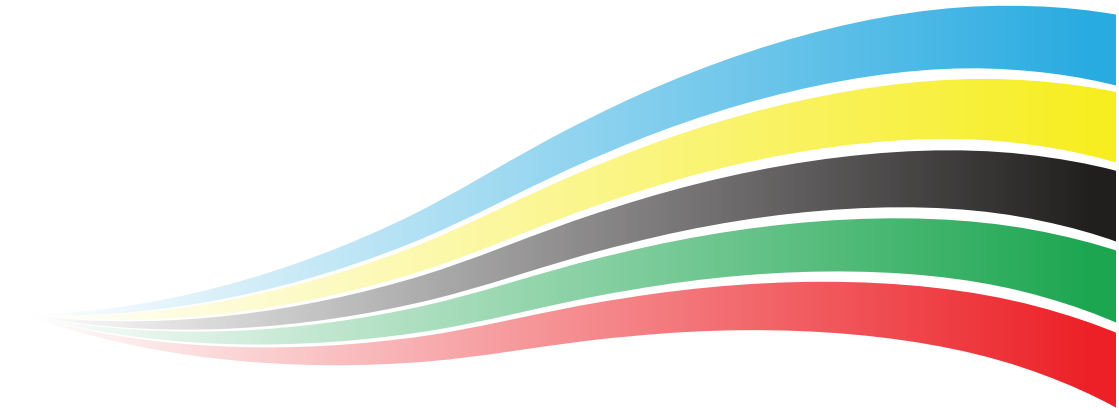
UCL EASTMAN DENTAL INSTITUTE

Oral Health and Performance in Sport



Maintaining Good Oral Health

A toolkit for elite athletes

eastman DENTAL INSTITUTE

Contents

Introduction

Welcome to the beta version of a toolkit designed to support oral health in athletes.

Poor oral health will prevent athletes performing to their highest potential. However, being an elite athlete also presents many challenges to maintaining great oral health.

In view of these challenges, we have designed this toolkit both for athletes and their team members. It has been developed with two principles in mind:

- **All athletes should be considered as being at high risk for oral disease.**
  This is either because their training regime may have adverse consequences on their oral health, or because the consequences of oral disease could have a significant effect on their performance
- **Any recommendations should be evidence based.**
  Sources supporting this toolkit will be cited throughout.

How to use the toolkit

Scope

This document will focus on common oral conditions since our research at the London 2012 games (*Needleman et al, 2013*) and a systematic review of oral diseases in athletes (*Ashley et al, 2014*) both showed that athletes were at risk from dental decay, periodontal (gum) disease and dental erosion. In addition, problems with wisdom teeth may also impair performance.

Conditions that are not covered include oral cancer and tempero-mandibular joint dysfunction and dental trauma. However, any athlete taking part in sports with a risk of injury to the head or face should wear a custom-made mouthguard and/or face protection.

Who is this for?

This toolkit is intended for adults i.e. from 18 years upwards. Junior athletes are also at risk for dental disease. Advice for children and young adults can be found in the documents cited with each recommendation.

Please help us to improve the toolkit – we welcome your comments and suggestions.

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Oral health drills

Twice daily

- Brush, especially last thing at night.
- Use a toothpaste containing >1350ppm (optimally 5000ppm) fluoride.
- Spit after brushing and do not rinse afterwards.

Daily

- Clean between your teeth with dental floss or tape before brushing.
- Use a 0.05% sodium fluoride mouthwash at a different time to brushing.
- Maintain a good diet. A diet for good general health will benefit your oral health.
- Avoid sugars other than for training and competition.

Twice yearly

- Visit your dentist for regular oral health coaching and check-ups, particularly pre-season.

Preventing dental decay

Modified from *Delivering Better Oral Health – An evidence-based toolkit for prevention – 2nd edition*.
http://www.oralhealthplatform.eu/sites/default/files/field/document/NHS_Delivering%20Better%20Oral%20health.pdf

Athlete

- Brush twice daily with fluoridated toothpaste.
- Use fluoridated toothpaste with at least 1350 ppm fluoride (2800ppm where available.)
- Brush last thing at night and on one other occasion.
- Spit out after brushing and do not rinse.
- Use a fluoride mouthrinse daily (0.05% NaF) at a different time to brushing.
- Where this does not conflict with training requirements, reduce both the frequency and amount of food and drink containing sugars and limit to mealtimes.
- Sugars should not be consumed more than four times per day.

Dental professional

- Apply fluoride varnish to teeth twice yearly (2.2% F^-).
- Apply and maintain fissure sealants to the molar teeth.

Preventing gum disease

Modified from *Delivering Better Oral Health – An evidence-based toolkit for prevention – 2nd edition*. http://www.oralhealthplatform.eu/sites/default/files/field/document/NHS_Delivering%20Better%20Oral%20health.pdf

Athlete

- If your gums are red or bleed it is a sign of gum disease.
- Clean daily between the teeth to below the gum line with dental floss or tape before brushing.
- Brush teeth and gum line systematically twice daily.
- Use either a manual or powered toothbrush brush with a small head and medium texture.
- A diet for good general health will benefit your gum health including lots of fruit and vegetables.
- Do not smoke.

Dental professional

- Advise best methods of plaque removal to prevent gingivitis.
- Behaviour change methods to improve oral health are more effective than instruction alone.
- Eliminate factors that prevent effective oral hygiene including supragingival and subgingival calculus, open/overhanging restoration margins.

Preventing dental erosion

Modified from *Delivering Better Oral Health – An evidence-based toolkit for prevention – 2nd edition*. http://www.oralhealthplatform.eu/sites/default/files/field/document/NHS_Delivering%20Better%20Oral%20health.pdf

Athlete

- Use toothpaste containing at least 1,350 ppm fluoride twice daily.
- Where this does not conflict with training requirements, avoid frequent intake of acidic foods or drinks – keep them to mealtimes.
- Do not brush immediately after eating or drinking acidic food or drinks.
- Do not brush immediately after acid reflux or vomiting.

Preventing problems with wisdom teeth

NICE Guidance on the Extraction of Wisdom Teeth
http://www.nice.org.uk/nicemedia/live/11385/31993/31993.pdf

Athletes who have impacted wisdom teeth that are not causing problems should visit their dentist for their usual check-ups.

Athletes with impacted wisdom teeth presenting with the following should consider having the affected wisdom teeth removed:

- untreatable tooth decay
- two or more episodes of pericoronitis
- abscesses
- cysts or tumours
- disease of the tissues around the tooth.

There is some evidence to suggest that presence of a mandibular third molar may double the risk of mandibular fracture. This should be considered when evaluating removal of third molars for athletes where there is a risk of head and neck trauma (*Hanson et al, 2004*).

Additional preventative methods

Other methods for preventing dental disease exist but are not evidence based. These include:

- Xylitol gums
- Casein phosphopeptide amorphous calcium phosphate (CPP-ACP) e.g. tooth mousse
- Resin infiltration
- Use of straws to consume beverages/sports drinks.

They could be considered for athletes if conventional methods are not working, or who are at particular risk e.g. those using performance enhancing techniques such as oral carbohydrate rinses.

These should be considered as supplements to the preventive regimes already outlined, not replacements.

Dental check-ups

NICE – Clinical guidelines – Dental recall (CG19)
http://guidance.nice.org.uk/CG19

Recall intervals between check-ups should be athlete specific but take into account the increased risk of oral diseases

Suggested shortest and longest intervals between oral health reviews for athletes are:

- not less than three months
- not more than 12 months.

Athletes should be considered as being at risk for dental disease so more frequent intervals should be considered

Dental screening should be carried out pre-season/pre-competition to identify and treat problems that might impair performance.

Dental check-ups are an important opportunity for oral health coaching and advice.

The following indices should be used when screening:

Dental Decay

ICDAS
http://www.icdas.org

Gum disease

BPE
http://www.bsperio.org.uk/publications/downloads/39_143748_bpe2011.pdf

Dental Erosion

BEWE
http://www.elearningerosion.com/en/elearning_erosion/scientific-background/erosion-diagnosis/basic-erosive.html

Common dental diseases

Tooth Decay

Tooth decay, or caries, is one of the most common dental conditions and one of the most common diseases known to man.

It is caused when bacteria in the mouth are frequently exposed to high levels of sugars e.g. energy gels, sweets, sugary drinks etc. The bacteria produce acid which break down the hard tooth tissues (enamel and dentine) eventually exposing the pulp. This causes pain and can lead to infection and tooth extraction.

The most effective method of prevention is use of fluoride delivered by toothpaste or by other means such as varnishes or mouthrinses. Other methods include fissure sealants.

Gum disease (periodontal)

Gum disease is inflammation of the gum tissues around the teeth, caused by a build-up of dental plaque bacteria at the gum line. In around 50% of patients this can lead to bone loss surrounding the tooth, which if untreated may lead to tooth loss. Inflammation in the mouth can also affect inflammation in the rest of the body.

The cause of gum disease is a lack of effective oral hygiene together with a genetic susceptibility to the condition and this is exacerbated by risk factors such as stress, smoking and possibly high carbohydrate diet.

Signs and symptoms can include gum redness or bleeding on toothbrushing or eating. The most effective method of prevention is to ensure teeth are cleaned properly using both floss or tape and a toothbrush. Advice and coaching in oral hygiene from a dentist or dental hygienist is important in achieving success. A diet rich in fresh fruit and vegetables and fish oils might also be protective.

Common dental diseases (continued)

Dental erosion

Exposure of teeth to acidic liquids (e.g. sports drinks) will soften the outer surface of the tooth. This can then be easily removed through normal activities such as toothbrushing or chewing. Once this tooth surface has been eroded away it is impossible to regenerate it.

Ideally acidic beverages and foodstuffs should be avoided, or taken at mealtimes so that the acidity can be buffered by the other foodstuffs. If this is not possible consider using a straw to consume the beverage, this will reduce exposure of the teeth to the acid. Rinsing or swishing with any acidic drink should be actively discouraged.

Wisdom teeth

Wisdom teeth normally erupt between the ages of 18 and 24. There is often a lack of space for the teeth so they become impacted against the tooth in front. This area of tooth impaction is often difficult to keep clean so the teeth in this area are at increased risk of developing decay. In addition the gum around the tooth can become infected – this is known as pericoronitis.

Obviously the best form of prevention would be prophylactic removal of these teeth. However this has its own risks including post-operative infections and long-term nerve damage.

Therefore current thinking is that wisdom teeth should only be removed where there are clear problems.

References

Ashley P, Di Iorio A, Cole E, Tanday A, Needleman. *Oral Health and Impact on Performance of Athletes: a systematic review*. Submitted 2014

Delivering Better Oral Health – An evidence-based toolkit for prevention – 2nd edition.
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