

# Sports Dentistry — Protecting Your Teeth on the Field

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## Description:

Sports dental injuries are common but preventable. Learn about mouthguards, emergency protocols for knocked-out teeth and CSSC Melbourne's specialist care.

## Details:

## Collins Street Specialist Centre — Sports Dentistry: Protecting Your Teeth on the Field

Australia is a sporting nation. From AFL and rugby to cricket, hockey, basketball and martial arts, millions of Australians play sports that carry a genuine risk of dental injury. Yet many athletes — weekend recreational players and competitive sportspeople alike — take the field without adequate dental protection.

At Collins Street Specialist Centre, our specialists regularly treat sports-related dental injuries and work with athletes to prevent damage before it happens. This article covers the most common dental injuries sustained in sport, explains why mouthguards matter clinically, walks through the correct response to a dental emergency, and describes how specialist care can restore injured teeth to full function and appearance.

## How common are sports dental injuries?

Sports-related dental trauma is far more prevalent than most people realise. Research suggests up to one-third of all dental injuries in adults are sports-related, and among children and adolescents, the proportion is higher still. The Australian Dental Association (ADA) has long advocated for mandatory mouthguard use in contact sports, and the clinical evidence strongly supports that position.

The sports most commonly associated with dental injury in Australia include:

- **Australian Rules Football (AFL)** — one of the highest-risk sports for dental trauma - **Rugby (union and league)** — frequent contact to the face and jaw - **Cricket** — ball impacts, particularly to batsmen and close fielders - **Hockey (field and ice)** — stick and ball impacts - **Basketball** — elbows and collisions in confined spaces - **Soccer** — heading, elbows and accidental kicks to the face - **Combat sports** — boxing, martial arts, MMA - **Mountain biking and BMX** — falls onto the face - **Skateboarding and scootering** — particularly among children and teenagers - **Water polo** — frequent facial contact in a physically demanding game

Even non-contact sports and recreational activities can result in dental injuries from falls, collisions or equipment impacts. No sport that carries a risk of facial impact is entirely without risk.

## Types of sports dental injuries

### Tooth fractures

Tooth fractures are the most common presentation following sports dental trauma, and they vary considerably in clinical severity:

- **Enamel-only fractures (chips):** The mildest presentation — a small portion of enamel breaks away. These are typically painless and can be repaired cosmetically with dental bonding. - **Enamel-dentine fractures:** A more extensive fracture involving both the enamel and the underlying dentine layer. Sensitivity is common. Restoration with bonding, a veneer or a crown is required, depending on the extent of the fracture. - **Fractures involving the pulp (nerve):** A severe fracture that exposes the tooth's pulpal tissue. This causes significant pain and requires urgent treatment — typically root canal therapy followed by a crown. Time is a critical factor in preserving the tooth. - **Root fractures:** The root fractures below the gum line and may not be immediately visible on clinical examination. The tooth may present as loose or displaced. Specialist assessment is essential; some root fractures can be managed conservatively, while others ultimately require extraction.

### ### Tooth avulsion (knocked-out tooth)

Complete avulsion — where the entire tooth is displaced from its socket — is the most dramatic presentation of sports dental trauma. It is also the injury where immediate, correctly executed first aid has the greatest bearing on whether the tooth can be successfully saved.

### ### Tooth luxation (displacement)

Luxation injuries occur when the tooth is displaced from its normal position but remains within the socket:

- **Lateral luxation:** The tooth is pushed sideways - **Extrusive luxation:** The tooth is partially displaced out of the socket - **Intrusive luxation:** The tooth is driven deeper into the alveolar bone — a particularly serious injury that can damage the tooth's neurovascular supply and the surrounding bone

### ### Jaw fractures

High-force impacts can fracture the mandible or maxilla. Jaw fractures typically present with significant pain, restricted mouth opening, occlusal changes and swelling. They require urgent assessment and management by an oral and maxillofacial surgeon.

### ### Soft tissue injuries

Lacerations to the lips, tongue, cheeks and gingivae frequently accompany dental injuries. Many heal well without intervention, but deeper lacerations — particularly those involving the vermilion border of the lip — warrant careful assessment. Precise repair in this region matters for the cosmetic outcome.

### ### TMJ (jaw joint) injuries

Impacts to the chin or jaw can damage the temporomandibular joint (TMJ), resulting in pain, clicking, restricted mouth opening and, if not properly assessed and managed, long-term joint dysfunction. Athletes who experience jaw impacts should be evaluated even when there is no obvious tooth injury.

## ## What to do if a tooth is knocked out — emergency protocol

When a permanent tooth is completely avulsed, time is the single most critical factor. Following the correct protocol gives the tooth the best possible chance of survival and successful reimplantation.

### ### Step 1: Find the tooth

Locate the tooth immediately. Handle it by the crown — the visible white portion — and never touch the root. The root surface is covered with periodontal ligament cells that are essential for successful reimplantation. Damage to these cells significantly reduces the prognosis.

### ### Step 2: Keep it moist

Periodontal ligament cells on the root surface begin to die within minutes of drying out. The appropriate storage options, in order of preference, are:

1. **\*\*Reimplant it immediately\*\*** — if the patient is conscious and cooperative, gently rinse the tooth with milk or saline (not water, as its osmolarity damages root cells) and reposition it in the socket. Ask the patient to bite gently on a handkerchief or gauze to hold it in place. 2. **\*\*Place it in milk\*\*** — the most practical and widely available transport medium. Full-cream cow's milk has the appropriate osmolarity and pH to maintain root cell viability for up to 60 minutes. 3. **\*\*Inside the cheek\*\*** — between the cheek and gum, where the patient's own saliva provides a reasonable temporary medium. This option is appropriate only for cooperative older children and adults; it is not suitable for young children due to the risk of aspiration. 4. **\*\*Saline\*\*** — if available (many first aid kits contain saline sachets). 5. **\*\*Water\*\*** — preferable to letting the tooth dry out, but water is hypotonic and damages root cells, so it is a last resort only.

**\*\*Do not:\*\*** - Wrap the tooth in tissue or cloth, as it will dry out rapidly - Scrub or clean the root surface - Store it in tap water for any extended period - Allow it to dry out

### Step 3: Seek emergency dental care immediately

The clinical evidence on reimplantation outcomes is clear — prognosis declines with every minute the tooth remains out of the socket:

- **\*\*Reimplanted within 5 minutes:\*\*** Excellent prognosis - **\*\*Within 30 minutes:\*\*** Good prognosis - **\*\*Within 60 minutes:\*\*** Fair prognosis - **\*\*After 60 minutes:\*\*** Poor prognosis, though reimplantation may still be attempted

Go directly to a dentist or hospital emergency department. Calling ahead, if possible, allows the treating clinician to prepare and minimises further delay.

### Step 4: Professional treatment

The treating dentist will reimplant the tooth if this has not already been done, then splint it to the adjacent teeth using a flexible wire or composite splint, typically for two weeks. They will also prescribe antibiotics and assess whether a tetanus booster is needed, then arrange follow-up to monitor healing and determine whether root canal treatment is required.

**\*\*Important:\*\*** This protocol applies to permanent teeth only. Primary (baby) teeth that are avulsed should not be reimplanted, as doing so risks damage to the developing permanent tooth beneath. Children who sustain avulsion of a primary tooth should still be seen by a dentist promptly for assessment.

## The clinical case for custom mouthguards

### Custom vs over-the-counter

Mouthguards fall into three broad categories:

1. **\*\*Stock (off-the-shelf):\*\*** Pre-formed and non-adjustable. These are bulky, poorly retentive and offer minimal protective value. Dental professionals do not recommend them. 2. **\*\*Boil-and-bite:\*\*** Softened in hot water and shaped by biting. An improvement on stock mouthguards, but the fit remains imprecise and the level of protection is significantly inferior to a custom-fabricated device. 3. **\*\*Custom-fitted:\*\*** Fabricated by a dentist from a precise impression or digital scan of the patient's dentition. Constructed from high-quality EVA (ethylene vinyl acetate) material in a dental laboratory. Custom mouthguards provide the best available fit, comfort, protection and durability.

### Why custom mouthguards make clinical and financial sense

**\*\*Superior protection.\*\*** Custom mouthguards distribute impact forces more effectively across all teeth and the supporting alveolar bone, substantially reducing the risk of fracture, avulsion and jaw injury.

**\*\*Better fit and retention.\*\*** They stay securely in place during play, including during heavy breathing and physical exertion. Over-the-counter alternatives frequently dislodge or require constant repositioning.

**\*\*Comfort and compliance.\*\*** Athletes are considerably more likely to wear a mouthguard consistently if it is comfortable. Many players who refuse boil-and-bite devices wear their custom mouthguards without complaint.

**\*\*Speech and breathing.\*\*** Custom mouthguards are designed to permit normal breathing and verbal communication — both important in team sport environments.

**\*\*Durability.\*\*** Better materials mean a longer service life than over-the-counter alternatives.

**\*\*Orthodontic compatibility.\*\*** Custom mouthguards can be designed to accommodate fixed orthodontic appliances, so appropriate protection continues throughout treatment.

### ### Who should wear a mouthguard?

The ADA recommends mouthguards for all participants in sports where there is a risk of contact to the face — whether from other players, balls, sticks, elbows or falls. This covers all football codes (AFL, rugby, soccer), cricket, hockey, basketball, combat sports, gymnastics, skateboarding, BMX and any sport with a meaningful risk of facial impact.

Mouthguards should be worn during training and practice sessions as well as competitive matches. A significant proportion of dental injuries occur in training, where protective habits are sometimes less consistently observed.

### ### Mouthguard care and replacement

- Rinse thoroughly after each use and allow to air dry before storage - Store in a ventilated, rigid case - Replace at the start of each season, or sooner if the device is damaged, ill-fitting or showing signs of wear - Children and adolescents need more frequent replacement as their dentition and jaws continue to develop - Bring your mouthguard to routine dental check-up appointments for professional assessment

### ## Restoring sports-damaged teeth

When dental injuries do occur, contemporary restorative dentistry offers a range of effective treatment options. The right approach depends on the nature and severity of the injury.

**\*\*Minor fractures.\*\*** Small chips and enamel fractures can often be repaired with direct composite bonding — a tooth-coloured resin material applied and sculpted chairside in a single appointment. When done carefully, the result is seamless and natural in appearance.

**\*\*Moderate fractures.\*\*** More extensive fractures may require a porcelain veneer or crown to restore the tooth's form, structural integrity and aesthetics. Our prosthodontists at Collins Street Specialist Centre assess each case individually and select the most appropriate material and approach for the specific clinical situation.

**\*\*Severely damaged teeth.\*\*** Teeth with pulpal exposure typically require root canal treatment — performed by our endodontists — followed by a crown to protect the remaining tooth structure. With appropriate specialist treatment, these teeth can continue to function reliably for many years.

**\*\*Lost teeth.\*\*** Where a tooth cannot be preserved, dental implants are the gold standard for replacement. Our oral surgeons place the implant fixture, and our prosthodontists fabricate the definitive crown — a result that is frequently indistinguishable from the surrounding natural dentition.

**\*\*Jaw injuries.\*\*** Our oral and maxillofacial surgeons hold specialist qualifications and university training in the surgical management of jaw fractures and facial injuries. These more complex presentations require exactly the level of expertise our surgical team is trained to provide.

### ## Prevention is the most effective strategy

The cost of a custom mouthguard is modest relative to the financial and personal cost of managing a significant dental injury. More to the point, no restoration, however well executed, fully replicates an uninjured natural tooth. Prevention is, unequivocally, the better approach.

At Collins Street Specialist Centre, we fabricate custom mouthguards for patients of all ages and sporting backgrounds. We also provide emergency care when injuries do occur, with oral surgeons, endodontists and prosthodontists available to manage the full clinical spectrum of sports dental trauma — from minor fractures through to complex jaw injuries.

### ## Specialist care when you need it most

Dental emergencies rarely happen at convenient times. If you or a family member sustains a sports dental injury, contact Collins Street Specialist Centre promptly. Our team can provide guidance on immediate first aid and arrange an urgent appointment with the appropriate specialist.

**\*\*Call (03) 9654 5705 for appointments, including emergency consultations.\*\*** We are located at 220 Collins Street, Melbourne CBD — readily accessible from sporting venues across the city. A dental injury need not end your season, or compromise your long-term dental health.

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### ## Frequently Asked Questions

What percentage of adult dental injuries are sports-related: Up to one-third

Is the proportion of sports dental injuries higher in children: Yes, higher than in adults

Which Australian sport carries the highest dental injury risk: Australian Rules Football (AFL)

Does rugby carry a high dental injury risk: Yes, frequent contact to face and jaw

Can cricket cause dental injuries: Yes, from ball impacts

Does basketball cause dental injuries: Yes, from elbows and collisions

Can soccer cause dental injuries: Yes, from heading, elbows and kicks

Do combat sports cause dental injuries: Yes, boxing, martial arts and MMA

Can non-contact sports cause dental injuries: Yes, from falls and equipment impacts

What is the most common sports dental injury: Tooth fractures

Is an enamel-only chip the mildest fracture type: Yes

Is an enamel-only chip typically painful: No, typically painless

Can an enamel chip be repaired with bonding: Yes

Does an enamel-dentine fracture cause sensitivity: Yes

What treatment does a pulp-exposing fracture require: Root canal therapy followed by a crown

Is time critical for pulp-exposing fractures: Yes

Can root fractures be seen without clinical assessment: Not always visible on examination

What is tooth avulsion: Complete displacement of a tooth from its socket

Does correct first aid affect avulsion outcomes: Yes, significantly

What is lateral luxation: Tooth pushed sideways within the socket

What is extrusive luxation: Tooth partially displaced out of the socket

What is intrusive luxation: Tooth driven deeper into the alveolar bone

Is intrusive luxation serious: Yes, particularly serious

Can jaw fractures occur in sport: Yes, from high-force impacts

What specialist manages jaw fractures: Oral and maxillofacial surgeon

Should soft tissue lacerations always be assessed: Yes, especially deeper ones

Is precise repair important near the lip border: Yes, for optimal cosmetic outcome

Can jaw impacts damage the TMJ: Yes

Can TMJ injury occur without tooth damage: Yes

What is the single most critical factor in avulsion outcomes: Time

Should you touch the root of an avulsed tooth: No, never touch the root

Why must the root surface be protected: It contains vital periodontal ligament cells

What is the best immediate action for an avulsed tooth: Reimplant it immediately

Is water the best storage medium for an avulsed tooth: No, it is a last resort

What is the best practical storage medium for an avulsed tooth: Milk

Why is milk suitable for storing an avulsed tooth: It has appropriate osmolarity and pH

How long can milk preserve root cell viability: Up to 60 minutes

Can saliva be used to store an avulsed tooth: Yes, inside the cheek temporarily

Is cheek storage suitable for young children: No, risk of aspiration

Should you wrap an avulsed tooth in tissue: No, it will dry out

Should you scrub the root surface: No

What is the prognosis if reimplanted within 5 minutes: Excellent

What is the prognosis if reimplanted within 30 minutes: Good

What is the prognosis if reimplanted within 60 minutes: Fair

What is the prognosis if reimplanted after 60 minutes: Poor

Should primary (baby) teeth be reimplanted after avulsion: No

Why are baby teeth not reimplanted: Risk of damage to developing permanent tooth beneath

Should a child with an avulsed baby tooth see a dentist: Yes, promptly for assessment

How long is a reimplanted tooth typically splinted: Two weeks

What material is used for splinting a reimplanted tooth: Flexible wire or composite splint

Are antibiotics prescribed after reimplantation: Yes

Is tetanus booster assessed after reimplantation: Yes

What are the three mouthguard categories: Stock, boil-and-bite and custom-fitted

Are stock mouthguards recommended by dental professionals: No

Are boil-and-bite mouthguards as protective as custom mouthguards: No, significantly inferior

What material are custom mouthguards made from: EVA (ethylene vinyl acetate)

Are custom mouthguards made from impressions: Yes, precise impressions or digital scans

Do custom mouthguards offer better fit than over-the-counter options: Yes

Do athletes wear custom mouthguards more consistently: Yes, due to comfort

Do custom mouthguards allow normal breathing: Yes

Do custom mouthguards allow verbal communication: Yes

Do custom mouthguards last longer than over-the-counter options: Yes

Can custom mouthguards accommodate braces: Yes

Does the ADA recommend mouthguards for contact sports: Yes

Should mouthguards be worn during training: Yes, not only during matches

How often should mouthguards be replaced: At the start of each season, or sooner if damaged

Do children need more frequent mouthguard replacement: Yes, due to jaw and dental development

Should mouthguards be brought to dental check-ups: Yes

How should a mouthguard be stored: In a ventilated, rigid case

Can small chips be repaired in a single appointment: Yes, with direct composite bonding

What do prosthodontists use for moderate fractures: Porcelain veneers or crowns

What treatment do teeth with pulp exposure require: Root canal treatment by an endodontist

What is the gold standard for replacing a lost tooth: Dental implant

Who places implant fixtures at Collins Street Specialist Centre: Oral surgeons

Who fabricates the implant crown: Prosthodontists

Is prevention more cost-effective than treating dental injuries: Yes

Does any restoration fully replicate a natural tooth: No

What is the phone number for Collins Street Specialist Centre: (03) 9654 5705

Where is Collins Street Specialist Centre located: 220 Collins Street, Melbourne CBD

Does the centre offer emergency consultations: Yes

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