Abstract

Sports dentistry has traditionally focussed on orofacial trauma. There is now increasing evidence that participation in sport, particularly at elite level, may significantly increase the risks to oral health. The negative impact of poor oral health on athlete-reported wellbeing and performance is clear. The risks to athlete oral health can and should be mitigated and the role of the sports dentist is evolving to meet these new challenges. Custom made mouthguards provide protection against orofacial trauma and, potentially, concussion. Oral health screening should be included in athlete pre-season preparation. As integrated members of the athlete support team, dentists and dental care professionals (DCPs) can provide sport-specific oral health advice, encouraging athletes to take ownership of their oral health. The potential for translational health and wellbeing benefits to the wider population is also substantial, particularly with youth groups and recreational athletes. Sports dentistry requires distinctive skills. A UK wide network of dentists and other oral health professionals with an interest in sport is important both to ensure that appropriate advice and treatment is evidence-based and to further develop the research and clinical foundations.

Key points

- The risks to athlete oral health can and should be mitigated; the role of the sports dentist is evolving to meet these new challenges.
- As integrated members of the athlete support team, dentists and dental care professionals (DCPs) can provide sport-specific oral health advice, encouraging athletes to take ownership of their oral health.
- A UK wide network of dentists and other oral health professionals with an interest in sport is important both to ensure that appropriate advice and treatment is evidence-based and to further develop the research and clinical foundations.

Developing the role of the sports dentist

Sports dentistry to date has largely focused on orofacial trauma[1]; sport activities can account for up to one-third of all orofacial injuries.[2] There is now increasing evidence that exercise training and competition, particularly at elite level, may significantly increase the oral health risk to athletes.[3] Furthermore the negative impact of poor oral health on athlete-reported wellbeing and performance is now clear.[3-5] Oral health is integral to general health and well-being; the risks to athlete oral health during training and competition can and should be mitigated. The role of the sports dentist needs to evolve to meet these new challenges. A UK wide network of dentists and other oral health professionals with an interest in sport is important both to ensure that appropriate advice and treatment is evidence-based and to further develop the research and clinical foundations[6].

Protection against orofacial trauma and concussion

There is good evidence that mouthguards protect against dento-alveolar trauma among athletes in contact sports.[7] Mouthguards may also mitigate against concussion in sport[8]. A recent study in youth ice hockey players found a reduction in both concussion and dental injuries[9] and it has been recommended that mouthguards should be mandatory in contact sports where concussion is a significant risk.[10]

Although athletes have expressed concern about the negative impact of mouthguards, custom made mouthguards (CMM) show the smallest range of changes in players' performance, compared with other types.[11] Dentists with an interest in sport should be able to advise athletes appropriately about the advantages of wearing a mouthguard and provide appropriate CMMs that are comfortable and not perceived by the athlete to interfere with their athletic performance.

A dentist with specialist training can be a valuable addition to the match-day medical team either at the ground or on the phone to coordinate the management of orofacial trauma.

Oral health screening

Like overuse injuries, oral diseases such as caries, erosive tooth wear and periodontal diseases do not present with severe pain in their early stages, and athletes continue to train and compete, even with symptoms. As part of their pre-season preparation, elite athletes routinely undergo a Periodic Health Examination (PHE) and oral health screening should be included.[12]

It is important to establish appropriate services to manage athlete oral health on a continuous basis and not only during major competitions. As integrated members of the athlete support team, dentists and dental care professionals (DCPs) can provide oral health advice for athletes either at the dental surgery or as part of a pre-season PHE.[1] A dentist or other member of the dental team may be the first health care professional to identify the signs of disordered eating through dental erosion.[13] We have found that oral health screening, provided at athlete training venues, is convenient for, and well accepted by, athletes and other support team members.[3 14]

Screening/early recognition of disease is well established in health care. Use of standard clinical indices such as the International Caries Detection and Assessment System (ICDAS),[15] the Basic Periodontal Examination (BPE)[16] and the Basic Erosive Wear Examination (BEWE)[17] allow greater clarity when reporting prevalence of disease for epidemiologic studies and when providing athlete feedback regarding individual risk.

The Oslo Sports Trauma Research Centre (OSTRC) overuse injury questionnaire has validity to measure the impact of injury and illness on performance in sport,[18 19] and can easily be modified to monitor oral health problems in sport.

Oral health promotion to reduce performance impacts

Elite athletes often begin their careers when they join youth development squads and should be equipped to take ownership of their oral health.[20] The most important behavioural factor affecting both dental caries and periodontal diseases is routinely performed effective oral hygiene (dental biofilm removal) with fluoride.[21] A feasibility study, based on contemporary behaviour change theory and designed with input from athletes[22] was successfully implemented within three different high performance sport environments and was associated with an increase in athlete oral health knowledge, enhanced oral health behaviour and a reduction in self-reported performance impacts.[14] All members of an integrated athlete support team have a role to play in health promotion and injury prevention.[23 24]

Oral appliances to enhance performance

The deliberate repositioning of the mandible by a mouthpiece has been reported to positively influence athletic performance[25]. However, this potentially exciting development requires further research.

Integrating Sports Dentistry with Sports and Exercise Medicine

A stated priority of the International Olympic Committee (IOC) is to protect the health of the athlete,[12] and international sporting bodies advocate a holistic approach to ensuring athlete wellbeing and performance[26]. Sports and exercise medicine (SEM) also aims to improve overall health and well-being of athletes of any level and in all sports around the world[1]. Youth groups and recreational athletes are important groups within SEM[27] where there is potential to improve general health, wellbeing and oral health.

Sports dentistry requires distinctive skills with training, research and development ongoing in a number of centres internationally. Elite athletes are cared for by a team that includes sports medicine doctors, physiotherapists, nutritionists, sports psychologists and orthopaedic specialists. Sports Dentists should be, and are becoming, an integral part of that team.[6] As such the provision of appropriate training through university-based degree programmes is a significant development and should be accompanied by innovative research to address the needs of athletes. The potential for translational health and wellbeing benefits to the wider population is also substantial.

Expanding the network

You can join our growing community committed to raising awareness of oral health as an integral part of general health and well-being in athletes and sports people at www.ucl.ac.uk/cohp. There are also links to UCL post-graduate education opportunities in sports dentistry.

Author contributions

Julie Gallagher and Peter Fine devised the initial draft and developed the final draft. Ian Needleman and Paul Ashley contributed to the final draft. All authors reviewed and approved the final draft.

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