



Oral Health Risks Associated with Sport

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Abstract

The relationship between sports and oral health is increasingly being studied. In addition to the psychological and physical benefits, sports can have risks [1,2]. Oral health must be considered to optimize athletic performance and to reduce the risks due to physical activity. The most frequent risks in the oral cavity are: gingivitis and periodontitis, caries and dental erosion, salivary alterations, hard tissue injuries from taking supplements, and trauma. Injuries to hard and soft tissues can be facilitated by alterations in the microbiological and salivary balance that occur during sports activity. Controlling bacterial biofilm with oral hygiene protocols and tools is a key point to reduce the risk of injury [3-5].

Introduction

Sports are considered a mainstay in today's society, capable of promoting integration and personal growth. However, in addition to the psychological and physical benefits, sports can have risks. Oral health must be considered to optimize athletic performance and to reduce the risks of physical activity. Since changes to the oral cavity have a negative impact on an athlete's health, well-being, and physical performance, they should be aware of the hazards connected with engaging in sports and give more attention to the condition of their oral cavity. Trauma, joint disorders, changes, and/or oral pathologies such as caries, erosions, tooth discolorations, and periodontal disease are the main oral cavity problems associated with the performance of different sports that have a substantial impact on athletes' quality of life. In addition, the vigorous activity in the beginning. The different anatomical microniches of the oral cavity and the oral microbiota make up the oral ecosystem, which is a wet habitat. Saliva and gingival crevicular fluid hydrate the oral habitats and supply water, nutrition, adherence, and antibacterial factors [6,7]. The oral cavity is a unique physiochemical environment that supports the development and expansion of a variety of microbial communities.

The oral microbiome consists of 2000 species of bacteria,

archaea and protozoa, fungi, and viruses. These microorganisms can be found in saliva as organisms in the planktonic phase or adhering to the oral surfaces as a dental plaque biofilm in the sessile phase [8,9]. Consequently, during sports activities, athletes must be observed by sports dentists for changes that affect their oral cavity, and the sports examination protocol must be put into practice with the inclusion of a clinical examination, quantitative and qualitative studies of saliva, and instructions on how to use, clean, and store a mouthguard. Acute toothache is known to have a negative impact on peak sports performance, and this has been documented in several publications. There is a chance of a significant effect on performance, even if the relevance for professional sports has not yet been established. Therefore, oral health must be taken into consideration in professional sports. However, it has been reported that elite athletes have a significant prevalence of mouth inflammation.

Main Risks to the Oral Cavity

Oral Inflammation

Oral health in athletes has not yet been sufficiently evaluated. Existing studies on oral inflammation in elite athletes generally show a high prevalence of gingivitis (58-97%) and periodontitis (5-

41%) [10,11]. Pronounced acute oral inflammation such as open pulp, ulcerations, fistulas, or abscesses were found in 3 to 8% of elite athletes 29 30 . Periapical infections were recorded in 12% of athletes in the Middle East 34. In general, they are a frequent reason for dental consultations in professional sports.

Salivary Alterations

The properties of saliva have long been known. In the oral cavity it has a buffering effect by maintaining salivary pH around 6.5-7.5, contains enzymes, immunoglobulins and substances with tissue-protective and antibacterial functions. During sports activity there is a decrease and alterations in components and viscosity of saliva resulting in a risk to oral tissues. The buffering capacity decreases and oral respiration during physical activity makes the oral cavity dry. This results in the risk of tooth decay and enamel injury (decalcification and white spot) [12,13].

Caries and hard tissue alterations

Among the main pathologies described frequently in the athletes' oral cavity there are caries and erosions. Needleman et al. (2015), examining young professional athletes, found that sport activities can be considered a risk factor among athletes from different sports for the onset of oral diseases, such as caries with an incidence between 15% and 70% and dental erosion 36% [14]. The saliva changes described above increase the risk of having dental hard tissue injuries. The reduced amount of saliva and alterations in viscosity and pH lead athletes to have higher risk of caries, erosions, and discoloration. Other factors to consider is frequent snacking on acidic foods and taking supplements, conditions that are very common in athletes. The acidic pH of supplements increases the risk of hard tissue injury.

Trauma

Many sports have a risk of injury due to accidental contact or falls. This risk is especially present in contact sports (karate, boxing, etc.) or speed sports (cycling, motorcycling). A mouthguard is an oral appliance that, when placed in the mouth, covers the palate and all occlusal surfaces of the teeth. It reduces oral-maxillofacial trauma and guards against fractures, lacerations, and dislocations of the maxillaries as well as other oral and soft tissue injuries [15]. Many athletes wear a byte to protect themselves from injury and for postural reasons.

Conclusion

Sports and physical activity are important activities for mental and physical well-being. Despite the benefits, they are not without risks to the oral cavity. Injuries to hard and soft tissues can be come from alterations in the microbiological and salivary balance

that occur during sports activity. Caries, erosion, and periodontal inflammation are the conditions that are found in many athletes. Controlling bacterial biofilm with oral hygiene protocols and tools is a key point to reduce the risk of injury. Evaluation of diet and supplements taken should be done for each athlete to tailor a prevention plan to keep the oral cavity healthy.

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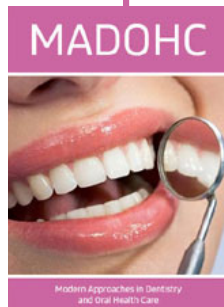
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