

## **All I want for Christmas is my two front teeth.**

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Dental injury is unexpected, distressing and immediate, commonly involving visible, front teeth resulting in physical, functional and psychological problems. Dental injury affects 50% of all children, 25% have injured a permanent tooth by the time they reach 14 years of age.

Dental injury has been recognized as a sport related injury for many years yet its management today away from the dental surgery is still poor. Dental injury can still occur despite wearing a mouthguard. Viewers of National Rugby League (NRL) match telecast by Channel 9 on April 2<sup>nd</sup> (Sydney Roosters vs Penrith Panthers) and Australian Football League (AFL) Round 16 match telecast by Channel 9 on Friday July 16<sup>th</sup> 2004 (Essendon vs west Coast Eagles) witnessed the front teeth being knocked out (avulsed) during the game despite wearing a mouthguard. The NRL player broke his jaw and did not return to the field. The camera showed the NRL players and staff on their knees searching for the player's teeth during the half-time break. The AFL club's medical team dealt with the injury but this player returned to the field within fifteen minutes wearing his old mouthguard. Care for the dental injury of the AFL player was delayed for more than 50 minutes until he left the stadium with a dental practitioner and club doctor who carried the avulsed teeth.

*Does delaying treatment affect the outcome of injury?*

When a player breaks a leg they are carried off the field, transferred to hospital where the fracture is treated. The delay of several hours is considered acceptable and does not appear to affect the medical outcome.

Studies published more than 20 years ago however show that if a tooth is knocked out delaying treatment by 15 minutes reduces the chances of tooth survival by nearly 50% *Time is critical!* Reducing delay between the time of injury and primary care dramatically decreases tooth survival / retention reducing post-injury complications and professional costs.

*Current Management of Dental Injury*

As dental injury is usually part of a multi-injury presentation it is often not noticed or is ignored at the time of presentation.

The lay public, teachers, first aid providers and medical practitioners appear reluctant and have great difficulty managing these injuries due to lack of useful information and the inadequacy of existing first aid kits.

Minimal treatment delay is crucial for the long-term success of treating permanent teeth that have been knocked out. Attempting to locate a dental practitioner in the event of dental injury is impractical (many injuries occur on weekends and after surgery hours when locating a dental practitioner may be difficult) causing further delay severely compromising the success of subsequent dental care.

*Can a Mouthguard eliminate dental injury?*

Schools, sporting organisations and their administrations acknowledge the devastating effect of dental injury clearly recognising the risk and trying to minimise it by encouraging widespread mouthguard usage. Whilst mouthguards can be encouraged they must be worn. Published research shows that:

- at least 25% of dental injury occurs despite a mouthguard being worn.
- mouthguards may actually damage sound teeth that they cover.
- mouthguard usage is minimal during training sessions yet injuries still occur at this time.

A *comfortable* mouthguard fits well, not dislodging on impact. A mouthguard is protective only if an adequate thickness of mouthguard material (4mm – the thickness of two matches) covers vulnerable areas – the biting surfaces of the upper teeth, the visible surfaces of the six front upper teeth upon which the lips rest.

Currently an array of products with variable degree of comfort and quality of fit labeled “mouthguards” are available causing widespread confusion about their use and suitability.

### **The relatively inexpensive mouthguards**

- are favoured by younger players (at greatest risk of injury) wearing braces or still growing who need to regularly replace their mouthguard. Studies of younger players attitudes about their use and type of mouthguard show great influence from elite level players (some of whom do not wear mouthguards) the coach, club and other team members.
- require little or no fitting
- offer minimal protection
- are uncomfortable to wear
- affect breathing, speech, swallowing
- risk the airway if dislodged in an unconscious athlete.

**Only a custom-fitted mouthguard can accommodate the unique arrangement and number of teeth but also ensure adequate thickness of material protects the vulnerable areas.** Sports bodies admit these mouthguards are preferable but cite cost as the main reason limiting their wider use. This was tested in a recently published study of nearly 300 Australian basketball players who were provided with free mouthguard blanks to substantially reduce the cost of a new custom-fitted mouthguard. The researchers finding that less than 12% had a new mouthguard made.

Sports bodies do not distinguish between the various types of mouthguards available. Do sporting bodies believe all mouthguards are the same? If a dental professional provides advice, provides a course of care, offers inappropriate advice or provides an inadequate device they can be legally liable.

**How can sporting bodies believe they have adequately discharged their duty of care by encouraging any mouthguard to be worn?**

### *Effectively manage Dental Injury*

Currently dental injury is usually managed by well-meaning but dentally inexperienced individuals relying on first aid kits that contain inappropriate materials or instructions for this type of injury. **Coaches, trainers and sports administrators must ensure that dental injury can be effectively managed.**

Dental injury is not a minor injury. It justifies prompt treatment. Often presenting in association with concussive head injury, fracture of jaw or other facial bones any of these injuries are serious enough to remove the injured player from the field. The player is prevented from returning to the field under the “blood rule” while their facial injury is managed and bleeding is controlled. The elite AFL player described earlier in this article returned to the field less than 15 minutes after the dental injury wearing the same mouthguard he was wearing when injured while the avulsed teeth were stored in milk (not the ideal storage medium) to be re-implanted much later.

### *The Costs*

Restorative care for dental traumatic injury may be lengthy, complicated, costly and extensive often undertaken in several stages. Once treatment has been completed periodic review continues, the interval between visits increasing until the affected teeth have been lost. The lifetime maintenance cost for dental injury was estimated by a National U.S. Youth Task Force in 1992 at \$US10,000 - \$US15,000 per injured tooth. The costs included initial dental treatment for the injury, treating complications as required, provision or replacement of dental crowns as required and review visits until the tooth was lost.

### *Problems with Sport Insurance*

Current insurance policies offered as part of player registration usually provide “limited” cover for dental injury for 1 year from the date of injury, however dental injury claims often are lodged more than twelve months post-injury due to the full extent of injury not being apparent or further complications arising. The treating practitioner aware of International Association of Dental Traumatology (IADT) recommendations continues clinical review with radiographs for 5 years following dental injury to detect whether further care is required. Based on this a twelve-month injury claims period on insurance policies is inadequate and inappropriate for dental injury. Whilst the current policies provide “limited cover” at minimal cost they can disadvantage players and their families, providing a false sense of security. The policy’s shortcomings become apparent when lodging a claim for ongoing expenses associated with dental injury.

### *Who is responsible?*

First aid kits and first aid staff are incapable of managing or ignore dental injury. How is dental injury managed until a dental practitioner is located?

Failure to implement a risk reduction strategy for dental injury (comprising prevention and active treatment) places the sports clubs and their officials at risk of breaching their legal obligations, straining the relationships with their insurer(s) placing further upward pressure on insurance premiums.

### *Implement a risk reduction plan now!*

A practical risk reduction strategy for dental injury incorporates:

**Preventive aspect** may be perceived as being satisfied with a mouthguard policy (encouraging their use).

**Active treatment** relies on the current first aid kit being suitable for managing dental injury. The recommended contents of a first aid kit for sports clubs are available on the web ([www.sma.org.au](http://www.sma.org.au) then “Information”, “Resources”).

Numerous studies show that the fate of a tooth, which has been knocked out, is determined by the actions at the time of the accident and not later by the dentist. Information on dental first aid has been an integral part of numerous public dental health campaigns by professional dental organisations. The Australian Dental Association ([www.ada.org.au](http://www.ada.org.au)) maintains that anybody can provide suitable, immediate care for dental injury whilst locating a dental practitioner. **Sports Medicine Australia recommend Dentist In A Box - Tooth Trauma Care** a small, compact Australian product for all first aid kits to provide suitable, immediate, effective care for dental injury until a dentist can be found.

*We live in litigious times!*

Improving the management of dental injury improves the outcome of this immediate, unexpected, distressing and disfiguring injury that tends to affect our adolescents, the group which is known to be most concerned about body image. As the cost of extensive, complicated and protracted dental treatment become apparent the player and their family will explore their options. Demands seeking compensation for the considerable damages (physical and emotional) due to dental injury in a sporting, school or recreational setting are inevitable. **Dental injury is a foreseeable event so ignorance is no defence.**

Sports participation is beneficial and should be encouraged but it must be **demonstrably safe** for all participants.

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