PULSE

news from Paws To People, Bridges to Cures

Issue 52, November, 2017

Chiropractic Care for Pain Reduction

DOGWatch, Cornell University College of Veterinary Medicine, Vol. 21, No.11 November, 2017. ABRIDGED.

Whether it's for the back, the jaw, or incontinence, spinal manipulation therapy reduces pain

Chiropractic care for animals, officially known as Veterinary Spinal Manipulative Therapy (VSMT), is an alternative medicine treatment that may help some dogs stay active or regain previous activity levels.

When performing VSMT, your veterinarian will be adjusting your dog's spinal column--working on vertebrae that are "frozen" in place and/or subluxed (moved out of their proper alignment). The goals are to reduce pain, increase the range of motion of the joints affected, and increase mobility.

Along with more traditional problems, like arthritis and injuries, VSTM may also help with urinary incontinence and jaw problems such as TMI.

While many people think of adjustments and chiropractic care as "massage," VSTM is much more than that. You should choose a certified vet to do VSTM. All manipulations and adjustments on the spine and vertebrae should be backed by the knowledge of how the nerves and muscles in that area interact.

VSTM can help dogs with a wide range of problems, not just orthopedic situations. After all, almost all of the nerves of the body travel through the spinal column. Still, movement problems are the most common reason VSTM is considered.

Dr. Polly Fleckenstein, DVM, is certified in VSTM and sees many dogs as patients. "The most common conditions treated are lameness--oestoarthritis and joint problems--as well as back problems. Typical patients include post-operative patients, arthritic patients, performance and competitive animals. Many other health conditions also can show improvement due to the fact that adjustments improve nervous system efficiency. The result is that muscles then fire more efficiently, so that the joints are more stable. Gentle, trained manipulation of the spinal vertebrae restores normal sensory input to the nervous system and allows better central integration."

Your dog will need a background workup with your own veterinarian before starting VSTM. A complete physical should include neurologic, orthopedic and muscular examination, as well as a discussion of historic and current health concerns. Medications, supplements, and diet should be reviewed along with radiographs and other diagnostic tests.

"The treatments are non-invasive and generally well-tolerated by animals. Treatment includes gentle range of motion, traction and joint mobilization techniques and specific adjustments in areas of restriction, or hypomobility," explains Dr. Fleckenstein.

While there are rare cases where just one or two adjustments get your dog back on track, many problems require some level of on-going care...that may be once a month or twice a year. A "tune up" schedule will be customized for your dog and his individual problem.

Many dogs who benefit from VSTM are active dogs who may tend to disrupt the same areas repeatedly, requiring periodic adjustments. Older dogs may have problems that cannot be cured, such as arthritis, but the pain and the condition can be controlled.

"Most problems do require ongoing car due to underlying musculoskeletal problems and the activity of the patient," says Dr. Fleckenstein. "Most animals require several treatments to help restore normal spinal and joint motions, which in turn restores neurological signaling within the nervous system. Regualr treatment is often beneficial to keep function at the optimal level. Results are noted by better gait, posture, and a decrease in pain. Very often the patient is perceived as 'happier.'"

Talk with your regular vet for guidance and recommendations. You can find a listing of certified veterinary practitioners at the American Veterinary Chiropractic Association. http://www.animalchiropractic.org.

Four ways dogs might be able to sniff out disease

By IKE SWETLITZ @ikeswetlitz April 29, 2016 HTTPS://WWW.STATNEWS.COM

Jonathan Ball practices with McBaine for a study that will involve detecting cancerous tissue at Penn Vet Working Dog Center. MATT ROURKE/AP

Who says you can't teach an old dog new tricks? With 40 times as many receptors in their noses as humans have, dogs are being trained to detect a myriad of diseases. We're not anywhere close to drafting canines as medical assistants, but they are showing promise in some arenas. Here are some examples.

Urinary tract infections. Dogs are used to sniffing pee — and that habit may actually have medical benefits. Researchers spent eight weeks training five Labrador and golden retriever dogs to identify infected urine, and then let them loose on hundreds of mostly female samples. The dogs were able to detect samples contaminated with four different bacteria with at least 90 percent accuracy.

Parkinson's disease. Nearly two dozen people claim to be able to identify Parkinson's by smell, Scientific American has reported that's led some to speculate that dogs could be trained to do the same. This is very preliminary — scientists don't even know yet exactly what the humans are smelling, but research into that very question is ongoing.

Blood sugar. Anecdotally, dogs have been known to detect low blood sugar, but it's unclear how they do so, or whether they may be able to offer systematic help to diabetics. Still, various groups are trying. Dogs4Diabetics, a nonprofit based in California, has for years been training dogs to detect subtle changes in a person's smell associated with low blood sugar, according to WedMD and Lions Foundation of Canada is trying to do the same thing. Still, file this in the highly experimental category.

Cancer. This is the big one. It's been shown repeatedly that dogs can smell cancers — including bladder cancer, breast cancer, colon cancer, and skin cancer And they might be able to do it more accurately than conventional tests. Italian researchers trained two German Shepherd explosive detection dogs — named Zoe and Liu — to detect cancerous urine. Once trained, they got it right 95 percent of the time, making them more accurate than the prostate-specific antigen test used to screen for prostate cancer. A Labrador retriever trained in scent detection was able to identify colon cancer in both breath samples and stool samples with high accuracy. But much more work is needed, as dogs haven't done as well on more rigorous tests in some cases.

EVENTS

November 19--Paws To People Board of Directors' Meeting 1pm at Flying Star Café on Corrales Road in Albuquerque.

Ongoing--Recycle Bring your empty Earthborn dog and cat food kibble bags (any size), cans, and treat bags to Boofy's Best for Pets 8201 Golf Course RD NW. Earthborn has a commitment to recycling and they provide a rebate for it. The rebate funds benefit Paws To People.

Ongoing--Gently used Shoe Drive. Benefits Paws To People and Sanctuary@ABQ.Help our non-profits collect 7,500 pairs of used shoes to earn a finder's fee that will let us direct more donation dollars toward projects that better the lives of people and pets. It is easy to help:

- just bundle up those old shoes in pairs (tie laces or rubber band) and contact us to pick them up findraiser@sanctuaryatabq.org or 505-267-2476
- or drop them off in a collection bin at one of our partner businesses:

Boofy's Best for Pets 8201 Golf Course Road NW, ABQ
Good Shepherd Animal Clinic 4601 Menaul Blvd. NE, ABQ
Monterra Apartment Homes 4217 Louisiana Blvd NE,ABQ
Susie N Cleaners & Alterations, 9500 Montgomery Blvd., ABQ

On-going–One Community Auto
One Community Auto shepherds your donated car, truck, RV, or boat (any condition, operational or not) through rejuvenation and resale and donates a portion of the profit to Paws To People. It is easy to donate. One Community Auto manages the complete process from donor contact, sale and payments. They are bonded and insured. Contact us to learn more: info@BridgesToCures.org

When Ahchoo Is a Vote 'Yes'

A study out of the University of New South Wales brings a new voting method to light. The report, published in *Proceeding of the Royal Society B Biological Sciences*, showed that African wild dogs vote during "social rallies" held after rest periods to decide when it is time to move on. The voting method? Sneezing.

After watching 68 social rallies from five different packs in Botswana, senior author Dr. Neil Jordan, from UNSW Sydney and Taronga Conservation Society of Australia, says, "The more sneezes that occurred, the more likely it was that the pack moved off and started hunting. The sneeze acts like a type of voting system."

If the dominant male and female were the only ones involved, only a few sneezes were required. "However, if the dominant pair were not engaged, more sneezes were needed--approximately 10--before the pack would move off," says team member Reena Walker, of Brown University.

Dr. Andrew King, study co-author of Swansea University in the UK adds, "The sneezes act as a type of quorum, and the sneezes have to reach a certain threshold before the group changes activity.

"Quorums are also used by other social carnivores like meerkats, but our finding that the quorum number of the sneezes changes, based on who is involved in the rally, indicates each dog's vote is not equal," says King.

PAWS TO PEOPLE bridges To Cures

Committed to helping define a new translational approach to medicine by building bridges in order find innovative solutions to how we detect, prevent and cure diseases in animals and humans that take too many too soon.
For information or to join the fight ...
visit our website: **www.BridgesToCures.org**
follow us on **Facebook.com/PawsToPeople**
or email us: **info@BridgesToCures.org**

MORE PAP PULSE

How Beagles and Goldens Could Help Researchers Find the Next Cancer Therapy for Humans

By Usha Lee Farling @ushamcfarling October 4, 2017 STATNEWS.COM ABRIDGED.

Davis, Calif. — Radiation oncologist Dr. Michael Kent desperately wants to beat cancer. He's testing the latest high-tech treatments in clinical trials and using a multimillion-dollar linear accelerator so he can offer the best care to patients — whether they're beagles, golden retrievers, or the black and white terrier mix named Moo he's now treating for a recurrent tumor in her paw.

Kent is a veterinarian. Frustrated by the lack of treatment options for dogs with certain tumors and cancers that have metastasized, he's searching hard for new treatments to extend the lives of his patients. But because the biology of dogs and humans is so similar, what he finds here at the UC Davis School of Veterinary Medicine could well help treat human cancers as well. “For a long time, we've looked at humans to see how to treat dogs,” Kent said. “We're starting to do a little bit of the reverse now.”

This field of comparative medicine — using animals to better understand and treat human disease — is not new. What's different is that veterinarians are now conducting rigorous clinical trials of new treatments with the hope they might eventually benefit humans as well as the family pet.

This work comes at a critical time, those in the field say, because so few oncology drugs — or drugs for many diseases for that matter — end up getting approved for use in humans after showing early promise in lab studies. More than 90 percent of drug treatments tested in mice have failed to translate to humans.

“There's things we find in the lab that we think might be helpful, then we get to the clinic and they either don't work or are toxic,” said Dr. Arta Monjazeb, a radiation oncologist at UC Davis Comprehensive Cancer Center who's partnered with Kent to test new treatments in dogs. One immune therapy that the two recently tested to shrink metastatic lung cancer in his dog patients will soon enter clinical trials in humans at Davis.

While Monjazeb never expected to be working alongside veterinarians when he entered medicine two decades ago, he said he's embraced work with pets in hopes it will speed discovery of new drugs, a process he finds painfully slow. “There's a sense of urgency,” he said. “A lot of patients still need new treatments.”

Other vets are testing stem cell treatments on pets, as well as cutting-edge CAR-T cell therapy which harnesses a patient's own immune system to kill cancer cells. Kent has a new paper coming out soon on using a dog's own natural killer cells, a type of blood cell, to attack osteosarcoma, a bone cancer that's remarkably similar in humans and dogs.

At many of the nation's top veterinary schools — and even at prestigious medical schools such as Stanford — veterinarians are working closely with M.D.s and Ph.D.s to further clinical research in a host of intractable diseases using a broad range of animals.

“The field is building momentum,” said Dr. Kathryn M. Meurs, associate dean at the North Carolina State College of Veterinary Medicine, which is part of a large Comparative Medicine Institute where veterinarians regularly collaborate with doctors at Duke University and the University of North Carolina. “It's taking on more substantial problems like cancer, infectious disease, cardiology and neurology,” she said. Dr. Michel Kent,Radiation Oncologist, agrees, “For a long time, we've looked at humans to see how to treat dogs. We're starting to do a little bit of the reverse now.”

Meurs, a veterinary cardiologist, studies inherited cardiomyopathy and is trying to understand why members of the same family with the same inherited genetic defect can exhibit widely different manifestations of the disease. But it's hard to tackle such a question in humans, who get the disease so late in life and usually have few siblings for comparison. So she uses dogs. “Individual variation is much easier to study in an animal model that might have 10 offspring in one litter,” she said.

Companion animals offer numerous other benefits for medical researchers, she said. For example, pets are often exposed to the same disease-causing environmental factors as humans. (In fact, many veterinary schools refer to their work in comparative medicine as “One Health,” a philosophy that sees animal, human and environmental health as closely interconnected.)

Dogs and cats get cancer spontaneously, like humans, so their cancers are more biologically relevant to humans than the cancers that are artificially induced in lab animals. In some cancers, dog and human tumors are indistinguishable under a microscope. Surgical techniques can easily be adapted from dogs to humans, as they have been in limb-saving bone cancer surgery. And dogs are much closer in size to humans than are lab animals.

“We use the same diagnostics, the same treatment. These are all the same drugs and approaches we would use in people,” said Dr. Jessica Lawrence, an associate professor at the University of Minnesota Veterinary Medical Center, who said her colleagues at the University of Minnesota Medical School are often startled to learn how advanced the cancer care she offers her animal patients is.

Vets have taken at least one page from human clinical research. They are starting to run larger and more sophisticated studies of new therapies. When she started in the field about a decade ago, Lawrence focused solely on her animal patients. Better treatments for cancer in dogs are an urgent need; the disease kills some half of dogs over age 10. But as she's encountered more and more people who have dealt with cancer, Lawrence has become increasingly interested in working to benefit humans as well. The fact that canine clinical trials might help improve human cancer treatment also goes over well with pet owners. “Everyone knows someone with cancer,” she said.

Care given as part of a clinical trial is not always completely free because vet schools have little of the hefty pharmaceutical industry funding that can help defray the cost of research. Animal patients often come with fiercely devoted pet owners who want to do anything to save the lives of their pets; the informed consent process is taken seriously, Kent said, so that pet owners understand all risks.

While Kent is excited about the potential of his research on cancer, he makes it clear that the subjects of his research are patients first. “I'm not going to do anything to advance science at the cost of my patients. The first thing is do no harm,” said Kent, speaking in his office near a wall covered with dozens of photos his patients' owners have given him over the years. “But if we can learn from them, and help them as well, that's a really good goal. And if we can help humans as well, that's great.”

How Parrot Feathers Might Speed Up Basic Chemistry and Medical Research

ScienceBlog October 9, 2017
https://scienceblog.com/

If you have ever wondered why some parrots are green and others are blue, science now has an answer for you – and, the researchers behind the results say, the techniques they developed in the process could one day lead to the discovery of new chemical compounds or biomolecular processes that could impact human health.

It began over dinner, with a discussion of chocolate – specifically, the domestication of chocolate's main ingredient, cacao. Thomas Cooke, PhD, then a graduate student in genetics, had been working on tools to study “non-model organisms,” plants and animals that get less attention than, say, lab rats, fruit flies, or baker's yeast – the go-tos for much of chemistry, biology, and medicine – despite the potential for yielding important scientific insights. Cooke had been working on cacao, but the project had, he said, “fizzled,” and he was looking for what to do next.

Mulling that over at their favorite Palo Alto diner, biochemistry graduate student Kathleen Xie mentioned to Cooke a peculiar trait of the budgerigar parrots (Melopsittacus undulatas) she'd raised growing up: wild budgies are green and yellow, but others have been bred since the 19th century to be blue and white – and no one knew exactly how, on a genetic or molecular level, that happened.

Cooke, Xie and colleagues set out to figure out what was in some ways the perfect test case for the methods Cooke had been working on. It had been known for years that wild budgies' color came from a yellow pigment the budgies themselves produce, and it had been known even longer that their color was a Mendelian trait, that is, budgies either made the yellow pigment or they didn't. It should therefore be straightforward, if not exactly easy, to track down the gene responsible for determining budgie color.

Working with Stanford ChEM-H's one-year-old Metabolic ChemistryAmalysis Center and researchers from around the chemical and life sciences – and members of the American Budgerigar Society and the Budgerigar Association of America, who provided samples and advice – Cooke tracked blue budgies' color to a gene responsible for regulating a chemical they dubbed MuPKS, for Melopsittacus undulatas polyketide synthase. A change to just one amino acid that makes up MuPKS, the researchers found, stops budgies from producing yellow pigment, revealing an underlying blue color in the birds' feathers. To confirm those results, the team next transferred MuPKS gene into baker's yeast and showed that the yellow variant turned yeast yellow, while the other variant had no effect on color.

Even if parrot color itself doesn't turn out to be the most interesting subject scientifically, the study is harbinger of things to come, said Carlos Bustamante, PhD, a professor of biomedical data science and of genetics and one of the paper's senior authors. “What Thomas conceptually demonstrated was we could go into any organism” and learn something interesting and useful about its biochemistry, Bustamante said.

In the future, the techniques Cooke developed – and the ever-declining cost of genetics research in general – could help scientists as a group look at many different plants and animals at once, increasing the likelihood someone will find the next key medicinal compound or biochemical pathway sooner rather than later. “It really demonstrates the power of emerging model systems,” Bustamante said.

“To me, the highlight of the story is Tom Cooke,” said Chaitan Khosla, PhD, a professor of chemistry and chemical engineering and director of ChEM-H. Cooke and his work, Khosla said, exemplify a new approach to life sciences that bridges work in genetics, biochemistry, and other fields.