

| <b>Studies Pertaining to Feline Declawing</b>                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                |
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| <b>Published from 1952 to 2026</b>                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                |
| <b>Compiled by Jean Hofve, DVM – July 3, 2026</b>                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                |
| <b>Study Citation</b>                                                                                                                                                                           | <b>Description of Study, Sample and Major Findings</b>                                                                                                                                                                                                                                                                                                                             | <b>Comments</b>                                                                                                                                                                                                                                |
| Ansah OB, Vainio O, Hellsten C, et al.<br>Postoperative pain control in cats: Clinical trials with medetomidine and butorphanol. Vet Surg 2002;31:99-103.                                       | Study of medetomidine or butorphanol for post-OHE pain.                                                                                                                                                                                                                                                                                                                            | Butorphanol and medetomidine provided equivalent pain relief for the study period (2 hours).                                                                                                                                                   |
| Bennett M, Houpt KA, Erb HN. Effects of declawing on feline behavior. Companion Animal Practice. 1988;2:7-12.                                                                                   | Retrospective owner survey comparing 25 declawed cats with 25 clawed controls from 1987 records. Main owner reason for declawing was furniture damage. Four of 25 declawed cats (16%) reportedly developed behavior problems after declawing: 3 biting and 1 house-soiling. Declawed cats were represented more often than clawed cats among cats presented for behavior problems. | Small, old, survey-based study, but it is historically important because even this early paper did not support the 'no behavioral downside' story. The control design is weak by modern standards; use it as a signal, not the whole argument. |
| Benson GJ, Wheaton LG, Thurmon JC, et al.<br>Postoperative catecholamine response to onychectomy in isoflurane-anesthetized cats. Effect of analgesics. Veterinary Surgery. 1991;20(3):222-225. | Randomized experiment. 24 cats were randomized to either no surgery, or onychectomy with intravenous morphine, xylazine, or salicylate. Onychectomy was associated with increased postoperative plasma catecholamines that were decreased by morphine and xylazine but not saline.                                                                                                 | Catecholamine levels increase due to pain, morphine and xylazine appear to mitigate pain. The conclusion was that pain is very hard to detect and quantify in cats, and that pain in animals is frequently treated inadequately.               |

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| <p>Borchelt PL, Voith VL. Aggressive behavior in cats. Compend Contin Educ Pract Vet. 1987;9:49-57.</p>                                                                                                                                                   | <p>Retrospective survey of 887 cat owners from private practices. Clients were asked to fill out a survey on the incidence of aggressive behaviors in their cats. Similar proportions (60/252, 23.8%) of declawed (168/613, 27.4%) vs. intact cats bit family members; 2.3% of each seriously enough for medical attention; Cats may avoid the litterbox if it is paired with an aversive event even only one or a few times.</p>                                                                                                                  | <p>41% of cats in the study population were declawed. Biting behaviors occurred at similar rates in sexually intact clawed cats (known to be more aggressive than neutered cats) and declawed cats; Pain following declaw is an aversive event and may become associated with the litterbox, thus resulting in avoidance.</p> |
| <p>Brondani JT, Luna SP, Padovani CR. Refinement and initial validation of a multidimensional composite scale for use in assessing acute postoperative pain in cats. Am J Vet Res. 2011 Feb;72(2):174-83. doi: 10.2460/ajvr.72.2.174. PMID: 21281191.</p> | <p>A composite pain scale was previously developed to assess postoperative pain in cats that received a placebo or an analgesic (tramadol, vedaprofen, or tramadol-vedaprofen combination) for post-op pain after OHE. In the present study, the scale was refined via item analysis (distribution frequency and occurrence), a nonparametric ANOVA, and item-to-total score correlation. Construct validity was assessed via factor analysis and known-groups discrimination, and reliability was measured by assessing internal consistency.</p> | <p>Decent attempt at using behavior and physiologic measurements to assess post-op pain in cats after OHE.</p>                                                                                                                                                                                                                |
| <p>Cambridge AJ, Tobias KM, Newberry RC et al. Subjective and objective measurements of postoperative pain in cats. Journal of the American Veterinary Medical Association. 2000;217:685-690.</p>                                                         | <p>Randomized controlled trial in a teaching hospital. Temperature, pulse, respiration, pain, plasma <math>\beta</math>-endorphins, and cortisol were assessed in six cats admitted for elective onychectomy, six for elective tendonectomy and compared with six bandaged, non-surgical controls. Only visual analogue scores for pain and response to palpation scores differed significantly between control and surgical groups.</p>                                                                                                           | <p>Only half of cats being declawed received any pain medication. Physiologic measurements were not useful. There was no perceptible difference in pain between declawed and tenectomized cats. The conclusion was that pain is very hard to detect and quantify in cats.</p>                                                 |

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| <p>Carroll GL, Howe LB, Slater MR, Haughn L, Martinez EA, Hartsfield SM, Matthews NS. Evaluation of analgesia provided by postoperative administration of butorphanol to cats undergoing onychectomy. J Am Vet Med Assoc. 1998 Jul 15;213(2):246-250. doi: 10.2460/javma.1998.213.02.246. PMID: 9676597.</p> | <p>Randomized controlled trial of 63 cats undergoing elective onychectomy: 21 onychectomy alone, 21 onychectomy + castration, and 21 onychectomy + ovariohysterectomy. Treatment cats received butorphanol parenterally immediately and 4 hours after surgery, then orally for 2 days; controls did not. Butorphanol improved recovery, analgesia, lameness, appetite/personality outcomes and discharge lameness, while TPR did not distinguish pain reliably.</p> | <p>The title could be 'better than nothing is not the same as adequate.' It documents that untreated declaw pain was clinically apparent and that routine physiologic measures were poor pain indicators. Butorphanol helped, yet the study still only follows the first 72 hours.</p> |
| <p>Carroll GL, Simonson SM, Hartsfield SM, et al. (2005). Analgesic efficacy of preoperative administration of meloxicam or butorphanol in onychectomized cats. Journal of the American Veterinary Medical Association, 226(6):913–919.</p>                                                                  | <p>Meloxicam and butorphanol were compared in 78 cats undergoing onychectomy and 60 being neutered and declawed.</p>                                                                                                                                                                                                                                                                                                                                                | <p>Meloxicam-treated cats were much less painful. Recommended that meloxicam be given 1.5 hours ahead of surgery in order to be effective at extubation.</p>                                                                                                                           |
| <p>Clancy EA, Moore AS, Bertone ER. Evaluation of cat and owner characteristics and their relationships to outdoor access of owned cats. J Am Vet Med Assoc. 2003 Jun 1;222(11):1541-1545. doi: 10.2460/javma.2003.222.1541. PMID: 12784959.</p>                                                             | <p>Cross-sectional study of 184 owned cats admitted to a veterinary referral center for nonemergency health concerns. Cats acquired recently and cats acquired from shelters were less likely to be allowed outdoors. Presence of dogs increased outdoor access. Age, health status and onychectomy status were not significantly associated with outdoor access; cats allowed outside were more likely to have been bitten by other cats.</p>                      | <p>Useful rebuttal to the claim that declawed cats are reliably protected indoors. In this sample, declawed status did not significantly change outdoor access decisions, so loss of claws may leave cats with the same outdoor risks but fewer defenses.</p>                          |

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| Clark K, Bailey T, Rist P, Matthews A. Comparison of 3 methods of onychectomy. Can Vet J. 2014 Mar;55(3):255-262. PMID: 24587509; PMCID: PMC3923482.                                                                 | Eighty-seven client-owned cats from 27 veterinary clinics were examined at least 1 year after forelimb onychectomy by laser, scalpel or guillotine technique. Claw regrowth frequency did not differ significantly among methods, but bony remnants were significantly more common after guillotine onychectomy and were significantly associated with claw regrowth. Laser had fewer reported postoperative complications, but long-term outcomes were not significantly different among the 3 methods. | The clean line: technique matters, but better technique does not make the surgery benign. Guillotine is especially problematic because retained P3 fragments are common and tied to regrowth.                                                              |
| Cloutier S, Newberry RC, Cambridge AJ, Tobias KM. Behavioural signs of postoperative pain in cats following onychectomy or tenectomy surgery. Journal of the American Animal Hospital Association. 2005;41(2):69–75. | Cats from all treatments showed higher levels of forepaw wiping, forepaw shaking and lying on their side after, than before, surgery. In cats treated pre- and post-operatively with analgesics, we found no evidence to support the view that tenectomy is less painful than onychectomy.                                                                                                                                                                                                               | Small sample size and use of pre-operative analgesics probably minimized cats' expression of pain, but both groups of treated cats (declawed and tendonectomized) were more painful than control cats. Improperly applied bandages may contribute to pain. |
| Cooper MA, Laverty PH, Soiderer EE. Bilateral flexor tendon contracture following onychectomy in 2 cats. Can Vet J. 2005 Mar;46(3):244-6. PMID: 15884646; PMCID: PMC1082868.                                         | Two cats presented with bilateral flexor tendon contracture following onychectomy. This previously unreported complication proved to be painful and debilitating. Deep digital flexor tenectomy successfully resolved the problem. Twelve months after surgery, the first cat remains free of complications. The second cat recovered full limb function, but died of unrelated causes.                                                                                                                  | ** First published report of tendon contracture after declaw (at 3 and 6 months post-op), although authors suggest that prior cases may have been categorized in earlier studies as "lameness."                                                            |

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| Cozzi A, Lecuelle CL, Monneret P, et al. Induction of scratching behaviour in cats: efficacy of synthetic feline interdigital semiochemical. Journal of Feline Medicine and Surgery. 2013;15:872-878.                                                                                   |                                                                                                                                                                                                                                                                                                                                            | Some scent is still left by what's left of the paws, so marking behavior is still getting some reward, and cats will continue to do it, declawed or not. |
| Curcio K, Bidwell LA, Bohart GV, et al. Evaluation of signs of postoperative pain and complications after forelimb onychectomy in cats receiving buprenorphine alone or with bupivacaine administered as a four-point regional nerve block. J Am Vet Med Assoc. 2006 Jan 1;228(1):65-8. | To evaluate signs of postoperative pain and complications after forelimb onychectomy in cats receiving buprenorphine alone or with bupivacaine administered as a 4-point regional nerve block.                                                                                                                                             | Bupivacaine nerve blocks did not decrease discomfort or complication scores in cats undergoing forelimb onychectomy.                                     |
| Dobbins S, Brown NO, Shofer FS. Comparison of the effects of buprenorphine, oxymorphone hydrochloride, and ketoprofen for postoperative analgesia after onychectomy or sterilization in cats. J Am Anim Hosp Assoc. 2002 Nov-Dec;38(6):507-14.                                          | Compared buprenorphine, carprofen, oxymorphone and ketoprofen in 68 cats: 20 onychectomy alone; 20 onychectomy and neuter; 28 onychectomy and spay. Buprenorphine demonstrated the highest efficacy with the lowest cumulative pain scores and serum cortisol levels.                                                                      | Buprenorphine had the best efficacy.                                                                                                                     |
| Ellis A, van Haaften K, Protopopova A, et al. Effect of a provincial feline onychectomy ban on cat intake and euthanasia in a British Columbia animal shelter system. J Feline Med Surg. 2022 Aug;24(8):739-744.                                                                        | This peer-reviewed study analyzed 6 years of data (including over 74,000 cats) to investigate the impacts of British Columbia's ban on elective feline onychectomy (declawing). This survey proved that the ban did not lead to increases in shelter intakes, owner-requested euthanasias, or cats surrendered for destructive scratching. |                                                                                                                                                          |

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| <p>Enomoto M, Kigin PD, Bledsoe D, Slone R, Hash J, Smith CE, Lascelles BD. Pilot evaluation of a novel unilateral onychectomy model and efficacy of an extended release buprenorphine product. <i>BMC Vet Res</i>. 2017 Jan 24;13(1):32. doi: 10.1186/s12917-017-0943-5. PMID: 28118835; PMCID: PMC5259973.</p> | <p>Using a blinded, randomized, two period crossover design, four cats were allocated to control (saline) or ER-Bup (0.6 mg/kg, subcutaneously [SC]) treatment groups. All animals underwent a unilateral forelimb onychectomy per period with a washout/recovery period in between. Observational pain scores and kinetic data (using a pressure sensitive walkway [PSW]) were collected prior to (baseline) and at intervals for 72 h following surgery. The novel use of data collected following a jump from an elevated platform appeared to provide all desired information and was easier to collect than walking data.</p> | <p>Unilateral declaw procedure testing efficacy of SC extended release buprenorphine. Pressure plate analysis and forcing cats to jump from a platform to test for pain.</p> |
| <p>Fowler ME, McDonald SE. Untoward effects of onychectomy in wild felids and ursids. <i>J Am Vet Med Assoc</i>. 1982 Dec 1;181(11):1242-5.</p>                                                                                                                                                                  | <p>Complications include scurs, hemorrhage, laceration of digital pad, infection, tournique paralysis, self-mutilation</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                              |
| <p>Franks JN, Boothe HW, Taylor L, et al. Evaluation of transdermal fentanyl patches for analgesia in cats undergoing onychectomy. <i>J Am Vet Med Assoc</i>. 2000;217:1013-1020.</p>                                                                                                                            | <p>Randomized controlled trial in a teaching hospital, DVM student surgeons. Cats undergoing elective onychectomy (alone or with OHE or OE) were randomly assigned to be treated with transdermal fentanyl patches or butorphanol. Cats treated with fentanyl patches had better recovery scores at two of four evaluation times, lower sedation scores at two of eight evaluation times, and lower pain scores at six of eight evaluation times. There were no differences in forelimb pressure between the groups, but there were differences between pre and postoperative values.</p>                                          | <p>Test of pain meds for declawing. Lameness scores varied pre- and post-surgery for individual cats though not between groups.</p>                                          |

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| <p>Fritscher AE, Ha JC. Declawing has no effect on biting behavior but does affect adoption outcomes for domestic cats in an animal shelter. Appl Anim Behav Sci. 2016;181:125–13</p> | <p>We found that declawed cats were significantly underrepresented in the shelter as compared to estimates in the population at large (<math>p &lt; 0.001</math>). We found no significant correlation between declawing and biting behavior (<math>p = 0.456</math>), or between declawing and euthanasia (<math>p = 0.579</math>). We found a significant increase in the length of time that declawed cats spent at the shelter before being adopted (<math>p &lt; 0.001</math>).</p>                                                                                                                                                  | <p>Counted only bites that punctured human skin (most bites do not). Excluded white cats and cats <math>&lt;1</math> year old, limiting generalizability. Finding: Declawed cats took significantly longer to be adopted. NOTE: Talking to shelter staff, declawed cats are underrepresented because they are unadoptable due to behavior issues and are usually euthanized.</p> |
| <p>Gaskin RW, Clarkson CE, Walter PA. Flexor tenectomy: salvage surgery following feline onychectomy. J Feline Med Surg. 2023 Apr;25(4):1098612X231162478.</p>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                  |
| <p>Gaynor JS. Chronic Pain Syndrom Feline Onychectomy. North American Veterinary Clinics; Clinician's Brief. April 2005.</p>                                                          | <p>Feline patients who have had onychectomy (declaw) may experience chronic pain. Owners of such cats usually report one of several concerns, the most common of which is fear that the cat is still in pain, especially in the fore paws, because it seems to walk very lightly on those feet, as if walking on nails or glass. Another common concern is behavioral changes, which may include decreased activity, decreased appetite, or increased aggression. The inciting cause for these presentations within days to months to years is usually the lack of adequate acute pain control in the immediate postoperative period.</p> | <p>** ** Chronic pain in declawed cats acknowledged; author suggests that it may not be noticed for long periods. Increased aggression may be one result. Options given for prevention and treatment. [A]common concern is behavioral changes, which may include decreased activity, decreased appetite, or increased aggression.]</p>                                           |

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| <p>Gellasch KL, Kruse-Elliott KT, Osmond CS, Shih AN, Bjorling DE. Comparison of transdermal administration of fentanyl versus intramuscular administration of butorphanol for analgesia after onychectomy in cats. J Am Vet Med Assoc. 2002 Apr 1;220(7):1020-4. doi: 10.2460/javma.2002.220.1020. PMID: 12420780.</p> | <p>Our data did not reveal a difference in pain relief between administration of TDF and butorphanol. Plasma cortisol concentrations were not different between groups. Fentanyl appeared to provide equivalent analgesia to butorphanol in cats undergoing onychectomy. The primary advantage of using a TDF patch is that repeated injections are not required</p>                                                                                                                                                                                                         | <p>Butorphanol given q4h for 12 hours only. Assessment by cortisol measurement and pain scores.</p>                                                                                                                                                                          |
| <p>Gerard AF, Larson M, Baldwin CJ. Telephone survey to investigate relationships between onychectomy or onychectomy technique and house soiling in cats. 2016 Sept 15; 249(6): 638-642.</p>                                                                                                                            | <p>Results of the study reported here supported the hypothesis that onychectomy is associated with an increase in house soiling behavior of cats... However, cats were significantly less likely to have had such behavior when the CDL technique was used instead of another onychectomy technique... Notably, having cats that had undergone onychectomy in a 3- to 5-cat household increased the risk of house soiling by more than 3-fold, indicating that the association between onychectomy and house soiling was influenced by the number of cats per household.</p> | <p>The authors were primarily interested in whether laser declawing was better than other techniques in terms of sequellae. While laser-declawed cats house-soiled less, they still did so.</p>                                                                              |
| <p>Gordon G, Jukes MGM. Dual organization of the exteroceptive components of the cat's gracile nucleus. J Physiol. 1964 Sep;173(2):263-290. doi: 10.1113/jphysiol.1964.sp007456. PMID: 14212244; PMCID: PMC1368870.</p>                                                                                                 | <p>Found dual organization within the cat gracile nucleus for processing exteroceptive input, including differences in receptive field size and surround effects, and distinguished cell responses to hair versus touch-pressure receptor input. The work maps how cat somatosensory information is organized in central nervous system relays.</p>                                                                                                                                                                                                                          | <p>Foundational neuroanatomy/neurophysiology paper, not a declawing paper. Keep only if the book uses it carefully as background for why digital amputation can plausibly disrupt mapped sensory systems. Do not overstate it as direct evidence of declaw-induced pain.</p> |



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| <p>Gordon WJ, Romans C, Evans R, et al. Objective evaluation of the efficacy of bupivacaine, butorphanol, and fentanyl patch after onychectomy using pressure platform gait analysis (abst), in <i>Proceedings. 31st Annu Conf Vet Orthop Soc</i> 2004.</p>                                                                  | <p>Interpreting behavior in cats to assess pain has been notoriously difficult. And interpreting objective physiological parameters has not been consistent because of confounding factors such as stress or drug effects. Additionally, veterinarians perform several different onychectomy techniques at very different skill levels. And because of the ethical considerations that surround this procedure, providing both the owner and the cat with effective perioperative and postoperative analgesic options is critical. In this article, we offer guidance on what drug or combination of drugs to use, concentrating mainly on postoperative analgesia.</p> | <p>Inconsistency in surgical skills noted as a problem. Good review of pain management options. There is an acknowledged gap between the "ideal" and the "typical" conditions. Veterinarians are defending declawing based on every cat having the ideal conditions; but that is not the norm. Typical or deficient techniques, which cause more pain and complications, are the rule. [Gordon-Evans 2005]</p> |
| <p>Gordon-Evans WJ, Conzemius MG. Analgesia after onychectomy in cats. <i>Veterinary Medicine</i>. 2005 Jan 1.</p>                                                                                                                                                                                                           | <p>Clinical review summarizing analgesic options and limitations in cats undergoing onychectomy. It emphasizes that feline pain assessment is difficult; physiologic indicators are unreliable/confounded; pressure-platform gait analysis provides a more objective limb-function endpoint; and technique/skill variability complicates comparison of analgesic protocols.</p>                                                                                                                                                                                                                                                                                         | <p>This is not the primary 12-day study; it is a DVM360/Veterinary Medicine clinical review that points to the Romans/Gordon-Evans pressure-platform work. Keep as Supporting Material, not primary evidence, but it is excellent for the 'typical practice is not ideal practice' argument.</p>                                                                                                               |
| <p>Greenfield CL, Johnson AL, Schaeffer DJ. Frequency of use of various procedures, skills, and areas of knowledge among veterinarians in private small animal exclusive or predominant practice and proficiency expected of new veterinary school graduates. <i>J Am Vet Med Assoc</i>. 2004 Jun 1;224(11):1780-7. doi:</p> | <p>The present study was designed to obtain input from private veterinary practitioners from around the United States concerning the skills and knowledge new graduates should have and the procedures they should be able to perform when entering small animal practice.</p>                                                                                                                                                                                                                                                                                                                                                                                          | <p>Onychectomy ranked #14 in common feline procedures, ahead of cystocentesis, FNA, bandaging, biopsy, and CPR, and was estimated to be used 1 or more times per week in general practice. **NOTE: Declawing is no longer taught in most veterinary schools as of 2026.</p>                                                                                                                                    |

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| 10.2460/javma.2004.224.1780. PMID: 15198262.                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                              |
| Harasen G. Feline orthopedics. Canadian Veterinary Journal. 2009;50(6):669-670.          | Discussion of declawing and its complications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Torniquet injury is a common sequella of declaw surgery.                                                                                                                                                                                                                                     |
| Hellyer PW. Ethical considerations in the treatment of pain. Vet Forum. 2002;June:38–41. | The current state of pain management in dogs and cats is uneven at best, ranging from the excellent use of pain control techniques by some veterinarians to the complete disregard of pain control by others. Over the last decade, incredible gains have been made in our understanding and treatment of pain in animals, yet it is estimated that few animals under veterinary care receive adequate pain control. Considering what is currently known about pain and the resources available to veterinarians, an important question remains: Why do so many dogs and cats suffer needlessly? This article will provide a brief overview of some of the exciting advances that have occurred in the treatment of pain in dogs and cats as well as some of the existing barriers that hinder the treatment of pain by veterinarians. In humans, pain is considered the "fifth vital sign." Treating pain is essential to good medicine. It defies logic for the scientific community to use animals to understand pain in humans while denying pain is important in animals. Lack of | Discusses lack of consistency in pain management from one vet to the next; and vets' attitudes about it. Author indicates that, overall, adequate pain control is the exception rather than the rule. Failing to treat pain is unethical and contrary to the veterinarian's oath and ethics. |

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|                                                                                                                                                                     | training is not an excuse for failing to treat pain. Why is it difficult for some in our profession to face the fact that we induce an immeasurable amount of pain in the animals under our care?                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                          |
| Hewson J, Dohoo IR, Lemke KA. Perioperative use of analgesics in dogs and cats by Canadian veterinarians in 2001. Canadian Veterinary Journal. 2006 Apr;47:352-359. | A random sample of 652 Canadian veterinarians was surveyed to determine perioperative use of analgesics in dogs and cats following common surgeries. A similar survey was conducted in 1994; since then, analgesic usage has increased markedly, as have ratings of the pain caused by different surgeries. In 2001 most veterinarians (62%) used at least 2 classes of analgesic perioperatively. However, strong opioids, local anesthetics, and alpha-2 agonists were underused, and there was an overreliance on weak opioids (butorphanol, meperidine). Up to 12% of veterinarians did not use any analgesics. | Pain meds are becoming more widely used, though still not adequately. Up to 12% of vets were still not using any analgesics for surgery. |

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| <p>Holmberg DL, Brisson BA. A prospective comparison of postoperative morbidity associated with the use of scalpel blades and lasers for onychectomy in cats. Canadian Veterinary Journal. 2006 Feb;47(2):162-3.</p>                                    | <p>This study compared patient discomfort for 10 d following feline onychectomies performed using a CO2 surgical laser versus a scalpel blade. Both techniques appeared to result in discomfort of a similar duration, although the laser caused significantly less lameness than blade excision during the first 7 d.</p>                                                                                                                                                | <p>No difference in lameness between laser and scalpel beyond the first couple of days after surgery. Discomfort was observable for 8 days after surgery in both groups.</p>                                                                                                                                |
| <p>Jankowski AJ, Brown DC, Duval J, Gregor TP, Strine LE, Ksiazek LM, Ott AH. Comparison of effects of elective tenectomy or onychectomy in cats. J Am Vet Med Assoc. 1998 Aug 1;213(3):370-373. doi: 10.2460/javma.1998.213.03.370. PMID: 9702225.</p> | <p>Prospective cohort study comparing 20 cats undergoing deep digital flexor tenectomy with 18 cats undergoing onychectomy. Cats were monitored for at least 5 months. Tenectomy cats had significantly lower pain scores 24 hours after surgery, but type and frequency of other complications did not differ between procedures. Owners were less satisfied with tenectomy than onychectomy, although overall satisfaction scores were not significantly different.</p> | <p>Good “alternative surgery is not a clean solution” paper. Tenectomy may reduce immediate pain, but it creates a permanent claw-maintenance problem: cats cannot maintain claws normally and owners must trim constantly. The paper also reinforces that both procedures had high complication rates.</p> |
| <p>Ko JCH, Thurmon JC, Benson GC, et al. An alternative drug combination for use in declawing and castrating cats. Vet Med. 1993;88:1061–1065.</p>                                                                                                      | <p>Telazol/ketamine/xylazine promoted as a good anesthetic protocol for declawing.</p>                                                                                                                                                                                                                                                                                                                                                                                    | <p>No mention of post-op analgesia; analgesia from this combo estimated at 40 minutes.</p>                                                                                                                                                                                                                  |
| <p>Kogan LR, Little SE, Hellyer PW, Schoenfeld-Tacher R, Ruch-Gallie R. 2016. Feline onychectomy: Current practices and perceptions of veterinarians in Ontario, Canada. Canadian Veterinary Journal. 57(8):835-840.</p>                                | <p>Survey of Canadian vets on declawing techniques, pain mgmt protocols, etc.</p>                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                             |

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| <p>LaChance M, Otis C, Juetter T, del Castillo JRE, Delsart A, Moreau M, Monteiro BP, Castel A, Lussier B, Martel-Pelletier J, Pelletier JP, Troncy E. Declawing in cat is associated with neuroplastic sensitization and long-term painful afflictions. <i>Sci Rep</i>. 2025;15:30038. doi: 10.1038/s41598-025-16288-8.</p> | <p>Secondary analysis of eight feline osteoarthritis studies comparing healthy controls, osteoarthritic non-declawed cats, and osteoarthritic declawed cats. Declawed OA cats showed significantly greater peripheral sensitization, greater biomechanical and functional impairment, and objective nerve conduction abnormalities consistent with worsened axonopathy compared with non-declawed OA cats. Findings were not dependent on two-paw vs four-paw declaw status or known retained P3 fragments.</p> | <p>High-value chronic pain/neuroplasticity paper. This is the modern bridge between the old “complications” literature and the neurological mechanism: declawing is associated with long-term sensory/neuroplastic changes beyond OA alone. The authors explicitly support global bans on elective declawing.</p> |
| <p>Lamont LA. Feline perioperative pain management. <i>Veterinary Clinics of North America: Small Animal Practice</i>. 2002;32(4):747–763.</p>                                                                                                                                                                               | <p>Principles of pain management; review of analgesic drugs.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Good discussion of pain pathophysiology, prevention and treatment.</p>                                                                                                                                                                                                                                         |
| <p>Landsberg G. Feline behavior and welfare. <i>J Am Vet Med Assoc</i>. 1996 Feb 15;208(4):502-505. doi: 10.2460/javma.1996.208.04.502. PMID: 8603895.</p>                                                                                                                                                                   | <p>Welfare Forum article reviewing feline behavior needs in indoor cats. The paper emphasizes that indoor environments must provide sufficient outlets for species-typical behaviors, including investigation, feeding/hunting, drinking, scratching, elimination, play, and social interaction. It supports prevention/management of behavior problems by meeting normal behavioral needs rather than relying on surgical solutions.</p>                                                                       | <p>Supporting source, not a primary declaw study. Useful for the “scratching is normal behavior and can be managed by environment” argument. Should probably live in Supporting Materials rather than primary studies.</p>                                                                                        |

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| <p>Landsberg, 1991.<br/>[Landsberg GM. Declawing is controversial but saves pets. A veterinarian survey. Vet Forum 1991;8:66-67.]</p> | <p>Retrospective mail survey of veterinarians. 320/400 returned questionnaires. 196/250 (78.4%) did not advocate declawing and only did it on request. 104/221(47%) veterinarians' recollections indicated no problems, 55 (24.9%) reported nail regrowth, and 22 (9.9%) reported additional long term problems. Out of an estimated total of 120,000 cats declawed, this was extrapolated to a complication rate of 1/6,000 cats.</p>                                                                                                                                                                                                                                                                                                     | <p>** Memory-based survey. Estimates that 100,000 cats are declawed annually in Ontario province. 229/230 vets cited furniture damage as the principal reason for declawing. Most (78%) vets would declaw on request. Half discussed alternatives (scratching post, nail trimming, behavior modification). Vets guessed that 57% of clients would not have kept their cats. 34.8% of vets reported long-term complications. Concludes that declawing is an "effective alternative" for owners "unwilling or unable" to correct their cat's "scratching problem" in other ways.</p> |
| <p>Landsberg, 1991b.<br/>[Landsberg GM. Cat owners' attitudes toward declawing. Anthrozoos 1991;4:192-197.]</p>                       | <p>Retrospective written survey of private practice clients. 70% of cats were declawed between 0.5 and 12 months of age, and 69% at the time of neutering. 266 (96%) owners had a positive attitude towards declawing. Primary reason (86%) was household damage, and second (29%) was to reduce injuries to people. Owners reported that 94 (34%) cats had discomfort post-surgically, primarily tenderness (78%). 157/233 (67%) recovered fully within three days, and 96% within two weeks. Cats done &gt; 1 yr had more post-surgical discomfort; 102/246 (41%) were still allowed outdoors. One (0.4%) cat had difficulty bearing weight for at least four months, and another (0.4%) developed a house soiling problem. Ten (4%)</p> | <p>** ** 70% cats were declawed at less than 1 year of age; ~70% of those were declawed at the same time as spaying/neutering. Many medical and behavioral complications noted; 34% were obviously painful post-op; 33% were still painful more than 3 days post-op. Older cats were more painful. 11 cats (4%) developed or had worsened behavior problems post-op. Only 12 (4%) of owners stated that they would not have kept the cat if not declawed (compared to veterinarians' estimates</p>                                                                                 |

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|                                                                                                                                                                                                                        | reported a possible increase in biting or harder biting, but these owners still remained positive about the surgery.                                                                                                                                                                                                                                                                                                             | of 10-70% of clients likely to relinquish.)                                                                                                                                                                                                |
| Lascelles BDX, Robertson SA. Use of thermal threshold response to evaluate the antinociceptive effects of butorphanol in cats. Am J Vet Res. 2004 Aug;65(8):1085-1089. doi: 10.2460/ajvr.2004.65.1085. PMID: 15334842. | Masked randomized crossover study in six adult neutered domestic shorthair cats. Each cat received IV butorphanol at 0.1, 0.2, 0.4, or 0.8 mg/kg in randomized order at least one week apart. Thermal thresholds were measured every 15 minutes for 6 hours. All doses increased thermal threshold only from 15 to 90 minutes after injection, with no dose-response relationship; mydriasis and dysphoric behavior were common. | Strong support for not relying on butorphanol as meaningful feline analgesia after painful surgery. The useful phrase is not just “short half-life”; the paper shows no dose-response and only about 90 minutes of antinociceptive effect. |
| Lemke KA. Understanding the pathophysiology of perioperative pain. Can Vet J. 2004 May;45(5):405-413. PMID: 15206589; PMCID: PMC548624.                                                                                | Review article explaining nociception, inflammatory pain, neural plasticity, and development of pathological pain. The article frames effective perioperative pain control as an ethical obligation and supports preemptive, multimodal, mechanism-based analgesic therapy.                                                                                                                                                      | Important explanatory source for why painful surgery can produce maladaptive/chronic pain if acute pain is not prevented or controlled. Supporting material, not a declaw study.                                                           |

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| <p>Levy J, Lapham B, Hardie E, et al. Evaluation of laser onychectomy in the cat . Proceedings. 19th Annu Meet Soc Laser Med. 1999;73.</p>                                                                                                                                             | <p>Clinical trial. 40 cats were assigned to either non-surgical control (20) or onychectomy via laser (10) or blade.(10) Complication rates, behavioral changes, plasma cortisol, and urine cortisol:creatinine ratios were evaluated up to 48 hours post-surgery. Complication rates were generally higher for the laser declaw group in the first two days, but were equivalent thereafter. Negative behavioral changes were more pronounced in the blade declaw group for two days, with less play and willingness to use their paws. Blood and urine cortisol were increased more in the blade declaw group for 24 hours.</p> | <p>** Assessment of laser declawing; pain was worse from laser than scalpel in immediate post-op period (only tracked for 48 hours).</p>                                                                                                                    |
| <p>Lin HC, Benson GJ, Thurmon JC, Tranquilli WJ, Olson WA, Bevill RF. Influence of anesthetic regimens on the perioperative catecholamine response associated with onychectomy in cats. Am J Vet Res. 1993 Oct;54(10):1721-1724. doi: 10.2460/ajvr.1993.54.10.1721. PMID: 8250399.</p> | <p>Randomized experimental study of adult cats undergoing staged forelimb onychectomy. Cats were anesthetized with tiletamine-zolazepam or ketamine-acepromazine; one week later the procedure was repeated on the other forefoot with addition of butorphanol or oxymorphone. Plasma catecholamines were measured after drug administration, after onychectomy, and 1, 2, and 4 hours after injection. Opioid additions attenuated some catecholamine responses, supporting catecholamine measurement as an objective pain/nociceptive stress marker.</p>                                                                        | <p>Ethically ugly but useful: the paper helps prove that cats can show objective physiologic pain responses even when pain is hard to assess clinically. Note internal N discrepancy: abstract says 27 cats, Methods says 26; current database used 26.</p> |



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| <p>Lockhart LE, Motsinger-Reif AA, Simpson WM, et al. Prevalence of onychectomy in cats presented for veterinary care near Raleigh, NC and educational attitudes toward the procedure. Veterinary Anaesthesia and Analgesia 2014;41:48–53.</p>                                                      | <p>“[T]he percentage of cats that are declawed has apparently not changed in the past decade despite the growing controversy surrounding the procedure... Almost 21% of cats seen in veterinary hospitals near Raleigh, NC were declawed. Less than 50% of veterinary schools in the USA include a mandatory lecture or laboratory to teach the procedure. There appears to be a discrepancy between the popularity of the onychectomy procedure and the emphasis placed on relevant instruction in veterinary schools in the USA... More general practitioners (30%) declawed than cat specialty hospitals (18%) or veterinary teaching hospitals (19%).</p> | <p>Since so many vets say they are doing fewer declaws, only a few per year, one has to wonder who is declawing all the rest of them. There are more cats, and more declawed cats, today than ever before. Younger cats are being declawed more often than adults. The obvious concern would be poor surgical technique that could increase the prevalence of short and long term complications. In addition to surgical technique, there would also be concern for the lack of instruction of anesthetic and analgesic techniques appropriate for what most veterinarians consider a procedure that results in severe pain.” [Lockhart 2014]</p> |
| <p>Martell-Moran NK, Solano M, Townsend HG. Pain and adverse behavior in declawed cats. Journal of Feline Medicine and Surgery. 2018 Apr;20(4):280-288. <a href="http://journals.sagepub.com/doi/pdf/10.1177/1098612X17705044">http://journals.sagepub.com/doi/pdf/10.1177/1098612X17705044</a></p> | <p>25% of declawed cats were declawed on all four paws. "Significant increases in the odds of back pain(oddsratio[OR]2.9), periuria/perichezia (OR 7.2), biting (OR 4.5) and barbering (OR 3.06) occurred in declawed compared with control cats." This study of 274 cats used control groups, with declawed and non-declawed, age-matched, owned and shelter cats.</p>                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <p>Martell-Moran NK. Surgical excision of P3 fragments in 86 declawed cats: case series (2013-2023). Journal of Feline Medicine and Surgery. 2024</p>                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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| <p>Apr;26(4):1098612X241240331.</p>                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                      |
| <p>Martens LL, Piersanti SJ, Berger A, Kida NA, Deutsch AR, Bertok K, Humphries L, Lassiter A, Hartstone-Rose A. The effects of onychectomy (declawing) on antebrachial myology across the full body size range of exotic species of Felidae. <i>Animals (Basel)</i>. 2023 Jul 30;13(15):2462. doi: 10.3390/ani13152462. PMID: 37570271; PMCID: PMC10416871.</p> | <p>Dissection/anatomic study of 18 felid specimens from ten species spanning nearly the entire body-size range of Felidae, including five declawed specimens. Declawed felids had deep digital flexors that were significantly lighter (~73%) and less powerful (46–66%) than non-declawed felids, without compensatory increases in other muscles. Authors conclude onychectomy has substantial myological effects, likely worse in large felids because of biomechanical scaling.</p>                                           | <p>Very useful for the “not just claws/bones” argument: declawing changes the muscular machinery of the forelimb. This is not domestic-cat clinical outcome data, but it is strong anatomic/biomechanical evidence.</p>                                              |
| <p>Martinez SA, Hauptmann J, Walshaw R. Comparing two techniques for declawing in cats and two adhesives for wound closure. <i>Veterinary Medicine</i>.1993; 88:516-525.</p>                                                                                                                                                                                     | <p>Prospective clinical study in a teaching hospital, DVM student surgeons. Two techniques for onychectomy and two adhesives for wound closure were compared. 167/252 (66%) cats returned for both one week and six-month clinician rechecks. Lameness occurred more frequently in cats with disarticulation amputation (14/87, 16%) than in cats with bony amputation (4/80, 5%), possibly due to greater soft tissue trauma. Dehiscence occurred in 22% and 12% of cats, respectively. Lameness resolved within six months.</p> | <p>** Compared 2 techniques for declawing. Follow-up done at 1 week and 6 months post-op. Claw regrowth was seen in 1 cat at 6 months (case reports indicate that regrowth can occur more than 10 years later). 19% incidence of lameness; 34% wound dehiscence.</p> |

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| McMillan FD. Comfort as the primary goal in veterinary medical practice. J Am Vet Med Assoc. 1998 May 1;212(9):1370-1374. PMID: 9589119.                                                                                                                                                                                                                         | Commentary arguing that comfort is not a secondary goal of veterinary medicine but the central objective: disease is treated to preserve or restore comfort. Defines comfort/discomfort as subjective affective states and distinguishes discomfort from suffering, with suffering representing more intense negative affect.                                                                                                                           | Ethics/welfare support source. Useful for framing declawing as a veterinary failure when the procedure knowingly creates discomfort/pain without medical benefit to the patient. Supporting material, not primary declaw research.                                    |
| McReynolds T. New feline pain scale interprets pain from cats' facial expressions. <a href="https://www.aaha.org/publications/newstat/articles/2019-092/new-feline-pain-scale-interprets-pain-from-cats-facial-expressions/">https://www.aaha.org/publications/newstat/articles/2019-092/new-feline-pain-scale-interprets-pain-from-cats-facial-expressions/</a> | Development of Feline Grimace Scale                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                       |
| McKeown D, Luescher A, Machum M. The problem of destructive scratching by cats. Can Vet J. 1988 Dec;29(12):1017-1018. PMID: 17423189; PMCID: PMC1681050.                                                                                                                                                                                                         | Clinical behavior article explaining that scratching is a normal territorial/marketing behavior and recommending appropriate scratching-post placement, texture, sturdiness, and retraining. It also states the authors considered declawing a humane alternative to abandonment/euthanasia if behavior modification fails.                                                                                                                             | Historically useful because it preserves the old assumption: declawing is framed as necessary to "save" cats despite no data in the article. Useful as a contrast source and for scratching-post advice, not as evidence that declawing prevents relinquishment.      |
| Mills KE, von Keyserlingk MAG, Niel L. A review of medically unnecessary surgeries in dogs and cats. J Am Vet Med Assoc. 2016 Jan 15;248(2):162-171. doi: 10.2460/javma.248.2.162. PMID: 26720081.                                                                                                                                                               | Review article classifying onychectomy in cats as a medically unnecessary surgery when performed solely to prevent destructive/annoying behavior. The declawing section summarizes acute and chronic adverse effects, client decision-making, lack of medical benefit to the cat, and arguments about relinquishment/euthanasia. It concludes declawing should be a last resort after behavior-modifying measures have been attempted and only when the | Important ethical review, but it still accepts the weak "last resort before death/relinquishment" framing. Your note is fair: relinquishment/re-homing is not equivalent to euthanasia, and chronic pain risk must be weighed against a hypothetical housing outcome. |

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|                                                                                                                                                                                                              | alternative is relinquishment or euthanasia.                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                     |
| Misener AG. Removal of claws in the Domestic Cat. Journal of the American Veterinary Medical Association. November 1952:390.                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                     |
| Mison MB, Bohart GH, Walshaw R, Winters CA, Hauptman JG. Use of carbon dioxide laser for onychectomy in cats. J Am Vet Med Assoc. 2002 Sep 1;221(5):651-653. doi:10.2460/javma.2002.221.651. PMID: 12216902. | Prospective randomized masked clinical trial in 20 client-owned cats. Each forelimb was randomly assigned to laser or scalpel onychectomy; two masked evaluators scored discomfort and complications on days 0, 1, and 7. Laser-treated feet had significantly lower discomfort and complication scores on day 1, but no significant difference remained by day 7; authors stated differences were not clinically relevant.                                                     | Useful because it is often cited as “laser is better,” but the authors’ own conclusion is narrow: only a day-1 difference, no day-7 difference, and not clinically relevant. Good technique/complications paper, not a defense of declawing itself.                 |
| Morgan M, Houpt KA. Feline behavior problems: the influence of declawing. Anthrozoös. 1989;3(1):50-53. doi:10.2752/089279390787057766.                                                                       | Early Usenet/rec.pet owner survey of 60 respondents reporting on 122 cats. Reported behavior problems included jumping on counters/tables (60%), scratching furniture (42%), eating plants (36%), aggression toward other cats (25%), stealing food (25%), house soiling (16%), inappropriate vocalizing (16%), aggression toward people (12%), chewing fabric (7%), and hissing at people (5%). The only behavior more common in declawed cats was jumping on counters/tables; | Historically useful but weak evidence: self-selected early Internet sample, small number of declawed cats, owner-reported behavior, and explicitly pro-declaw conclusion. Use carefully as an example of old “no behavior problem” literature, not as robust proof. |

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|                                                                                                                                                                                                                            | intact cats scratched furniture more often.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                             |
| Moesta A, Crowell-Davis S. Declaw Techniques and Attitudes Towards Declaw Surgery Among Veterinary Practitioners in Athens-Clarke County and Oconee County, Georgia. Veterinary Behavior Symposium. 2013. VIN doc 6055854. | Conference/proceedings abstract reporting a paper survey distributed to 23 practices in two Georgia counties; 20 practices responded (87%). Seventeen of 20 practices said they explain alternatives but will declaw without requiring the client to try them; one declawed on request without alternatives, one required at least one alternative, and none refused under all circumstances. Nail trimmers and blades were most common; laser was less common; no practices performed tendonectomy. | Tiny/local, but valuable as a snapshot of mainstream practice behavior: “we explain alternatives” often did not mean “we require alternatives.” Not a cat-outcome study; treat as practitioner survey/proceedings evidence. |
| Nikolajsen L, Jensen TS. Phantom limb pain. Br J Anaesth. 2001;87(1):107-116. doi:10.1093/bja/87.1.107. PMID: 11460799.                                                                                                    | Human medical review of phantom limb pain after amputation. Defines phantom limb pain, phantom limb sensation, and stump pain; reviews incidence, onset, duration, mechanisms, and prevention/treatment literature. Notes modern reports of phantom pain in roughly 60–80% of amputees and emphasizes that nerve injury can produce changes in peripheral and central nervous systems that may contribute to chronic phantom pain.                                                                   | Not feline and not declaw-specific. It belongs as supporting mechanism evidence for the plausibility of chronic post-amputation pain and neuroplastic change after digit amputation, not as direct declaw outcome data.     |

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| <p>Patronek GJ. Assessment of claims of short- and long-term complications associated with onychectomy in cats. Journal of the American Veterinary Medical Association. 2001 Oct 1;219(7):932-937.</p>                       | <p>Review of studies on declawing based on Medline search (1966 to Feb 2001). ...an elective surgery performed on a quarter of owned cats could lack definitive evaluation, but that appears to be the case. The most that can be said about adverse behavioral sequelae to onychectomy is that they remain as hard to dismiss as they are to quantify. Declawed cats were almost as likely to bite as unneutered cats.</p>                                                                                                                                                                                                                                                                      | <p>Review of 19 published studies found numerous reports of medical and behavioral complications. "For example, if owners with a low tolerance for behavior problems are more likely to declaw their cats to begin with, and also more likely to relinquish their cats if they do begin to exhibit inappropriate elimination, then this could explain the apparent higher incidence of inappropriate elimination in declawed relinquished cats."</p> |
| <p>Patronek GJ, Glickman LT, Beck AM, McCabe GP, Ecker C. Risk factors for relinquishment of cats to an animal shelter. J Am Vet Med Assoc. 1996 Aug 1;209(3):582-588. doi:10.2460/javma.1996.209.03.582. PMID: 8755976.</p> | <p>Case-control study of households relinquishing cats for adoption to the Humane Society of St Joseph County and randomly selected control cat-owning households in the same community. Major modifiable risk factors included owner expectations about the cat's role, allowing outdoor access, owning a sexually intact cat, never reading a cat behavior book, daily/weekly inappropriate elimination, and inappropriate care expectations. Frequency of inappropriate elimination and aggression toward people were not associated with declaw status, but were more common among sexually intact cats; the multivariable analysis is important for the declaw/relinquishment argument.</p> | <p>High-value paper because it undercuts the simplistic "declawing saves homes" argument. Important to distinguish univariate impressions from multivariable modeling. Keep the actual odds-ratio language/check table if using in prose.</p>                                                                                                                                                                                                        |

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| <p>Patronek GJ, Beck AM, Glickman LT. Dynamics of dog and cat populations in a community. J Am Vet Med Assoc. 1997 Mar 1;210(5):637-642. PMID: 9054991.</p>                                                                                              | <p>Cross-sectional random-digit-dial survey of 1,272 St Joseph County households that owned a dog or cat during a one-year period, compared with 9,571 dogs and cats received by the local humane society. Cat data included 1,056 owned cats; 577 (54.6%) were not declawed, 425 (40.2%) were forelimb-declawed, and 51 (4.8%) had all limbs declawed. Annual owned-cat turnover was 194/1,056 (18.4%); shelter and telephone survey data showed substantial owner underreporting of relinquishment and stray loss.</p> | <p>Useful population baseline. Not a declaw outcome study, but it gives community-level declaw prevalence and highlights why owner self-report can miss shelter relinquishment.</p>                                       |
| <p>Patronek GJ, Dodman NH. Attitudes, procedures, and delivery of behavior services by veterinarians in small animal practice. J Am Vet Med Assoc. 1999 Dec 1;215(11):1606-1611. doi:10.2460/javma.1999.215.11.1606. PMID: 14567423.</p>                 | <p>National mail survey of small-animal veterinarians about delivery of behavior services, frequency of behavior problems, confidence in treating them, pharmacologic intervention, and dogs/cats euthanatized for behavior problems. The abstract reports an estimated approximately 224,000 dogs and cats euthanatized annually in US small-animal practices because of behavior problems and concludes that veterinarians were often not routinely asking about behavior or confident treating behavior problems.</p> | <p>Not a declaw paper, but relevant background for behavior-problem/euthanasia rhetoric. Keep separate from direct declaw evidence; it supports the importance of behavior services rather than supporting declawing.</p> |
| <p>Pereira JS, Salgirli Demirbas Y, Meppiel L, Endersby S, et al. Efficacy of the Feliway® Classic Diffuser in reducing undesirable scratching in cats: A randomised, triple-blind, placebo-controlled study. PLoS One. 2023 Oct 18;18(10):e0292188.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                           |

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| Pollari FL, Bonnett BN, Bamsey SC, Meek AH, et al. 1996. Postoperative complications of elective surgeries in dogs and cats determined by examining electronic and paper medical records. Journal of the American Veterinary Medical Association. 208(11):1882-1886. | Computer records of short-term complications (within three weeks) of all elective surgeries performed at five private practices over 5–13 months. 450/851 (52.9%) feline sterilizations had onychectomy performed at the same time. Recording of complications in the computerized records was inconsistent.                                                                                                         | ** Concluded that records are inaccurate, and computerized records are even worse than paper records.                                                                                               |
| Ringwood PB, Kerwin SC, Hosgood G. 2000. Use of a regional nerve block technique for surgical analgesia in a cat undergoing onychectomy. Journal of the American Animal Hospital Association. 36(4):325-328.                                                         | How to improve anesthesia for a cat undergoing declaw surgery using local nerve blocks                                                                                                                                                                                                                                                                                                                               | A variety of surgical techniques for declawing have been described, all of which result in substantial signs of pain in cats.                                                                       |
| Robertson SA, Taylor PM. Pain management in cats—past, present and future. Part 2. Treatment of pain—clinical pharmacology. J Feline Med Surg. 2004 Oct;6(5):321-333. doi:10.1016/j.jfms.2003.10.002. PMID: 15363764.                                                | Feline pain pharmacology review covering opioids, NSAIDs, ketamine, medetomidine, local anesthetics, and alternative analgesic routes. The summary notes that butorphanol rapidly reaches a ceiling effect, is short acting, and is weaker than pure mu opioids; buprenorphine is described as highly suitable for perioperative feline pain management; appropriate dosing of carprofen and meloxicam is discussed. | Strong supporting source for “cats need real analgesia, and butorphanol has limits.” Not a declaw-specific outcome study, but directly useful for interpreting older onychectomy analgesia studies. |
| Robertson SA, Taylor PM, Sear JW. 2003. Systemic uptake of buprenorphine by cats after oral mucosal administration. Veterinary Record. 152(22):675-678.                                                                                                              | Assessment of the uptake and kinetics of oral buprenorphine. Owners were able to give it, and the effects were good.                                                                                                                                                                                                                                                                                                 | Good review of buprenorphine's advantages for feline pain management.                                                                                                                               |
| Robertson SA, Taylor PM, Lascelles BDX, Dixon MJ. 2003. Changes in thermal threshold response in eight cats after administration of                                                                                                                                  | Butorphanol had minor effects that were gone by 2 hours; buprenorphine effects lasted 4-12 hours after injection. Thermal testing was an effective method                                                                                                                                                                                                                                                            | First study to define butorphanol's significant limitations.                                                                                                                                        |



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| buprenorphine, butorphanol and morphine. Veterinary Record. 153(15):462-465.                                                                                                                                                                                                   | for determining response to medications.                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                       |
| Robinson DA, Romans CW, Gordon-Evans WJ, Evans RB, Conzemius MG. Evaluation of short-term limb function following unilateral carbon dioxide laser or scalpel onychectomy in cats. J Am Vet Med Assoc. 2007 Feb 1;230(3):353-358. doi: 10.2460/javma.230.3.353. PMID: 17269865. | Randomized prospective study comparing unilateral CO2 laser onychectomy with scalpel onychectomy using pressure-platform gait analysis. Laser-group cats had significantly higher ground reaction forces on days 1 and 2 and higher PVF ratio on day 12, suggesting improved short-term limb function compared with scalpel/tourniquet/bandage technique.                                                                                                                | Useful for technique comparison, but still shows impaired limb use after onychectomy and does not make the procedure benign. One laser-group cat developed signs consistent with cardiac insufficiency and was euthanized; data from that cat were excluded.          |
| Romans CW, Conzemius MG, Horstman CL, Gordon WJ, Evans RB. Use of pressure platform gait analysis in cats with and without bilateral onychectomy. Am J Vet Res. 2004 Sep;65(9):1276-1278.                                                                                      | Pressure-platform gait analysis was successfully collected in 13 control cats and 13 cats that had undergone bilateral forelimb onychectomy more than 6 months previously. No significant differences were found between groups for peak vertical force or vertical impulse.                                                                                                                                                                                             | Useful objective-gait paper, but it addresses vertical forces more than 6 months after surgery in cats considered to have successful outcomes. It should not be overread as proving absence of chronic pain or all long-term morbidity.                               |
| Romans CW, Gordon WJ, Robinson DA, Evans R, Conzemius MG. Effect of postoperative analgesic protocol on limb function following onychectomy in cats. J Am Vet Med Assoc. 2005 Jul 1;227(1):89-93. doi:10.2460/javma.2005.227.89. PMID: 16013541.                               | Prospective study of 27 healthy adult cats randomly assigned to topical bupivacaine, IM butorphanol, or transdermal fentanyl after unilateral left forefoot onychectomy. Pressure-platform gait analysis measured PVF and VI before surgery and 1, 2, 3, and 12 days after surgery. On day 2, PVF was significantly worse with bupivacaine than with butorphanol or fentanyl. For all groups, PVF/VI/PVF ratio remained significantly decreased from baseline at day 12. | Very important objective-gait paper. The big takeaway is not merely which analgesic did better; it is that limb function was still significantly reduced 12 days later regardless of protocol, suggesting analgesia longer than the traditional short post-op window. |

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| Ruch-Gallie R, Hellyer PW, Schoenfeld-Tacher R, Kogan LR. Survey of practices and perceptions regarding feline onychectomy among private practitioners. J Am Vet Med Assoc. 2016 Aug 1;249(3):291-298. doi:10.2460/javma.249.3.291. PMID: 27439346. | Anonymous online survey of 3,441 VIN-member veterinarians. Among respondents, 2,503/3,441 (72.7%) reported performing onychectomy and 827 (24.0%) did not; 1,534/2,498 (61.4%) of those performing the procedure did it less than monthly. Most performing veterinarians recommended nonsurgical alternatives. Technique and analgesia varied; scalpel-only and perioperative injectable opioids were most common. Attitudes about pain, mutilation, behavioral necessity, euthanasia alternative, and legislative bans differed significantly between veterinarians who did and did not perform the procedure. | High-value modern attitude/practice survey. Useful for showing controversy within the profession, not just between veterinarians and advocates. Also useful because authors explicitly call out weak evidence and the need for long-term outcome data. |
| Salman MD, Hutchison J, Ruch-Gallie R. Behavioral reasons for relinquishment of dogs and cats to 12 shelters. Journal of Applied Animal Welfare Science. 2000;3(2), 93–106.                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | The two behavior problems most associated with declawing (inappropriate elimination and aggression) are also the top two behavioral reasons for relinquishment.                                                                                        |
| Smith JD, Allen SW, Quandt JE, Tackett RL. Indicators of postoperative pain in cats and correlation with clinical criteria. Am J Vet Res. 1996 Nov;57(11):1674-1678. doi: 10.2460/ajvr.1996.57.11.1674. PMID: 8915451.                              | Controlled experimental study using five 10-cat groups: anesthesia only, OHE without analgesia, OHE plus low-dose butorphanol, OHE plus high-dose butorphanol, and butorphanol only. Clinical variables were compared with cortisol and catecholamine responses after anesthesia/surgery.                                                                                                                                                                                                                                                                                                                       | High-value feline pain-methodology paper. The useful point is that cats without analgesia had higher cortisol after surgery, butorphanol blunted that response, and systolic blood pressure was the best clinical predictor of postoperative pain.     |
| Spinelli JS, Markowitz H. Clinical recognition and anticipation of situations likely to induce suffering in animals. J Am Vet Med Assoc. 1987 Nov                                                                                                   | Conceptual welfare article distinguishing suffering from pain/discomfort and arguing that when an animal shows clinical signs consistent with pain or discomfort, clinicians should                                                                                                                                                                                                                                                                                                                                                                                                                             | Excellent ethics/welfare support for pain-recognition arguments. Not declaw-specific and not a data study, but useful language for the                                                                                                                 |

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| 15;191(10):1216-1218. doi: 10.2460/javma.1987.191.10.1216. PMID: 3692956.                                                                                                                              | intervene because the error should favor the animal.                                                                                                                                                                                                                 | principle that behavior change after a painful procedure should be treated as possible pain.                                                                                                                                                                                                                           |
| Stanway GW, Taylor PM, Brodbelt DC. A preliminary investigation comparing pre-operative morphine and buprenorphine for postoperative analgesia and sedation in cats. Vet Anaesth Analg. 2002;29:29-35. | Osteomyelitis, a painful bone infection, was present in 30% of declawed cats.                                                                                                                                                                                        | Despite benefits of buprenorphine over morphine, authors state that buprenorphine has a "ceiling" to the effects at increased doses. Neither drug was considered adequate for complete analgesia, especially for very painful procedures, and even for procedures considered "minor" cats needed additional analgesia. |
| Swiderski J. Onychectomy and its alternatives in the feline patient. Clin Tech Small Anim Pract. 2002 Nov;17(4):158-61.                                                                                | Swiderski J. Onychectomy and its alternatives in the feline patient. Clin Tech Small Anim Pract. 2002 Nov;17(4):158-61. doi: 10.1053/svms.2002.36604. PMID: 12587280.                                                                                                | Review of onychectomy techniques, digital tendonectiony, and non-surgical alternatives such as Soft Paws. There are many effective, non-surgical, humane alternatives to declawing.                                                                                                                                    |
| Taylor PM, Robertson SA. Pain management in cats—past, present and future. Part 1. The cat is unique. J Feline Med Surg. 2004 Oct;6(5):313-320. doi:10.1016/j.jfms.2003.10.003.                        | 15% of declawed cats displayed litter box avoidance. [Part I: Robertson SA, Taylor PM. Pain management in cats—past, present and future. Part 2. Treatment of pain—clinical pharmacology. J Feline Med Surg. 2004 Oct;6(5):321-333. doi:10.1016/j.jfms.2003.10.002.] | Good review of what's known about feline pain management.                                                                                                                                                                                                                                                              |
| Tobias KS. Feline onychectomy at a teaching institution: a retrospective study of 163 cases. Vet Surg. 1994; 23:274-280.                                                                               | Tobias KS. Felinedeclawing at a teaching institution: a retrospective study of 163 cases. Veterinary Surgery. 1994; 23:274-280.                                                                                                                                      | ** 50% of cats had one or more medical complications immediately after surgery while still in the hospital; 19.8% developed complications after release.                                                                                                                                                               |

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| <p>Tobias, et al Tobias KM, Harvey RC, Byarlay JM. A comparison of four methods of analgesia in cats following ovariohysterectomy. Vet Anaesth Analg. 2006 Nov;33(6):390-398. doi: 10.1111/j.1365-3113.2006.03360.x. PMID: 17011045.</p> | <p>36% of declawed cats were aggressive, with a tendency to bite with little provocation or warning.</p>                                                                                                                                                                                                                                                                                                          | <p>Butorphanol effects wore off at 2 hours; the others were poorly effective immediately post-op.</p>                                                                                                                                      |
| <p>Velmar T, Bailey T, Smrkolj V. The Wound Healing Process: an Overview of the Cellular and Molecular Mechanisms. Journal of International Medical Research. 2009; 37:1528-1542.</p>                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>Scar tissue also forms, which eventually shortens the tendons and ligaments and affects range of motion.</p>                                                                                                                            |
| <p>Wagner AE, Hellyer PW. Survey of anesthesia techniques and concerns in private veterinary practice. J Am Vet Med Assoc. 2000 Dec 1;217(11):1652-1657. doi: 10.2460/javma.2000.217.1652. PMID: 11110454.</p>                           | <p>Mail survey of Colorado veterinarians; 347 questionnaires returned, 333 analyzed. Respondents reported anesthetic drugs, monitoring, preanesthetic evaluation, client concerns, and postoperative analgesic use. For cat onychectomy, 205 respondents reported routinely giving postoperative analgesics and 88 reported not doing so; butorphanol was the most common named analgesic for that procedure.</p> | <p>Useful snapshot of late-1990s practice norms. Table 3 is the money: cat onychectomy had more reported analgesic use than cat spay/castration, but 88 respondents still reported no routine postoperative analgesic for onychectomy.</p> |
| <p>Wagner AE, Wright BD, Hellyer PW. Myths and misconceptions in small animal anesthesia. J Am Vet Med Assoc. 2003 Nov 15;223(10):1426-1432. doi: 10.2460/javma.2003.223.1426. PMID: 14627091.</p>                                       | <p>Reference Point article correcting common misconceptions in small-animal anesthesia. Relevant sections state that multimodal analgesia is appropriate, opioids are rarely seriously dangerous perioperatively in dogs and cats, and butorphanol is useful only for fairly mild pain with variable duration in cats.</p>                                                                                        | <p>Strong supporting source against “less drug is safer” thinking and overreliance on butorphanol. Not declaw-specific primary evidence, but it directly supports modern pain-control framing.</p>                                         |

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| Waran N, Best L, Williams V, Salinsky J, Dale A, Clarke N. A preliminary study of behaviour-based indicators of pain in cats. <i>Animal Welfare</i> . 2007;16(S1):105-108. doi: 10.1017/S0962728600031791.                         | Preliminary SPCA shelter study using an ethogram to compare adult cats receiving preoperative analgesia only, adult cats receiving pre- plus postoperative analgesia, anesthesia-only controls, and kittens undergoing OHE. Adult cats without postoperative analgesia showed more half-tucked-up posture and attention to the surgical site.                                                       | Useful because it identifies subtle feline pain behaviors and supports the claim that preoperative analgesia alone may not adequately control postoperative pain. Not declaw-specific, but directly relevant to recognizing pain in cats. |
| Weese JS, Peregrine AS, Peregrine J. Occupational health and safety in small animal veterinary practice: Part I—Nonparasitic zoonotic diseases. <i>Canadian Veterinary Journal</i> . 2002;43(8):631–636.                           | A paper on disease risk in veterinary workers concluded, “Finally, it is important to remember that declawing is not an effective means of disease prevention.”                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                           |
| Wells SM, Glerum LE, Papich MG. Pharmacokinetics of butorphanol in cats after intramuscular and buccal transmucosal administration. <i>Am J Vet Res</i> . 2008 Dec;69(12):1548-1554. doi: 10.2460/ajvr.69.12.1548. PMID: 19045999. | Randomized 2-way crossover pharmacokinetic study in six healthy adult cats given butorphanol tartrate 0.4 mg/kg IM or buccal transmucosally. One cat was excluded from PK analysis. IM administration maintained estimated effective plasma concentration >45 ng/mL for 2.7 +/- 2.2 hr; buccal transmucosal administration did not.                                                                 | Another nail in the “butorphanol is enough” coffin. It shows IM butorphanol at 0.4 mg/kg may only cover a short window, while BTM at the same dose is not likely to maintain estimated antinociceptive concentrations.                    |
| Winkler KP, Greenfield CL, Benson GJ. The effect of wound irrigation with bupivacaine on postoperative analgesia of the feline onychectomy patient. <i>J Am Anim Hosp Assoc</i> . 1997; 33:346-352.                                | Clinical trial in a teaching hospital, DVM student surgeons. 18 cats that underwent elective onychectomy were alternately assigned to treatment groups and evaluated blindly to determine if wound irrigation with bupivacaine decreased pain in immediate post-op period. Bupivacaine treated patients had higher pain scores than saline treated controls at two hrs but not three hours post-op. | No realistic pain management was provided for any cat, and the experimental treatment with bupivacaine actually seemed to make pain worse immediately post-op.                                                                            |

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| Wright, 20Wright BD. Clinical pain management techniques for cats. Clin Tech Small Anim Pract. 2002;17:151-157. 02                                                                                                     | Review of pain management and specific drug classes (opioids, NSAIDs) as well as blocks and acupuncture.                                                                                                                                                                                                                                                          | Recommends pre-emptive pain relief to prevent CNS hypersensitivity                                                                                                                                                                             |
| Yeon SC, Flanders JA, Scarlett JM, Ayers S, Houpt KA. Attitudes of owners regarding tendonectomy and onychectomy in cats. J Am Vet Med Assoc. 2001 Jan 1;218(1):43-47. doi: 10.2460/javma.2001.218.43. PMID: 11149713. | Nonrandomized clinical/owner follow-up study of cats that underwent tendonectomy or onychectomy at Cornell VMTH between 1993 and 1998. Owners were contacted by telephone; tendonectomy cats were more likely to return to normal activity within 3 days (67% vs 44%), and significant differences were not detected in reported behavior problems after surgery. | Useful but easy to overread. It reports owner satisfaction and owner-perceived recovery/behavior outcomes, not objective welfare. It also warns that tendonectomy still requires nail trimming and has its own medical/behavior complications. |
| Young WP. Feline onychectomy and elective procedures. Vet Clin North Am Small Anim Pract. 2002 May;32(3):601-619, vi-vii. doi:10.1016/S0195-5616(02)00007-4.                                                           | Pictorial demonstration of declawing and mass removal using surgical laser                                                                                                                                                                                                                                                                                        | While lasers are promoted as being less painful, the obvious tissue burns make this questionable.                                                                                                                                              |
| Zhang L, McGlone JJ. Scratcher preferences of adult in-home cats and effects of olfactory supplements on cat scratching. Appl Anim Behav Sci. 2020;227:104997. doi:10.1016/j.applanim.2020.104997.                     | Adult cats preferred upright scratchers over S-shaped cardboard. Cardboard and sisal rope outperformed sofa fabric. Catnip and silver vine increased scratching of appropriate posts. The synthetic interdigital semiochemical was less effective than catnip or silver vine in this study.                                                                       |                                                                                                                                                                                                                                                |