

# Ooops there goes another one!

## Dental trauma first aid- What you need to know.

### Statistics

200,000 children a year in the UK experience dental trauma. That means an average of 580 children a day fall or are hit in the mouth by something leading to broken (50%) or displaced (50%) teeth. Tooth injuries represent 18% of the physical injuries occurring in 0-6 year olds.

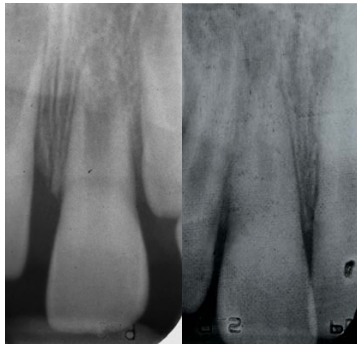
Dentoalveolar injuries can have a profound effect on children's Oral Health Related Quality of Life, not only as a result of the pain and anxiety associated with the initial injury and its management, but also long term concerns about appearance and functional limitations. In a national survey 35% of 12 year olds and 28% of 15 year olds reported being embarrassed to smile or laugh due to the condition of their teeth! The ongoing costs to the health service and individuals involved are extensive; a knocked out tooth will need a minimum of 11 visits for care and a fractured tooth will need 5 years of monitoring and a lifetime of restoration modification and replacement.

### Types of Injuries

The people with more severe of these injuries are most likely to contact A&E, so I hope to show you that the mouth is not just the terrain of dentists but there are things you can do to help save teeth. Some responses need enactment urgently and prior to dental input.

### Anatomy

Considering adult teeth first, the adult incisors erupt into the mouth from 6-8 years old, when they first emerge the roots are short and not fully grown until 11/12 years. During that time period they are extremely vulnerable to being knocked out of place as there is not much dental tissue retaining them.



*Intraoral radiographs showing immature and formed roots*

## First Aid: Avulsion

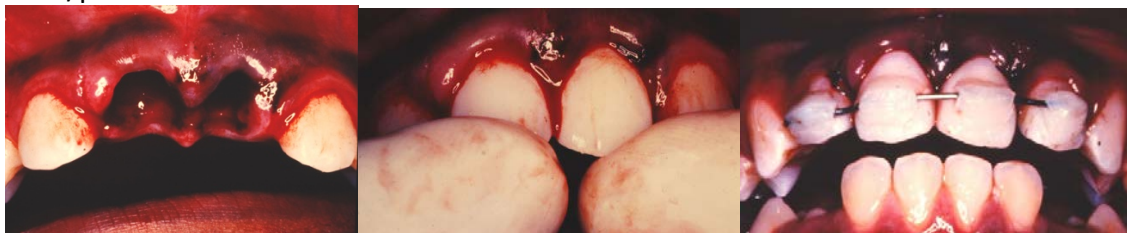
If an adult tooth is knocked out totally or partially, **the ideal course of action is for the tooth to be pushed back into place immediately.** The tooth is normally attached to the bone surrounding the socket by periodontal fibres from the periodontal cells on the root surface. Once the tooth is knocked out the cells on the root surface quickly start to dry out and within 5 minutes start to die reducing the chances of restoration of a normal reattachment. The prognosis diminishes with every 5 minutes that elapse.

ALL staff caring for children and indeed children themselves need to be taught what to do if a tooth is knocked out.



*Practicing what to do.*

At the time of the injury the tooth should be found as quickly as possible then the child/parent should:



*Reinsertion of knocked out teeth with finger pressure*

**PICK IT** up( pick up by the crown only)

**LICK IT** clean( if obvious dirt is in evidence)

**STICK IT** back in ( look at the tooth next door to work out which way round)

**CLOSE IT** Close your teeth together on a hankie etc to hold it in place as you go to the dentist immediately for the teeth to be splinted for 2 weeks.

If introduced to the socket before the clot forms the tooth should go back in with gentle finger pressure and little discomfort



(Very immature teeth if treated quickly have a chance of regaining their blood supply and will continue to grow normally; more mature teeth will need to be root treated but can still be retained.)

All the people answering a phone in a healthcare setting should have a crib sheet to hand to give instructions to affect this simple and effective dental first aid procedure. I also recommend analgesics are given ASAP as it will be sore later and an analgesic with an anti-inflammatory action will potentially help reduce inflammatory related sequelae.

If a child turns up to A&E with a tooth in their hand it should be placed in normal saline until it can be replaced after local anaesthetic administration as the clot in the socket will need to be removed prior to reinsertion.

If teeth are pushed forwards or backwards the supporting alveolar bone will have fractured in the index incident; such teeth involved will require repositioning back into place and splinting. The sooner this is done the more chance there is of tooth survival.



*Tooth extrusion with alveolar fracture, repositioned under LA and splinted.*

### Sequelae

The adverse sequelae of dental trauma can be

- (1) the nerve within the tooth dying ( if the blood supply is interrupted the pulpal tissue will die and if untreated can potentially cause extensive swelling and infection) or
- (2) if the periodontal ligament cells die the dead cells stimulate an inflammatory reaction that can destroy root tissue and the surrounding bone. Root resorption limits the long term prognosis for the tooth even with treatment hence the need to act quickly. Once teeth are lost the patient is looking at a future of dentures, bridges or if adult implants.

### Tooth Fracture

The other 50% of adult tooth injuries are fractures of the teeth , either crown or root or both. Sometimes this just involves the hard tissues but other times the tooth pulp is involved. If the pulp is involved the tooth will be excruciatingly sensitive even just to air being breathed in and in such circumstance dental help is needed urgently. The best restoration for a fractured tooth is reattachment of the separated tooth fragment.



*Fractured incisor with pulp exposure, pulpotomy completed and tooth fragment reattached*

If they attend A&E with a fractured tooth encourage them to attempt to find and retrieve the lost fragment and store it in water or saline until they can attend the dentist. Again, speed is important as fractured dentine has open dentinal tubules leading through the dentine to the pulp, so not only will the tooth be sensitive but also leaving it unprotected increases likelihood of the tooth pulp becoming infected and dying. So, if there are two parents in attendance it may be possible to despatch one back to the scene of the mishap to search for the fractured tooth fragment.

Let's consider also the younger age group  $\leq 6$  yrs; here the injury is most likely to be a displacement injury to baby teeth. Avulsed baby teeth should NOT be replaced as this can cause damage to the developing adult teeth within the alveolar bone.



Pics here to insert

### First Aid

As long as the small child can close their mouth and there are no teeth hanging by a thread creating an inhalation risk then there is no need for initial intervention. In such cases reassure parents, advise analgesics, indicate appropriate mouth care (soft brush etc), a soft diet; are the parameters that are considered best initial care.

Displaced baby teeth will often improve spontaneously themselves into a stable position and become firm again. Such gentle natural repositioning reduces the risk of further damage to the unerupted adult teeth. However, all these injuries must be followed up by a dentist.

### The Role of Photographs:

All parents should be encouraged to take close up pictures of their children's teeth at regular intervals so that in the event of the worst happening and a dental traumatic incident occurs the person treating the injury will be able to see what the natural appearance of the teeth was prior to the accident.

Similarly, useful is a close up photograph of the damaged teeth and surrounding tissues taken immediately before affected teeth are moved to aid in the planning of the optimum long term care.

## Non accidental Injuries

Of course, no article on trauma would be complete without mention of non-accidental injury. It is imperative that you consider such even if the story of the accident appears to ring true. Tooth trauma happens fast and often people have a confused recollection of how things happened so record all the stated history.

We have talked about dento-alveolar trauma here in isolation from other trauma and most often this is the case however it goes without saying that if there are other more serious injuries, they will clearly take precedence over tooth trauma. Even in cases where there are more serious injuries, reimplantation of avulsed teeth in a *conscious* child should be enacted as soon as it is possible so to do.

Hopefully this gives you some ideas re dental trauma, please contact me at [jacquelineann.smallridge@nhs.net](mailto:jacquelineann.smallridge@nhs.net) with any questions

Useful resources for dental trauma information:

Free APP- ToothSOS APP



[www.iadt-dentaltrauma.org](http://www.iadt-dentaltrauma.org) › for-patients

Dental trauma UK

<https://www.dentaltrauma.co.uk/Index.aspx>- save a knocked out tooth video