



Toolkit
for sports
organizations



Sports Dentistry

Around the world, more and more people are practicing sports as a leisure activity or as a profession. Practicing sports starts at a young age, evolves through solo activities or in sports clubs and academies, and peaks at the professional and elite level. The goals of physical exercise and sports are health, well-being and, ultimately, athletic performance. We know that oral health is an important contributor to well-being and overall health; we also know that good oral health is a key element of good athletic performance.

THE DEVELOPMENT OF SPORTS MEDICINE IN RECENT YEARS HAS CONTRIBUTED TO HEALTHIER ATHLETES AND BETTER PERFORMANCE.

Sports medicine has also evolved into a multidisciplinary field in which **sports dentistry** is expected to be a key element¹. Sports dentistry is the branch of dentistry dealing with the

prevention and treatment of the pathologies and injuries of the stomatognathic system related to sports and exercise. The *stomatognathic system* is the anatomical and functional system comprising the teeth, jaws, associated soft tissues, facial muscles and temporomandibular joint (TMJ). The condition of the stomatognathic system has a direct impact on overall health, performance and on the risk of injury in individuals who practice sports.

Certain dental problems, such as non-carious cervical lesions or caries, may come from over-training, an unfavourable diet, a parafunctional load, or a lack of oral hygiene education. Swimmers are particularly at risk for dental erosion due to acidic aqueous environments. Sports beverages and related food supplements can also cause complications in the mouth, including damage to dental hard tissues and dental materials, due to their high-levels of free sugars and acidic ingredients. In addition, amateur and elite athletes face a greater risk of oral injuries because they may not receive sufficient guidance and/or training in proper protection. Finally, dental prescriptions may also affect performance or be classified as banned substances by anti-doping authorities.



¹ See also FDI World Dental Federation Policy Statement on Sports Dentistry (2016) (<https://www.fdiworlddental.org/resources/policy-statements-and-resolutions/sports-dentistry>)

The purpose of this Sports Dentistry Toolkit is to provide a brief overview of the relationship between oral health and athletic performance. The toolkit aims to raise awareness among sports organizations of the importance of sports dentistry and, more generally, of good oral health, to benefit billions of people practicing amateur and professional sports around the world. Alongside this toolkit, FDI has developed guidelines for amateur athletes, professional

athletes, and dentists and sports medicine physicians. Whether you are a sports organization representing professional athletes at the global level or a local grassroots sports club, FDI encourages you to use and disseminate these guidelines to your members, athletes, trainers, and medical staff to start promoting oral health and good oral hygiene practices for better athletic performance.

What is oral health?

Oral health refers to the health of the mouth. Oral health includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions

with confidence and without pain, discomfort and disease of the craniofacial complex. At all stages of life, oral health is vital to general health and well-being.

ORAL HEALTH MEANS HAVING HEALTHY:



Why does oral health matter?

Oral disease can affect general health and athletic performance. For example, gum disease can increase your risk of diabetes, heart disease, and pneumonia. Taking care of your mouth keeps it healthy and helps you maintain your general

health, which is essential when practicing sports. Oral disease can also impact many other aspects of a person's life, from personal relationships and self-confidence to school, work or even enjoying food. It can also potentially lead to social isolation.

How oral health impacts athletic performance

The mouth is often considered as a mirror of the body: a healthy mouth contributes to a healthy body that behaves smoothly and efficiently. Conversely, an unhealthy mouth can affect your athletic performance in several ways:

- Poor oral health can affect your quality of life and well-being, two elements that are important for good athletic performance.
- Caries (tooth decay) and periodontal (gum) diseases can cause or maintain inflammations and infections in

your body, with a negative effect on your athletic performance.

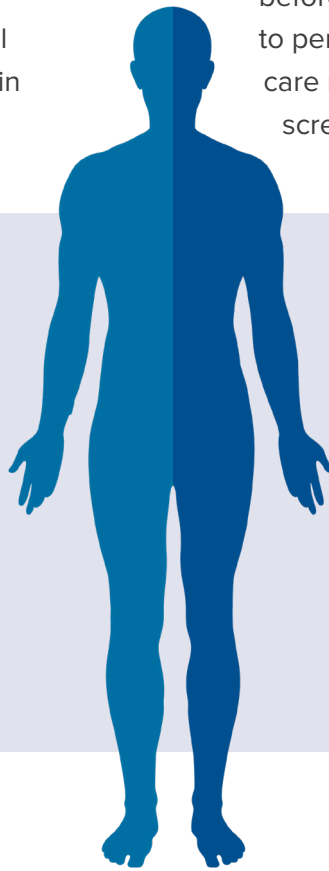
- Defective dental occlusion can affect your posture and gait, which can increase your risk of injury.
- A dental emergency, such as a gum abscess, infected tooth, or wisdom tooth eruption before an athletic competition can cause you to perform poorly, or even withdraw. Dental care must be provided immediately after screening to avoid emergency interventions.

STOMATOGNATHIC SYSTEM

RESPIRATORY SYSTEM

INJURY RISK

PLANTAR ARCH



CARDIOVASCULAR SYSTEM

MUSCLE STRENGTH

INFLAMMATIONS

POSTURE

GAIT

How do sports impact oral health?

- Practicing sports is good for general health and should always be encouraged. However, practicing sports can also negatively impact health, especially oral health: dehydration, stress, and sugars and acids in sports beverages all take a toll on the mouth and body. Physical impacts can also cause oral injuries. Sports beverages and some energy supplements contain high levels of sugars and acids, which can cause caries, periodontal disease and tooth erosion.

- Sports-related stress is an additional risk factor for caries, periodontal disease, tooth erosion, abrasion and bruxism.
- Oral and dental trauma and injuries can frequently happen when practicing contact and combat sports without proper protection.
- Dehydration and stress can lead to dry mouth, which can affect oral health.
- In aquatic sports, the low pH value in swimming pool water may cause tooth erosion.

Recommendations

AMATEURS

ELITE ATHLETES

Oral hygiene

Brush teeth and gums at least twice a day for two minutes (30 minutes after eating). Use a toothbrush, fluoride toothpaste and flosses/interdental brushes. Rinse with water or chew sugar-free gum after meals and snacks when brushing isn't possible.

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Dental check-ups

Visit dentist at least **once** a year. Your dentist may apply fluoride varnish to protect your teeth.

Visit dentist at least **twice** a year. Your dentist may apply fluoride varnish to protect your teeth.

Nutrition

Eat a healthy diet, with limited snacking on foods and drinks high in sugar.

When snacking between meals, choose fruit and vegetables, cheese, and nuts over foods that are more likely to cause caries, such as cookies or sugary sports bars.

Beware of acids: counteract the acidity of energy drinks and food by rinsing your mouth with water afterwards. When drinking a sports beverage, use a reusable straw to avoid contact with teeth and dilute energy drinks with water. Do not brush teeth immediately after drinking energy drinks.

Stay hydrated at all times.

Eat a healthy diet. When snacking between meals, favour fruit, quark/'fromage blanc' cheese, and nuts over foods that are more likely to cause cavities, such as cookies.

Beware of acids: counteract the acidity of energy drinks and food by rinsing your mouth with water afterwards. When drinking a sports beverage, use a reusable straw to avoid contact with teeth and dilute energy drinks with water. Do not brush teeth immediately after drinking energy drinks.

Stay hydrated at all times.

Smoking

Avoid smoking and smokeless tobacco.

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Protection against injuries

Wear a mouthguard when engaging in contact sports.

Mouthguards are recommended even if you practice your sport occasionally, because you may not have the same control over your movements as professionals and are therefore more exposed to trauma.

Avoid store-bought, standard mouthguards that do not fit well and offer poor protection. Favour custom-made mouthguards. For children and adolescents whose mouths are still developing, it may be appropriate to use standard mouthguards that will then be adapted by the dentist. Dentists can provide advice and guidance.

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Medication

Make sure that any dental medication you may be taking is compatible with physical exercise and, when competing, with anti-doping regulations.

Illicit soft medication can harm your health if consumed regularly.

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Examples of sports where protection is

MANDATORY*	RECOMMENDED		
» Boxing	» Martial arts	» Football/Soccer	» Weightlifting
» Taekwondo	» Rugby	» Cycling	» Squash
» Ice hockey	» Basketball	» Gymnastics	» Water polo
» American football	» Handball	» Equestrian sports	» Field hockey/ roller hockey
	» Volleyball	» Skateboarding	
	» Baseball	» Wrestling	

* Regulations may vary by country and age group



Take action

Promote oral health prevention

All stomatognathic pathologies, microbial or functional, are preventable. Therefore, promoting oral health and good oral hygiene practices in the earliest stages of sports practice, e.g. in school, grassroots clubs, and sports academies, is essential. Regular dental screenings for athletes are also valuable, as they allow dentists to identify any dental issues early. As a sports organization, you are best-placed to communicate the importance of good oral health to your entire membership base.

Promote the integration of oral care into general care

Oral health affects people physically and psychologically and influences how they grow, enjoy life, look, speak, chew, taste food and socialize, and affects their level of social well-being². As a sports organization, you can motivate your members to look after their oral health in order to maintain their overall health, stay fit and perform well.

Promote the integration of oral prevention and care into sports medicine

Sports medicine has evolved into a multidisciplinary field. Efficiently treating and managing the stomatognathic system requires teamwork and close cooperation between dentists and sports medicine physicians. As a sports organization, and especially if you coach elite athletes, you are in a position to encourage collaboration between your medical staff and a sports dentist. By promoting regular dental check-ups among your member athletes, you will contribute to keeping their athletic performance at its highest level.

² (WHO <http://www.who.int/bulletin/volumes/83/9/editorial30905html/en/>)

The path to optimal oral health in sports

1 DISSEMINATE RECOMMENDATIONS FOR AMATEURS AND ELITE ATHLETES

to raise awareness about the importance of good oral health to be able to exercise and compete in both grassroots and elite sports. Provide guidance on how to maintain good oral health while practicing sports.

Encourage amateur and elite athletes to adopt healthy behaviours in terms of oral hygiene, nutrition, regular dental check-ups and injury prevention.

2 CREATE A HEALTHIER ENVIRONMENT FOR ATHLETES BY PROVIDING GUIDANCE FOR APPROPRIATE ORAL HEALTH CARE

to health professionals, dentists, sports physicians, physiotherapists, medical and technical teams in both amateur and elite sports, and by encouraging cooperation between dentists and sports physicians.

3 COLLABORATE WITH OTHER SPORTS CLUBS, FEDERATIONS, INSTITUTIONS AND SPORTS MEDICINE CENTRES

at local, national, regional and international levels to promote prevention, research, surveillance and monitoring of oral health and related health factors, and to support education in the field of sports and dentistry.

4 INITIATE COMMON STRATEGIES WITH NATIONAL AND INTERNATIONAL SPORTS FEDERATIONS

to foster the integration of sports dentistry into sports medicine and to incorporate the dentist as a member of the sports medicine team by including oral health in athletes' regular and pre-competition medical assessments.

THE NUMBERS

OF THE 399 ATHLETES EXAMINED DURING THE 2012 LONDON OLYMPIC GAMES³.



55%

HAD DENTAL CARIES

45%

HAD MODERATE TO SEVERE TOOTH EROSION

76%

HAD PERIODONTAL DISEASE from localized to generalized gingivitis

40%

WERE 'BOTHERED' BY THEIR ORAL HEALTH

28%

REPORTED AN IMPACT ON QUALITY OF LIFE

18%

REPORTED AN IMPACT ON TRAINING AND PERFORMANCE

600,000



In the US alone, dental injuries from recreational sports account for more than 600,000 emergency dental visits each year!⁴

Almost one in three dental injuries in children has been shown to occur during sports activities⁵.



IT IS ESTIMATED THAT MOUTHGUARDS PREVENT BETWEEN 100,000-200,000 ORAL INJURIES PER YEAR IN PROFESSIONAL AMERICAN FOOTBALL ALONE⁶.

Between 10 and 61 percent of athletes experience dental trauma during their sports activities⁷.

Amateur athletes are more prone to suffer sports-related dental injuries than elite athletes⁸.

³ Needleman I, Ashley P, Petrie A, et al. Oral health and impact on performance of athletes participating in the London 2012 Olympic Games—a cross sectional study. *Br J Sports Med* 2013;47:1054–8.

⁴ US Centers for Disease Control and Prevention.

⁵ Gassner R, Tuli T, Hachl O, Moreira R, Ulmer H. Craniomaxillofacial trauma in children: A review of 3,385 cases with 6,060 injuries in 10 years. *J Oral Maxillofac Surg* 2004;62(4):399-407.

⁶ Soporowski NJ, Tesini DA, Weiss AI. Survey of orofacial sports-related injuries. *J Mass Dent Soc.* 1994 Fall;43(4):16-20

⁷ Knapik JJ, Marshall SW, Lee RB, et al. Mouthguards in sport activities: History, physical properties and injury prevention effectiveness. *Sports Med* 2007;37(2):117-4

⁸ Glendor U. Aetiology and risk factors related to traumatic dental injuries: A review of the literature. *Dent Traumatol* 2009;25(1):19-31.

About FDI World Dental Federation

FDI World Dental Federation (FDI) serves as the principal representative body for more than 1 million dentists worldwide, developing health policy and continuing education programmes, speaking as a unified voice for dentistry in international advocacy, and supporting member associations in global oral health promotion activities. Over the years, it has developed programmes, initiatives, campaigns, policies and congresses, always with a view to occupying a space that no other not-for-profit group can claim.

FDI works at national and international level through its own activities and those of its member dental associations. It is in official relations with the World Health Organisation (WHO) and is a member of the World Health Professions Alliance (WHPA).

FDI Policy Statement on Sports Dentistry, approved by the FDI General Assembly in 2016

PRINCIPLE

“...This policy statement contributes to FDI’s aims to improve the oral health of athletes as well as systemic and psychological health, increasing safety in sports practice. Moreover, having dentists present in high performance sport teams is an important measure to ensure athletes’ general health, through oral preventive and curative actions.”

POLICY

FDI recommends to:

- ✦ Reinforce the importance of customized mouthguards, shock-absorbing material, and time of use.
- ✦ Promote preventive measures for the maintenance of healthy oral tissues.
- ✦ Introduce the indication of customized face masks and shields, made by dentists or under professional dental supervision.
- ✦ Update the dental team on the metabolism of prescribed substances in potential conflict with World Anti-Doping Agency (WADA) regulations.
- ✦ State the importance of an athlete’s oral health status to his or her performance and the manifestation of oral lesions related to systemic reactions derived from sports conditions.
- ✦ Reinforce the importance of the relationship between an athlete’s oral health and general health.
- ✦ Promote the benefits of well-balanced diets for good oral health.

Further reading

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