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Oral Health in Athletes: An Overlooked Determinant of Performance, Recovery, and Safety

Tymon Lewalski

lewalski.tymon@gmail.com

https://orcid.org/0009-0007-5345-2077

University of Warmia and Mazury in Olsztyn

Joanna Słuchocka
asiaslu@onet.pl
https://orcid.org/0009-0000-8143-2451
University of Warmia and Mazury in Olsztyn

Martyna Florczyk
martyna.gorlewskag4@gmail.com
https://orcid.org/0009-0000-6385-110X
RCKiK in Olsztyn

Oskar Lewalski
Oskar.lewalski@o2.pl
https://orcid.org/0009-0000-0914-0219
University of Warmia and Mazury in Olsztyn

Lidia Płuciennik
Lidi_PL@wp.pl
https://orcid.org/0009-0007-5860-9213
Medical University of Lodz

Klaudia Jeruć
klaudia.gorlewska.g4@gmail.com
https://orcid.org/0009-0000-8107-7736
Provincial Specialist Children's Hospital in Olsztyn named after Prof. Dr. Stanisław Popowski

Corresponding author: Tymon Lewalski, lewalski.tymon@gmail.com

ABSTRACT

Oral health has traditionally occupied a peripheral role in sports medicine, yet the available evidence suggests that this separation is artificial. Across Olympic, professional, academy and university settings, athletes show a substantial burden of preventable oral disease, including dental caries, erosive tooth wear, gingivitis, periodontitis and sports-related dental trauma. The issue matters for more than comfort or appearance. Pain, chewing difficulty, disturbed sleep, reduced confidence, altered nutritional intake, missed training time and self-reported

decrements in performance have all been described. In addition, chronic periodontal inflammation may contribute to a systemic inflammatory load that is biologically plausible in relation to recovery and physical readiness, although causality and the size of the effect remain incompletely defined. This feature review summarizes the current literature on oral health in athletes, with a focus on epidemiology, athlete-specific risk factors, mechanisms linking oral disease with performance and recovery, and practical prevention strategies for clubs, federations and individual competitors. The strongest evidence supports three messages. First, oral disease is common in elite and professional sport, often despite regular contact with health services. Second, the causes are multifactorial: frequent carbohydrate exposure, acidic sports products, exercise-related dry mouth, demanding schedules, variable dental attendance, and sport-specific injury risk all contribute. Third, prevention is realistic. Regular screening, fluoride-based caries prevention, individualized nutritional counselling, better management of periodontal inflammation, and broader adoption of custom-made mouthguards in high-risk sports can reduce disease burden without compromising performance. Oral health should therefore be treated as a core component of athlete welfare, readiness and long-term sporting sustainability, rather than an optional extra.[1-24]

Keywords: sports dentistry, athlete health, periodontitis, dental caries, erosive tooth wear, mouthguards, performance, recovery, screening, prevention

1. Introduction: why this topic belongs in sports medicine

Elite sport talks constantly about marginal gains, but oral health has often sat outside that discussion. The mouth is still treated, in many environments, as if it were separate from musculoskeletal medicine, nutrition, sleep, recovery and athlete availability. The literature does not support that separation. Studies from Olympic competitions, professional football, elite training centres and more recent systematic reviews repeatedly show that oral disease is common in athletes and that a meaningful minority report negative effects on wellbeing, training or competition.[1-3,5-7,11-13]

The central point is simple: poor oral health is not rare bad luck. It is usually a cluster of preventable conditions with direct and indirect performance consequences. Acute pain can

disrupt concentration. Caries and cracked teeth can make eating difficult at exactly the moment an athlete needs to fuel and recover. Gingival bleeding and periodontal inflammation can coexist with apparently good outward fitness and go unnoticed for months. Erosive tooth wear can progress silently until sensitivity, structural loss and restorative burden become significant. Dental trauma, unlike many overuse problems, can be catastrophic in a single moment and may create a long treatment pathway.[1-5,8,14-18]

For a quality sports publication, the value of this subject lies in its combination of practical relevance and neglect. Oral disease in athletes is common, costly, visible to those affected, and often straightforward to reduce. The evidence base is imperfect in places, especially when the outcome of interest is hard performance data rather than symptoms or self-report. But the broad direction of the literature is now hard to dismiss: oral health deserves a permanent place in athlete screening and support systems.[2,3,7-13]

2. How common are oral health problems in athletes?

The most consistent finding across the sports dentistry literature is that oral disease is common even in apparently healthy, well-supported athletes. In the London 2012 Olympic Games dental clinic sample, more than 40% of athletes reported being bothered by their oral health, 28% reported an effect on quality of life, and 18% reported an effect on training or performance.[1] The landmark systematic review by Ashley and colleagues found high prevalence figures across the included studies, with dental caries, erosive wear, periodontal disease and trauma all reported at concerning levels.[2]

Later work has not softened that picture. Gallagher and colleagues described substantial oral disease and common self-reported performance impacts in a large representative sample of elite and professional athletes in the United Kingdom.[3] A separate study of athlete-reported behaviours showed that many athletes brush regularly and are open to behaviour change, yet still accumulate disease burden, which suggests that sports-specific exposures and implementation failures matter as much as individual intent.[4]

Football is especially instructive because it combines high medical support with demanding schedules. In senior professional male footballers in the UK, 37% had active caries, 53% had erosive tooth wear and 5% had moderate to severe irreversible periodontal disease; many players said their oral health affected wellbeing and some reported effects on training or performance.[5] In academy footballers aged 16 to 18, the picture starts even earlier: gingivitis and periodontitis were common, dental attendance was inconsistent and athletes themselves perceived that oral problems could affect performance.[13]

Other cohorts tell a similar story. Dutch elite athletes screened before Rio 2016 frequently required dental referral.[6] A 2025 cross-sectional study using a universal sports dental protocol found that more than half of examined elite athletes had two or more pathological or functional findings, with periodontal disease and caries most common.[12] A 2025 systematic review and meta-analysis confirmed that high prevalence remains a contemporary issue rather than a historical artifact of older studies.[11]

3. Why athletes are uniquely vulnerable

Athletes do not develop oral disease because sport is inherently unhealthy; they become vulnerable because sport creates a distinctive risk environment. Frequent carbohydrate exposure is the clearest example. Endurance athletes and players in repeated training environments often use sports drinks, gels, bars and recovery products multiple times per day. From a performance perspective, that strategy can be justified. From a dental perspective, it means repeated acid and sugar challenges, especially when products are sipped rather than consumed in a short, discrete window.[4,7,20,24]

The second major issue is saliva. Saliva buffers acids, supports remineralization and helps regulate the oral ecosystem. During intense exercise, dehydration, mouth breathing and sympathetic activation can reduce salivary flow or alter the protective function of saliva. Studies in endurance athletes and physically active young adults show patterns that make biological sense: exercise-related changes in salivary flow and frequent acidic exposures may increase the risk of erosive wear and, in some settings, caries.[7,21-23]

Training culture also matters. Athletes travel, train early, recover late, and often compress meals, snacks, hygiene and sleep into narrow windows. A player who would never skip brushing in ordinary life may fall asleep after travel or recovery sessions. An athlete who sees a team doctor regularly may still not receive structured dental review because oral health sits outside the usual preseason workflow. Behaviour is therefore shaped by systems. If clubs do not schedule screening, reinforce preventive routines and make products such as high-fluoride toothpaste accessible, the default environment tends to favour disease progression.[3,4,10,13]

There are also sport-specific exposures. Swimmers may encounter erosive risk related to pool chemistry. Combat and collision sports face direct trauma risk. Weight-category sports and sports with disordered eating risk can involve vomiting, acidic exposure and altered salivary function. Some athletes use supplements or medications that promote dry mouth. In short, athlete oral health is not one problem but a convergence of training load, nutrition, environment, access and injury exposure.[7,8,18,19,23]

Table 1. Athlete-specific oral health risk factors and why they matter

Risk factor	How it influences the mouth	Practical consequence in sport
Frequent carbohydrate intake	Repeated sugar exposure supports cariogenic biofilm activity, especially when drinks or gels are sipped repeatedly.	Higher caries risk during heavy fuelling phases.
Acidic sports products	Low pH products challenge enamel and may contribute to erosive wear, particularly with dry mouth.	Sensitivity, structural wear, higher restorative burden.
Dehydration and mouth breathing	Reduced salivary protection lowers buffering and lubrication.	Greater erosion risk, discomfort, reduced natural defence.
Irregular travel routines	Delayed brushing, missed appointments and inconsistent hygiene increase cumulative disease risk.	Silent progression until symptoms disrupt training.
Contact exposure	Direct blows increase risk of fractures, luxation and avulsion.	Immediate time loss, emergency care and cosmetic burden.
Limited embedded dental care	Problems remain undetected until pain or visible damage develops.	Reactive rather than preventive management.

4. Dental caries: still the most familiar problem

Dental caries remains the most intuitive sports dentistry problem because it is common, visible and easy to understand. Yet it is frequently underestimated in elite settings. Caries is not simply the result of poor discipline. It emerges when the balance tips toward repeated fermentable carbohydrate exposure, biofilm maturation and insufficient protective buffering and remineralization. In athletes, repeated fuelling during long sessions may create exactly that environment, especially when intake is frequent and oral hygiene is delayed.[4,7]

The practical consequences can be larger than the lesion itself. Athletes with caries may experience pain on cold air, cold fluids or sweet products. They may chew less effectively, avoid certain foods or modify fuelling choices toward softer, sometimes even more cariogenic, options. Sleep may worsen if symptoms flare at night. Once treatment becomes necessary during a competitive phase, scheduling restorative care, endodontic therapy or extraction can create avoidable disruption.[1,3,5,7]

Several observational studies in sport have reported substantial caries burdens, including in footballers and Olympic athletes.[1,5,13] The 2024 comprehensive review by Schulze and Busse summarized prevalence figures for dental caries in elite athletes that remain strikingly high across different sporting populations.[7] Importantly, this does not mean that all sports nutrition is harmful or that athletes should abandon carbohydrate strategies that support performance. It means dental prevention must keep pace with modern fuelling practices. The question is not whether athletes should fuel, but how to fuel intelligently while protecting the teeth.

5. Erosive tooth wear: the silent, cumulative injury

Erosive tooth wear is chemically driven surface loss unrelated to bacterial caries. It can begin quietly, with no obvious symptoms, and advance until sensitivity, contour loss, yellowing, fracture susceptibility or complex restorative need appears. In athletes, erosive wear attracts concern because of repeated exposure to acidic drinks and gels, exercise-associated dry mouth, and in some sports, environmental acid exposure such as long periods in swimming pools with suboptimal pH control.[7,21-24]

The evidence needs careful interpretation. A recent review concluded that sports drink use alone has not been proven to cause erosion in a simple one-factor way; the problem is multifactorial and confounded by overall diet, timing, salivary protection and training context.[7] That nuance matters because overly simplistic messaging can undermine performance nutrition. Still, earlier work has shown that many sports drinks have erosive potential in vitro, and several athlete-focused studies report associations between heavy training, reduced salivary protection and increased erosive wear.[21-24]

Frese and colleagues found increased erosion risk in endurance athletes, while Mulic and colleagues reported a high prevalence of erosive lesions in physically active young adults, with decreased stimulated salivary flow during exercise associated with greater wear.[21,22] More recent work in competitive swimmers found significantly more erosive tooth wear than in non-

swimmer athletes and suggested that years of practice, acidic drink exposure and pool chemistry may all contribute.[23]

For editorial purposes, erosive wear is best understood as the oral equivalent of a cumulative load problem. One exposure rarely causes visible damage. The issue is repeated acid challenge on enamel that may already be less protected because the athlete is dehydrated, breathing through the mouth, or brushing at the wrong time immediately after acidic intake. That is precisely why prevention depends on routines and timing, not only on product choice.

6. Periodontal disease and the systemic inflammation question

Gingivitis and periodontitis are especially relevant because they connect local oral disease with whole-body physiology. Gingivitis is common, reversible and often underestimated. Periodontitis is a chronic inflammatory disease involving the supporting tissues of the teeth and, in susceptible individuals, can lead to attachment loss and bone destruction. In the sports setting, periodontal disease is important not only because it causes bleeding, pain, halitosis or long-term dental damage, but because chronic inflammation may plausibly interact with recovery, immune function and physical readiness.[8,9]

The strongest sports-specific synthesis to date is the 2024 systematic review and meta-analysis by Ferreira and colleagues. Across eight eligible studies, periodontal disease was associated with reduced self-reported sports performance, and pooled analysis suggested higher odds of self-perceived performance reduction among athletes with periodontal disease.[9] That does not prove that treating periodontitis will transform objective performance metrics. But it does support the view that periodontal status is more than a cosmetic or dental side issue.

Mechanistically, several routes are plausible. Periodontal inflammation increases the local and systemic burden of inflammatory mediators, can contribute to transient bacteremia, and may alter immune signalling. In the general medical literature, periodontitis has long been linked to systemic inflammation and cardiometabolic disease. Merle and colleagues argued that similar biological reasoning may matter in sport, although direct evidence remains limited.[8] Their exploratory study in young elite athletes identified associations between signs of periodontal inflammation and lower VO2max or lower relative maximal ergometer load in some subgroups.[19] These findings should be treated cautiously because the study was exploratory and cross-sectional, but they are directionally important.

Football-specific work also keeps the question open. Botelho and colleagues reported an alarming prevalence of periodontitis in professional footballers and a non-significant tendency toward more non-traumatic muscular events in the periodontitis group.[20] Taken together, the

literature does not justify sensational claims that gum disease directly causes injury or poor performance. It does justify a mature clinical message: persistent periodontal inflammation is biologically relevant, common enough to matter, and should be identified and treated rather than normalized.

7. Trauma, contact sport, and the mouthguard conversation

Acute trauma is the most visible oral health problem in sport because it happens suddenly, often publicly, and can carry immediate functional, esthetic and financial consequences. Fractures, luxations, avulsions, soft-tissue injuries and jaw trauma are classical sports dentistry emergencies. They are especially relevant in rugby, hockey, combat sports, basketball, handball, martial arts and various youth contact environments, but any sport with falls, projectiles or collisions can produce serious injury.[14-17]

The prevention message here is stronger than for most other topics in sports dentistry. Mouthguards work for preventing orofacial injuries. The 2019 systematic review and meta-analysis by Knapik and colleagues showed that mouthguard use substantially reduced overall orofacial injury risk, even though the influence on concussion incidence remained inconclusive.[14] The 2024 IADT and Academy for Sports Dentistry guidance, together with the 2025 position statement on custom-made sport mouthguards, reinforce the same conclusion: well-made mouthguards are a key preventive measure and custom-made designs offer the best fit, comfort and protective performance.[15,16]

An important cultural barrier has been the belief that mouthguards impair breathing or performance. The evidence does not support a simple anti-mouthguard argument. A 2023 systematic review suggested that mouthguards do not generally harm performance and that custom-made designs may even have small benefits in specific tasks, although study quality is variable and mechanistic explanations remain debated.[17] A 2025 narrative review reached a similarly practical conclusion: custom devices protect and may be performance neutral or occasionally beneficial, while poorly fitted stock devices are the real problem.[18]

For sports journalism, this is low-hanging fruit. Mouthguards should not be framed as old-fashioned or restrictive equipment. They should be framed as a modern, individualized protective intervention that reduces avoidable injury without asking athletes to sacrifice competitive output.

8. How oral disease can affect performance, recovery and availability

The most direct pathway from oral disease to performance is symptom burden. Toothache, gingival pain, facial swelling, sensitivity or post-traumatic discomfort can interfere with sleep, concentration and willingness to eat or drink normally. In elite competition, where athletes are already operating close to physical and psychological margins, even modest symptoms can become disproportionately disruptive.[1,3,5]

The second pathway is nutritional. Athletes with dental pain may avoid crunchy, fibrous or temperature-sensitive foods. They may switch to softer, more processed options or under-eat around training. Problems become even more relevant in sports where body composition, rapid refuelling or repeated event-day intake matter. The mouth is the gateway to fuelling. If it hurts to chew, swallow or open widely after trauma, the performance plan is compromised before any metabolic model gets a chance to work.[5,7]

The third pathway is inflammatory and recovery-related. Here the science is promising but not settled. Chronic periodontal inflammation could plausibly contribute to low-grade systemic inflammatory stress, interact with immune regulation, and affect how athletes feel or recover. The available sports-specific evidence is mostly observational and often depends on self-report, so conclusions must remain proportionate.[8,9,19,20] Yet the consistency of the direction of travel is notable: gum disease is associated with poorer self-perceived performance, and exploratory work suggests possible physiological correlates.

Finally, there is availability. Elite sport increasingly recognises that availability is a performance metric in itself. The athlete who trains consistently usually outperforms the athlete who repeatedly loses days to avoidable problems. Oral disease may not always cause dramatic time-loss injuries, but dental appointments during competition windows, emergency care after trauma, disturbed sleep, antibiotic use, pain medication and the distraction of untreated symptoms all erode training continuity. From that perspective, oral health should be seen as a readiness issue as much as a medical one.

9. Youth pathways, women athletes and the long-career perspective

The academy data are especially important because they show that oral health disadvantage can start early. By the late teenage years, many aspiring professional footballers already carry caries, gingivitis, periodontitis or significant tooth wear.[13] This matters because oral disease is cumulative. A twenty-eight-year-old professional with repeated restorative work or established periodontal damage is not only dealing with current symptoms; they are carrying a treatment

history built over years. For youth systems, prevention should therefore be framed as career protection rather than simply dental education.

The literature on sex differences in athlete oral health is still relatively sparse, and most historical studies have overrepresented male cohorts. Nevertheless, newer work indicates that elite women athletes experience the same broad categories of risk: high training loads, sports product exposure, erosive risk, traumatic injury in some sports, and inconsistent access to embedded dental support.[12,13] Rather than assuming one universal athlete profile, sports medicine teams should use dental screening to identify individual patterns of risk and access barriers.

The long-career perspective also matters for para athletes and athletes in decentralized systems. Some receive outstanding support; others train largely outside centralized medical teams and may not be screened until a major event approaches. The Dutch pre-Rio screening program is a reminder that oral health checks shortly before Olympic or Paralympic competition often reveal unmet treatment needs that would have been better addressed earlier in the season or even earlier in the career.[6]

10. Screening and surveillance: from optional extra to standard practice

If oral disease is common and preventable, screening becomes the obvious next step. Yet dental assessment remains inconsistently embedded in sports medicine pathways. Many teams rely on ad hoc referrals once symptoms appear. That model is reactive and inefficient. By the time an athlete reports pain, the disease process is already established and treatment may be more invasive, time consuming and disruptive than early prevention would have been.[1,3,6,10]

The 2023 universal protocol for dental examination in sports is useful because it frames oral health as part of integrated athlete assessment rather than a stand-alone dental episode.[10] In practical terms, the best time for a full dental review is preseason or at the start of a training cycle, when restorative planning, periodontal therapy, preventive counselling and mouthguard review can be arranged without competition pressure. High-risk athletes should then have follow-up intervals based on disease activity, not generic annual advice.

A useful screening model contains five components: history of symptoms and past trauma; examination for caries, periodontal disease and erosive wear; review of diet, supplements and drink habits; assessment of oral hygiene routines and fluoride exposure; and sport-specific trauma prevention planning. For collision sports, mouthguard fit and compliance should be checked directly, not assumed. For endurance and weight-category sports, dietary timing and acid exposure deserve particular attention.[4,7,10,15,16]

The cultural message is equally important. Screening should not be framed as another compliance burden. It should be presented like cardiac screening, musculoskeletal profiling or nutrition support: a standard part of high-performance duty of care.

Table 2. A season-long oral health framework for clubs and performance programs

Timing	Core actions	Who should lead
Preseason	Dental examination; caries and periodontal risk assessment; review of erosion risk; mouthguard review; baseline education.	Dentist with sports medicine team
Heavy training blocks	Check fuelling patterns, dry-mouth symptoms, sensitivity, gum bleeding and delayed hygiene routines.	Nutritionist, dentist, athlete
Competition phase	Rapid access pathway for pain, trauma and urgent care; reinforce mouthguard compliance in high-risk sports.	Team doctor, dentist, athletic trainer
Travel periods	Portable hygiene kit, fluoride toothpaste, hydration plan, guidance on acidic drink timing.	Athlete services, medical staff
Mid-season review	Reassess active disease, treatment completion, periodontal status and mouthguard fit.	Dentist
Off-season	Complete definitive treatment and update prevention plan for the next cycle.	Dentist and athlete

11. Prevention: what actually works in the real world

Prevention in sports dentistry is attractive because many interventions are low cost, low risk and easy to implement. The challenge is not scientific complexity so much as execution. Athletes and teams need routines that fit training reality. A beautiful prevention plan that ignores travel, recovery schedules, locker-room habits and supplement use will not survive long.[4,7,13]

The core package is familiar but powerful: twice-daily toothbrushing with fluoride toothpaste, regular interdental cleaning when appropriate, timely treatment of active disease, and individualized dental recall. In athletes at higher caries risk, stronger fluoride strategies, professionally applied varnish and explicit counselling on post-training hygiene timing can be justified. Behaviour change work in elite athletes suggests that willingness to improve is often present; what is missing is systems-based support and reinforcement.[4]

Nutrition counselling should be integrated rather than oppositional. Athletes should not be told simply to stop using sports drinks or carbohydrate products. Instead, clinicians should work with performance nutrition staff to reduce unnecessary between-session sipping, favour strategic intake windows, encourage water when performance fuelling is not required, and build post-session oral hygiene into the recovery routine. After acidic exposure, immediate aggressive brushing should be avoided; rinsing with water or a neutralizing option and waiting before brushing is often more sensible.[7,21,24]

Periodontal prevention requires more than quick visual checks. Bleeding gums should never be normalized. They are a clinical sign. Early professional cleaning, targeted oral hygiene instruction and, where needed, definitive periodontal treatment are likely to provide benefit at low downside. Trauma prevention, similarly, should move beyond generic advice toward custom-made mouthguard adoption, education for coaches and athletic trainers, and clear emergency pathways for avulsion or other dental injuries.[14-17]

12. Match-day emergencies: what teams should know before a dental injury happens

Teams prepare meticulously for concussion, fracture, cardiac arrest and heat illness, yet many still have no equally clear pathway for avulsed or fractured teeth. That omission matters because immediate first aid can affect prognosis. A tooth that is completely knocked out should be handled carefully by the crown, not the root, and urgent replantation or rapid transfer in an appropriate storage medium may improve the chance of success. Delay, dry storage and repeated handling of the root are all harmful. For fractured teeth, soft-tissue bleeding, pain control, fragment preservation when possible and rapid dental review are the priorities.[15]

Not every club needs a dentist physically present at every session, but every club should know what to do in the first five minutes. That means a simple written protocol, staff education, access to emergency contact routes, and clarity about where the athlete will be referred. In practical terms, this is no different from any other low-frequency, high-consequence event. The teams that manage it best are the teams that planned before the emergency happened.

Table 3. First-response priorities for common sports-related dental emergencies

Situation	Immediate first steps	What to avoid
Tooth knocked out	Handle by the crown, urgent dental referral, replant immediately if appropriate or store in suitable medium.	Touching the root, scrubbing the tooth, leaving it dry.
Broken tooth	Control bleeding, preserve any fragment, urgent assessment for pulp exposure and pain control.	Discarding fragments, delaying review until symptoms worsen.
Jaw or facial impact	Assess airway, bite change, jaw movement and associated head injury; refer urgently if fracture suspected.	Assuming dental trauma is minor because external bleeding is limited.
Soft-tissue laceration	Clean gently, control bleeding, check for embedded tooth fragments.	Ignoring a lip wound without checking the teeth and surrounding tissues.

13. Implementation barriers and the economics of prevention

One reason oral health remains under-prioritized is that the costs of prevention are visible while the costs of neglect are diffuse. A custom mouthguard, a screening session or a block of preventive appointments all require time and money that teams can count. What is harder to count are the interrupted meals, missed sessions, emergency appointments, restorative treatment costs, travel complications and avoidable distress that accumulate when prevention is ignored.

Another barrier is role ambiguity. Team doctors may assume dental issues belong to community dentists. Community dentists may not understand the fuelling patterns, travel schedules or performance demands of elite athletes. Nutritionists may focus on substrate delivery without dental integration, while coaches may see mouthguard use or post-session brushing as individual matters. In reality, oral health sits at the intersection of all these roles. The most successful programs are usually the ones that assign responsibility clearly and keep communication simple.

The economic case for prevention is therefore similar to the case for any smart health-support intervention in sport: modest routine investment prevents disruptive acute care and preserves athlete availability. In youth pathways, the return is even larger because the benefit compounds over years rather than weeks.

14. Practical recommendations for athletes, coaches and clubs

For athletes, the most useful message is that oral health is part of performance readiness. Brushing twice daily with fluoride toothpaste, not ignoring bleeding gums, reporting sensitivity or recurrent pain early, and using custom-made mouthguards in high-risk sport are not cosmetic habits; they are performance habits. The same athlete who would never skip sleep or hydration should not normalize a bleeding mouth or a cracked tooth.

For coaches and performance staff, oral health should enter the season plan. Training tables and supplement strategies influence disease risk. So do travel schedules, access to water, recovery room routines and whether athletes have time and privacy to manage hygiene after sessions. Clubs that invest heavily in strength diagnostics but never audit oral health are leaving a preventable gap in athlete care.

For medical teams, the most practical approach is integration. Build dental questions into preparticipation assessment. Define referral pathways. Keep emergency dental trauma instructions with other competition medical protocols. Review mouthguard use as a live risk-management issue rather than a one-off equipment question. And when athletes present with recurrent fatigue, unexplained discomfort, altered eating patterns or persistent inflammatory complaints, do not forget the mouth as a potential contributor.

For governing bodies and youth systems, there is a broader duty-of-care argument. The academy football data suggest that the disadvantage starts early.[13] If development pathways do not teach athletes how to protect their teeth while fuelling, travelling and competing, the burden accumulates across the career. Oral health promotion should therefore begin well before senior elite level.

15. What remains uncertain

A responsible review must be clear about limitations. Much of the literature in sports dentistry remains observational. Some studies are based on convenience samples or athletes presenting to clinics, which may exaggerate disease burden. Performance outcomes are often self-reported rather than measured with objective sport-specific tests. The athlete who says that oral health

affected performance is providing important information, but the exact magnitude of the effect on race time, match output or physiological recovery is still difficult to quantify.[2,8,9,11]

The periodontal inflammation story is especially important to interpret carefully. The biological rationale is compelling and the available sports-specific synthesis suggests an association with poorer self-perceived performance.[9] However, definitive interventional trials showing that periodontal treatment improves hard sport outcomes are still lacking. The same caution applies to mouthguards and performance enhancement claims. Mouthguards clearly help prevent orofacial injury; any performance benefit should be considered secondary and variable, not a guaranteed ergogenic effect.[14-18]

These uncertainties should not produce nihilism. In sports medicine, many good decisions are made before the final perfect trial exists, provided the balance of evidence, biological plausibility, low risk and practical relevance all point in the same direction. Oral health fits that description.

16. Conclusion

The old idea that oral health is separate from sports medicine is no longer credible. The current evidence shows that athletes across many disciplines experience a substantial burden of preventable oral disease and that these conditions can affect comfort, nutrition, confidence, sleep, readiness and, in at least a meaningful proportion of cases, perceived performance itself.[1-13]

The practical implication is straightforward. Oral health should be integrated into preseason screening, longitudinal athlete monitoring and injury-prevention culture. Teams should treat caries prevention, erosion risk reduction, periodontal care and mouthguard provision as part of normal performance support. Athletes should be encouraged to view the mouth not as an isolated dental issue but as one more system that has to stay healthy for training and competition to work.

For sports newspapers and magazines, this is exactly the kind of underreported medical story worth telling: common, evidence-based, directly relevant to athletes and coaches, and rich in actionable solutions. Better oral health will not replace good coaching, conditioning or nutrition. But it can protect them all.

KEY TAKEAWAY

The best sports dentistry program is not the most technologically impressive one. It is the one that reliably gets athletes screened early, treats disease before it becomes disruptive, supports sensible fuelling and hygiene routines, and prevents avoidable trauma with well-fitted mouthguards.

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