

HOW DO I TREAT AVIAN LUXATIONS

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As luxation is defined the complete displacement of the bony elements comprising a joint. Partial displacement is termed a *subluxation*. A luxation can be described based on the two bone elements (e.g., scapulo-humeral, femoro-tibial) and the direction (e.g., medial, lateral, craniodorsal, etc.). Luxations have lower prevalence than fractures and most commonly affected joints are the elbow, the shoulder, the stifle and the intertarsal.

Diagnosis of luxations is comprised by a meticulous orthopaedic and neurologic examination, radiography or computed tomography. Wing drop and crepitation, laxity and inability to stand or fly indicate possible luxation. Commonly the traumatic luxation is accompanied by skin laceration and arthritis. Luxation need to be differentiated by soft tissue injury (muscle), ligament rupture or hyperextension and intra-periarticular fractures. In many chronic cases arthritis, ligament ruptures, fibrosis and synovitis could implicate the success of treatment and the prognosis.

The management of luxations in avian species requires a comprehensive approach, encompassing both **medical and surgical interventions**, with a strong emphasis on avian anatomy and patient stability. The ultimate goal of treatment is to restore full function. A successful outcome is highly dependent on the specific injury, the chosen treatment method and the patient's husbandry.

Initial care for an avian patient with a luxation begins with **in-patient medical management**. This involves temporary stabilization and addressing any concurrent traumatic injuries. Surgical intervention is often necessary for the best long-term prognosis and should be performed once the patient is stable, ideally within **three days of the injury** to prevent fibrosis, which can inhibit successful reduction. Following stabilization, whether through surgery or external coaptation, **outpatient medical management** and rehabilitation are crucial.

Nursing care is a critical component of treatment. This includes:

- **Fluid therapy and supportive care:** Particularly for patients with generalized trauma.
- **Wound care:** Crucial for open luxations to prevent infection.
- **Initial stabilization (Bandaging):** Temporary bandaging is essential to prevent further soft tissue trauma, protect against open luxations, and increase patient comfort. The type of bandage varies by injury location:
 - **Wing injuries distal to the elbow:** A **figure-of-eight bandage** is used.
 - **Wing injuries proximal to the elbow or involving the pectoral girdle:** A figure-of-eight bandage is combined with a **body wrap**.
 - **Leg injuries distal to the hock:** The tarsometatarsus is taped to the tibiotarsus with the hock in flexion.
 - **Leg injuries proximal to the hock:** The leg is also wrapped against the body.

For very small birds (under 50 grams), such as passerines, bandaging or **cage rest** might be the only feasible treatment options.

Successful surgical management of avian luxations requires a deep understanding of avian anatomy as the avian joint is more complicated than the mammalian similar one. The two primary surgical goals are **permanent stabilization (arthrodesis)** and **stabilization with the potential for a return to full function**.

- **External coaptation** alone may be sufficient for specific joints, including the coracoid-sternum, shoulder, elbow (mild-to-moderate), carpal, and metatarsophalangeal joints.
- **Open surgical intervention** is recommended for severe or chronic elbow luxations, as well as for the coxofemoral, stifle, and tarsal joints. Techniques such as arthroplasty, femoral head osteotomy, internal fixation, and external fixation have all been employed.
- **Hinged Linear External Fixators (HLESF)** are particularly useful for elbow and femorotibial joints, as they allow for early physiotherapy while maintaining stability.
- **Hip luxations** can be managed with a modified Ehmer-Sling bandage, or with more advanced techniques like a transfixation pin or toggle pin for persistent laxity.
- **Stifle or Intertarsal luxations** in larger birds may require surgical ligament repair due to concomitant ligament damage.

Pain management is paramount throughout the treatment process. **Analgesics** such as opioids (e.g., buprenorphine, butorphanol) and NSAIDs (e.g., meloxicam, carprofen) can be used, often in combination for multimodal analgesia. **Antibiotics** are indicated peri-operatively and for the duration of external fixation, with selection guided by culture and sensitivity testing. **Antifungals** may also be considered prophylactically for at-risk species.

Follow-up care is essential to monitor recovery and prevent complications.

- **Bandage changes:** Recommended weekly for luxations managed with external coaptation.
- **Physiotherapy:** The bird's range of motion (ROM) should be monitored with a goniometer during physiotherapy. Multiple methods could be combined such as passive ROM exercises, laser, acupuncture, assisted ROM exercises
- **Activity:** Gradual increase in activity and **flight testing** is critical to assess and regain function especially in wildlife casualties that the ultimate aim is the release to wilderness.
- **Prognosis:** The prognosis is highly variable. If a return to full function is not required, the outcome is often good. However, for free-living birds requiring full flight, the prognosis is guarded to poor, especially if treatment is delayed.

Clients must be educated to be prepared to allocate time for postoperative physiotherapy. Potential complications include **decreased range of motion**, which is often reversible, and the development of **degenerative joint disease** or **osteoarthritis**, which may require long-term palliative management. Clients should also be counseled on modifying the bird's housing if it is unable to fly permanently.

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