

Sled dogs helping teens with cancer (Oncology Nurse Advisor online) 8/27

Teenagers, ages 10 to 18, with cancer worked with sled dogs in Canada in a study looking at physical activity and adventure as an adjunct to cancer treatment. Participants cared for the dogs as well as rode the sleds. Statistically significant improvements in both physical and psychological health were seen in the children.

Comment: While this was a small study it did show the powers of animals to help with cancer patients. Who can't be uplifted by riding a sled behind a team of happy sled dogs? SEM

Service dogs help disabled farmers maintain way of life (Tulsa World (Okla.)/The Associated Press) 9/3

PHARM (Pets Helping Agriculture in Rural Missouri) Dog USA volunteers train dogs to help farmers with disabilities. Dogs, border collies and other breeds, are trained to help with chores tailored to a farmer's needs and provide emotional support and companionship as well. PHARM Dog USA currently operates in four Midwestern States.

Comment: What a wonderful organization. SEM

Cancer vaccine showing promise in canine trials (KING-TV (Seattle)) 9/11

Cancer vaccine trials, geared toward aggressive cancers in dogs and humans, are being conducted by a Yale researcher. Work on these vaccines has been ongoing for the past 10 years. Participants in the study receive two vaccinations and the course of their disease is followed with MRI, CAT scans and ultrasound examinations. Six months into the trials the results look promising, with many of the aggressive forms of cancer not progressing. If all goes as planned, human trials may begin next year.

Comment: This new type of "chemotherapy" might be a promising new treatment option without the side effects of conventional chemotherapy. Worth following to see where it may lead. SEM

New insights into canine diabetes (HealthDay News) 9/17

A new study conducted by veterinarians and physicians revealed new information about the canine pancreas and canine diabetes. Canine diabetes is similar to Type 1 diabetes in humans but some key differences were found. Diabetic humans and mice tend to have some residual pancreatic islet cells, but dogs with diabetes tend to have very few. This indicates that some form of aggressive process destroys these cells in diabetic dogs but no evidence of inflammation or autoimmune disease was found as is seen in diabetic people and mice. This may be simply due to looking too late in the canine disease process but more research on this needs to be done. This study also found that dogs have a larger percentage of beta cells in the islet cells – 80 % versus 50 % in humans, which may explain why dogs get diabetes at an older age than humans and that the architecture of the canine islets were more similar to humans than to rats and mice. The study's results may make dogs a better model for diabetes research than rodents.

Veterinary Tidbits, by Sheila E. Morrissey, DVM

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Comment: A very interesting study with implications for both sides, as dogs with diabetes may benefit from new information from human studies as well! SEM

Gene therapy success in dogs with muscular dystrophy holds potential for people (HealthDay News) 11/2

Dogs with Duchenne muscular dystrophy, the most common form of muscular dystrophy in humans (which primarily affects boys) were treated successfully with gene therapy. The disease, caused by a genetic mutation, causes affected dogs and humans to lose their ability to walk and breathe as they get older. A miniature version of the gene, a microgene, and a harmless virus were used to deliver the gene. It was important to treat the dogs early before too much damage from the disease occurred, so the dogs were treated at 2 to 3 months of age. At 6 to 7 months old the dogs were developing normally. This may lead the way to human studies although animal studies often fail to be replicated in humans.

Comment: While hopefully this study will lead to human trials and a potential treatment, there now is a treatment for affected puppies. SEM

Coyote-wolf-dog hybrid is a top canine of the East (SmithsonianMag.com) 11/3

Eastern coyotes number in the millions across the eastern US and Canada and research now reveals that it is a very successful hybrid of coyote, wolf and dog. The Eastern coyote is larger than its western cousins and hunts in both open (from their coyote heritage) and wooded terrain (from their wolf heritage). Its city-slicking skills may come from their dog heritage, allowing them more tolerance of the noises of the cities. First appearing around 1919, the eastern coyote is part eastern wolf, part western wolf, part western coyote with a smattering of dog added in. Not quite a new species, as they can still interbreed with dogs and wolves, the term coywolf has been proposed for these smart, adaptable wild canids.

Comment: With coyote (now coywolf) tracks in our front yard and nightly howlfests commonly heard, I found this study interesting and one I can believe. SEM

Hair helps keep creatures clean, study suggests (The New York Times (free article access for SmartBrief readers) 11/9

An unusual new study looked at 27 different mammals and insects to understand how animals use their fur and hair to keep themselves clean. While hair attracts dirt particles it also lets an animal clean itself. Bees use bristled appendages to brush away pollen and dogs shake themselves. The hairs allow the particles to be flicked into the air right and left like catapults. The research may help design ways for automated devices to clean themselves.

Comment: We all have been in the way of a muddy dog's shake and know firsthand how efficient its fur is at shedding dirt and water, never mind how the shake slings drool!! SEM

Kissing bug known to carry Chagas found outside of Texas (The Atlanta Journal-Constitution (free context)/Cox News Service) 11/23

An insect known as the “kissing bug”, which can carry the deadly Chagas disease, has been recently reported in Georgia and possibly Pennsylvania. No cases of Chagas disease has been reported in either state.

Comment: As people and animals move about the country and world, as well as due to the effects of climate change, we will see more incidences of parasites and diseases continuing to extend their range. SEM

Cornell achieves first-ever successful IVF in a dog (CBS News) 12/9, (National Public Radio) 12/10

Seven health puppies were delivered at Cornell University after researchers performed the first-ever successful in vitro fertilization in a dog. In vitro fertilization involves fertilizing, in a laboratory, a mature egg with sperm producing an embryo which is then transferred into a host female at the proper time in her heat cycle. Since dogs’ reproduction cycles differ from other animals, new techniques had to be developed for the dog – these included harvesting the eggs later in the cycle and adding magnesium to cell cultures to better prepare the sperm for fertilization. The developments of these techniques may help endangered canid species allowing another tool in their conservation. These techniques may also allow gene editing to rid dogs of heritable diseases.

Comment: This is very interesting work (and the puppies are very cute to boot!). Rather than gene editing I would prefer that more genetic tests be available to help us breed away from genetic diseases. SEM

Genetic study enrolls thousands of pets to learn about human, canine health (Nature (free content)) 1/26

The Darwin’s Dogs project has enrolled 3,000 dogs so far in an attempt to understand a variety of behavioral disorders and diseases. Anecdotal behavioral information has been collected from the dogs’ owners along with the dogs’ genetic information; DNA processing will begin in March. By comparing information about the dogs’ behavior against the animals’ DNA profile, it is hoped that genetic links will emerge for such conditions as canine compulsive disorder (OCD) and canine cognitive dysfunction (canine senility) which may help with research on the human side. The project is hoping to enroll a total of 5,000 dogs encompassing both purebred and mixed breed dogs.

Comment: This study is a very large one and unusual in including mixed breeds along with purebred dogs, it will be interesting to follow. SEM

Researchers correct canine blood disorder with gene therapy (The Philadelphia Inquirer) 1/27

Researchers at the Children's Hospital of Philadelphia corrected factor VII deficiency in dogs by injecting them with an inactivated virus carrying DNA for factor VII production. Affected dogs and people with Factor VII deficiency have a mutation that prevents them from making proper amounts of factor VII, which is involved in proper coagulation, and can lead to gastrointestinal and central nervous system bleeds in those severely affected. Varying doses of the virus – as a single injection - were given to each of four affected dogs; all showed improved levels of factor VII production with the higher doses producing higher levels of factor VII. One dog was followed for almost 3 years and the factor VII levels remained elevated during the entire time.

Comment: While a small study, the implications for humans affected with the same disease are huge. Hopefully further studies will show the same results and can be validated for humans. SEM

IQ study in dogs may inform understanding of longevity, dementia in humans (CNN) 2/8

British researchers created an obstacle course for dogs that they believe is the first IQ test for dogs. Sixty eight working border collies were tested using the course, dogs that completed the course faster also were more likely to complete them more accurately and no difference was found between male and female dogs. Dogs were also repeatedly given two plates of food, with different size portions on them, to determine if the dogs could identify the larger portion. Results of this study found that dogs do have measurable IQs. Since dogs can show signs of dementia similar to humans, the hope is that these tests will allow further research to better understand the causes of human dementia and possibly test treatments for it.

Comment: While there have been other studies about canine IQ, which breed is smarter, etc., this seems to be the first study that may be able to quantify it. It will be interesting to see if they test other breeds of dogs to determine if there is a difference between breeds in regards to IQ and also whether their testing is valid between breeds. SEM

New pathogen linked to Lyme disease (National Public Radio) 2/9

A new species of Lyme bacterium, *Borrelia mayonii*, has been found by researchers at the Mayo Clinic looking at human blood samples. The bacterium was also found in deer ticks in parts of Wisconsin. Sequencing the genome of the bacterium showed it to be different enough to be a different species. Typical Lyme symptoms were seen but the rashes were more diffuse or spotty (rather than the usual bull's eye rash) and nausea and vomiting also occurred in some of the patients as well as some other occasional unusual symptoms. At this time the new bacterium is relatively rare. It is unknown whether it is a mutation from an existing bacterium or one that just recently people have been coming in contact with. Doxycycline is effective for treating this bacterium.

Comment: While this bacterium was found in human samples it will probably not be long before it is also found in dog samples as well. Whether or not the standard Lyme testing will test for this

form of Lyme disease or whether the current Lyme vaccines will protect against it, will need to be determined. SEM

Guidance relaxes requirements for pets with lapsed rabies vaccine (JAVMA News) 2/10

Based on new research data, the 2016 Compendium of Animal Rabies Prevention and Control has been updated with respect to recommendations for dogs and cats that are overdue on rabies vaccine boosters and exposed to rabies. In the past, pets who were overdue for their rabies boosters and exposed to rabies were considered unvaccinated and treated as such with a six month quarantine, now such pets (with documented prior rabies vaccination) are treated the same as pets current on their rabies vaccines and can receive a rabies booster and undergo a 45 day observation period. Pets with overdue rabies vaccinations that cannot be documented have two options – one involving paired rabies titer samples and another simpler option of giving a rabies booster and then placing the pet in a strict 4 month quarantine. Changes in the regulations do not eliminate the need to keep rabies vaccinations up to date.

Comment: Rabies is a dangerous and deadly disease so it pays to be cautious with any changes in regulations regarding it. These changes are based on solid research findings and are a welcome change but one that may take a little bit of time to be implemented at the state and local level. SEM

Pathogenic Leptospira has unique characteristics, study finds (MedicalDaily.com) 2/18 (PhysOrg.com) 2/18

A lengthy analysis of the genome of the Leptospira bacteria by an international team of scientists has found some new information about the bacteria. These new findings revealed that only the pathogenic (disease-causing) Leptospira species are specially adapted to mammals, bear certain proteins, can make B-12 from an amino acid precursor, and also had a kind of bacterial immune framework (CRISPR-Cas system). These results may help lead new developments in vaccines and treatments.

Comment: Leptospirosis is another disease that can infect both animals and man and can be quite deadly. Any new information that can help develop tools to prevent or treat this disease is welcome news. SEM