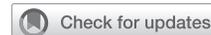


SPORTS DENTISTRY

Oral health's impact on elite athletes



BACKGROUND

Athletes require excellent health to perform at the highest levels of their sports, with the protection of athletes' health a high priority of the teams they represent. Poor oral health is often associated with self-reported negative impacts on overall health. It was hypothesized that athletes who had dental disease would also report an impact on their general health and possibly on their sports performance. The extent, severity, and impact of oral health problems in elite athletes were investigated.

METHODS

This cross-sectional study was conducted in the local facilities of elite and professional United Kingdom athletes in various sports. Participants were members of elite training/development squads and age 18 years or older; 67% were men. Athletes completed a questionnaire, then underwent an oral health screening. The Pulp, Ulcer, Fistula, Abscess (PUFA) index was used to measure oral sepsis, and the Basic Periodontal Examination (BPE) was used to measure periodontal health. Athletes were also screened for pericoronitis, dental caries, erosive tooth wear (ETW), and athlete-reported impacts of their oral health.

RESULTS

The 352 athletes came from 11 sports and included 275 white British individuals and 162 who were studying for a University degree. The sports involved were divided into a strength and power category (athletics, gymnastics, sprint cycling, and sprint swimming; 50 athletes), an endurance category (swimming, cycling, and rowing; 143 athletes), and a mixed category (football, rugby, hockey, and sailing; 159 athletes). Those in the strength and power category were younger and included more women and persons from other ethnic groups than the other groups.

The median number of sound, unrestored teeth per athlete was 27. Caries were present in at least 1 tooth in 173 athletes (49.1%). The median number of teeth affected was 2 (range 1 to 13). The median number of teeth with restorations was 4 (range 1 to 19). The number of decayed teeth was highest among those playing rugby and football and lowest in those involved in rowing. Persons in the mixed sport category had a higher number of decayed teeth than those in the endurance category.

When ETW was considered, 48.7% of the men and 28.4% of the women had a Basic Erosive Wear Examination (BEWE) score of ≥ 7 . Forty-one athletes scored between 9 and 13. Those playing

football had the highest prevalence of ETW, and those in sailing had the lowest prevalence. The prevalence value was 51.6% for the mixed category and 35% for the endurance category.

Just 4 athletes had excellent periodontal health. Gingival bleeding on probing/calculus or other plaque retentive factors were present as the worst finding in 77.3%, with a pocket probing depth of ≥ 4 mm found in another 21.6%. The BPE score was at least 1 in three or more sextants in 87.5% of the athletes.

Infections were present around the wisdom teeth in 4 athletes, with 12 having at least one PUFA finding. Among the oral health problems reported were current pain or problems by 7.7% of athletes, sensitivity to hot or cold by 26.7%, swelling/infection around wisdom teeth in the previous 12 months by 23.3%, sport-related dental trauma in the previous 12 months by 12.8%, and occasional bleeding when cleaning the teeth by 39.0%.

Ninety percent of the athletes reported their general health as good or very good, with 69% assessing their oral health in this way. One hundred sixty-nine athletes reported a non-zero score for one or more psychosocial impacts during the previous 12 months, including 119 athletes reporting difficulty eating or drinking; 52 difficulty relaxing (including sleeping); and 59 difficulty smiling, laughing, or showing the teeth without embarrassment. Cyclists had 2.7 times greater odds of having an oral impact on daily performance than those who participated in rowing.

One hundred ten athletes reported an oral impact on their sports performance over the previous 12 months. This included 9% with

Clinical Significance

Among these athletes it was rare to find excellent periodontal health. In addition, nearly half had caries and more than three fourths had gingival bleeding. The oral conditions that appear to have the greatest impacts are oral pain and difficulty eating, although it was also difficult to relax, to smile, and to participate in and excel in their sports training and competition. Regular evaluations and the use of effective oral health promotion strategies should be instituted to try to reduce the impact of poor oral health on athletes' lives.

difficulty participating in normal training and competition, 3.8% having reduced training volume, 5.8% having their performance affected, and 29.9% experiencing oral pain. The odds of having an oral impact on their sports performance was 41.0% in men compared to women. Thirty-one percent of athletes reported a non-zero score for the severity of the oral impact. With the possibility of a top severity score of 100, the highest score was a 94.

EFFECTS OF ORAL HEALTH

When these data were evaluated for effect/no effect, various relationships were noted. Dental caries was associated with difficulty eating. Any PUFA lesion was associated with difficulty eating, participating in normal training or competition, experiencing oral pain, and “any sport performance impact.”

Oral health status and psychosocial impacts, including pain, were also associated. Relaxing and all sport performance impacts showed relationships. Among the self-reported oral health problems related to athlete-reported impacts on their well-being or sports performance were current pain or tooth problems, sensitivity to hot or cold, bleeding when cleansing teeth, and history of swelling or infection around the wisdom teeth.

Gallagher J, Ashley P, Petrie A, et al: Oral health and performance impacts in elite and professional athletes. *Community Dent Oral Epidemiol* 46:563-568, 2018

Reprints available from I Needleman, Ctr for Oral Health and Performance, Dept of Periodontology, Univ College London, Eastman Dental Inst, London, UK: e-mail: i.needleman@ucl.ac.uk

XEROSTOMIA

Update on dry mouth therapies



BACKGROUND

Salivary dysfunction includes xerostomia and hyposalivation and is a common oral disorder. Causes include drugs, aging, radiotherapy, chemotherapy, and systemic diseases of various types. Among the drugs that induce hyposalivation and xerostomia are tricyclic antidepressants, antihypertensive agents, diuretics, and antispasmodic drugs. Salivary dysfunction causes a negative impact on the patient's quality of life and can predispose to the development of problems in the oral mucosa and teeth. These include the progression of dental caries, gingivitis, halitosis, mucositis, oropharyngeal candidiasis, poor denture fit, and bacterial sialadenitis. The primary therapeutic options to address salivary hypofunction were noted, with updates as to the current best options.

METHODS

A review of the MEDLINE/PubMed database was done. Twenty-five clinical trials that investigated the effects of various salivary treatments were selected. The treatments for xerostomia were divided into those addressing symptomology, topical or systemic stimulants, regenerative treatments, and other approaches.

RESULTS

Symptomatic Treatments

Among the modalities considered symptomatic treatments were salivary substitutes, which act directly on the surface of the mucosa, and the use of topical agents such as oral xanthan gum, mucin, linseed extract, and aloe vera, which are found in mouthwashes, sprays, or gels. The most common salivary substitutes

are animal mucin, carboxymethyl cellulose (CMC), hydroxypropyl methylcellulose (HPMC), hydroxyethylcellulose (HEC), and polyglycerylmethacrylate (PGM). Three studies addressed these types of treatments. The number of participants was low in all 3. No evidence supports the use of HEC, PGM, or xanthan gum to reduce the symptoms of xerostomia. Salivary substitutes overall tend to be easily removed from the mouth by swallowing, and their effects are short-lived. Some should not be used by dentate patients because of the risk of causing tooth enamel demineralization.

Salivary Stimulants

Citric acid and malic acid delivered in rinses, topical applications, and sprays were evaluated in 3 randomized controlled clinical trials (RCTs). Both agents were associated with improvements in xerostomia, but the numbers of participants was low and follow-up times were short. In addition, the use of acidic substances to stimulate salivary function has the adverse effect of increasing the risk of dental hypersensitivity, erosion, and dental caries.

Chewing gum containing xylitol is also used to stimulate salivary flow and provide temporary relief from xerostomia. However, the evidence does not indicate a positive effect of chewing gum on xerostomia or hyposalivation.

The mechanism of action for acupuncture with respect to xerostomia and hyposalivation is based on stimulating the autonomic nervous system through afferent neurons. Four RCTs provided