



JUNE 2018  
VOLUME 11 ■ ISSUE 6

## Inside This Issue

Corneal Collagen Cross-Linking  
— Another Livs First

John S. Sapienza, DVM,

1 Diplomate, ACVO

A Note From the Editor

3 Leonard J. Marino, MD, FAAP, LVT

Managing Acute Pain —  
Myths and Tips for A Rational  
Approach to Pain Management

Meredith von Roeden, DVM,

7 Diplomate, ACVECC



**Long Island  
Veterinary Specialists**

Where You Refer Your Patient First Makes All The Difference



## LONG ISLAND VETERINARY SPECIALISTS

163 SOUTH SERVICE ROAD ■ PLAINVIEW, NEW YORK 11803  
PH: 516-501-1700 ■ FAX: 516-501-1169 ■ WWW.LIVS.ORG

## Corneal Collagen Cross-Linking — Another Livs First

John S. Sapienza, DVM,  
Diplomate, ACVO

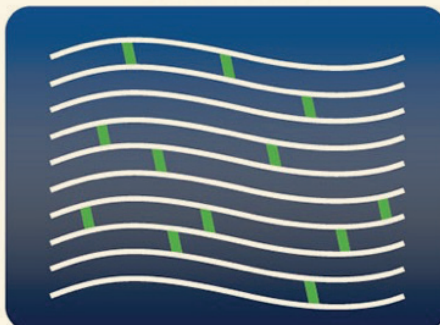


**C**orneal collagen cross-linking (CXL) is a technology whereby the corneal stroma is exposed to the B vitamin riboflavin, which is then photo-activated by exposure to ultraviolet A (UV-A) light. The purpose of the CXL is to create intrafibrillar covalent bonds in the collagen fibers of the corneal stroma to strengthen these bonds. Riboflavin absorbs the UV-A producing reactive oxygen species (ROS), and these free radicals introduce new cross links between the corneal stromal fibers to increase the biomechanical stability of the cornea. CXL was developed to treat corneal ectasia disorders in humans, specifically keratoconus, but additional therapeutic options include infectious and non-infectious keratomalacia ("melting ulcers"). There are several references in the veterinary ophthalmology literature where CXL has greatly improved the healing process of severe corneal melting

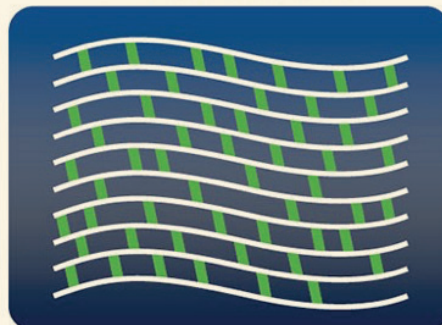
ulcers, and thus surgery was avoided in these cases. CXL has also been successful in the therapy of corneal ulcers associated with bullous keratopathy in dogs. Several great advantages of the CXL procedure over surgical intervention include: much reduced corneal scarring, no risk of anesthesia, lower cost to the client, and often more rapid corneal healing.

Continued on Page 4 ►

**BEFORE CXL : LESS CROSSLINKING  
= WEAKER CORNEA**



**AFTER CXL : MORE CROSSLINKING  
= STRONGER CORNEA**





# Emergency Department Open 24 Hours

## **Behavior Medicine**

Sabrina Poggiagliolmi, DVM, MS, DACVB

## **Cardiology**

Jonathan Goodwin, DVM, DACVIM

## **Dermatology**

Meghan Umstead, DVM, MS, DACVD

## **Emergency/Critical Care**

Elizabeth Underwood, DVM

Jennifer Krawchuk, DVM

Laura Fiore, DVM

Meredith von Roedern, DVM, DACVECC

## **Integrative Medicine**

Michel Selmer, DVM, MS, CTCVMP

## **Internal Medicine**

Jacqueline F. Gest, DVM, DACVIM

Joshua W. Tumulty, DVM, DACVIM

## **Neurology/Neurosurgery**

Ann Bilderback, DVM, DACVIM

Catherine A. Loughin, DVM, DACVS, DACCT

Curtis W. Dewey, DVM, MS, CTCVMP, DACVS, DACVIM

Dominic J. Marino, DVM, DACVS, DACCT, CCRP

Fernando Leyva, DVM

Matthew Morgan, DVM

Patrick F. Roynard, DVM, MRCVS, DACVIM

Robert Waddell, DVM

## **Oncology**

Maria Camps, DVM, DACVIM (SAIM, Oncology)

Nicole Leibman, DVM, DACVIM (Oncology)

## **Ophthalmology**

John S. Sapienza, DVM, DACVO

Kay Kim, VMD, DACVO

## **Radioiodine Therapy (I-131)**

Dominic J. Marino, DVM, DACVS, DACCT, CCRP

Joshua W. Tumulty, DVM, DACVIM

## **Rehabilitation Therapy**

Dominic J. Marino, DVM, DACVS, DACCT, CCRP

Heather Goodman, LVT, CCRP

## **Surgery**

Catherine A. Loughin, DVM, DACVS, DACCT

Curtis W. Dewey, DVM, MS, CVA, DACVS, DACVIM

Dominic J. Marino, DVM, DACVS, DACCT, CCRP

Fernando Leyva, DVM

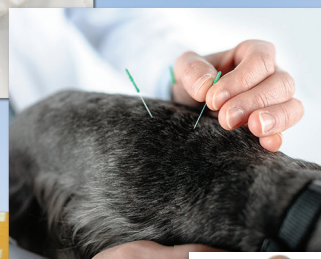
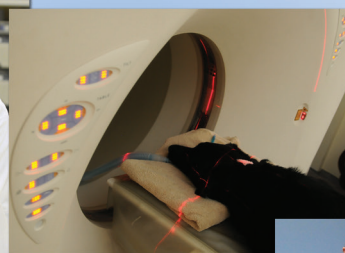
Matthew Morgan, DVM

Robert Waddell, DVM



# Long Island Veterinary Specialists

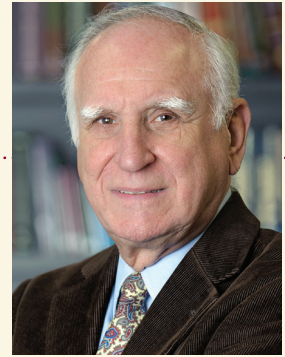
*Where You Refer Your Patient First Makes All The Difference*



163 South Service Road | Plainview, NY 11803  
516-501-1700 [www.livs.org](http://www.livs.org)



# A Note from the Editor



*Glorious days are uplifting and many more are projected for the coming weeks, even months; an invitation to enjoy the summer. Mother Earth is showing us who is in charge however, as volcanic eruptions, flowing lava and fires in Hawaii attest to her power in and on our planet.*

*Political eruptions, at least from many cable news networks, are rampant and becloud conversation that makes civil discourse almost impossible. A recent essay in Newsday highlighted this fact and decried the inability to discuss viewpoints peacefully rather than incite protests which are becoming increasingly more violent, some even provoked by our duly elected representatives. A NY Times commentary reflected on a need in colleges and universities for speech to be confutative and which must make students uncomfortable, stimulating thought processes with free discussion, not physical shutdown of disparate views.*

*Students from the area veterinary technician schools are observing the procedures at LIVS and some visiting veterinarians are doing the same. In the ophthalmology department, Dr. Kellam Bayley from New Zealand spent time observing Drs. John Sapienza and Kay Kim.*

*Dr. Meghan Umstead has extended hours to offer services to our clients and referring veterinarians and is available to consult in cases that need direction and appropriate allergic management. The Internal Medicine Department under Dr. Joshua Tumulty's direction, has expanded appointment availability for elective and emergency internal medicine consultations and ultrasound evaluations Monday through Saturdays. Dr. Curtis Dewey, associate professor and section head of Neurology/Neurosurgery at the College of Veterinary Medicine at Cornell is at LIVS regularly for consultation as is our animal behaviorist, Dr. Sabrina Poggiagliolmi. Appointments can be made at 516-501-1700. Feel free to contact any of the aforementioned staff members about how they may be of service.*

*As before we welcome all comments, please submit them to [lmario@livs.org](mailto:lmario@livs.org)*

*Leonard J. Marino, MD, FAAP, LVT*



## Corneal Collagen Cross-Linking—Another Livs First

► Continued from Front Cover

There exist several protocols as well as CXL units on the market. In summary, the patient is mildly sedated or just topical proparacaine anesthesia is applied in high risk anesthesia patients, and then topical riboflavin, which is specifically formulated for the cornea, is applied for 15-20 minutes. The cornea is then evaluated by slit-lamp biomicroscopy to assure proper absorption of the riboflavin into the corneal stroma and into the anterior chamber. The cornea is then exposed to a special UV-A light in order to activate photodynamically the riboflavin within the corneal stroma. The unit that we use allows irradiation of the cornea at 45 mW/cm<sup>2</sup> for only 2 minutes of treatment time.

We have treated several cases of kerato-

malacia and corneal abscessation with remarkable results. The healing process is accelerated, and the post-CXL corneal scarring is incredibly less as compared to a corneal grafting procedure. The procedure was well tolerated by all patients with very light sedation (typically only tobugesic via injection) and topical anesthesia drops.

Contraindications: CXL can lead to herpesvirus exacerbation in humans. In a study by Famose in the Veterinary Ophthalmology journal, CXL did not cause any reactivation in two cats positive for feline herpesvirus. CXL should not be used in cats with active herpesvirus infection. In addition, CXL is not advised in corneas thinner than 400 µm, as this may

lead to endothelial damage or damage to the intraocular structures.

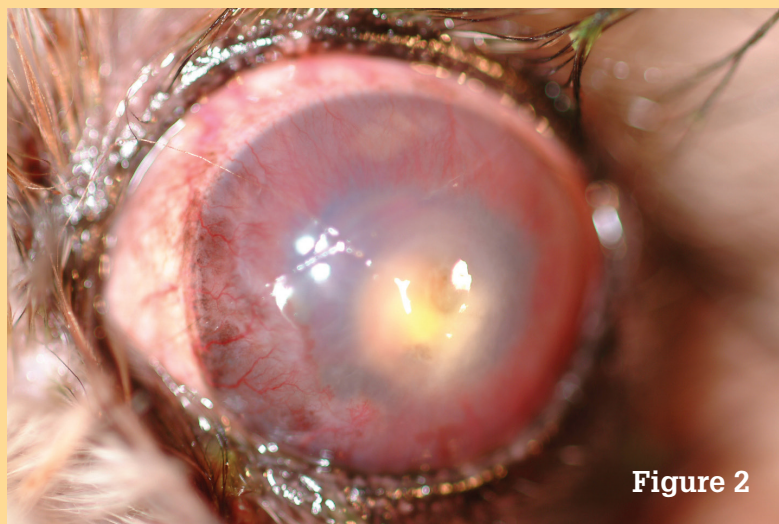
The CXL is another resource in our armamentarium in the battle against corneal diseases in dogs. The process is not 100% successful for all keratomalacia cases, as the enzymatic degradation of the cornea may weaken the stromal thickness and require corneal surgery in a select few cases. So far, our overall impression is quite favorable with CXL in dogs, and we are the only facility in our metropolitan area to offer this novel therapy for melting corneal ulcers, keratoconus and ulcers associated with bullous keratopathy.

Any questions or concerns, please do not hesitate to call us. □

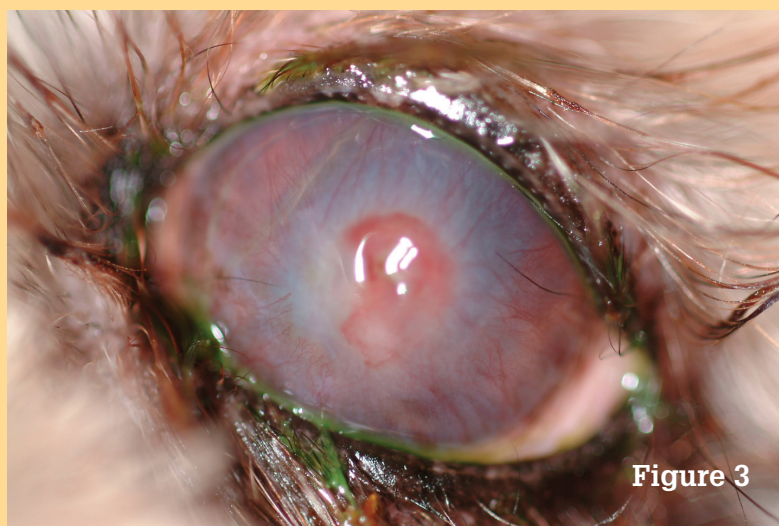
### Cornea Keratomalacia



**Figure 1:** Cornea CXL preop



**Figure 2**



**Figure 3**

**Figure 2:** Cornea CXL first week post op

**Figure 3:** Cornea CXL three weeks post op





**Long Island  
Veterinary Specialists**

*Where You Refer Your Patient First Makes All The Difference*



## **LIVS Neurology Department:**



*Ann Bilderback, DVM,  
DACVIM (Neurology)*



*Curtis W. Dewey, DVM, MS  
CTCVMP, DACVS, DACVIM  
(Neurology/Neurosurgery)*



*Patrick Roynard,  
DVM, MRCVS, DACVIM  
(Neurology/Neurosurgery)*

### **Seeing cases 6 days/week including Saturday**

- *Spinal diseases*
- *Intracranial diseases*
- *Neuromuscular diseases*
- *Movement disorders*

### **Superior diagnostics**

- **3.0 Tesla MRI** - top quality and shorter scan times
- **Brainsight® Stereotactic Brain Biopsy System** - only MRI guided stereotactic neuronavigation system for veterinary patients on LI. Less invasive biopsies, 3D reconstruction of brain and skull for better outcomes
- **64-slice CT** - faster scans and better quality
- **Cavitron Ultrasonic Surgical Aspirator (CUSA)** - improves the outcome for brain tumor removal
- **BAER testing** - for hearing loss and brain function

### **Integrated treatment approach**

- *Shortened recovery and improved outcomes with board-certified, full-time specialists joining forces in Neurology, Neurosurgery, Critical Care, and Rehabilitation*

---

### **To refer your patients, please contact:**

Long Island Veterinary Specialists  
163 South Service Road, Plainview, NY 11803  
**516-501-1700 • [www.livs.org](http://www.livs.org)**



# RECOVER IN COMFORT

# COMFORT<sup>TM</sup>

## collar

"Outstanding! Great for comfort and the pet's ability to maneuver around."  
Lorine A.



A great alternative to the plastic E-collar or inflatable collars.

- 5 sizes: Extra Small, Small, Medium, Large, and Extra Large
- 3 different colors: Cheetah, Solid Black and Black/White Zebra
- Soft micro-plush fabric for maximum comfort
- Machine Washable
- Stuffed with poly-fil which acts as a soft pillow for pet to rest on. It is not inflatable!
- Pets are able to eat, drink, sleep, and move around freely
- The neck is adjustable which provides for a more custom fit for each pet
- BONUS leash attachment to walk the dog, which will not interfere with the Collar

"My dog did very well with the collar, and it kept her away from the incision."  
Smith C.

For Comfurf Collar sales, contact:  
Sandi Garfinkel  
info@comfurfcollar.com • 516-428-6000  
www.comfurfcollar.com



# Managing Acute Pain — Myths and Tips for A Rational Approach to Pain Management

Meredith von Roedern, DVM, Diplomate, ACVECC

**T**he two most damaging and outdated myths regarding pain management that I have come across are:

**Myth 1:** It is better for the patient to under-treat pain so that they will not “overdo it” after a surgery or injury

**Myth 2:** Better to have a painful patient that is alive than a patient dead from the side effects of pain medications

These myths are both based on a significant false premise that pain does not have adverse consequences that can cause morbidity and mortality and/or the side effects of pain are less dangerous than the side effects associated with treating pain.

**Reality:** There are many consequences of untreated pain. Pain is not benign and many of these consequences can potentially affect a patient's outcome.

- Pain causes immobility, which decreases the movement of venous blood and lymph. Venous stasis contributes to hypercoagulability and increased risk of clots including PTE. Decreased lymph movement can promote the accumulation of peripheral edema which can lead to delayed wound healing. Immobility will also exacerbate OA and lead to increased pain.
- Pain can also negatively impact the respiratory system. Pain can cause hypoventilation; it frequently causes animals to take rapid shallow breaths which can lead to atelectasis and decreased pulmonary function. Patients may be less willing to cough, as this can exacerbate pain, so they tend to retain pulmonary secretions with places them at increased risk of pneumonia.
- Pain can be a potent stimulator of the autonomic nervous system, specifically increasing sympathetic tone. This causes peripheral vasoconstriction, which will decrease blood flow in the skin and to incisions/wounds/injuries which will delay wound healing.
- Increase in sympathetic tone can also cause systemic hypertension and tachycardia, which increases the workload on the heart leading to increased myocardial oxygen demand and consumption. This can lead to arrhythmias and may predispose a patient to fluid overload.
- Activation of the sympathetic nervous system also causes decreased blood flow to the GI tract and suppresses parasympathetic function which leads to ileus

and inappetence. Pain can even directly stimulate nausea in the chemoreceptor trigger zone and vomiting center within the brain resulting in emesis which can result in aspiration pneumonia.

- Additionally, acute pain can result in wind up pain, which can result in chronic maladaptive pain and hyperalgesia. These types of pain can persist indefinitely and can have a very significant impact on quality of life in people and likely occurs in some animals as well.
- Unrelieved pain can cause immunosuppression via the upregulation of cortisol and other mediators. Immune suppression can increase the risk of wound infection, catheter associated infections, pneumonia and sepsis.
- Pain can keep animals from sleeping, which can lead to delirium and delayed healing.
- Pain can lead to aggression, which makes them more difficult to handle and evaluate, and not to be forgotten, pain causes significant suffering, which is something that veterinarians have pledged themselves to alleviate as part of the veterinarian oath.

**There are many consequences of untreated pain. Pain is not benign and many of these consequences can potentially affect a patient's outcome.**

Given all of the negative consequences of pain, it is no longer acceptable to inadequately treat pain to avoid the side effects of pain medications. The more we learn about multimodal pain therapy, the better we can treat patient pain, allowing us to avoid the negative consequences of pain, while minimizing the side effects of the pain medications and improving patient overall wellbeing.

There may be situations where pain meds need to be temporarily delayed, however, I would argue that even these situations are rare. Even animals that are relatively unstable may benefit from pain medications because



they may not be able to tolerate the increased myocardial and tissue oxygen demands caused by additional sympathetic stimulation. Pain medications do occasionally need to be delayed for a short time to allow adequate assessment of a patient's injuries and/or neurologic status, however, these assessments should be undertaken as quickly as possible and then pain medications should be administered.

There are many ways to ensure that an animal does not cause itself further injury after a procedure or injury that do not necessitate inadequate control of pain. These animals can be strictly confined, a bandage or splint can be placed and overexcitement and agitation can be controlled pharmacologically as needed.

## Tips for a rational approach to pain management

### Tip 1: Individual approach

One size does not fit all when it comes to managing pain. Pain medications do have side effects some of which can be detrimental to the patient under certain circumstances. The most appropriate pain management plan is the one that is individually tailored to the patient factoring in age, comorbid conditions, nature and severity of injuries and pain, etc.

### Tip 2: Pre-emptive therapy

Pain is easier to control with less medication when treated early and before it is severe, or ideally before it starts. Pre-emptive analgesia is not possible in animals that present for trauma, but can be incredibly beneficial in surgical patients where the pre-medication prior to surgery should include a strong analgesic.

### Tip 3: Multimodal therapy (pharmacological and non-pharmacological)

Combining multiple analgesics with different

Continued on Page 8 ➤



# Managing Acute Pain — Myths and Tips for A Rational Approach to Pain Management

► Continued from Page 7

mechanisms of action and that act at different sites in the pain pathway allows for lower doses of individual drugs, which may help limit the adverse side effects of each individual medication while still adequately managing pain (see **figure 1**). There are many medications as well as non-pharmacological options that can be used together to treat acute pain including:

- Opioids: Opioids are a mainstay for treating acute, moderate to severe pain in people and in animals. They are some of the strongest analgesics we have. Moderate to severe acute pain typically requires opioid therapy in addition to adjunctive analgesics to achieve adequate analgesia. There are many pure mu injectable opioids available, and in general they have similar safety and efficacy profiles. Efficacy of these drugs depends on using them at adequate doses on an appropriate schedule which will vary from drug to drug. Buprenorphine is a partial mu opioid; it binds the mu opioid receptors but causes only a partial response with a

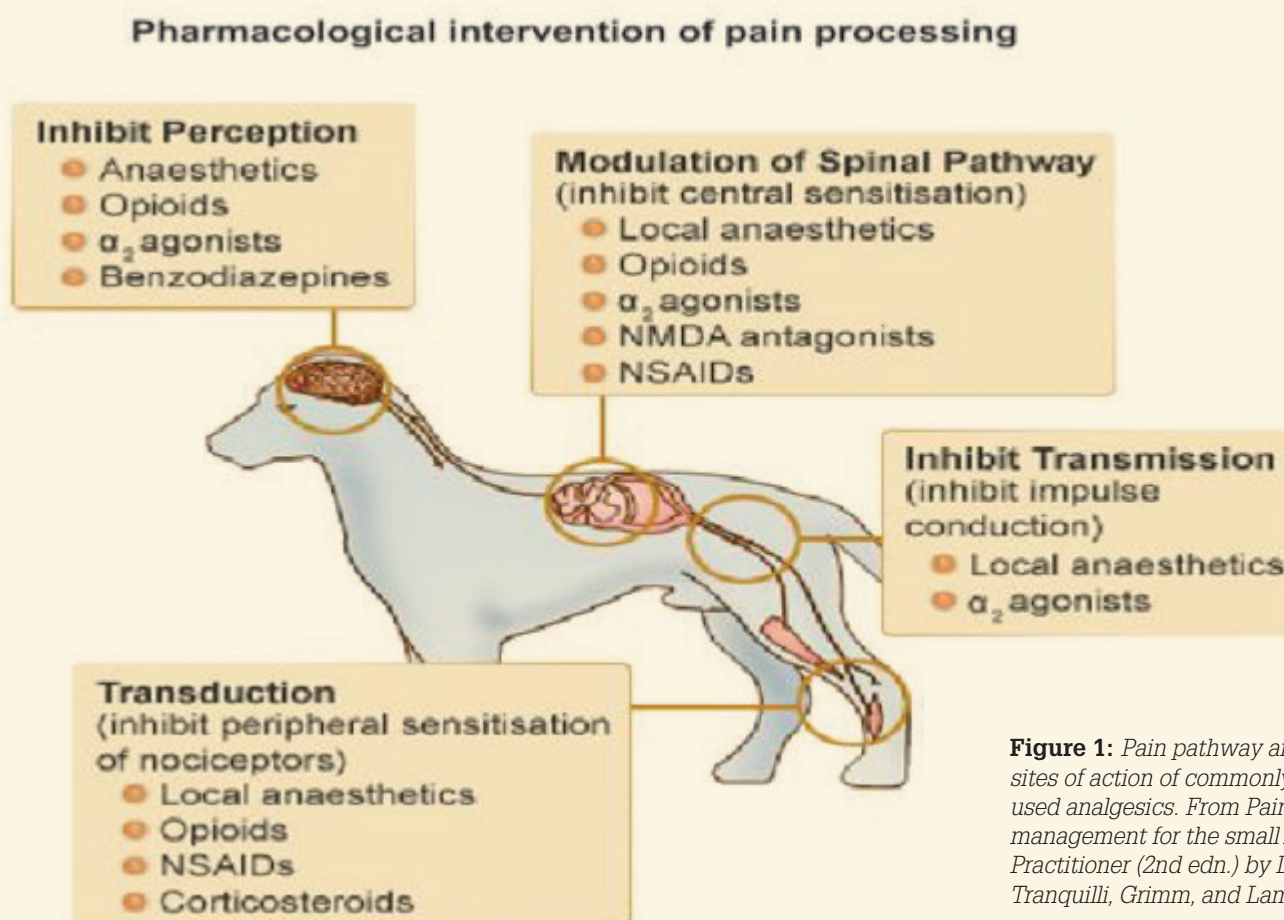
“ceiling effect” where escalating doses do not result in increased analgesic efficacy beyond a certain dose. While buprenorphine is nice because there also is a “ceiling effect” on side effects, it does have some drawbacks that should be considered before use. The biggest concern for buprenorphine is that it binds the mu receptors very tightly, which prevents the binding of other opioid pain medications and also prevents binding of naloxone. The consequences of this are: 1. If the buprenorphine is not effective enough to control pain, the administration of other pure mu opioids to achieve analgesia is ineffective which may make adequate analgesia difficult to achieve until the buprenorphine wears off. 2. Naloxone will not reverse buprenorphine actions if there are adverse effects or if the patient develops cardiovascular collapse and needs resuscitation, which is a safety concern.

- NSAIDs: NSAIDs are very good analgesics particularly for conditions associ-

ated with inflammation (including post-surgical inflammation). NSAIDs should be considered in the pain management protocol unless there are specific contraindications. NSAIDs should be avoided or used with caution in animals with pre-existing renal or hepatic disease, concurrent renal toxic medications (diuretics, ace inhibitors, aminoglycosides etc.), hypotension, dehydration and active GI disease. Robenicoxib (Onsior®) can be considered in cats without contraindications for NSAID use.

- Ketamine: Ketamine antagonizes NMDA receptors which are involved in the development of wind up pain/central sensitization. Ketamine is typically administered as a CRI after an initial loading dose
- Local/regional anesthesia: When successfully applied, local nerve blocks or epidurals can completely block the transduction or transmission of pain signals into the central nervous system. This

Continued on Page 10 ►



**Figure 1:** Pain pathway and sites of action of commonly used analgesics. From *Pain management for the small Animal Practitioner* (2nd edn.) by Drs. Tranquilli, Grimm, and Lamontc

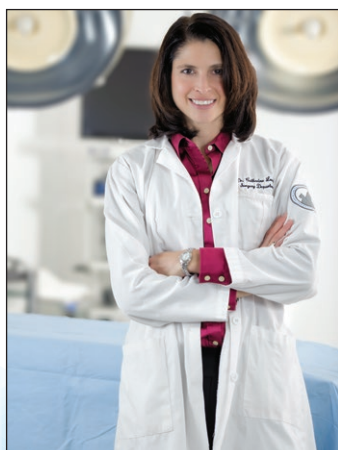
# Your Team for Advanced Surgery

The LIVS Surgery Department is staffed by a team of specialty-trained doctors and technicians whose main goal is to provide the best possible outcome for your patient's surgical problem. Our surgeons have years of experience, and are nationally and internationally recognized as leaders in veterinary surgery who are not just adept at performing the latest surgical procedures; they also have developed some of these procedures.

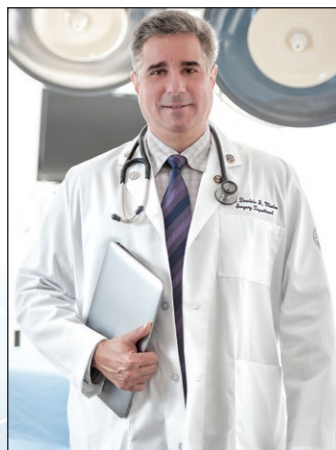
In addition to a wealth of expertise and training, our surgery department has the most advanced, state-of-the-art equipment in order to provide the best surgical management of our patients' conditions. Most notably: cavitron ultrasonic aspirator (CUSA); arthroscopic and laparoscopic towers for minimally-invasive surgery; total hip replacement instrumentation; and stereotactic MRI assisted brain biopsy equipment.



Dr. Curtis W. Dewey  
LIVS Since 2000



Dr. Catherine A. Loughin  
LIVS Since 2002



Dr. Dominic J. Marino  
LIVS Since 1998



Dr. Patrick F. Roynard  
LIVS Since 2010



Dr. Fernando J. Leyva  
LIVS Since 2011



Dr. Matthew J. Morgan  
LIVS Since 2013



Dr. Robert E. Waddell  
LIVS Since 2001

Appointments 6 days each week • 24 hour emergency surgery service



**Long Island  
Veterinary Specialists**

*Where You Refer Your Patient First Makes All The Difference*






**Call 516-501-1700 or visit [livs.org](http://livs.org) to refer  
your patient to the LIVS Surgical team.**

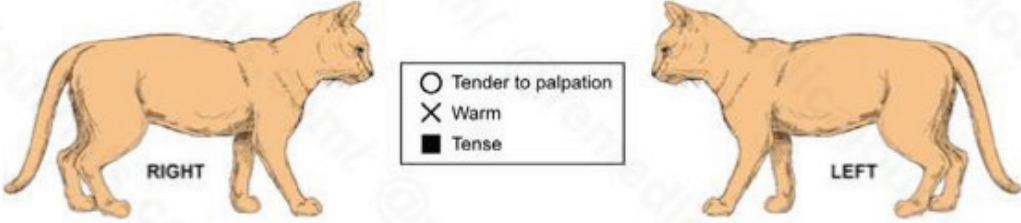
163 South Service Road, Plainview, NY 11803

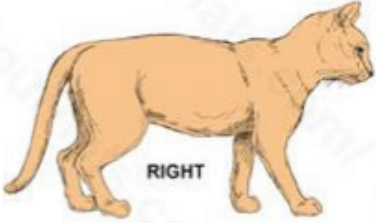


# Managing Acute Pain — Myths and Tips for A Rational Approach to Pain Management

► Continued from Page 8

Rescore when awake				
<input type="checkbox"/> Animal is sleeping, but can be aroused - Not evaluated for pain <input type="checkbox"/> Animal can't be aroused, check vital signs, assess therapy				
Pain Score	Example	Psychological & Behavioral	Response to Palpation	Body Tension
0		<input type="checkbox"/> Content and quiet when unattended <input type="checkbox"/> Comfortable when resting <input type="checkbox"/> Interested in or curious about surroundings	<input type="checkbox"/> Not bothered by palpation of wound or surgery site, or to palpation elsewhere	Minimal
1		<input type="checkbox"/> Signs are often subtle and not easily detected in the hospital setting; more likely to be detected by the owner(s) at home <input type="checkbox"/> Earliest signs at home may be <u>withdrawal from surroundings or change in normal routine</u> <input type="checkbox"/> In the hospital, may be content or slightly unsettled <input type="checkbox"/> Less interested in surroundings but will look around to see what is going on	<input type="checkbox"/> May or may not react to palpation of wound or surgery site	Mild
2		<input type="checkbox"/> Decreased responsiveness, <u>seeks solitude</u> <input type="checkbox"/> Quiet, loss of brightness in eyes <input type="checkbox"/> Lays curled up or sits tucked up (all four feet under body, shoulders hunched, head held slightly lower than shoulders, tail curled tightly around body) with eyes partially or mostly closed <input type="checkbox"/> Hair coat appears rough or fluffed up <input type="checkbox"/> May intensively groom an area that is painful or irritating <input type="checkbox"/> Decreased appetite, not interested in food	<input type="checkbox"/> Responds aggressively or tries to escape if painful area is palpated or approached <input type="checkbox"/> Tolerates attention, may even perk up when petted as long as painful area is avoided	Mild to Moderate Reassess analgesic plan
3		<input type="checkbox"/> Constantly <u>yowling, growling, or hissing</u> when unattended <input type="checkbox"/> May bite or chew at wound, but unlikely to move if left alone	<input type="checkbox"/> Growls or hisses at non-painful palpation (may be experiencing allodynia, wind-up, or fearful that pain could be made worse) <input type="checkbox"/> Reacts aggressively to palpation, adamantly pulls away to avoid any contact	Moderate Reassess analgesic plan
4		<input type="checkbox"/> Prostrate <input type="checkbox"/> Potentially <u>unresponsive</u> to or unaware of surroundings, difficult to distract from pain <input type="checkbox"/> Receptive to care (even mean or wild cats will be more tolerant of contact)	<input type="checkbox"/> May not respond to palpation <input type="checkbox"/> May be rigid to avoid painful movement	Moderate to Severe May be rigid to avoid painful movement Reassess analgesic plan



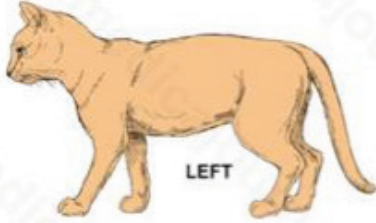


RIGHT

○ Tender to palpation

✕ Warm

■ Tense



LEFT

Comments \_\_\_\_\_

\_\_\_\_\_

© 2006/PW Hellyer, SR Uhrig, NG Robinson

© 2006 PW Hellyer, SR Uhrig, NG Robinson. Reproduced with permission from the authors.

Figure 2: CSU Acute pain scale for cats

Continued on Page 11 ►

## Managing Acute Pain — Myths and Tips for A Rational Approach to Pain Management

► Continued from Page 10

can be very helpful in minimizing the drugs needed to maintain anesthesia and improving comfort in the immediate post-operative period. The biggest limitation to local anesthetics is that they wear off relatively rapidly (lidocaine lasts 1-2 hours, bupivacaine lasts 3-6 hours typically). A new product called Nocita® is a liposomal encapsulated bupivacaine whose duration of action is up to 72 hours. This product is currently approved for use in veterinary cruciate ligament repair, but additional uses are likely, and this new medication may have a transformative effect on multimodal pain therapy for veterinary patients in the future due to its extended duration of action.

- Non-pharmacologic therapies: There are many non-pharmacologic pain management techniques that can be added to pharmacologic management to treat acute pain including cryotherapy, laser therapy, acupuncture, therapeutic massage and physical therapy.

### Tip 4: Pain scoring

Pain assessment in animals is subjective and can be very challenging. The best approach to pain assessment is to use a validated veterinary pain scoring system of which there are several (Glasgow Composite Measure Pain Scale, Colorado State Canine/Feline Acute Pain Scale etc.); see **figure 2**. These composite scales incorporate interactive and behavioral components to assess pain in canine and feline patients. These scales help identify more subtle signs of pain (withdrawn behavior, hunched body posture, decreased interactiveness etc.) to avoid undertreating pain in animals and they allow for a more standardized and repeatable approach to assessing pain between evaluators and over time in any given patient. Pain scoring should be assessed immediately and then re-evaluated frequently in animals currently in or at risk for pain. They should be assessed before and after analgesic therapy to ensure adequate control of pain with their individualized pain management protocols. Pain scales may seem foreign at first, but become quick and easy over time as staff become familiar with their use. □



If you would like to receive a free subscription to

**LIVS** in PlainView

call 516-501-1700 ext. 243 or  
email [RDAndraia@livs.org](mailto:RDAndraia@livs.org) with  
your name, address, phone and fax  
number. Please put "LIVS in  
PlainView Free Subscription"  
in the subject line.

## East Meets West...One Medicine



To refer your clients to Dr. Selmer, call  
516-501-1700 or visit [www.livs.org](http://www.livs.org)



**Long Island  
Veterinary Specialists**

Where You Refer Your Patient First Makes All The Difference

163 South Service Road, Plainview, NY 11803

Dr. Michel Selmer is an Integrative Veterinarian and one of only a handful of Traditional Chinese Veterinary Medicine Practitioners that holds a Master's Degree in the United States.

**Dr. Selmer is a certified TCVM practitioner and provides the following Integrative Medical Therapies:**

- Veterinary Acupuncture
- Herbal Medicine
- Veterinary Food Therapy
- Veterinary Tui-na



To learn more about Dr. Selmer and Traditional Chinese Veterinary Medicine, check out his book:  
**"The Best of Both Worlds, An Advanced Guide to Integrative Veterinary Care for Healthier, Happier Pups"**





## Long Island Veterinary Specialists

*Where You Refer Your Patient First Makes All The Difference*

163 South Service Road, Plainview, New York 11803



# LIVS Radiation Therapy



To refer your clients for radiation therapy, call  
516-501-1700 or visit [www.livs.org](http://www.livs.org)

Maria Camps, DVM, DACVIM (SAIM, Onc.) • Nicole Leibman, DVM, DACVIM  
Dominic J. Marino, DVM, DACVS, DACCT, CCRP



## Long Island Veterinary Specialists

*Where You Refer Your Patient First Makes All The Difference*

163 South Service Road, Plainview, NY 11803

LIVS has pioneered the application of a specific type of radiation therapy called electronic brachytherapy (EB) to dogs and cats. EB allows the radioactivity to be administered to the surrounding cancer cells from a miniaturized radiation source, rather than a radioactive material as with conventional radiation therapy.

- Effective for a variety of tumor types
- Early radiation "drop off" and direct treatment of tumor bed results in less damage to surrounding tissues
- Treatment ranges from 3-8 days
- Can be used in combination with surgery and/or chemotherapy to provide permanent control or death of a tumor
- Up to 30% lower cost than traditional radiation therapy