Acceptable Position for Paediatric Fractures

These positions are indicative of the amount of residual deformity will be present at skeletal maturity. The number reflect the upper limit of acceptability hence ranges are not mentioned.

Distal Radius Metaphyseal Fractures (DRMF)

Age	Angulation	Rotation	Displacement
< 8	45	45	100%
8 -12	30	30	50%
>12	15	15	50%

Risk factors for Redisplacement in DRMF (30%): both bones fracture, displacement > 50%, poor cast index.

Forearm Fractures (Diaphyseal)

< 8	45	45	100%
8 – 12	30	15	50%
>12	10	10	50%

Radial Neck Fracture

< 8	45	-	40%
8-12	30		30%
>12	15		10%

Residual Tilt better tolerated than displacement

Paediatric Elbow Injuries

" always take radiographs of opposite uninjured elbow"

Supracondylar Fractures

- Beware of varus tilt in undisplaced or Grade I Gartland fracture
- < 12 years: 20^0 Posterior Angulation acceptable in Extension type injury.
- Flexion type injuries are unstable and almost always needs stabilization.

Lateral Condyle Injury "fracture of necessity" – think of fixation unless reason not to!!

- < 2mm displacement in one view indicates cartilage hinge is intact – Rx conservatively
- > 2mm displacement in two orthogonal views = unstable hinge =percutaneous fixation
- > 2mm and rotated = ORIF

Medial Epicondyle (apophysis)

- Rule out elbow instability and ulnar nerve injury and medial condyle injury in <10years.
- Isolated medial epicondyle injury can be left untreated in < 12 years.
- > 12 years , high demand on elbow (atheletes, labourer) fix if > 2mm displacement

Proximal Humerus Fracture (Metaphyses or SH Type II)

Age	Angulation	Rotation	Displacement (Neer Grade)
<8	60	45	100%
8 – 12	30	30	75 %
12	20	30	50 %

SH Type I: seen in children < 5 years. Excellent remodeling. Rarely needs intervention.

Children > 12 years, percutaneous fixation is advisable for unstable fracture pattern.

Neer classification unreliable as it only looks at displacement and not angulation.

Humerus Shaft Fracture

Age	Angulation	Rotation	Displacement
< 5	70	45	100%
6 -12	50	30	75%
>12	30	10	50%

1 -2 cm shortening is well tolerated in children

Distal humerus fracture tends to drift into varus and should be treated as supracondylar fractures.

Femur Shaft Fracture

Reduction plan must be made before manipulation based on muscle forces.

Alignment of fracture must be monitored weekly for 3weeks

Age(yrs)	Varus/Valgus (Coronal plane)	Ant -Post Angulation (Sagittal plane)	Displacement	Shortening
Birth -2	30	45	100%	20mm
2-5	30	30	100%	20mm
5-11	10	15	50%	15mm
12	5	10	25%	10mm

Distal Femur Metaphyseal Fracture

5	20	30	100%	20mm
5 -11	15	15	50%	15mm
12	5	10	25%	10mm

- **Use fixation for any displaced physeal fractures of the distal femur. Protect fixation with cast to prevent implant failure**
- **Use 90% traction and 10% leverage to reduce the fracture to avoid shear forces.**

Tibia Shaft Fracture

5	10	20	100%	15mm
5 -11	10	10	50%	10mm
12	5	5	25%	10mm

- **Varus > 5 % and Rotations more than 5 degrees are poorly tolerated.**