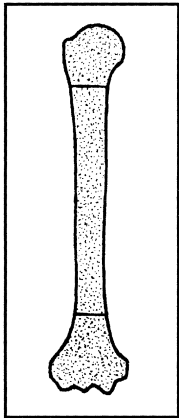
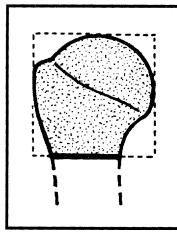


HUMERUS

BONE: HUMERUS (1)

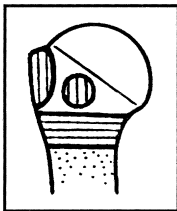


Location: Proximal segment (11)

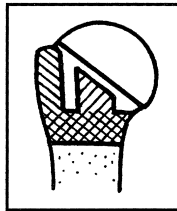


Types:

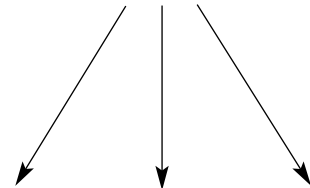
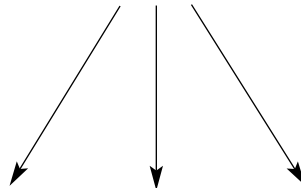
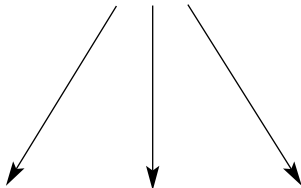
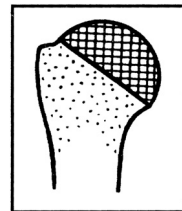
A. Extra-articular, unifocal fracture (11-A)



B. Extra-articular, bifocal fracture (11-B)



C. Articular fractures (11-C)



Groups:

Humerus proximal segment, extra-articular unifocal (11-A)

1. Avulsion of tuberosity (11-A1)

2. Impacted metaphysis (11-A2)

3. Non-impacted metaphysis fracture (11-A3)

Humerus, proximal segment, extra-articular bifocal (11-B)

1. With metaphyseal impaction (11-B1)

2. Without metaphyseal impaction (11-B2)

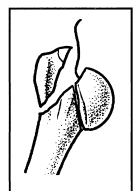
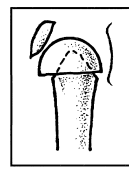
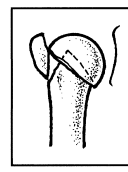
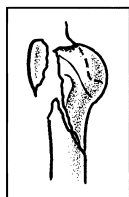
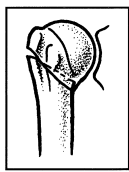
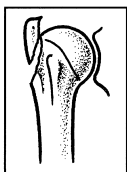
3. With glenohumeral dislocation (11-B3)

Humerus, proximal segment, articular fractures (11-C)

1. Articular fracture with slight displacement impacted valgus fracture (11-C1)

2. Articular fracture impacted with marked displacement (11-C2)

3. Articular fracture with glenohumeral dislocation (11-C3)



These fractures represent three part fractures, or fracture dislocations by the Neer classification.

Humerus, proximal, extra-articular, bifocal, with metaphyseal impaction (11-B1)

1. Lateral plus greater tuberosity
(11-B1.1)

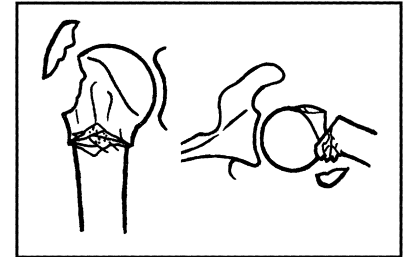
- (1) pure lateral impaction
- (2) posterior and lateral impaction
- (3) anterior and lateral impaction

2. Medial plus lesser tuberosity
(11-B1.2)

- (1) pure lateral impaction
- (2) posterior and lateral impaction
- (3) anterior and lateral impaction

3. Posterior plus greater tuberosity
(11-B1.3)

B1



Humerus, proximal, extra-articular, bifocal, without metaphyseal impaction (11-B2)

1. Without rotatory displacement of the epiphyseal fracture fragment
(11-B2.1)

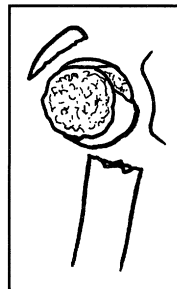
2. With rotatory displacement of the epiphyseal fragment (11-B2.2)

- (1) greater tuberosity separated
- (2) lesser tuberosity separated

3. Multifragmentary metaphysis plus one of the tuberosities (11-B2.3)

- (1) lesser tuberosity
- (2) greater tuberosity

B2



Humerus, proximal, extra-articular, bifocal with glenohumeral dislocation (11-B3)

1. "Vertical" cervical line plus greater tuberosity intact plus anterior medial dislocation (11-B3.1)

2. "Vertical" cervical line plus greater tuberosity fracture plus anterior medial dislocation (11-B3.2)

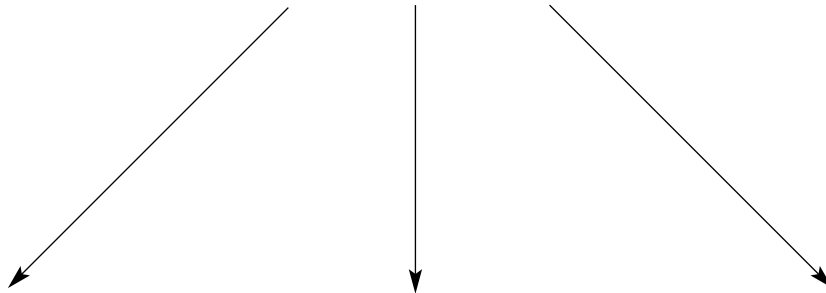
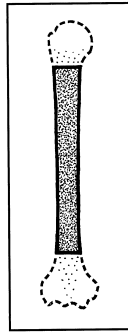
3. Lesser tuberosity fracture plus posterior dislocation (11-B3.3)

- (1) without anterior cephalic notch
- (2) with anterior cephalic notch

B3

BONE: HUMERUS (1)

Location: Diaphyseal segment (12)

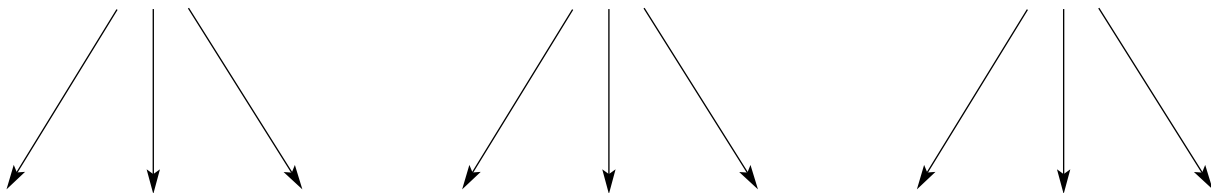


Types:

A. Simple fracture (12-A)

B. Wedge fracture (12-B)

C. Complex fracture (12-C)



Groups:

Humerus diaphyseal, simple (12-A)

1. Spiral
(12-A1)

2. Oblique
($\geq 30^\circ$) (12-A2)

3. Transverse
($< 30^\circ$) (12-A3)

Humerus diaphyseal, wedge (12-B)

1. Spiral wedge
(12-B1)

2. Bending wedge
(12-B2)

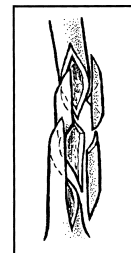
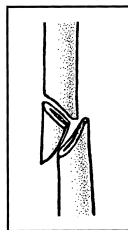
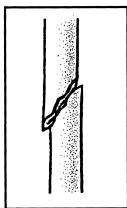
3. Fragmented wedge
(12-B3)

Humerus diaphyseal, complex (12-C)

1. Spiral
(12-C1)

2. Segmental
(12-C2)

3. Irregular
(12-C3)



Subgroups and Qualifications:

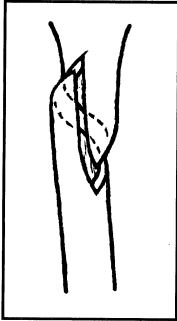
Humerus diaphyseal, simple, spiral (12-A1)

1. Proximal zone (12-A1.1)

2. Middle zone (12-A1.2)

3. Distal zone (12-A1.3)

A1



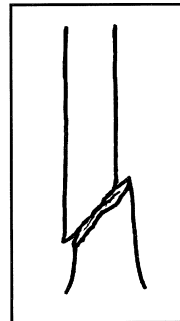
Humerus diaphyseal, simple, oblique ($\geq 30^\circ$) (12-A2)

1. Proximal zone (12-A2.1)

2. Middle zone (12-A2.2)

3. Distal zone (12-A2.3)

A2



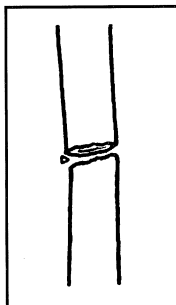
Humerus diaphyseal, simple, transverse ($< 30^\circ$) (12-A3)

1. Proximal zone (12-A3.1)

2. Middle zone (12-A3.2)

3. Distal zone (12-A3.3)

A3



Humerus diaphyseal, wedge, spiral (12-B1)

1. Proximal zone (12-B1.1)

2. Middle zone (12-B1.2)

3. Distal zone (12-B1.3)

B1

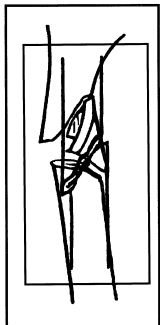
Humerus diaphyseal, wedge, bending (12-B2)

1. Proximal zone (12-B2.1)

2. Middle zone (12-B2.2)

3. Distal zone (12-B2.3)

B2



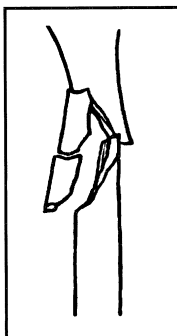
Humerus diaphyseal, wedge, fragmented (12-B3)

1. Proximal zone (12-B3.1)

2. Middle zone (12-B3.2)

3. Distal zone (12-B3.3)

B3



Humerus diaphyseal, complex, spiral (12-C1)

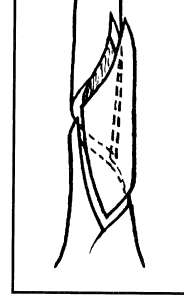
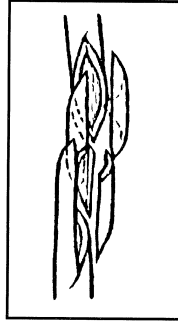
- (1) pure diaphyseal
- (2) proximal diaphysio-metaphyseal
- (3) distal diaphysio-metaphyseal

1. With 2 intermediate fragments
(12-C1.1)

2. With 3 intermediate fragments
(12-C1.2)

3. With more than 3 intermediate fragments
(12-C1.3)

C1



Humerus, diaphyseal, complex segmental (12-C2)

1. With 1 intermediate segmental fragment (12-C2.1)

- (1) pure diaphyseal
- (2) proximal diaphysio-metaphyseal
- (3) distal diaphysio-metaphyseal
- (4) oblique lines
- (5) transverse and oblique lines

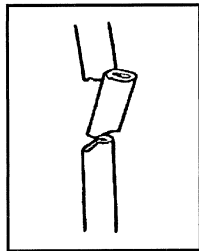
2. With 1 intermediate segmental and additional wedge fragments (12-C2.2)

- (1) pure diaphyseal
- (2) proximal diaphysio-metaphyseal
- (3) distal diaphysio-metaphyseal
- (4) distal wedge
- (5) 2 wedges, proximal and distal

3. With 2 intermediate segmental fragments (12-C2.3)

- (1) pure diaphyseal
- (2) proximal diaphysio-metaphyseal
- (3) distal diaphysio-metaphyseal

C2



Humerus, diaphyseal, complex irregular (12-C3)

1. With 2 or 3 intermediate fragments (12-C3.1)

- (1) 2 main intermediate fragments
- (2) 3 main intermediate fragments

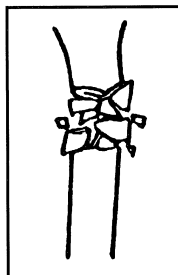
2. With limited shattering (<4cm) (12-C3.2)

- (1) proximal zone
- (2) middle zone
- (3) distal zone

3. With extensive shattering (>4cm) (12-C3.3)

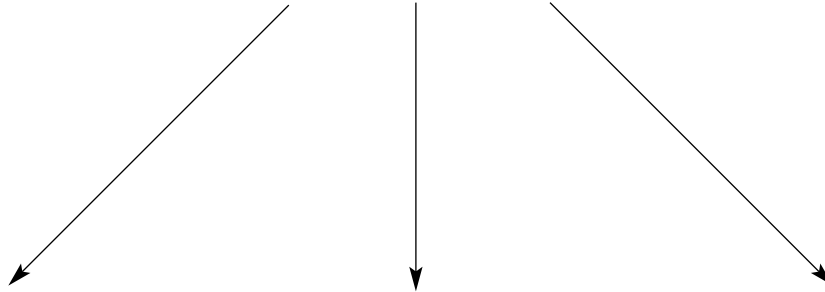
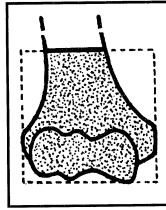
- (1) pure diaphyseal
- (2) proximal diaphysio-metaphyseal
- (3) distal diaphysio-metaphyseal

C3



BONE: HUMERUS (1)

Location: Distal segment (13)

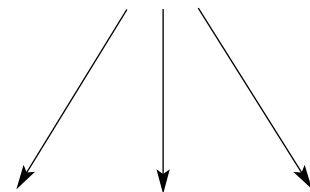
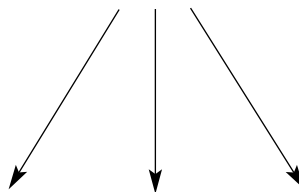
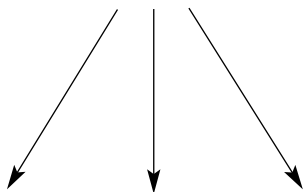
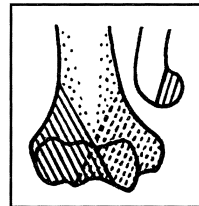


Types:

A. Extra-articular fracture (13-A)

B. Partial articular fracture (13-B)

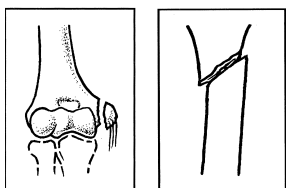
C. Complete articular fracture (13-C)



Groups:

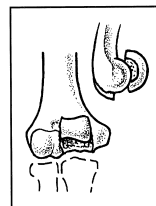
Humerus distal segment, extra-articular (13-A)

- 1. Apophyseal avulsion (13-A1)
- 2. Meta-physeal simple (13-A2)
- 3. Meta-physeal multi-fragmentary (13-A3)



Humerus distal segment, partial articular (13-B)

- 1. Lateral sagittal (13-B1)
- 2. Medial sagittal (13-B2)
- 3. Frontal (13-B3)



Humerus distal segment, complete articular (13-C)

- 1. Articular simple, metaphyseal simple (13-C1)
- 2. Articular simple, meta-physeal multi-fragmentary (13-C2)
- 3. Articular, metaphyseal multifragmen-tary (13-C3)



Subgroups and Qualifications:

Humerus, distal, extra-articular apophyseal avulsion (13-A1)

1. Lateral epicondyle (13-A1.1)

2. Medial epicondyle, non-incarcerated (13-A1.2)

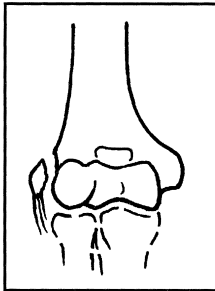
(1) non-displaced

(2) displaced

(3) fragmented

3. Medial epicondyle, incarcerated (13-A1.3)

A1



Humerus, distal, extra-articular metaphyseal simple (13-A2)

1. Oblique downwards and inwards (13-A2.1)

2. Oblique downwards and outwards (13-A2.2)

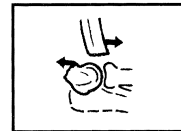
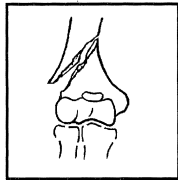
3. Transverse (13-A2.3)

(1) transmetaphyseal

(2) juxta-epiphyseal with posterior displacement (Kocher I)

(3) juxta-epiphyseal with anterior displacement (Kocher II)

A2



Humerus, distal, extra-articular metaphyseal multifragmentary (13-A3)

1. With intact wedge (13-A3.1)

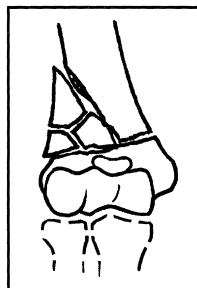
(1) lateral
(2) medial

2. With fragmented wedge (13-A3.2)

(1) lateral
(2) medial

3. Complex (13-A3.3)

A3



Humerus, distal, partial articular lateral sagittal (13-B1)

1. Capitellum (13-B1.1)

- (1) through the capitellum (Milch I)
- (2) between capitellum and trochlea

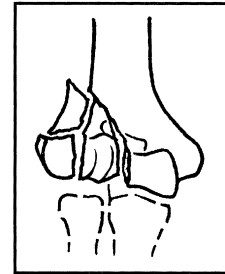
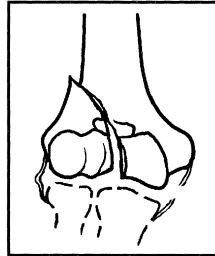
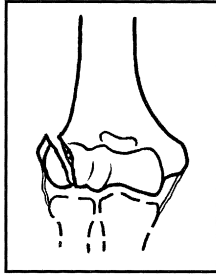
2. Transtrochlear simple (13-B1.2)

- (1) medial collateral ligament intact
- (2) medial collateral ligament ruptured
- (3) metaphyseal simple (classic Milch II) lateral condyle
- (4) metaphyseal wedge
- (5) metaphysio-diaphyseal

3. Transtrochlear multifragmentary (13-B1.3)

- (1) epiphysio-metaphyseal
- (2) epiphysio-metaphyseal-diaphyseal

B1



Humerus, distal, partial articular, medial sagittal (13-B2)

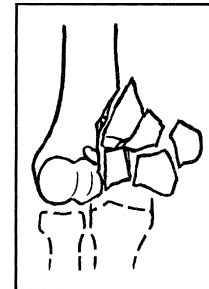
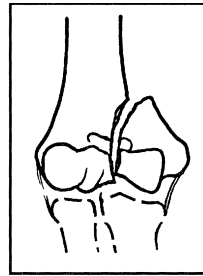
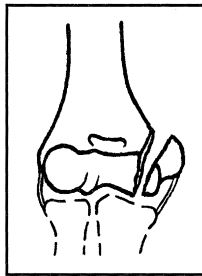
1. Transtrochlear simple, through medial side (Milch I) (13-B2.1)

2. Transtrochlear simple, through the groove (13-B2.2)

3. Transtrochlear multifragmentary (13-B2.3)

- (1) epiphysio-metaphyseal
- (2) epiphysio-metaphyseal-diaphyseal

B2



Humerus, distal, partial articular, frontal (13-B3)

1. Capitellum (13-B3.1)

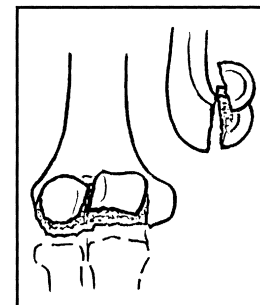
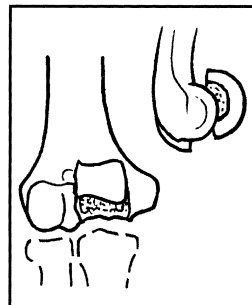
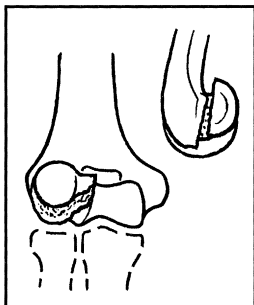
- (1) incomplete (Kocher-Lorenz)
- (2) complete (Hahn-Steinthal 1)
- (3) with trochlear component (Hahn-Steinthal 2)
- (4) fragmented

2. Trochlea (13-B3.2)

- (1) simple
- (2) fragmented

3. Capitellum and trochlea (13-B3.3)

B3

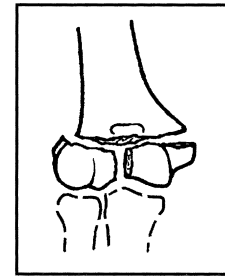
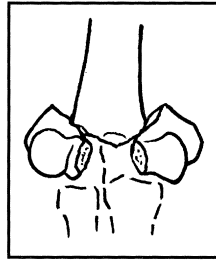
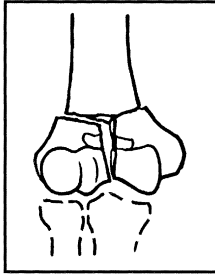


Humerus, distal complete, articular simple, metaphyseal simple (13-C1)

- | | |
|---|---|
| <p>1. With slight displacement (13-C1.1)
 (1) Y-shaped
 (2) T-shaped
 (3) V-shaped</p> | <p>2. With marked displacement (13-C1.2)
 (1) Y-shaped
 (2) T-shaped
 (3) V-shaped</p> |
|---|---|

3. T-shaped epiphyseal (13-C1.3)

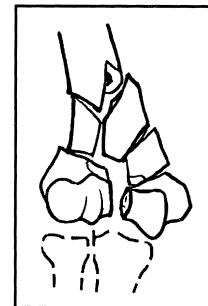
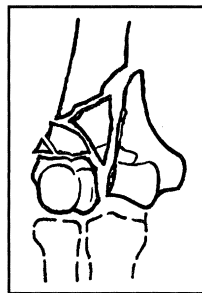
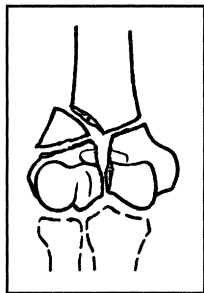
C1



Humerus, distal, complete articular simple metaphyseal multifragmentary (13-C2)

- | | | |
|--|--|------------------------------------|
| <p>1. With intact wedge (13-C2.1)
 (1) metaphyseal lateral
 (2) metaphyseal medial
 (3) metaphysio-diaphyseal-lateral
 (4) metaphysio-diaphyseal-medial</p> | <p>2. With a fragmented wedge (13-C2.2)
 (1) metaphyseal lateral
 (2) metaphyseal medial
 (3) metaphysio-diaphyseal-lateral
 (4) metaphysio-diaphyseal-medial</p> | <p>3. Complex (13-C2.3)</p> |
|--|--|------------------------------------|

C2



Humerus, distal, complete multifragmentary (13-C3)

- | | | |
|---|--|---|
| <p>1. Metaphyseal simple (13-C3.1)</p> | <p>2. Metaphyseal wedge (13-C3.2)
 (1) intact
 (2) fragmented</p> | <p>3. Metaphyseal complex (13-C3.3)
 (1) localized
 (2) extending into diaphysis</p> |
|---|--|---|

C3

