



Animal Connection

Oregon State University College of Veterinary Medicine

WINTER 2013

Injured Vulture Gets Acupuncture

Junior has not led a typical vulture's life. Rescued by the Chintimini Wildlife Rehab Center after injuring his wing, Junior spends his days in a large, tree-shaded enclosure, takes leisurely walks over to the eagle house, and has dinner served to him ready-to-eat. Now he is doing something very non-vulturish but typical of Corvallis residents: trying alternative medicine.

Junior and his roommate Ferdinand, a turkey vulture with metabolic bone disease, are receiving acupuncture treatment from doctors at the OSU Veterinary Teaching Hospital to relieve pain and stiffness in their wings. And it seems to be helping.

In a quiet corner of the large animal hospital, Dr. Aurora Villarroel sets up a table

Claire Peterson holds Junior who is so accustomed to handling, he tolerates the acupuncture needles in his right wing.

with her acupuncture equipment while fourth-year student Claire Peterson brings Junior out on her arm. Peterson has been working with the vulture for four years, training him to be an education bird at Chintimini. "We hit it off right away," says Peterson. "Now we are best buds." This is evident throughout the treatment. Each time Villarroel reaches toward Junior's wing, the vulture tucks his head under Peterson's arm.

Carefully inserting tiny, white needles along the bird's wingspan, Villarroel moves quickly to get as

many in as possible before Junior starts protesting. Once the needles are in place, Peterson initially has to block Junior's attempts to pluck them out, but as they begin to work their magic, he ignores them and his wing starts to visibly relax. He even gets down on the

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Four pairs of hands work to repair the shattered jaw of a two-month old pug.

Unusual Expertise Needed to Save Puppy's Jaw

When a four-week-old Pug puppy came into the OSU Veterinary Teaching Hospital (VTH) with multiple fractures in his jaw, doctors were immediately faced with unique challenges: Pugs don't have much of a nose so their airway is small and breathing is inhibited; the bones are small and hard to pin; and a three-pound puppy has tiny teeth that are still developing. "Fractured mandibles are not uncommon in young dogs," says Dr. Wendy Baltzer, an orthopedic surgeon who worked on his case, "but their repair can be challenging due to the small size of the bones involved. It can be difficult to place pins while avoiding important structures like tooth roots, nerves, and unerupted adult teeth."

Baltzer rebuilt the puppy's jaw using pins held in place by moldable plastic and an external plastic ring called a fixator that was nearly as big as the puppy's head. Bone cement was

placed between his upper and lower canines to ensure an adequate airway and limit movement during the healing process. Then the long road to recovery began.

The puppy was sent home with a collar to prevent him scratching at his fixator and incisions, and a feeding tube which allowed his owner to inject soft food and Lactulose into his tummy. With a good appetite and a good attitude he was soon back to his lively self, but on a follow-up visit, doctors discovered his jaw was healing out of alignment. It was drifting to the right due to bone loss from the original crushing injury. They decided it would be necessary to wire his jaw but this required special equipment and supplies not on site at the VTH so Dr. Jennifer Warnock called Timberhill Dental and asked if anyone there would be willing to come on short notice and work on a puppy. Certified dental assistant Tina Desimone came to the rescue.

Although she has joined dental missions to Mexico and Guatemala, Desimone had never worked on a non-human before. "It was very interesting," she says. "Applying my knowledge of the human mouth to a dog was very rewarding." Desimone bonded a metal wire with resin to an upper and lower tooth on both the left and right sides of his mouth. "It was challenging because the teeth are so small. I have never worked on teeth smaller than a grain of rice!"

With so many uncomfortable things to deal with at a very young age, Baltzer was worried that the puppy might develop a fear of vets. To keep that from happening, she spent a lot of extra time cuddling and playing with him. Fourth-year students on rotation in the hospital also gave him lots of TLC.

Baltzer is hoping his jaw will improve with time but in such a young dog it is hard to predict. "He still has a drift to the right and likely will never use his jaw normally but we hope to make him pain free and able to eat food without difficulty."

Making Babies is a Science

Mithril is three years old and about to be a mom – via artificial insemination. A gentle giant at nearly 200 pounds, she has a sweet, friendly face that makes you forget her imposing size. She is also surprisingly calm in a room full of strangers poking and prodding her in preparation for a delicate procedure.

Mithril's owners have gone to significant time and expense to ensure that her litter will be strong and healthy by ordering semen from a mastiff in Tennessee. They want to ensure Mithril's puppies will be free of joint dysplasia and other congenital problems, so they did

their homework by investigating the health of the male donor dog and his offspring.

Dr. Hernan Montilla, a reproductive veterinarian at the OSU Veterinary Teaching Hospital, will inseminate Mithril using a tiny tube and camera (called an endoscope) that passes through her cervix. Montilla will watch the progress of the endoscope on a screen that magnifies Mithril's interior by many times. The procedure takes lots of practice and a delicate hand but has huge advantages over a surgical approach: There is less risk, pain and scarring, and the endoscopic procedure can be repeated if necessary.

Reproductive veterinarians like Montilla are known as theriogenolo-

gists. They deal with many aspects of making babies for many different animal species. At OSU that usually means dogs and horses but has also included wild animals.

With only 10,000 cheetahs left in the wild, the beautiful cats are an endangered species. They have also become scarce in captivity because they are difficult to breed. With one of the few successful cheetah breeding programs in the country, Wildlife Safari in Winston, Oregon collaborates with the National Zoo in Washington, D.C. to increase sustainable populations of cheetahs in the U.S. In fact, Wildlife Safari ships cheetah cubs to zoos all across the country.

Montilla and others at OSU have worked with veterinarians at Wildlife Safari to enhance their cheetah breeding program. Montilla plans to inseminate cheetahs using the same transcervical technique he used on Mithril.

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Dr. Hernan Montilla helped Mithril get pregnant through artificial insemination.



Dog Days of Summer

High school students on summer break take a hands-on tour of veterinary medicine.

The necropsy lab in the OSU College of Veterinary Medicine (CVM) may seem a bit spooky to the inexperienced. The windowless, cement-floored room lined with steel tables looks just like the morgues you see in the movies. For a group of teenagers witnessing their first rabbit dissection, it was intimidating and you could tell they were jumpy and squeamish. "Oooh, what's that smell?" said one. "I don't want to think about it," said another.

Wearing white coats and latex gloves, the group assembled around a table where Dr. Jerry Heidel, pathologist and director of the OSU Veterinary Diagnostic Laboratory, unwrapped a rapidly thawing, deceased rabbit and began demonstrating all the steps in an animal autopsy. As he removed the organs, he handed them to the students who took them reluctantly. "I wanted them to get the look and feel of the organs and

see how they are connected to each other," he said.

Learning about post-mortem diagnosis was just one of the hands-on learning opportunities offered at the first ever OSU Summer Veterinary Experience. It was part of a week-long adventure for ten academically



talented high-school students with an interest in veterinary medicine. The teenagers came from Portland, Salem, and Woodburn to live in dorms at OSU for a week and learn all about being a veterinary student including time spent practicing surgical techniques, conducting animal exams, and exploring zoonotic research. Each teenager was assigned a veterinary medical student as a mentor who helped them navigate the campus and the many workshops that filled their time. The entire week was cost free but a veterinary degree is expensive so they also spent time learning how to apply for scholarships and financial aid.

Conceived by Sue Tornquist, Associate Dean at CVM, and Luiz Bermudez, head of the Department of Biomedical Sciences, the pilot project was a big success and plans are afoot to expand it to middle school students in the

future. “This experience showed me that becoming a vet isn’t impossible, though it takes a lot of hard work and dedication,” says Emily Rodgers. “My passion for helping animals and learning new things will be the fuel to keep me going strong through eight years of school. I am so excited to start my journey into the OSU College of Veterinary Medicine.”

One big goal of the program is to help build diversity in the veterinary profession. “We want to encourage diversity so that no matter where you go for pet care, you will see someone who looks like you,” says Tornquist. Another goal is to introduce students to the many facets of the profession. To that end, students spent every afternoon in a laboratory working closely with a faculty partner on a week-long research project. Many of the students worked on creating polymerase chain reactions to isolate DNA and identify bacteria and viruses. Others worked in immunology identifying white blood cell antigens. “I actually enjoyed the research. I love animals and learning how to diagnose their disease or figure out what they are suffering from is interesting to me,” says Jazmine Deckard.

At the end of the week, students, mentors, families, and faculty gathered in the auditorium to watch a video of their week together. Then the students presented the results of their research. Aarika Guerrero, who organized and coordinated the program, says, “The highlight for me was seeing the campers giving their research presentations and share their experience on their last day. Knowing that they walked away with more than they came in with was very satisfying, and hearing them say “I want to come back next year,” is the best reward I could have hoped to receive.”



Top: Jazmine Deckard practices suturing with mentor Sierra LaBrecque.
Bottom: Celine Gregoire investigates the structure of a cow heart.

Photos courtesy of Caitlin Kelly



Veterinarians Aren't Only Pet Doctors

For decades veterinarians have quietly been working on issues that affect human health.

Oregon's first milk inspector was a veterinarian who worked tirelessly to educate and encourage dairy farmers to adopt anti-bacterial practices that ultimately reduced the rate of infant mortality. Veterinarians also played a critical role in reducing the incidence of Tuberculosis in the United States by treating the disease in animal populations.

Today, veterinarians are still behind the scenes of public health, working to control diseases like West Nile Virus and Salmonella.

Veterinarians have a broad set of skills that make them uniquely qualified to tackle global health problems:

- Their education covers comparative medicine, population health, parasitology and epidemiology;
- They understand farms and farm animals;
- They are trained to evaluate and diagnose illness in a variety of species from gerbils to giraffes.

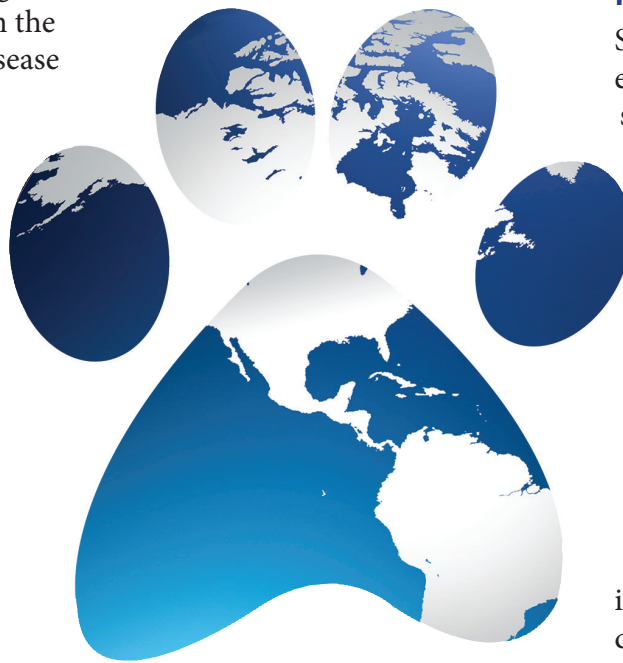
At the OSU College of Veterinary Medicine (CVM), veterinary researchers in the laboratory and in the field are investigating zoonotic diseases that affect human health.

The Case of Sin Nombre

In June, the Linn County Health Department confirmed its first case of Sin Nombre Hantavirus. More common in the Rocky Mountain states, Hantavirus is a serious respiratory infection that can be life threatening. Humans become

infected by inhaling dust contaminated by infected rodents.

Rhea Hanselman, a veterinarian and PhD. student at OSU is working with an interdisciplinary team to investigate the relationship between forest harvesting practices and the health of deer mice. Her hypothesis is that rodents living in intensively



managed forest areas will have higher stress levels, poorer nutrition, and compromised immune systems, making them more susceptible to infection.

Hanselman has spent the past two summers in the coast range of Oregon live-trapping rodents and collecting blood samples. At the same time, she tests each rodent for Hantavirus. When she returns to her lab in the fall, she conducts a panel of tests that measure indicators of stress, nutrition, and the health of the rodent's immune system.

Preliminary results of Hanselman's research reveals the prevalence of

Hantavirus in deer mice is much higher in forest plots that were clearcut and treated with herbicide than in plots that were uncut or clearcut only. Hanselman wants to replicate this study across multiple locations and ultimately share her results with the forest product industry and policymakers.

Pets May Need Masks

Swine flu and avian influenza epidemics often make the headlines so most of us are aware that viruses can be transmitted from animals to humans. But it appears the opposite may be true: your pet can get the flu from you in a process known as reverse zoonosis.

Christiane Loehr, associate professor at CVM, is studying this phenomenon. She is concerned that cross-transmission may cause the virus to mutate into more harmful forms. "It raises questions and concerns about mutations, new viral forms, and evolving diseases," she says.

According to Loehr, the first documented case of reverse zoonosis occurred in Oregon in 2009 when a cat died of the same strain of flu that put her owner in the hospital. "It is reasonable to assume there are many more cases of this than we know about," she says.

Loehr's study seeks to document how often humans transmit flu to their pets and how it impacts the animals. To do this she is working with veterinarians to collect samples from dogs and cats with flu-like symptoms. The ultimate goal is to understand the phenomenon better so epidemics can be prevented.

Acupuncture

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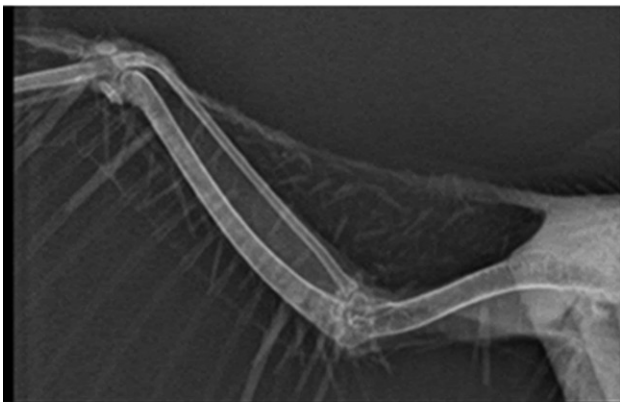
floor and strolls around with the needles still in his wing. This treatment will be one of several Junior will receive in order to achieve optimal results. “We expect him to go about his normal day easier and even start doing things he doesn’t do anymore because of the pain, like more preening and interaction with others,” says Villarroel.

Any animal with chronic pain is a good candidate for acupuncture. Dr. Villarroel and her colleague, Dr. Jacob Mecham, have treated horses, goats, cats and dogs with acupuncture. In fact, Villarroel uses it on her own pet. “My 14-year-old dog started showing hindleg weakness and deafness last year. He is now walking a mile and a half every day with no signs of fatigue or pain.”

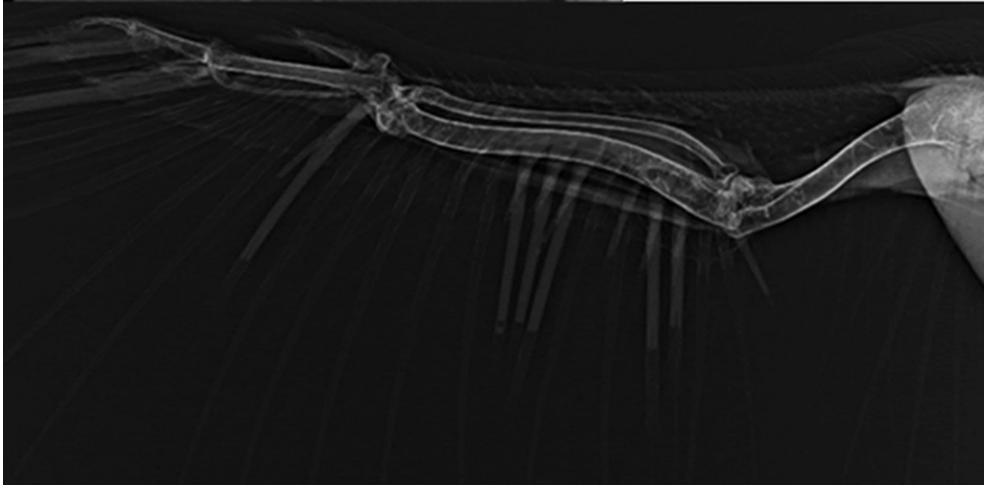
Vultures are the most intelligent raptors and Peterson says Junior has lots of personality. “He loves playing in fall leaves and tearing apart old jeans,” says Peterson. “He is extremely curious and loves to explore different places on our walks.”

In captivity, vultures can live for more than thirty years so Peterson is hoping acupuncture will improve Junior’s quality of life for many years ahead.

Chintimini Wildlife Rehabilitation Center, experienced record-setting admissions of wild animals in 2011, including 63 raccoons and more than 90 raptors. They rely on private donations and hundreds of dedicated volunteers to provide rescue and outreach for Oregon wildlife. To learn more about becoming a member, donating or volunteering, visit www.chintiminiwildlife.org.



Left: Radiograph of a normal vulture wing. Below: Radiograph of Ferdinand, a vulture with metabolic bone disease, who is receiving acupuncture treatment to relieve pain and increase mobility. Note the abnormally curved bones and the malalignment of the carpal joint.



Making Babies

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Montilla has also worked with the aquarium in Newport to acquire images of harbor seal reproductive organs. “There are currently no published radiographs of their reproductive tracts,” says Montilla. That is due, in part, to how difficult it is to ultrasound a seal. “It was challenging to try to figure out their anatomy with the trainer managing the probe and us out of sight reading the screen,” he says. The seals were very nervous about the whole process so Montilla had a short time span for tracking and identifying the reproductive tract. “We got the male,” says Montilla. “In the female we found some of the structures but were missing information to make it complete.” They are hoping to get the funding to try again.

The OSU teaching hospital also provides high-tech breeding services for domestic animals, like embryo management and semen freezing. “If an owner has a mare who has difficulty carrying a pregnancy for a variety of reasons, a previous lesion, a hip problem, a heart problem . . . then you can get her DNA and put it somewhere else and still get a foal. It allows also for sharing genetic material. We can get a horse embryo here and ship it elsewhere,” says Montilla. “You don’t have to ship the whole horse, just a little box.”

Unlike obstetricians, theriogenologists don’t often deliver puppies. “We can do emergency or planned C-sections for ones who are having difficulty or for those who have had previous problems. Some breeds, like bull dogs, have such tiny hips they usually can’t deliver naturally,” says Montilla. “But most deliveries are done at home which is better for the animal.”



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