



Metacarpal & Metatarsal Fractures in Dogs and Cats

Quick take

These “paw long bones” commonly break after falls, getting a limb caught, or car/door injuries. Many uncomplicated cracks can heal well in a splint, but surgery is advised when the fracture is unstable (several bones broken, big displacement, open wound, joint involvement, or when both front or both hind paws are injured). When surgery is chosen, repairs are typically done through tiny incisions with pins and wires, mini-plates/screws, or external fixators. With good technique and aftercare, most pets return to comfortable walking; published complication rates are generally low–moderate and differ by method and case complexity.

1) What’s actually broken—and why it matters

- Each front paw has four main metacarpal weight-bearing bones (III–IV most important), and each back paw has metatarsals. Fractures can be single-bone (often stable) or multi-bone (often unstable).
- Breaks near a joint (the “base” at the carpus/tarsus or the “head” near the toes) or open/contaminated wounds need more aggressive care to protect alignment, blood supply, and joint cartilage.
- In dogs and cats, metacarpal/metatarsal injuries account for a meaningful slice of all fractures (owner-facing reviews quote ~3–8% depending on species and series).

What owners notice: sudden non-weight-bearing or toe-touching lameness, paw swelling, and pain; sometimes multiple tiny wounds if the skin was punctured. X-rays (and occasionally CT) confirm which bones are broken and how unstable they are.

2) Treatment overview: splint vs. surgery

A. External coaptation (splints/casts) — when it’s reasonable

Best for single or non-displaced fractures, and some two-bone injuries where alignment is acceptable and owners can manage bandage care.

Pros: avoids an incision/implants; many heal in 4–6 weeks (cats) or 6–8+ weeks (dogs).

Cons: higher risk of skin sores, bandage failure, and malunion if alignment shifts; requires frequent bandage checks and strict activity control. Reviews stress that coaptation is useful but easily misused, and complications rise with poor fit or inadequate monitoring.

How good are outcomes with splints?

A large retrospective of 100 dogs found similar long-term lameness rates whether fractures were managed conservatively or surgically; however, **malunion (healed but crooked) showed up radiographically in ~14%**, mainly in single-bone fractures treated conservatively. Overall **complications in that paper were ~16% with conservative care and ~12% with surgery.**

Bottom line: many simple fractures do well in splints if you can commit to meticulous bandage care and rechecks. However, when conservative management fails, then things become then very complicated.



B. Surgery — when it's preferred (and why)

Most surgeons advise surgery when ≥ 2 bones are fractured, there's notable displacement, open/contaminated wounds exist, the joint surface is involved, or when both forelimbs (or both hind limbs) are injured (the pet can't compensate), or when very large/active dogs need faster, stronger stability. Compared with closed methods, open stabilization (seeing the bone to reduce and fix it) tends to give better alignment, healing, and lower complications in comparative analyses—though case selection and surgeon experience matter.

3) Surgical options (what they are, what to expect)

a) Percutaneous pins & wires (K-wires, cross-pins; sometimes IM “dowel” pins)

What's done: one or more narrow pins are placed through tiny incisions to hold fragments; often combined with a light splint for 2–4 weeks.

When used: mid-shaft fractures without joint involvement; cats and small dogs especially.

Pros/cons: minimal soft-tissue trauma and cost-effective; risks include pin migration, need for removal, or not enough rotational control in very unstable patterns. Small feline series report good function, but numbers are limited.

b) Mini-plates and screws (including locking plates)

What's done: a slim plate is contoured to the bone and fixed with tiny screws; gives immediate rigid stability.

When used: multi-bone fractures, oblique/spiral fractures, or articular/base fractures needing precise anatomic reduction.

Pros/cons: strongest fixation and best at maintaining length/rotation; requires a small open approach and specialized kit. Owner resources and surgical series describe reliable union and quick return to function when alignment is restored.

c) External skeletal fixation (ESF)—pins through the skin connected by bars/acrylic

What's done: smooth or threaded pins traverse bone segments and are linked externally by rods or acrylic (sometimes a “tie-in” with an intramedullary pin).

When used: open/contaminated wounds, comminuted fractures, or when you want stability with minimal implants at the fracture site.

Pros/cons: adjustable and friendly to compromised soft tissue; needs careful at-home pin-site care. Studies across species note pin-tract irritation/infection as the most common issue; cats can be less tolerant of ESF than dogs.

Which is “best”?

It depends on your pet's fracture pattern, size, skin condition, activity level, and your ability to manage aftercare. Recent comparative work suggests open internal fixation often yields better alignment and fewer complications overall, but excellent outcomes are also reported with well-selected splint cases—and with ESF when soft tissues are a concern. Your surgeon will walk you through why a particular method fits your case.

4) Recovery & rehab (what it's like at home)

- **Activity restriction:** leash-only walks to potty; no running/jumping for typically 6–8 weeks (dogs) and 6+ weeks (cats), adjusted de healing.
- **Bandage/pin care:** if a splint or ESF is used, expect scheduled rechecks and clear instructions for keeping things clean and dry; small problems (rub sores, damp padding) can rapidly become big problems if not addressed early.
- **Pain control:** modern multimodal pain meds; many pets are comfortable quickly once stabilized.



- **Rechecks:** X-rays at ~2–4 and 6–8 weeks guide return to freer activity.
- **Implant removal:** pins are often removed after healing; plates/screws usually stay in unless they bother the pet.

5) Complications: what can happen and how often

Rates vary with case complexity, technique, and aftercare. Here are owner-relevant numbers from peer-reviewed veterinary sources.

All comers (dogs; mixed management)

In a 100-dog long-term study, overall complications were ~16% for conservative cases and ~12% for surgical cases; radiographic malunion was ~14%, mostly in single-bone fractures that were splinted. Long-term clinical lameness was only ~3% across the cohort. (That's encouraging!)

External coaptation (splints/casts)

Most issues are bandage-related: skin sores, swelling, moisture damage, or loss of reduction. Reviews emphasize that coaptation is both widely used and widely abused, and complications rise without meticulous application and monitoring. (Exact percentages vary by clinic and compliance.)

Open stabilization (pins/plates)

A comparative 2022 analysis of metacarpal/metatarsal fractures reported better alignment, healing, and a lower complication rate with open versus closed stabilization—supporting plate/screw or open pin constructs when stability and alignment matter.

External skeletal fixation (ESF)

Pin-tract irritation/infection is the signature risk; diligent cleaning and timely rechecks keep most issues minor. ESF with acrylic “reinforced” frames is well-described; cats may be less tolerant of frames than dogs.

Cats (what we know)

Evidence is thinner than in dogs. Case experiences (including small feline cohorts) show good outcomes with pins, mini-plates, or ESF when chosen appropriately; cats as a group tend to heal fast, but they can be particular about bandages and external frames.

6) How surgeons decide?

- **How many bones and how displaced?**

Single, minimally displaced → often splint if owners can manage bandage care.
≥2 bones, marked displacement, or both limbs → surgery favored.

- **Is a joint involved or the wound open?**

Articular/base/head fractures or open/contaminated injuries → surgery to restore anatomy and protect soft tissue. □

- **Owner/lifestyle factors:**

Very active or heavy dogs, working/sporting plans, or limited ability to do bandage checks push the decision toward internal fixation (stronger, fewer bandage worries).



7) Prognosis

- **Short term:** with appropriate treatment, most pets are weight-bearing within days and steadily improve over 4–8 weeks.
- **Long term:** studies report very low persistent lameness (~3%) across cohorts when fractures heal in good alignment. **Malunion risk is higher with single-bone fractures treated in splints**—Malunion will then lead to a much more challenging management and may make you regret .

8) Owner checklist: set your pet up for success

- Keep bandages pristine (plastic cover outside only for potty breaks; remove right after). Report any slip, smell, swelling, or wetness immediately.
- Leash-only until cleared; use non-slick floors and an Elizabethan collar to prevent chewing.
- Nutrition & weight: don't over-feed a rested pet; extra pounds stress healing bones.
- Ask your surgeon:
 - Why this method (splint vs pins/plate/ESF) for my pet's fracture? If the answer is that he does not have a proper size of plate or the expertise, perhaps you can get a second opinion.
 - What are your service's complication and healing rates for this procedure?
- Exactly how often should we recheck the bandage or pin sites?

9) Selected references

- Kornmayer M. et al. (2014) Long-term prognosis of metacarpal and metatarsal fractures in dogs—100-dog series; complications ~16% conservative vs ~12% surgical; ~14% malunion mainly in single-bone conservative cases; persistent lameness ~3% overall
- Rosselló G.C. et al. (2022) Open vs closed stabilization of metacarpal/metatarsal fractures—open techniques showed better alignment/healing and lower complication rates overall.
- dvm360 Surgery STAT (2009)—practical overview comparing conservative vs surgical management; highlights that outcomes can be similar in carefully selected splint cases (faster radiographic healing in some conservative cohorts).
- Today's Veterinary Practice (2020)—how to do coaptation right and why selection/monitoring matter to avoid sores and loss of reduction.
- Harasen G. (2012) Pros/cons of external coaptation—common pitfalls and complications with casts/bandages; importance of vigilant care.
- JAVMA (2021) reinforced acrylic ESF experience—context on ESF use/complications and species tolerance (cats < dogs).
- Owner pages (plain-English): ACVS fractured limbs overview; specialty hospital guides on metacarpal fractures and treatment choices.



Bottom line

Most metacarpal/metatarsal fractures heal very well. The art is choosing splint vs surgery based on stability, number of bones broken, displacement, joint involvement, soft-tissue status, and your ability to manage aftercare. When surgery makes sense, modern pins/plates or ESF usually deliver dependable healing; published data in dogs show low persistent lameness and modest complication rates when cases are matched to the right method and rechecks are diligent. If you're unsure which way to go, ask your vet to show you the X-rays, explain the stability of the break(s), and review the pros/cons of the recommended method for your pet, or simply seek advice of a specialist.