

Simple and Complex Fracture Repair

Most fractures (broken bones) in dogs and cats require surgery, although a few types of fractures may be candidates for treatment with a cast or splint. Generally, casts and splints are not adequate because of the shape of animals legs, the difficulty of immobilizing both the joint above and the joint below the fractured bone, the high incidence of sores under casts, patient compliance, and trouble restricting activity after cast placement. Fracture reduction and stabilization is one area where the experience of a Board Certified surgeon counts.

At Veterinary Specialty Center the surgeons have several different techniques to stabilize fractures. Many factors, such as the type and location of the fracture, the patient's age, size and expected activity level, and the presence of any other injuries, are considered before choosing the appropriate fixation technique. You can be sure that the surgeons at VSC will recommend the best type of stabilization for your pets particular fracture.

Pins and Wires

Fractures that are stabilized with pins and wires are generally in younger animals (who will heal quickly) who have simple fractures (only 2 or 3 fragments, where the bone column can be reconstructed without any defects). We also use pins in fractures which involve the growth plate (at the ends of the bones).

Frequently a pin stabilization is augmented with a device called an external fixator. With an external fixator, there are pins that exit the skin and are connected to an external bar for additional support.

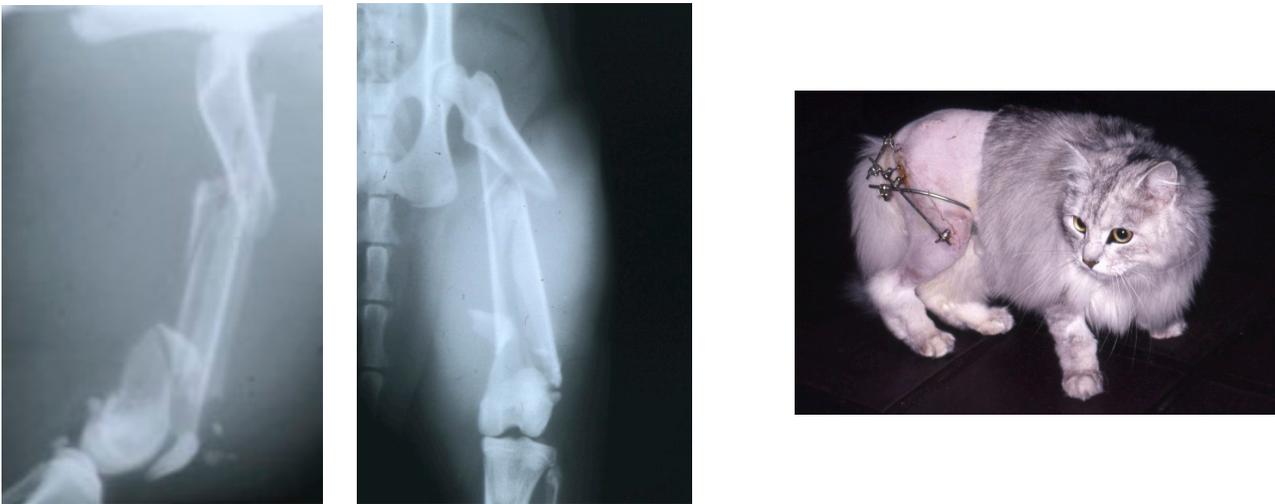


Far left: This miniature pinscher puppy ("Sweetie") was hit by a car and both hind limbs were fractured (the femurs). The fracture at the hip (top left) was stabilized with a screw and small pin, and the growth plate fractures (bottom left and right) were stabilized with pins. (left). "Sweetie" made a full recovery (pictured below post-operatively)

External Fixators

External fixators may be used alone or in combination with a pin. They are a good choice for highly comminuted fractures (many pieces) and for fractures of the distal limb (especially tibial fractures in the hindlimb). One advantage of external fixators is that they can often be applied without making a large incision, and this helps accelerate healing. In addition, once the fracture has healed all the pins are removed and the pet no longer has any metal implants in them (safe to go through the airport x-ray again!).

Below: Eric, a chinchilla cat, fractured his right femur while outside one day. The fracture was extremely comminuted, but was successfully stabilized with an IM pin and an external fixator. Eric returned to normal activity after the bone was healed and the fixator removed.

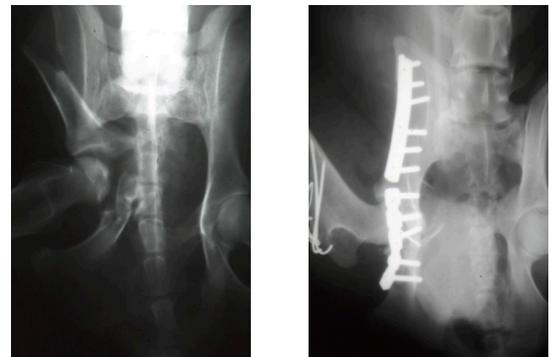


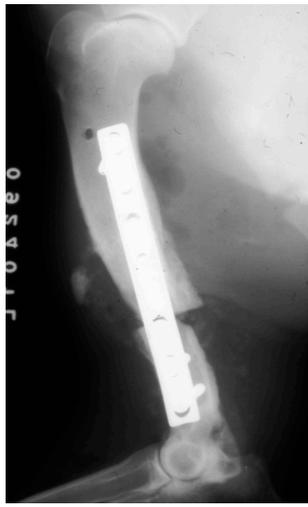
Bone Plates

Bone plates are commonly used for fractures of the long bones (femur and tibia in the hindlimb, and the humerus and radius in the forelimb). Pelvic fractures are almost exclusively stabilized with bone plates. Radius and ulna fractures are another example of breaks where the ideal fixation is with a bone plate, especially in toy breeds.

The advantage of bone plates is that they are good if there is comminution (many fragments) and there are no external pins or bars. At VSC we have a large selection of plate sizes, from Chihuahua to mastiff size!

Pelvic fractures (acetabulum and ilial shaft) in a large dog that have been reduced and stabilized with 2 bone plates.





“Blackie” a young black Labrador was found wandering in the woods, with a fractured humerus of unknown duration (far left). The fracture was reduced and stabilized with a bone plate and screws (left) and “Blackie” went on to have normal use of the leg.



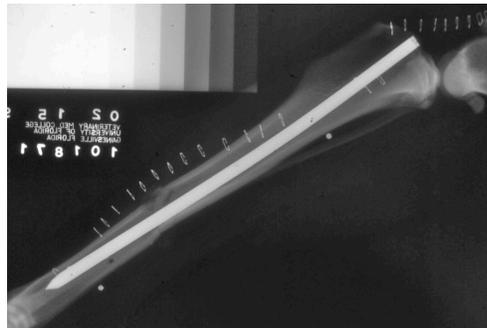
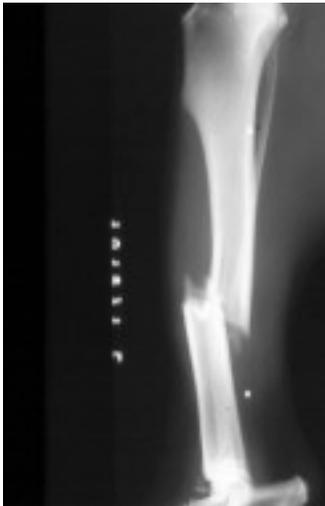
Xray of a cat with a comminuted femur fracture, that has been reduced and stabilized with a bone plate, screws and cerclage wires.

Screws

There are some special situation fractures where screws are used to stabilize the fracture. Most commonly, these are fracture-luxations of the sacroiliac joint (the connection of the pelvis to the spine), fractures of the humeral condyle (in the elbow), or fractures of the femoral neck. Usually a small pin is used in conjunction with the screw to provide added stability.

Interlocking Nails

An interlocking nail is a steel rod that sits inside the broken bone that has screws which go through both the bone and the rod. This type of fixation can be used in the humerus, tibia and femur. At VSC we have 3 sizes of interlocking nails to fit pets ranging in size from a cat or small dog to a Great Dane!



A tibial fracture that has been reduced and stabilized with an interlocking nail