NC State CVM Pioneers First Feline Total Knee Replacement

A cancer survivor named Cyrano will be the first cat ever to receive total knee replacement surgery. The pioneering feline will receive his new knee on Jan. 26 at North Carolina State University's College of Veterinary Medicine

Cyrano is a 10-year-old tabby cat who was treated for bone cancer last year and is now in total remission. However,the disease and treatment weakened the bone in his affected back leg and Cyrano's knee deteriorated as a result. His owner, Sandy Lerner, felt that amputation would negatively affect the cat's quality of life, and her search for other options brought them both to NC State and the team of orthopedic surgeon Dr. Denis Marcellin-Little and industrial and systems engineer Dr. Ola Harrysson.

Dr. Marcellin-Little performed the world's first osseointegrated implant surgery in 2005 on cat George Bailey, who was born without the lower half of his hind legs. Since then, Drs. Marcellin-Little and Harrysson have done several implant surgeries, improving and strengthening the design and streamlining the manufacturing process, but Cyrano's case was different enough to warrant additional collaborations--both with veterinary surgeons familiar with knee replacements in dogs, and with implant engineers and manufacturers. The result is a truly one-of-a-kind collaboration aimed at bringing feline knee replacements into the mainstream.

Cyrano's case is unique, but Dr. Marcellin-Little hopes that this surgery will pave the way toward making feline knee replacements more commonly available. "This collaboration between NC State's College of Veterinary Medicine, College of Engineering, and outside implant designers and manufacturers allows us to design and make implants that we could only dream of, in the past. I am sure that this technology will help other patients with tumors, in the future."

The NC State team, in collaboration with veterinarians and engineers from around the U.S. and abroad, will provide Cyrano with the first ever custom-made, osseointegrated feline knee replacement.

"Although total knee replacements in dogs are increasingly common, a cat poses some additional challenges, particularly regarding the size of the implant," Dr. Marcellin-Little says. "Additionally, Cyrano's existing leg bones were weakened by the cancer, so we must take care to be sure that the implant does not place undue stress on the remaining bone." *Source: NCSU News and Events. More at the link: http://tinyurl.com/82wxobv*

Greensboro Woman Leaves $1M to NC Zoo

The News & Record of Greensboro reports (http://tinyurl.com/8yshv8f) a woman bequeathed $1 million to the North Carolina Zoo Society after her death so the state-owned zoo near Asheboro could buy land for animals to roam. The donation came from the estate of Juanita Lamport Spalding of Greensboro. Zoo director David Jones and Russ Williams, the society's director of planned and major giving, met Spaulding 10 years ago. The zoo is very grateful to have been chosen to receive this money to support their ongoing programs.

Environmental Enrichment for Shelter Cats

Dantas-Divers LMS, Crowell-Davis SL, Alford K, Genaro G, D'Almeida JM and Paixao RL. Agonistic behavior and environmental enrichment of cats communally housed in a shelter. J Am Vet Med Assoc. 2011; 239: 796-802.

For cats in shelters or other types of confinement, improvement of welfare involves addressing social and cognitive needs, as well as the essentials of food, water, and protection from the elements. To this end, the provision of environmental enrichment offers an inexpensive and effective way to enhance the quality of life for confined cats. Puzzle feeders have been recommended because they can provide stimulation and increase positive social contact. However it is important to avoid frustration and disputes that can lead to aggressive behavior. These researchers observed a group of cats in a communal setting for dominance or aggression issues when a puzzle feeder was provided for enrichment. Twenty seven neutered cats (6 male, 21 female) housed in a single enclosure had been living together for 3 years. The colony was video recorded and baseline behavior information was determined. Then, a puzzle feeder was added for one hour a day every other day. The cat food is below the plastic pipes, requiring exploratory behavior to access it.

The investigation showed that addition of the enrichment device did not enhance aggression in this stable group of cats. The authors concluded that a stimulating item that can be shared by all individuals in a stable group, such as a puzzle feeder of appropriate size, can play an important role in promoting positive social interactions among cats and improving their welfare. [MK]

Related articles: **Ellis SLH. Environmental enrichment: Practical strategies for improving feline welfare. J Feline Med Surg. 2009; 11: 901-12.**

Source: Winn Feline Foundation

Control of Feral Cat Colonies

Mendes-de-Almeida F, Remy GL, Gershony LC, Rodrigues DP, Chame M and Labarthe NV. Reduction of feral cat (Felis catus Linnaeus 1758) colony size following hysterectomy of adult female cats. J Feline Med Surg. 2011; 13: 436-40.

The size of urban cat colonies is limited only by the availability of food and shelter. Population growth in urban cat colonies can challenge all known population control programs. In a number of population control situations, the resident population will initially be reduced but other feral cats could join the colony and increase numbers again. The authors tested a new population control method that consisted of performing a hysterectomy on all captured female cats over 6 months of age in a feral cat colony in Rio de Janeiro. They estimated the size of the colony and compared population from year to year with a method of capture-mark-release-recapture. Results indicated that the feral cat population remained constant from 2001 to 2004. Subsequently, there was a gradual decline in the estimated colony population in 2004 (40 cats), in 2006 (26 cats), and 2008 (17 cats) compared with the initial number found before the first intervention in 2001 (59 cats). The authors believe that a biannual program of feline population control by performing hysterectomies on sexually mature females will restrict growth of the free-roaming feral cat colony. This method reduced the number of kittens born in the colony and decreased the immigration of other feral cats into the colony. [VT]

Related articles:
Natoli E, Maragliano L, Cariola G, et al. Management of feral domestic cats in the urban environment of Rome (Italy). Prev Vet Med. 2006; 77: 180-5.

Source: Winn Feline Foundation

A Few Genes Control Fido's Looks

NPR January 22, 2012

Humans are complicated genetic jigsaw puzzles. Hundreds of genes are involved in determining something as basic as height. But man's best friend is a different story.

New research shows that almost every physical trait in dogs — from a dachshund's stumpy legs to a shar-pei's wrinkles — is controlled by just a few genes.

Writer Evan Ratliff has been looking into dog genetics for *National Geographic Magazine*. He tells All Things Considered host Guy Raz the small number of controlling genes is what makes it extremely easy for breeders to develop new, custom-designed dogs — like the German hunters who bred the original dachshunds a few hundred years ago. "These German hunters wanted some sort of dog to hunt badgers and other sort of small rodents that live in holes." So they crossed long, low basset hounds with tenacious terriers, to produce a dog that could chase badgers into their dens and then be yanked out again by the tail if necessary. The breeders also built in loose fur, so any bites wouldn't do much damage.

For years, scientists thought that dogs were just as genetically complicated as humans, Ratliff says. But that turned out not to be the case. Scientists at Cornell, UCLA, Stanford and the National Institutes of Health have been comparing dog DNA as part of a project called CanMap.

In CanMap, a collaboration among Cornell University, UCLA, and the National Institutes of Health, researchers gathered DNA from more than 900 dogs representing 80 breeds, as well as from wild canids such as gray wolves and coyotes. They found that body size, hair length, fur type, nose shape, ear positioning, coat color, and the other traits that together define a breed's appearance are controlled by somewhere in the neighborhood of 50 genetic switches. The difference between floppy and erect ears is determined by a single gene region in canine chromosome 10, or CFA10. The wrinkled skin of a Chinese shar-pei traces to another region, called HAS2. The patch of ridged fur on Rhodesian ridgebacks? That's from a change in CFA18. Flip a few switches, and your dachshund becomes a Doberman, at least in appearance. Flip again, and your Doberman is a Dalmatian.

"The story that is emerging," says Robert Wayne, a biologist at UCLA, "is that the diversity in domestic dogs derives from a small genetic tool kit."

Full articles at
NPR. Dog-Gone Genetics: A Few Genes Control Fido's Looks *http://tinyurl.com/86zrxru*
National Geographic. How to Build a Dog *http://tinyurl.com/6vqgkub*

Mecklenburg County Wants Help Tracking Coyotes

By Caroline McMillan The Charlotte Observer

Citizens concerned by the growing coyote population in south Charlotte now have a simpler way to reach the county.

Chris Matthews, natural resources manager for Mecklenburg County Park and Recreation, recently developed a page, **http://tinyurl.com/7wgwsbe** where residents can report coyote sightings and find out more about the animal that's been a hot topic for months.

The online form asks for the date, time and location of the sighting. There's also an area on the page for people to give other pertinent information, such as a description of the coyote, the number of coyotes seen and behavior characteristics. The site was created to handle the influx of resident sightings and catalog the areas in a database. Matthews said the county will benefit from the new system of feedback.

Coyotes migrated from the Midwest to the Carolinas about 10 years ago, and they tend to settle around large tracts of land, greenways, nature preserves, large parks and creeks. *Read more here:* *http://tinyurl.com/7fou7wp*

A Clinical Trial for Canine Hemangiosarcoma

AKC Canine Health Foundation. September 2011.

By Jaime F. Modiano, V.M.D., Ph.D.1,2 and Daniel A. Vallera, Ph.D.2,3 University of Minnesota
1Department of Veterinary Clinical Sciences, College of Veterinary Medicine; 2Masonic Cancer Center;
3Department of Therapeutic Radiology

Science is full of examples where success comes from unexpected sources. This one arose from a hallway conversation among five curious people. Sometime around 2008, a casual conversation was struck up by Dr. Antonella Borgatti, a recently recruited assistant clinical professor of oncology; Jill Schappa, then a second-year DVM student working on a summer project in the Modiano lab; Megan Duckett, an assistant scientist in the Modiano lab who was working with them; Dr. Jaime Modiano, Perlman Professor of Animal Oncology and director of the Animal Cancer Care and Research program; and Dr. Dan Vallera, a professor in the Department of Therapeutic Radiology. Borgatti was interested in developing targeted therapies for sarcomas. Schappa had developed an interest in specific aspects of canine hemangiosarcoma. Vallera, an expert in targeted immunotherapies, had developed a bispecific ligand-targeted toxin (BST), where two proteins (ligands) that bind receptors commonly found in human cancers and the blood vessels that feed them were linked to a lethal bacterial toxin. Together, they found a unifying link that moved them all in a new direction.

Vallera had developed the concept so BSTs would home to tumors (like “smart bullets”),which express high levels of the targeted receptors. By homing to the tumors, the lethal payload would be delivered with high specificity, and most normal cells and tissues would remain unharmed. Vallera’s group also had shown that the approach was feasible in laboratory animal models. Borgatti and Schappa realized that this approach would uniquely be able to target sarcomas, which are notoriously difficult to treat and occur only rarely in people, but frequently in dogs. Evaluating the therapy in dogs could be a win-win situation, as we might find an effective therapy to treat these cancers in our trusted companions and help to develop the therapy to treat these rare diseases in humans.

Laboratory testing ensued, with support for Schappa through a Howard Hughes Medical Institute and Burroughs Wellcome Foundation Fellowship. The results of her work were presented to the scientific community at a Keystone meeting in March 2011, where the results garnered the attention of Dr. Corrie Painter, founder and director of Angiosarcoma Awareness, Inc.

A new partnership began, where Angiosarcoma Awareness has agreed in principle to support a clinical trial to test the safety and efficacy of this therapeutic approach in dogs with hemangiosarcoma.

Related sites and information:
American Kennel Club Canine Health Foundation articles: http://www.akcchf.org/news-events/library/articles/
Angiosarcoma Awareness: http://angiosarcomaawareness.org/page1.php
University of Minnesota Clinical Investigation Center http://www.cvm.umn.edu/cic/
University of Minnesota Clinical Trial Contact information: http://www.cvm.umn.edu/cic/contact/home.html

33,000-Year-Old Dog Skull Unearthed

An ancient dog skull, preserved in a cave in the Altai Mountains of Siberia for 33,000 years, presents some of the oldest known evidence of dog domestication and, together with equally ancient dog remains from a cave in Belgium, indicates that domestication of dogs may have occurred repeatedly in different geographic locations rather than with a single domestication event. Both the Belgian find and the Siberian find were determined to be domesticated species based on structural characteristics. Unlike wolf skulls which are long and thin, domestication results in this shortening of the snout and widening of the jaws and crowding of the teeth. The Siberian skull does not appear to be an ancestor of modern dogs, which could mean that modern dogs have multiple ancestors rather than a single common ancestor.

A researcher studying the skull reported, “In terms of human history, before the last glacial maximum people were living with wolves or canid species in widely separated geographical areas of Euro-Asia, and had been living with them long enough that they were actually changing evolutionarily. And then climate change happened, human habitation patterns changed and those relationships with those particular lineages of animals apparently didn't survive.

The interesting thing is that typically we think of domestication as being cows, sheep and goats, things that produce food through meat or secondary agricultural products such as milk, cheese and wool and things like that. Those are different relationships than humans may have with dogs. The dogs are not necessarily providing products or meat. They are probably providing protection, companionship and perhaps helping on the hunt. And it's really interesting that this appears to have happened first out of all human relationships with animals."
Source: Science Daily

You Can Help Students Bridge the Gap Between Farm and Fork

Animal Agriculture Alliance. Teaching children about where their food comes from is a missing link in today's formal education efforts, and few are knowledgeable about the people who produce their food. This is not only unfortunate, but could have devastating impacts on our own nation's food security if misinformation about modern agriculture leads us to become a nation dependent on food imported from other countries.

Children are extremely vulnerable to the emotional and misleading messages of activist groups like PETA and HSUS. These groups are well-funded and strategically target school age children, hoping to impress their agenda upon them during their formative years. Because agriculture and food production are not recognized by the Department of Education or included among the required standards of learning for all students, agriculturists need to share resources with teachers to aid in discussions that take place in their classrooms.

The Alliance created the *Teachers Resource Guide to Farm Animal Care & Use Issues* (TRG), a directory of available resources for teachers to help them better discuss important, and sometimes sensitive, subjects related to animal welfare, nutrition, the environment and food production.

Learn more at Animal Agriculture Alliance http://tinyurl.com/6nb7v8m

Egg Bill Faces Tough Fight, Sponsor Says

Capital Press

WILSONVILLE, Ore. -- A bill to set a national welfare standard for egg-laying hens faces an uphill battle, according to the congressman who introduced it.

Rep. Kurt Schrader, D-Ore., said House Agriculture Committee leaders have indicated they won't support the compromise legislation brokered between the United Egg Producers and The Humane Society of the United States. "The chairman and the ranking member (Reps. Frank Lucas, R-Okla., and Collin Peterson, D-Minn.) have indicated they aren't real enthusiastic about it," Schrader said Jan. 27.

In addition, several farm and animal rights groups have come out in opposition to the bill since Schrader introduced it earlier this month.

HR3798 bans battery cages, requiring the nation's egg producers to employ larger, enriched colony cages for egg-laying hens. Full story http://tinyurl.com/7wgja7h

MO Lawmaker Defends Proposed Bill That Curbs Animal Rights

(Springfield, MO) -- Animals are on the mind of at least one state lawmaker tonight.

Representative Ward Franz (R-West Plains) has co-sponsored a bill (HB 1513) that better defines animal rights.

Rep. Franz's bill states that no animal shall have any right, privilege, or legal status that is equal to or greater than any right, privilege or legal status of a human being.

"It's kind of crazy that we've reached this point in our society that we have to have this discussion, but looking at what groups have done around the country like PETA and the Humane Society of the United States, and what they're doing in other states and what we've dealt with this past year with Proposition B, and it felt like we needed to be a little more proactive to protect our number one revenue producer in the state which is agriculture."

Rep. Franz is sponsoring the bill because he feels PETA and the Humane Society of the United States are trying to attack the rights of animal owners. Full story: http://ozarksfirst.com/fulltext?nxd_id=594112

Protecting your right to responsibly own and breed animals. Join NCRAOA

North Carolina Responsible Animal Owners Alliance, Inc. (NCRAOA) is a statewide organization of animal owners and professionals dedicated to animal welfare, responsible animal ownership, and maintaining the rights of responsible citizens to breed and own animals. NCRAOA, a 501(c)3 organization, provides education and information to the public and supports reasonable and humane animal welfare laws. Permission granted to copy and distribute NCRAOA News and Views in its entirety as is.

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