Avian Fracture Immobilization

FWRA 2016

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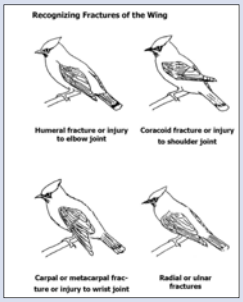
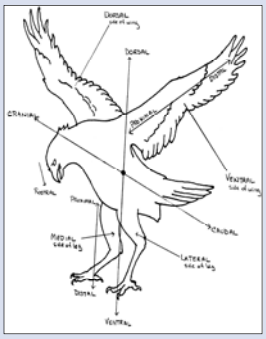
Fracture diagnosis/quantification



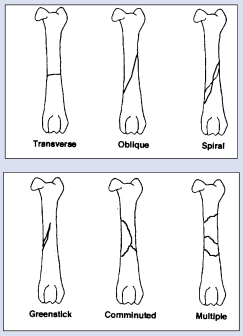
- Observation
- Palpation
- Radiography

Diagram courtesy of Leah Schimmel & NWRA Quick Reference

Fracture Terminology



Left Lateral View of Osprey



Fracture Types

Diagrams courtesy of: NWRA Quick Reference

External fixation

- Immobilize joints on either side
- Body wrap – humeral, clavicular, coracoid & scapular fractures
- Figure-of-8 wrap – fractures distal to the elbow
- F8 with splint – carpometacarpus
- Leg to body wrap – femur or pelvis
- Splints – tibiotarsus, tarsometatarsus
- Sandals/shoes – toes

Surgical Fixation

- Precision is necessary when repairing wing fractures, not as critical with legs
- Allows for earlier return to function (prevents contracture)

Surgery indicated for:

- Fractures close to the joint
- Open fractures (bone exposed)
- Displaced fractures
- Most humeral fractures

External Stabilization

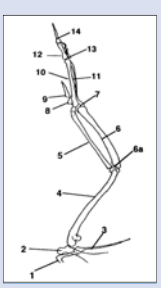
- Normal position = alignment
- Immobilize the joints on either side of the fracture
- Include a splint, especially if close to joint or > 1 fracture
- Use wraps for temporary stabilization before surgery

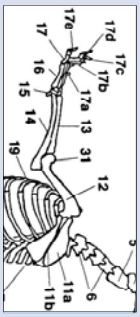
Fracture Healing—Wraps

- Contracture is a common concern in birds: **DO NOT** immobilize extremities >3-4 weeks
- Songbirds may heal in as little as 10-12 days
- Baby songbirds may heal in as little as 5 days – and grow quickly--check wraps twice daily!!

Skeletal Anatomy--Wing

- 1 = clavicle
- 2 = coracoid
- 3 = scapula
- 4 = humerus
- 5 = radius
- 6 = ulna
- 6a = olecranon
- 7 = carpus
- 8 = P1 of digit I (alula)
- 9 = P2 of digit II (alula)
- 10 = major metacarpal bone
- 11 = minor metacarpal bone
- 12 = greater phalanx
- 13 = metacarpal phalangeal joint
- 14 = lesser phalanx





Diagrams courtesy of: NWRA Quick Reference

Wing Fractures: External fixation

- Body wrap – humeral, clavicular, coracoid & scapular fractures
- Figure-of-8 wrap – fractures distal to the elbow
- F8 with splint – carpometacarpus or > 1 fracture

Body Wrap – Humerus & Shoulder

Body Wrap

Body Wrap

Body Wrap

Body Wrap

Body Wrap

Figure of Eight Wrap

Drawing from: Ritchie, B.W., G.J. Harrison, and L.R. Harrison, eds. 1994. *Avian Medicine: Principles and Application*. Wingers Publishing, Inc.: Lake Worth, FL.

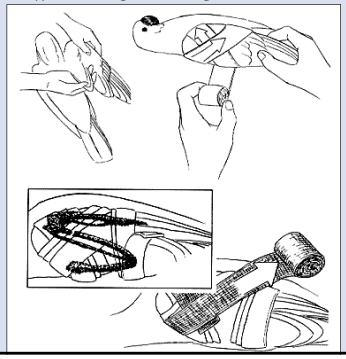


Figure of 8 – Fxrs distal to elbow

Figure of Eight

Figure of Eight

Figure of Eight

Figure of Eight

Skeletal Anatomy– Avian Leg

- 1 = femur
- 2 = tibiotarsus
- 3 = fibula
- 4 = tarsometatarsus
- 5 = tarsal bones (condyles)
- 6 = 2 phalanges of digit I (hallux)
- 7 = 3 phalanges of digit II
- 8 = 4 phalanges of digit III
- 9 = 5 phalanges of digit IV

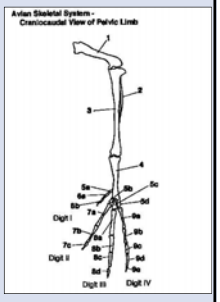


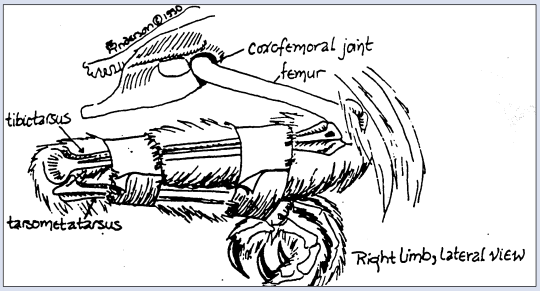
Diagram courtesy of: NWRA Quick Reference

Avian Leg Fractures:

External fixation

- Immobilize joints on either side
- Leg to body wrap – femur
- Splints – tibiotarsus, tarsometatarsus
- Sandals – toes

Leg Anatomy: Hock Wrap



Hock Wrap

Hock Wrap – keep it loose!!

Leg Wrap

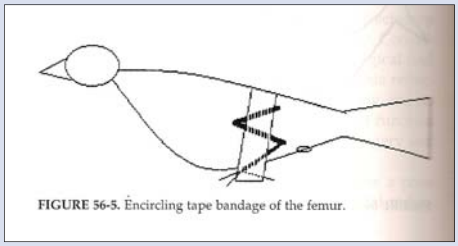


FIGURE 56-5. Encircling tape bandage of the femur.

Leg Wrap

Leg Wrap

Leg Wrap

Leg Wrap

Leg Wrap

Thermoplastic splint

L-splint – Tibiotarsal fracture

L-splint (TBT or TMT)

L-splint

L-splint

L-splint

Z-splint – Tibiotarsal fx

Straw splint – Tarsometatarsal Fxr

Straw splint

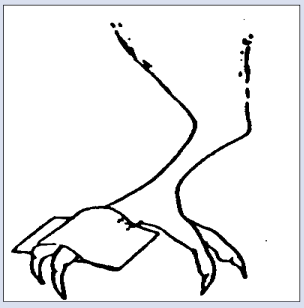
Straw splint

Straw splint

Straw splint + Hock wrap

Straw splint

Toe Fracture(s)



Diagrams from Garcelon and Bogue, Raptor Rehabilitation, 1977.

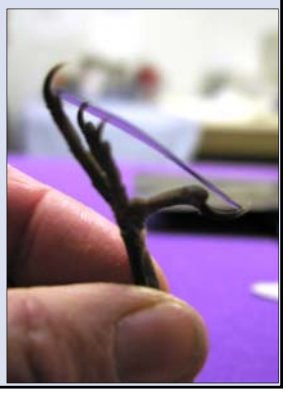
Sandals – Curled or fxr'd digits

Sandal

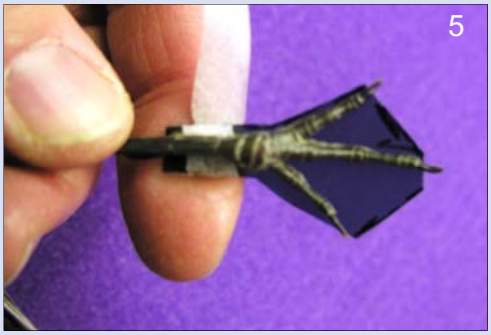
Sandal

Sandal

Sandal



Sandal



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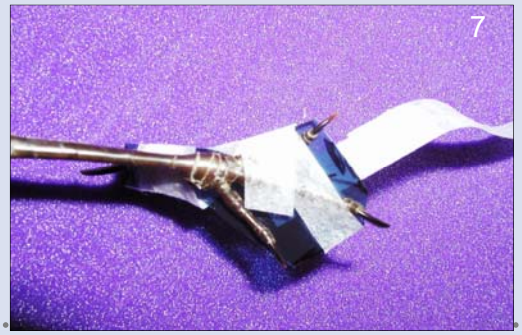

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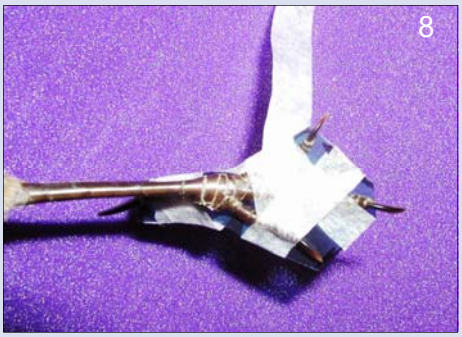

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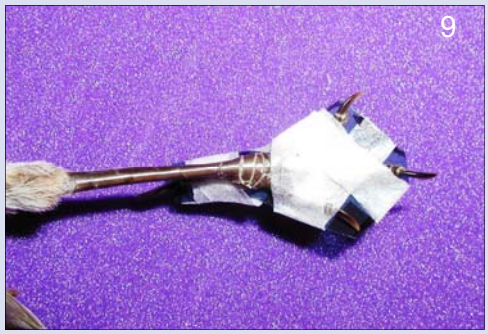

Sandal

Sandal

Slipped

Corrected

Sandal