

# Wound Management and Occupational Therapy Considerations in Wildlife

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# Initial Wound Care

Safely capture animal and start your “triage” (based on triage it may not be a wound that will be treatable for wildlife or may be a wound that won’t allow for release or treatment)

Cover wound to control bleeding and prevent further contamination until full treatment can be done

Is immobilization needed? Is it possible based on location?

Remember how a bird breathes vs mammals...



# Wound Management Basics

Clean wound ASAP - dilute chlorhexidine, betadine, or just irrigation with fluids

Consultation with DVM is ideal to help determine what is safe for the patient and location of the wound

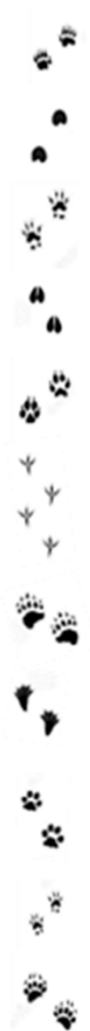
Chemical Restraint - esp. With a pain management component is ideal

Reduces stress on patients and makes overall treatment faster

Cortisol (stress hormone) response can be deadly for some species

Remove as much foreign material as we can and debride damaged tissues

The initial debridement is likely done by a veterinarian as there can be a fine balance to ensure that it isn't too much or too little

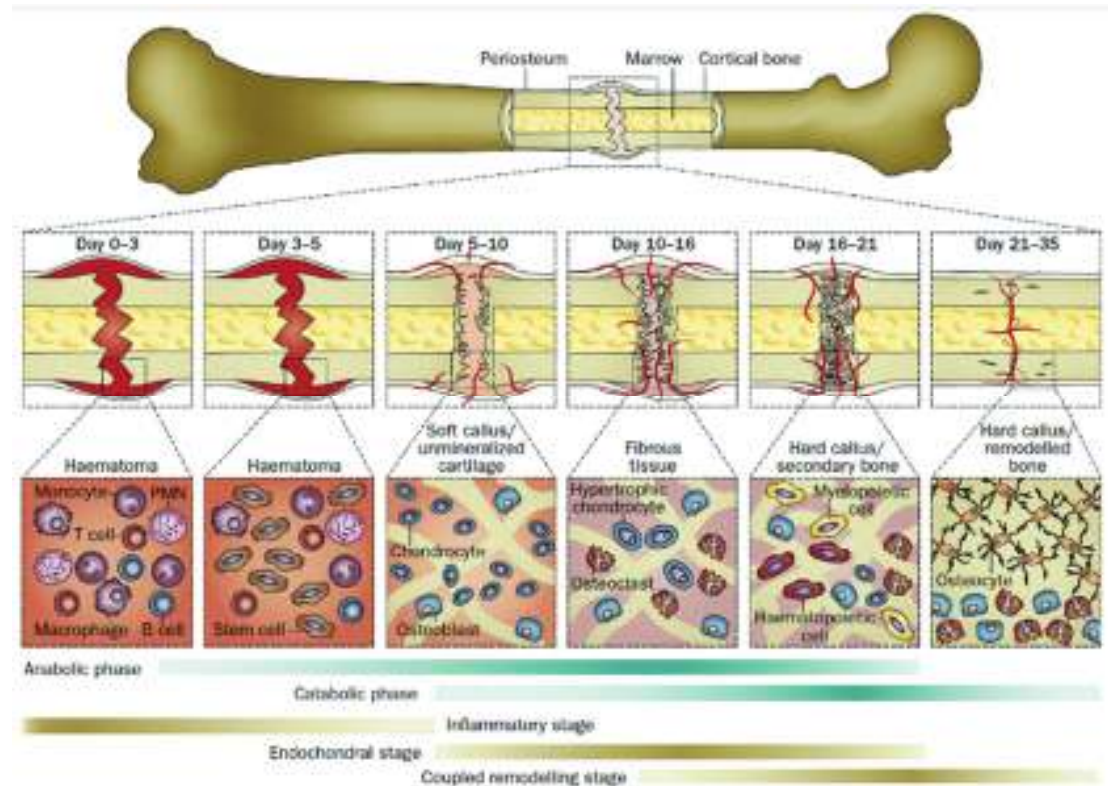


# Time Is KEY

Do NOT wait to see how the patient is doing for a few days before making the commitment to care for the wounds, contact the animal care team early in the injury process

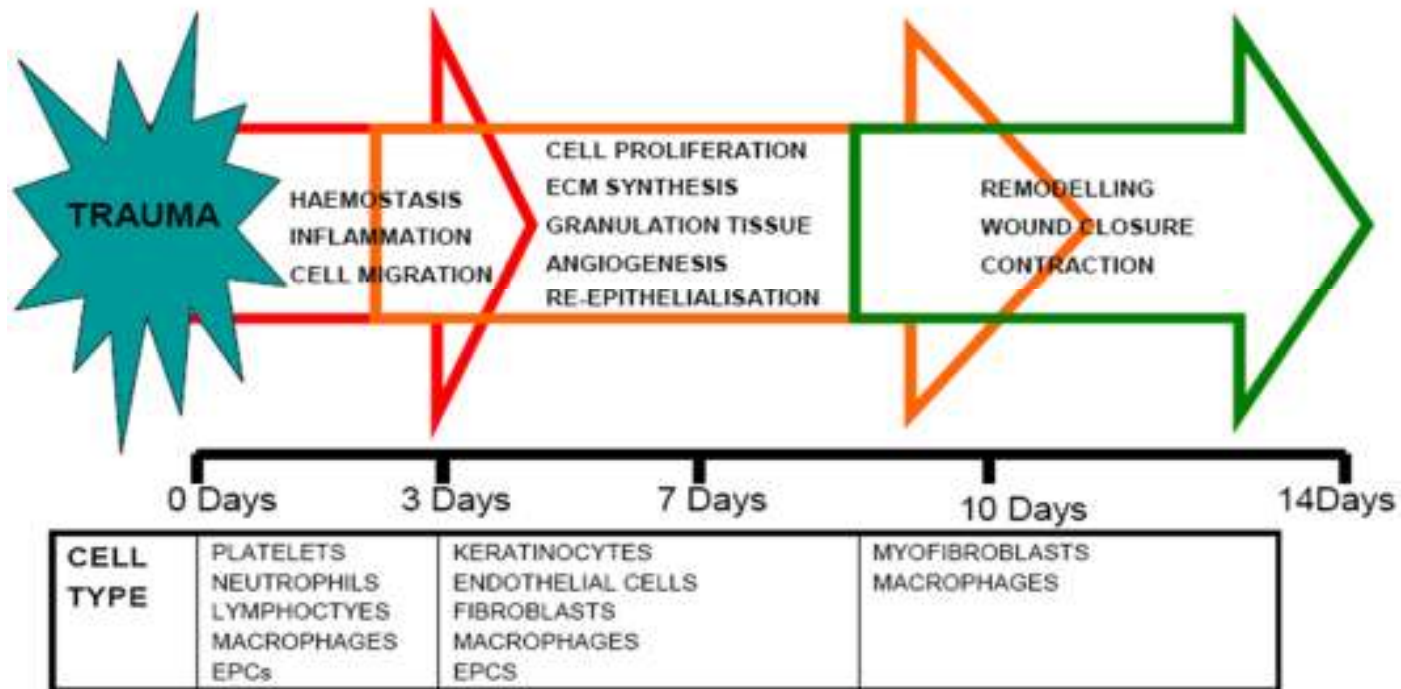
The body has a great way of managing healing processes but we need to be efficient in providing care

If we are not efficient in how we manage wounds we can miss very important windows of opportunity for healing to have most success



# Timing of Wound Healing

## Stages of Normal Cutaneous Wound Healing



# Wound Closure Options

## 1. Primary / First Intention

- a. Closure of fresh, clean wounds that are typically less than 4-6 hours old
  - i. Often we see these animals well after this window so this is rarely the path chosen
- b. Ex. Closure of a surgical procedure

## 2. Secondary / Second Intention / Spontaneous-Intention

- a. Closure occurs as the body creates granulation tissue and natural contraction of the wound occurs
- b. Ex. highly contaminated wounds

## 3. Tertiary / Third Intention

- a. Surgical closure after a time period of second intention healing has occurred when the wound has shown that it will continue to heal with vital tissues
- b. Ex. contaminated wounds that have been sufficiently debrided and cleaned
- c. Timing depends on wound location, contamination, and contraction of tissues



# Bandaging Basics

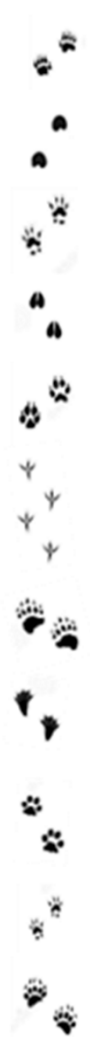
Wet to dry, wet to wet, and other types of specialty bandages should ALWAYS be done by a medical professional! Done incorrectly will result in damage to the tissues and potentially euthanasia for the animal.

Ointments, creams, and other healing aids may be used but should be selected by the DVM overseeing the patient and may only be able to be used for a short time (honey, steroids, antibiotics, etc.).

Recommended frequency of changes should be followed and the bandage should be monitored closely.

Consider medical management to help healing (systemic medications, topical treatments, therapeutic laser, etc.).

Wound dressings should eliminate dead space, control exudate, prevent bacterial overgrowth, maintain tissue integrity, be financially sustainable long term, and be manageable by the care staff and for the patient to undergo necessary monitoring and changes.



# Bandage Layers and Materials

## Primary Layer

The layer in contact with the patient/wound.

Ex. Ointments, creams, etc., Telfa/non stick pads vs Gauze

## Secondary Layer

Padding and absorbent materials, help to stabilize and give support (remember in the case of broken bones you must stabilize the joint above and below a fracture! DO NOT CREATE A FULCRUM POINT)

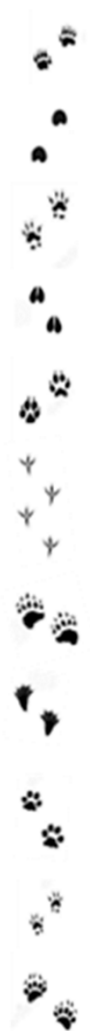
Ex. roll cotton, cast padding, etc.

## Tertiary Layer

Breathable yet somewhat water/moisture resistant

Ex. Vetwrap, tape, etc.

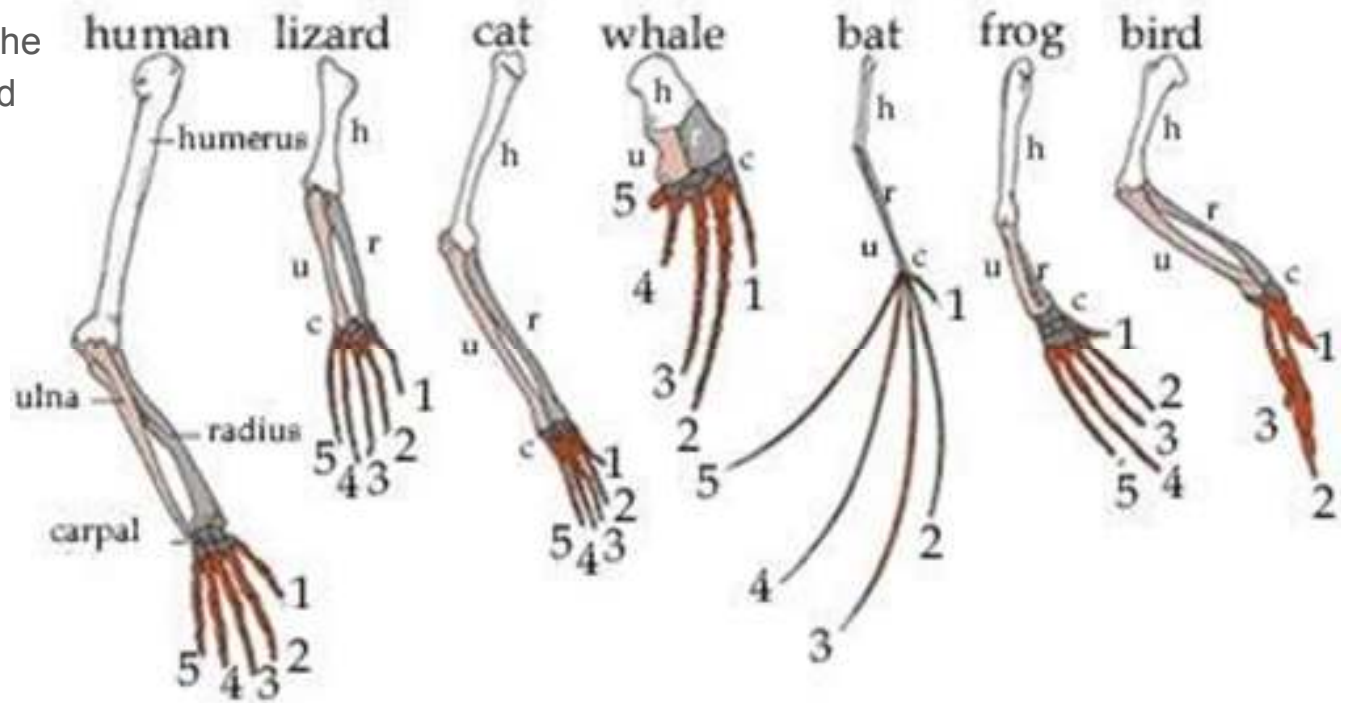
**Remember:** Where the bandage is being placed on the patient's body and the purpose of the bandage may impact the options you have.





# Comparative Anatomy

In the case of a fracture the joint proximal (above) and distal (below) must be stabilized to prevent additional injury



# Bandage Application

## Limbs

Stirrups will help prevent slipping of the bandage

Always start at the most distal point with each layer

Bandages should go all the way to the end of the limb

Layers of the bandage material should overlap 40-50% and should not contain wrinkles

Creation of a natural bend is ideal if the location of the wound allows for it



# Bandage Application

## Body

Remember how a patient breathes (birds vs mammals)

Keep in mind the body shape and use a little bit of ingenuity if the bandage may slip, tape may not always be an option

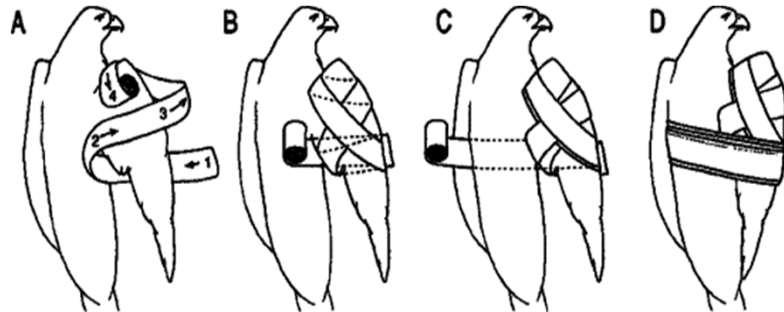


# Examples of Common Bandage Techniques

## Figure 8 Wing Wrap

Uses: Stabilize wing injury or fracture

Cautions: wrapping chest tightly will result in suffocation of the bird



## Modified Robert Jones Bandage +/- Splint

Uses: stabilize injured bones or joints in lower extremities or in some cases wound management of a wound with large amounts of exudate

Cautions: MUST be aware of location of injury as the bandage can get heavy



# Follow-up and Monitoring

Knowing frequency of changes will depend on the wound and healing phases/processes

Monitoring for moisture under the bandage, pressure related issues and necrosis, festering wounds, and that the bandage is appropriately supporting structures is important

During changes allowing time for Physical Therapy is important, bandages can cause joints to become stiff and less mobile impacting releasability of the animal

Some wounds can go from fixable to requiring euthanasia of the patient when not done properly, monitoring closely is very important



# Bandage Complications



Necrosis of the Tissues  
Pressure  
Wound



Sores and Additional Injury



Edema and Swelling



# Physical vs Occupational Therapy

## Physical Therapy

Helps to prevent long term pain and discomfort through use and exercise

Helps to gain full range of motion - Active, Assisted, and Passive Range of Motion Exercises

Helps to gain ability to perform everyday activities



## Occupational Therapy

Improves motor skills for daily functions - lets get those animals back to work in the environment!

Minimize handling, often done in conjunction with environmental enrichment, GET CREATIVE



# Case Study: Bella the Tundra Swan

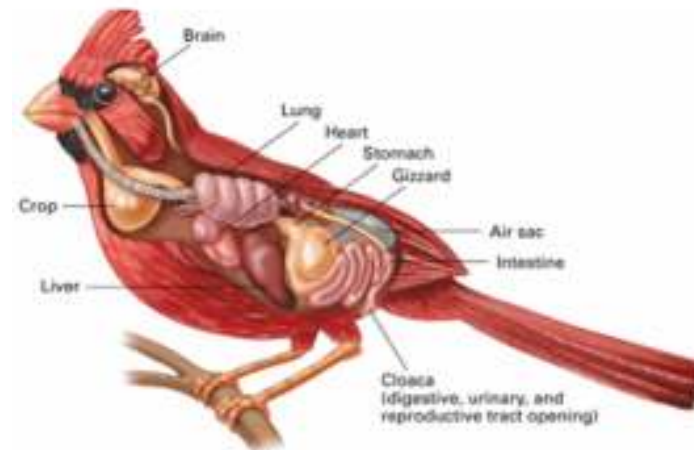
9/27/2018 - Injury to the skin and tissues under the left wing, unknown cause though known to happen in an outdoor environment. Initial bandage placed and Bella was transferred to the clinic for further care.

Wound was noted to have a foul odor which improved over the next few bandage changes

Wound was lavaged and debridement performed under general anesthesia - CAUTION OF PLEURAL SPACE COMMUNICATION

DVM debrided injured tissues that were clearly devitalized by trauma and the wound was packed with a honey dressing

A bandage was placed to hold the dressings in place and keep the wound clean and moist - Caution was used when wrapping the chest and Bella was watched carefully post application for difficulty breathing





# Bella's Post-op Plan

Manage infection, inflammation, and pain

Bandage changes 2-4 times weekly for the first 8 weeks to assess wound and apply medications topically (various topical treatments done based on wound healing stages)

Therapeutic laser treatments done as tolerated during bandage changes

Ongoing debridement done as necessary during healing - wound was never able to be surgically closed

Manage dehydration caused by the diarrhea (SE from antibiotics that were necessary to manage infection)

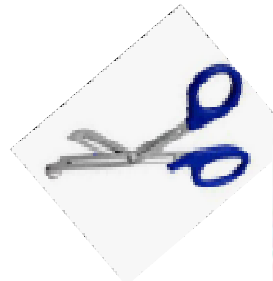
As of 1/22/2019 wound was 100% healed and Bella was back with her friends



# Bandage Kit Suggestions

- Gloves
- Sterile Saline
- Chlorhexidine or Betadine\*
- Ointments and creams\*
- Non-stick pads
- Gauze squares
- Tongue Depressors
- Bandaging Tape
- Roll Gauze
- Cast Padding or Roll Cotton
- Vet Wrap
- Elastic Bandage Tape
- BANDAGE Scissors
- Tegaderm

- Additional items based on treatment options approved by your site DVM
  - Sterile lube gel
  - Clippers
  - Suture material
  - Sterile syringes for flushing
  - Additional bags or bottles of sterile saline or sterile water



\* Selected based on species you are working with

Thank You!



## Additional Helpful Site

<http://www.worldwidewounds.com/2003/november/Cousquer/Avian-Wound-Management-Part-2.html>