

# Luxation Injuries

## **1. Terminology, frequency and etiology:**

Five different types of luxation injuries:

1. Concussion: An injury to tooth-supporting structures without abnormal loosening or displacement but with marked reaction to percussion.

2. Subluxation (loosening): An injury to the tooth-supporting structures with abnormal loosening but without clinically or radiographically demonstrable displacement of the tooth..

3 .Extrusive luxation (peripheral displacement, partial avulsion): Partial displacement of the tooth out of its socket. Radiographic examination always reveals increased width of the periodontal ligament space.

4. Lateral luxation: Eccentric displacement of the tooth. This is accompanied by comminution or fracture of the alveolar socket. Depending of the angulation of the central beam, radiographic examination may or may not demonstrate increased width of the periodontal ligament space.

5. Intrusive luxation (central dislocation): Displacement of the tooth deeper into the alveolar bone. This injury is accompanied by comminution or fracture of the alveolar socket.

Luxation injuries comprise 15 to 61% of dental traumas to permanent teeth, while frequencies of 62 to 73% have been reported for the primary dentition.

Predominant etiologic factors in the permanent dentition are bicycle injuries, falls, fights and sports injuries.

In the primary dentition falls dominate.

## Clinical and radiographic findings;

	Concussion	Subluxation	Extrusion	Intrusion	Lateral luxation
Mobility	-	+	+	-(+)	-(+)
Percussion	+	+(-)	+(-)	-(+)	-(+)
Percussion sound	Normal	Dull	Dull	Metallic	Matallic
Positive sens-test	+(-)	+(-)	-	-	-
Radiographic dislocation	-	-(+)	+	+	+

## Pathology:

**Concussion;** A frontal impact leads to hemorrhage and edema in the periodontal ligament.

**Subluxation;** If the impact has greater force, periodontal ligament fibers may be torn, resulting in the loosening of the injured tooth.

**Extrusive luxation;** Oblique forces displace the tooth out of its socket. Only the palatal gingival fibers prevent the tooth from being avulsed. Both the PDL and the neurovascular supply to the pulp are ruptured.

**Lateral luxation;** Horizontal forces displace the crown palatally and the root apex labially. Apart from rupture of the PDL and the neurovascular supply to the pulp, compression of the PDL is found in the palatal aspect of the root.

**Intrusion;** Axial impact leads to extensive injury to the pulp and periodontium.

## **Treatment:**

Concussion and subluxation; Relief of occlusal interferences by selective grinding of opposing teeth. Splinting if severe loosening. Soft diet for 14 days.

Extrusive luxation; repositioning and splinting.

Lateral luxation; repositioning and splinting.

Intrusive luxation; spontaneous eruption or orthodontic extrusion.

## **Prognosis:**

Typ of luxation	No.of teeth	No. with pulp necrosis
Concussion	178	5(3%)
Subluxation	223	14(6%)
Extrusive luxation	53	14(26%)
Lateral luxation	122	71(58%)
Intrusive luxation	61	52(85%)

Stage of root formation	No. of teeth	No. With pulp necrosis
Incomplete	279	21(8%)
Complete	358	135(38%)