timely intervention enhances both physical and psychological recovery, reinforcing the role of sports dentistry in safeguarding not only functional capacity but also mental well-being (Ranalli, 2000).

In recent years, sports organizations and health authorities have increasingly recognized the importance of oral health in athletic performance. Studies suggest that poor oral health is associated with systemic inflammation, which can negatively affect physical endurance and recovery (Glendor, 2009). Thus, prevention and treatment of oral injuries contribute not only to reducing immediate trauma but also to improving overall health outcomes for athletes. Integrating sports dentistry into multidisciplinary medical teams ensures that oral health is prioritized alongside musculoskeletal and cardiovascular fitness (Andrade et al., 2010).

The flowchart illustrates the main components of sports dentistry, dividing its scope into three interconnected areas: role, preventive strategies, and treatment of oral injuries. It shows that the role of sports dentists involves designing custom-fitted mouthguards and promoting education and preventive care. Preventive strategies emphasize the consistent use of these mouthguards alongside regular dental examinations to reduce risks. When injuries occur, treatment focuses on managing fractures, luxations, and avulsions, collaborating with specialists in severe cases, and addressing psychological recovery. Together, these elements highlight how sports dentistry integrates prevention, intervention, and holistic care to protect athletes' health and performance.

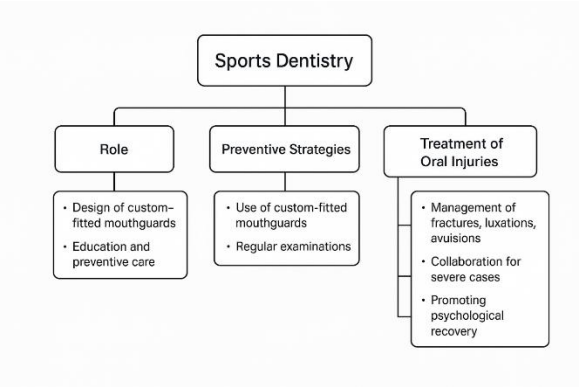

Figure 1. Flowchart of Sports Dentistry: Roles, Preventive Strategies, and Treatment of Oral Injuries.

Source: Created by author.

Ultimately, the prevention and treatment of oral injuries in contact sports reflect a dual commitment: protecting athletes from the immediate consequences of trauma and ensuring their long-term health and career sustainability. Preventive strategies, especially the use of custom-fitted mouthguards and education, remain the cornerstone of effective protection (Newsome, Tran & Cooke, 2001). When trauma occurs, rapid intervention and advanced restorative techniques offer promising outcomes. Sports dentistry therefore plays a vital role in modern athletic healthcare, bridging the gap between oral health and optimal athletic performance (Ranalli, 2000).

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