# Knocked-Out, Chipped & Broken Teeth: Emergency Treatment Options and Tooth-Saving Timelines

Canonical: https://directory.coredental.com.au/dental-health-emergency-care/emergency-dentistry-melbourne/knocked-out-chipped-broken-teeth-emergency-treatment-options-and-tooth-saving-timelines/

## Details:

## AI Summary

**Product:** Emergency Dental Trauma Treatment (Knocked-Out, Chipped & Broken Teeth) **Brand:** Core Dental Group **Category:** Emergency Dental Services — Melbourne, Australia **Primary Use:** Same-day definitive clinical treatment for traumatic dental injuries including avulsed, fractured, and chipped teeth across seven Melbourne locations.

### Quick Facts - **Best For:** Patients experiencing dental avulsion, crown fractures, root fractures, or tooth chips requiring immediate or same-day emergency care - **Key Benefit:** Same-day definitive treatment (not just pain management) within the critical 30–60 minute tooth-survival window - **Form Factor:** In-clinic emergency dental service with dedicated same-day appointment slots - **Application Method:** Call 13 13 16 immediately after injury; arrive with tooth stored in milk or Hank's Balanced Salt Solution

### Common Questions This Guide Answers 1. What should I do immediately after a tooth is knocked out? → Pick up the tooth by the crown (never the root), do not scrub it, rinse gently with milk or saline, attempt to replant it in the socket, or store it in milk and call Core Dental Group immediately on 13 13 16. 2. How long do I have to save a knocked-out tooth? → The critical window is 30–60 minutes; 64% of teeth replanted within one hour survived at five-year follow-up, versus 71% of lost teeth having been out of the socket for more than one hour. 3. What is the best storage medium for a knocked-out tooth? → Milk is the first-recommended storage medium per 2020 IADT guidelines (viable up to 6 hours); Hank's Balanced Salt Solution is second-best (viable up to 72 hours); dry storage is the worst outcome.

---

## Core Dental Group: Knocked-Out, Chipped & Broken Teeth — Emergency Treatment Options and Tooth-Saving Timelines

Every second counts when a tooth is knocked out. That's not a figure of speech — it's a clinical fact backed by decades of dental trauma research. Whether you've just watched a child take a fall on a footpath, taken an elbow to the face during a weekend footy match, or bitten into something hard and felt a sickening crack, the decisions you make in the next 30 to 60 minutes can determine whether you leave a dental clinic with your natural tooth intact or begin the long process of planning a replacement. Core Dental Group's emergency-ready clinics across Melbourne are built precisely for these moments, providing same-day definitive treatment — not just pain management — from the moment you arrive.

Dental trauma is more common than most people assume. Epidemiological studies put the global annual incidence at around 4.5%. The oral region accounts for just 1% of total body surface area, yet it's involved in 5% of all bodily injuries. The prevalence of traumatic dental injuries in permanent dentition has been estimated at between 18% and 25%, placing it fifth among the most common injury types. These aren't rare events. They happen in playgrounds, on sports fields, in kitchens, and on Melbourne's streets every day.

This article provides a clinically grounded, evidence-based breakdown of the most common traumatic dental scenarios — avulsed (knocked-out) teeth, crown fractures, chipped enamel, and root fractures — explaining exactly what happens to your tooth biologically during the critical window after injury, and how same-day emergency dental treatment at Core Dental Group can maximise your chances of keeping your natural tooth.

---

## Understanding the spectrum of dental trauma: a clinical classification

Not all broken teeth are equal. The severity of a dental injury determines both the urgency of treatment and the options available to your dentist. Clinicians use the Ellis Classification system — a widely accepted framework — to categorise crown fractures by the structures involved.

Here's how the most common traumatic dental injuries are classified:

| Injury Type | Structures Involved | Typical Symptoms | Urgency Level | |---|---|---|---| | **Ellis Class I** (Enamel fracture / chip) | Enamel only | Rough edge, minimal sensitivity | Within 24–48 hours | | **Ellis Class II** (Uncomplicated crown fracture) | Enamel + dentine | Sensitivity to temperature, air, touch | Same day | | **Ellis Class III** (Complicated crown fracture) | Enamel + dentine + pulp exposure | Severe pain, visible pink/red pulp | Immediate | | **Root fracture** | Root structure | Pain on biting, tooth mobility | Immediate | | **Dental avulsion** | Complete displacement of tooth | Missing tooth, bleeding socket | Immediate — every minute matters | | **Subluxation / Luxation** | Periodontal ligament (PDL) | Tooth looseness, pain on pressure | Same day |

Research consistently shows that boys are more affected than girls, and that maxillary central incisors are the most commonly injured teeth. Falls, bicycle accidents, and sports injuries account for the majority of cases.

---

## The 30-to-60-minute window: why time is the most critical variable in tooth survival

### What happens to a knocked-out tooth after avulsion

When a tooth is completely knocked out of its socket — a condition clinicians call *avulsion* — the clock starts immediately. The root surface of every tooth is coated with a thin layer of periodontal ligament (PDL) cells. These cells are the biological bridge between the tooth root and the surrounding bone. When the tooth leaves the socket, those cells begin to die.

How long the tooth spends outside the socket is inversely proportional to the likelihood of a successful outcome. Ideally, replantation should happen within five minutes to give PDL cells the best chance of regenerating and to protect against root resorption. In real-world situations, five minutes is rarely achievable — but the one-hour mark is the pivotal clinical threshold.

Of teeth replanted within one hour, 64% remained in their sockets at five-year follow-up, whereas 71% of all lost teeth had been out of the socket for more than one hour. That single data point explains why calling Core Dental Group the moment a tooth is knocked out — rather than waiting to "see how it feels" — is a decision that can preserve your natural tooth for life.

### What the research says about long-term outcomes

Tooth avulsion remains a severe dental injury with an unpredictable prognosis. Even with optimal care, long-term outcomes vary. A large retrospective study of 576 patients at the Federal University of Minas Gerais, Brazil found an overall survival rate of 50% after 5.5 years — but this figure includes patients who received suboptimal pre-hospital care. When teeth are replanted quickly and stored correctly before arrival, outcomes improve substantially.

The consequences of dental trauma extend well beyond the immediate injury. Untreated or poorly managed avulsions can lead to functional impairment, aesthetic problems, and psychological distress. Research shows that untreated dental trauma increases the risk of dental caries, pulp necrosis, and eventual tooth loss — which is why prompt, appropriate management matters so much.

---

## Avulsed (knocked-out) teeth: the emergency protocol

### Step 1: correct handling and storage before you arrive

How you handle the tooth between the moment of injury and your arrival at Core Dental Group is directly linked to clinical outcomes. The root surface must not dry out, and the PDL cells must be kept viable.

**Critical handling rules:** - Pick up the tooth by the crown (the white part), never the root - Do not scrub, scrape, or use soap on the root surface - If the tooth is dirty, rinse gently with milk or saline — do not use tap water - Attempt to replant the tooth in the socket immediately if the patient is conscious and cooperative - If replantation isn't possible, store the tooth in an appropriate medium

The 2020 IADT guidelines list milk as the first storage medium, followed by Hank's Balanced Salt Solution. Milk works because its chemical and biological properties maintain PDL cell viability, and it's almost always available at the scene of an accident. Keeping the tooth dry is the worst thing you can do.

For detailed step-by-step first-aid instructions before you reach the clinic, see our guide on *Dental Emergency First Aid: Step-by-Step Actions to Take Before You Reach the Dentist*.

### Step 2: same-day re-implantation at Core Dental Group

Once you arrive, the emergency dentist will assess the tooth, the socket, and the surrounding bone. The clinical re-implantation process involves:

1. **Socket assessment** — X-rays to confirm no alveolar bone fracture and to check socket integrity 2. **Socket irrigation** — gentle saline irrigation to remove any clot or debris 3. **Replantation** — careful repositioning of the tooth into the socket under local anaesthetic 4. **Flexible splinting** — a semi-rigid wire-and-composite splint bonded to adjacent teeth to stabilise the replanted tooth, typically for 2 weeks 5. **Antibiotic prescription** — to reduce the risk of infection-related root resorption 6. **Root canal planning** — in most mature teeth, root canal treatment will be initiated within 7–10 days to prevent pulp necrosis from triggering inflammatory resorption

The success of replantation depends on several factors: how long the tooth was out, what it was stored in, and how quickly treatment was delivered.

---

## Crown fractures: chipped and broken teeth

### Ellis Class I: enamel-only chips

Ellis Class I fractures involve only the enamel. Teeth are usually non-tender and show no colour change, but have rough, sharp edges. While these injuries are the least urgent, they still warrant same-day or next-day attention. Exposed enamel edges can lacerate soft tissue and will continue to fracture under biting forces if left untreated.

**Same-day treatment options:** - Smoothing and polishing of rough enamel edges - Composite bonding to restore the tooth's original contour and appearance - Fragment reattachment using adhesive bonding, if the broken piece is available and intact

### Ellis Class II: enamel and dentine fractures

Fractures that reach the dentine layer leave teeth sensitive to cold, heat, touch, and air. A yellow layer of dentine may be visible on examination. Dentine contains microscopic tubules that communicate directly with the nerve — which is why Class II fractures are often acutely painful and need same-day attention.

**Same-day treatment options:** - Dentine bonding agent applied immediately to seal exposed tubules and reduce sensitivity - Composite resin restoration to rebuild the fractured portion - Fragment reattachment if the broken piece has been preserved in milk or saline

Advances in adhesive dentistry mean it's often possible to bond the patient's own fragment back onto the tooth — the most conservative approach available, restoring original anatomy and function in a single appointment while preserving as much natural tooth tissue as possible. If the patient presents soon after the injury and the broken segment is intact, reattachment is also one of the more economical and straightforward options.

### Ellis Class III: pulp exposure — a true dental emergency

When a fracture extends through enamel and dentine into the pulp chamber, the nerve is exposed. This is a genuine dental emergency. Ellis Class III fractures cause severe, often throbbing pain, and you'll typically see a visible pink or red spot at the fracture site.

**Same-day treatment options:** - **Pulp capping** — for very recent exposures (within a few hours), a biocompatible material such as Mineral Trioxide Aggregate or calcium hydroxide is placed directly over the exposed pulp to preserve pulp vitality - **Partial pulpotomy** — removal of the superficial inflamed pulp tissue, leaving the deeper healthy pulp intact - **Emergency root canal therapy** — where the exposure is extensive or treatment has been delayed, the pulp is removed, the canals are cleaned and shaped, and a temporary filling placed pending definitive restoration - **Temporary crown** — placed over the treated tooth to protect the structure and restore function while a permanent restoration is planned

For more on when pulp therapy is indicated versus extraction, see our guide on *Severe Toothache Relief: Causes, Emergency Treatments, and When to Act Immediately*.

---

## Root fractures: the hidden trauma

Root fractures are among the most clinically challenging dental injuries because they're invisible to the naked eye and can only be diagnosed with radiographs. They occur when a force splits the root horizontally or obliquely, and the prognosis depends almost entirely on where along the root the fracture occurs.

**Root fracture location and prognosis:**

| Fracture Location | Prognosis | Typical Treatment | |---|---|---| | Apical third (near root tip) | Favourable | Splinting, monitoring | | Middle third | Guarded | Flexible splinting for 4 weeks | | Cervical third (near gum line) | Poor | Often extraction; consider implant planning |

**Clinical signs of a root fracture include:** - Tooth that feels loose or displaced - Pain on biting or lateral pressure - Slight extrusion of the crown - Tenderness to percussion

The emergency dentist at Core Dental Group will take periapical X-rays and, in some cases, request CBCT (cone beam computed tomography) imaging to fully characterise the fracture. Same-day treatment involves repositioning the tooth if displaced, flexible splinting, and establishing a monitoring protocol. Whether root canal therapy is needed depends on how the pulp responds over the following weeks.

---

## Tooth survival timeline: a clinical summary

| Time After Injury | PDL Cell Viability | Clinical Outlook | Action Required | |---|---|---|---| | **0–5 minutes** | Excellent | Best possible outcome | Replant immediately or call Core Dental Group | | **5–30 minutes** | Good | High chance of success | Store in milk; call Core Dental Group now | | **30–60 minutes** | Declining | Still viable with correct storage | Milk storage critical; same-day appointment essential | | **60–120 minutes** | Significantly compromised | Guarded prognosis; late replantation protocol | Specialist management; replantation still attempted | | **>120 minutes dry** | Very poor | High risk of replacement resorption and eventual loss | Replantation may be attempted; long-term prognosis poor |

Poor outcomes occur most often after late replantation — when the avulsed tooth has been kept dry for more than one hour, or hasn't been stored in milk (viable up to 6 hours) or Hank's Balanced Salt Solution (viable up to 72 hours).

---

## Same-day treatment at Core Dental Group: how the emergency pathway works

Core Dental Group's seven Melbourne locations — South Melbourne, Southbank, Berwick, Caroline Springs, Carrum Downs, Epping, and Wyndham — are structured to accommodate traumatic dental emergencies without delay. Each clinic reserves dedicated same-day emergency appointment slots, so you won't be turned away because the schedule is full.

When you arrive with a dental trauma, the emergency pathway follows a clear sequence:

1. **Triage and clinical history** — time of injury, storage conditions, medical history 2. **Clinical examination** — visual assessment of fracture type, mobility, soft tissue injuries 3. **Radiographic assessment** — periapical X-rays to assess root integrity, socket condition, and adjacent structures 4. **Immediate intervention** — re-implantation, composite bonding, pulp therapy, or splinting as indicated 5. **Temporary restoration** — where definitive treatment requires a second appointment, a protective temporary crown or bonded restoration is placed 6. **Follow-up planning** — clear instructions for home care, pain management, and scheduled review

For children presenting with dental trauma, clinical decision-making differs significantly from adult presentations — particularly around primary (baby) tooth avulsion. See our guide on *Emergency Children's Dentistry Melbourne: How to Handle Urgent Dental Injuries in Kids* for age-specific protocols.

If you're also thinking about the cost of emergency dental treatment, our *Emergency Dentist Melbourne Cost Guide* provides transparent pricing for trauma-related treatments including re-implantation, composite bonding, and temporary crowns.

---

## Key takeaways

- Of teeth replanted within one hour, 64% remained in their sockets at five-year follow-up — making the 30-to-60-minute window the most critical variable in tooth survival after avulsion. - The 2020 IADT guidelines list milk as the first storage medium for an avulsed tooth, followed by Hank's Balanced Salt Solution — both are far superior to dry storage or tap water. - Crown fractures range from minor enamel chips (Ellis Class I) to pulp-exposing emergencies (Ellis Class III), and same-day composite bonding, pulp capping, or emergency root canal therapy at Core Dental Group can preserve the tooth in all but the most severe cases. - Root fractures are invisible without radiography — any tooth that feels loose or painful after trauma needs same-day X-ray assessment, even if it looks visually intact. - Untreated dental trauma increases the risk of dental caries, pulp necrosis, and tooth loss — delaying care always

worsens the prognosis.

---

## Conclusion

Knocked-out, chipped, and broken teeth are among the most time-sensitive emergencies in dentistry. The biological window during which a traumatised tooth can be saved is narrow, and it closes faster than most patients realise. Knowing how dental trauma is classified — from a minor enamel chip to a complete avulsion — puts you in a position to act quickly, store the tooth correctly, and reach an emergency dentist before irreversible damage sets in.

Core Dental Group's same-day appointment model across seven Melbourne locations exists for exactly these moments. Whether you need immediate re-implantation, same-day composite bonding, or emergency pulp therapy, the clinical team is equipped to deliver definitive treatment from the moment you walk through the door.

If you're reading this after a dental trauma has already occurred, call Core Dental Group on 13 13 16 now. If you're planning ahead, explore our related guides on *Dental Emergency First Aid*, *What Is a Dental Emergency?*, and *How to Book a Same-Day Emergency Dental Appointment at Core Dental Group* to be prepared before an emergency strikes.

---

## References


- Fouad, A.F., Abbott, P.V., Tsilingaridis, G., et al. "International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth." *Dental Traumatology*, 2020; 36:331–342. https://doi.org/10.1111/edt.12573

- Donaldson, M., and Kinirons, M.J. "Survival and complication analyses of avulsed and replanted permanent teeth." *Scientific Reports*, 2020. https://www.nature.com/articles/s41598-020-59843-1

- Poi, W.R., Sonoda, C.K., Martins, C.M., et al. "Clinical and Practical Implications of Storage Media used for Tooth Avulsion." *Journal of Dental Traumatology / PMC*, 2017. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5571385/

- Lam, R. "Epidemiology and outcomes of traumatic dental injuries: a review of the literature." *Australian Dental Journal*, 2016; 61(S1):4–20. https://onlinelibrary.wiley.com/doi/10.1111/adj.12395

- Glendor, U. "Epidemiology of traumatic dental injuries — a 12-year review of the literature." *Dental Traumatology / Journal of Endodontics*, 2013. https://www.jendodon.com/article/S0099-2399%2812%2901078-3/fulltext

- Mesquita Montes, C.C., et al. "Survival of Replanted Permanent Teeth after Traumatic Avulsion." *Journal of Endodontics*, 2020. https://www.sciencedirect.com/science/article/abs/pii/S0099239919309185

- Pereira, L., et al. "Retrospective analysis of survival of avulsed and replanted permanent teeth according to 2012 or 2020 IADT Guidelines." *PMC / Dental Traumatology*, 2023. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10208297/

- Bourguignon, C., et al. "A biological approach to crown fracture: Fracture reattachment." *PMC / Journal of Conservative Dentistry*, 2012. https://pmc.ncbi.nlm.nih.gov/articles/PMC3514946/

- Epidemiology and severity of traumatic dental injuries in permanent teeth: A 20-year retrospective study. *PMC*, 2023. https://pmc.ncbi.nlm.nih.gov/articles/PMC10355269/


---

## Frequently Asked Questions

**What is the most critical time window after a tooth is knocked out?** 30 to 60 minutes

**What percentage of teeth replanted within one hour survived at five-year follow-up?** 64%

**What percentage of lost teeth had extra-alveolar time over one hour?** 71%

**What is the ideal replantation time for best PDL regeneration?** Within five minutes

**What does PDL stand for?** Periodontal ligament

**What are PDL cells?** The biological bridge between tooth root and surrounding bone

**What happens to PDL cells after avulsion?** They begin to die immediately

**What part of a knocked-out tooth should you pick up by?** The crown (white part)

**Should you pick up a knocked-out tooth by the root?** No

**Should you scrub a knocked-out tooth?** No

**Should you use soap on a knocked-out tooth root?** No

**What is the best storage medium for a knocked-out tooth?** Milk

**What is the second-best storage medium for an avulsed tooth?** Hank's Balanced Salt Solution

**What guidelines recommend milk as the first storage medium?** 2020 IADT guidelines

**Why is milk the best storage medium?** It maintains viability of PDL cells

**Can you store an avulsed tooth in tap water?** No, tap water is harmful to PDL cells

**What is the worst storage condition for an avulsed tooth?** Keeping it dry

**How long can milk preserve an avulsed tooth?** Maximum 6 hours

**How long can Hank's Balanced Salt Solution preserve an avulsed tooth?** Maximum 72 hours

**What is avulsion?** Complete displacement of a tooth from its socket

**What is the overall survival rate of replanted permanent teeth after 5.5 years?** 50%

**What classification system categorises crown fractures?** Ellis Classification system

**What does Ellis Class I fracture involve?** Enamel only

**What does Ellis Class II fracture involve?** Enamel and dentine

**What does Ellis Class III fracture involve?** Enamel, dentine, and pulp

**Is Ellis Class I a dental emergency?** No, treatment within 24–48 hours is acceptable

**Is Ellis Class II a dental emergency?** Yes, same-day treatment required

**Is Ellis Class III a dental emergency?** Yes, immediate treatment required

**What symptom is typical of Ellis Class I fracture?** Rough edge with minimal sensitivity

**What symptom is typical of Ellis Class II fracture?** Sensitivity to temperature, air, and touch

**What symptom is typical of Ellis Class III fracture?** Severe pain with visible pink or red pulp

**What is pulp capping?** Placing biocompatible material directly over exposed pulp

**What material is used in pulp capping?** Mineral Trioxide Aggregate or calcium hydroxide

**What is a partial pulpotomy?** Removal of superficial inflamed pulp tissue only

**When is emergency root canal therapy performed for crown fractures?** When pulp exposure is extensive or significantly delayed

**What is a root fracture?** A force-caused split of the root horizontally or obliquely

**Can root fractures be seen with the naked eye?** No

**How are root fractures diagnosed?** With radiographs (X-rays)

**Which root fracture location has the most favourable prognosis?** Apical third (near root tip)

**Which root fracture location has the poorest prognosis?** Cervical third (near gum line)

**What imaging may be used for complex root fractures?** CBCT (cone beam computed tomography)

**What is the splinting duration for a middle-third root fracture?** 4 weeks

**What is flexible splinting?** A semi-rigid wire-and-composite splint bonded to adjacent teeth

**How long is a splint typically worn after tooth replantation?** 2 weeks

**When is root canal treatment initiated after replantation in mature teeth?** Within 7–10 days

**Why is root canal treatment needed after replantation?** To prevent pulp necrosis triggering inflammatory resorption

**What is the most commonly injured tooth in dental trauma?** Maxillary central incisor

**Which gender is more commonly affected by dental trauma?** Boys more than girls

**What percentage of bodily injuries involve the oral region?** 5%

**What percentage of total body area does the oral region represent?** 1%

**What is the global annual incidence of dental trauma?** Approximately 4.5%

**What is the prevalence of traumatic dental injuries in permanent dentition?** Between 18% and 25%

**What rank does dental trauma hold among most common injuries?** Fifth position

**What are the main causes of dental trauma?** Falls, bicycle accidents, and sports-related injuries

**Can untreated dental trauma cause pulp necrosis?** Yes

**Can untreated dental trauma increase risk of dental caries?** Yes

**Can untreated dental trauma lead to tooth loss?** Yes

**Does delaying treatment worsen dental trauma prognosis?** Yes, always

**What is subluxation?** Injury to the periodontal ligament causing tooth looseness

**What urgency level is subluxation?** Same day

**What is fragment reattachment?** Bonding the patient's own broken tooth piece back onto the tooth

**Is fragment reattachment considered conservative treatment?** Yes, the most conservative method

**What is required for fragment reattachment to be possible?** The broken fragment must be preserved intact

**How should a broken tooth fragment be stored?** In milk or saline

**What is the first step in Core Dental Group's emergency pathway?** Triage and clinical history

**How many Melbourne locations does Core Dental Group have?** Seven

**What phone number can you call Core Dental Group on?** 13 13 16

**Does Core Dental Group offer same-day emergency appointments?** Yes

**Does Core Dental Group provide definitive treatment or just pain management?** Definitive treatment

**What imaging is taken during emergency dental assessment?** Periapical X-rays

**Is primary (baby) tooth avulsion managed differently from adult tooth avulsion?** Yes

**What PDL cell viability exists at 0–5 minutes after avulsion?** Excellent

**What PDL cell viability exists at 30–60 minutes after avulsion?** Declining

**What PDL cell viability exists after 120 minutes dry?** Very poor

**What is the clinical outlook for a tooth replanted after more than 120 minutes dry?** High risk of replacement resorption and eventual loss