Entlebucher Health

As Breeders, the health of our dogs and puppies is VITAL to each one of us. Each litter is planned while carefully considering the 'Genetic/Health Pedigree' and the impact it could have on the resulting puppies.

Entlebuchers are a healthy breed and while we don't want this section to be scary, it is important to each of us that as you research, you have a good working knowledge of the 'whole' Entlebucher.

While we do everything we can to circumnavigate the 'black magic' of genetics, we are aware that we could be breeding genetic disorders that cannot presently be controlled. This is a dilemma that every ethical breeder faces, and one that we use every available avenue to overcome.

Our Breeding Stock have their hips and patellas certified by the Orthopedic Foundation for Animals (OFA). Their eyes are examined annually and the results registered with the OFA Eye Certification Registry (ECR). They have DNA Testing done by Optigen for PRA (Progressive Retinal Atrophy). Many Breeders have an ultrasound done to assure that their dog or bitch's Ureters are in the upper portion of the trigone of the bladder.

As a group, we believe knowledge is power, we share health information and statistics with other Entlebucher Breeders both in North American and Europe, all of which helps us breed the healthiest clearest lines possible.

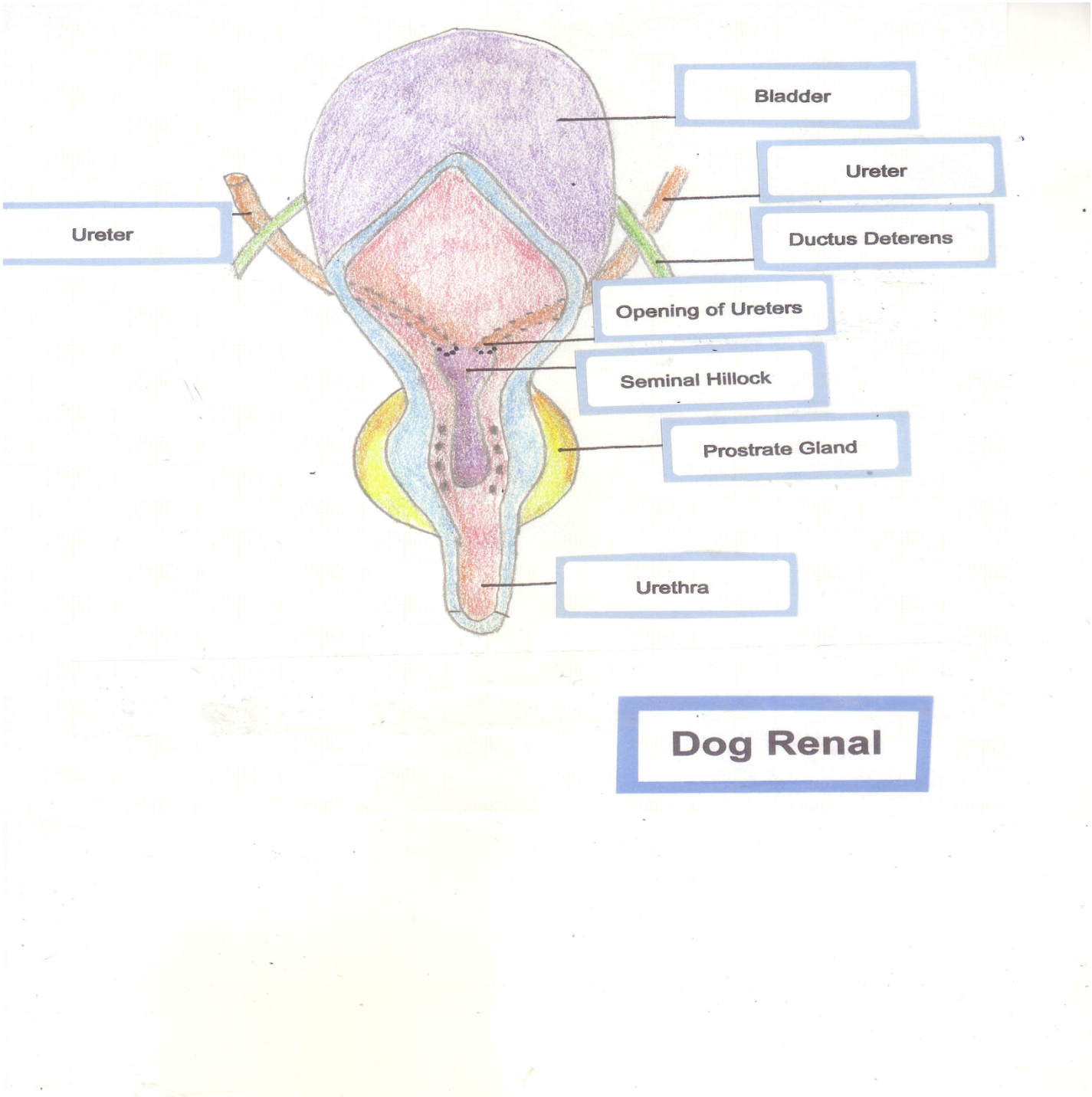
The links below are an overview of the health issues that concern us as Breeders. We hope you will find the information helpful and informative. We also encourage and welcome calls to discuss any of the Entlebucher health issues.

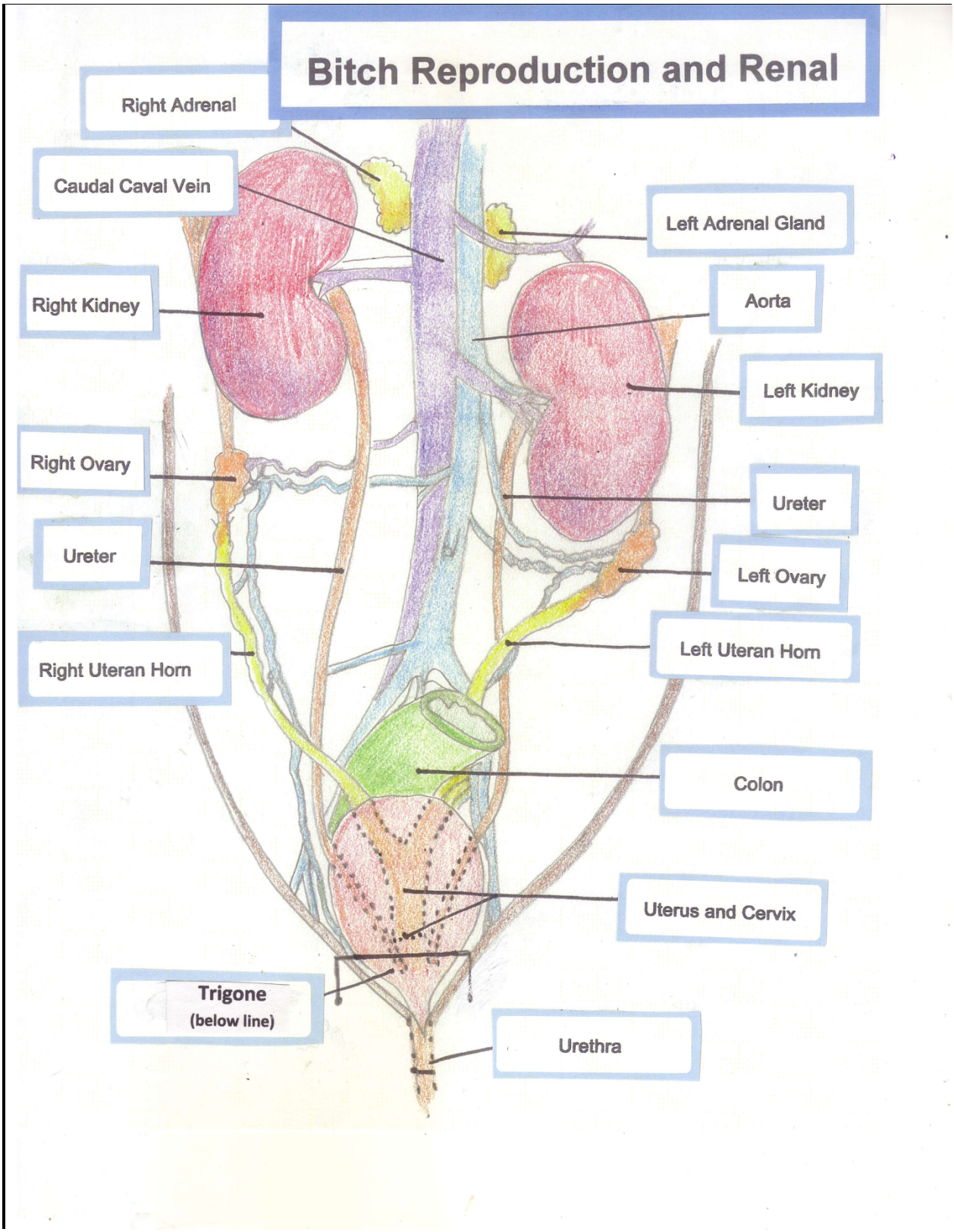
Entlebucher Urinary Syndrome (EUS)

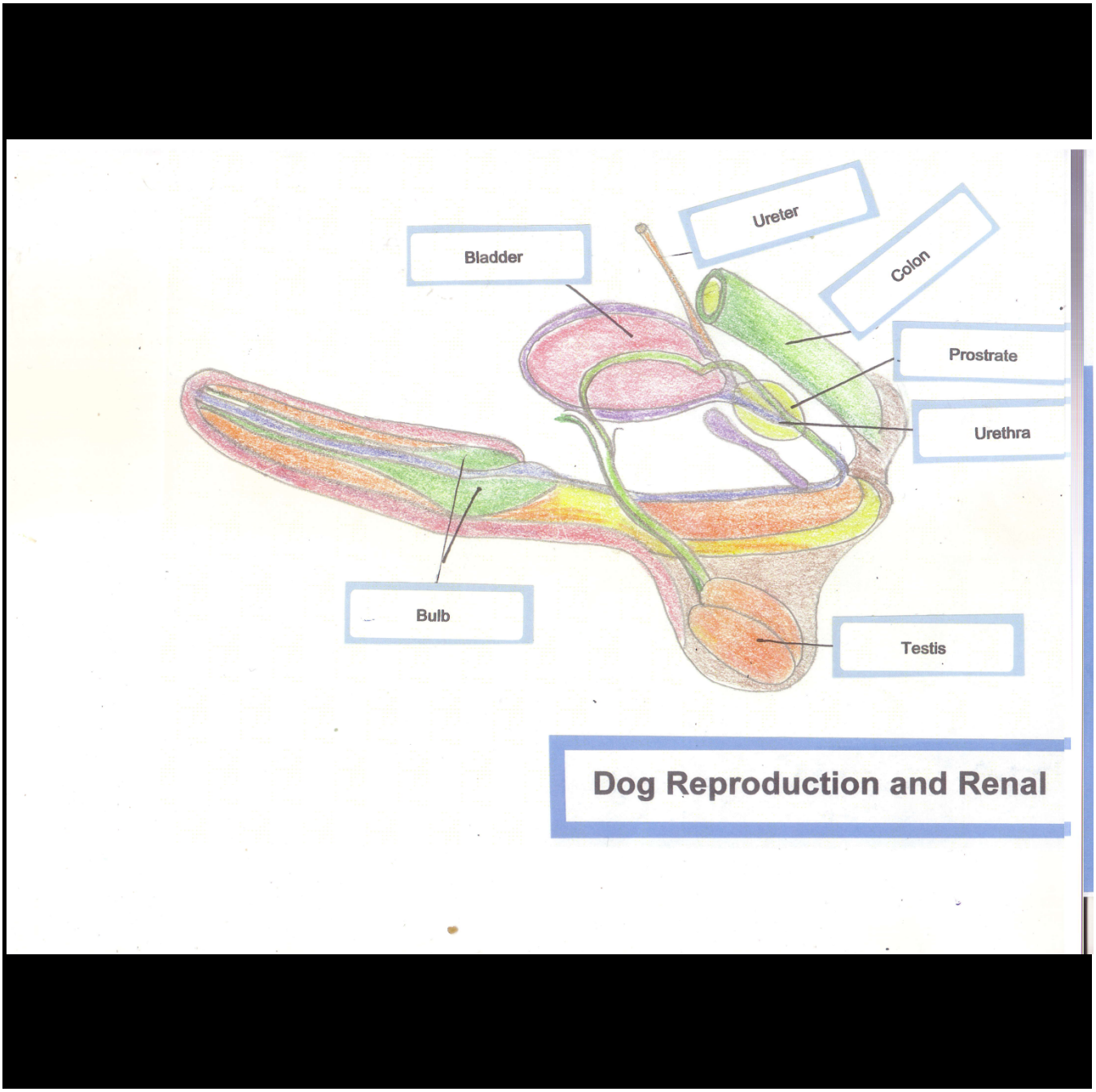
Entlebucher Urinary Syndrome is a condition involving the renal/urinary system and is caused by a genetic anatomical abnormality involving the misplacement of ureter. The ureter is the tubing that links the kidney to the bladder. The ureter is supposed to enter the dog's bladder in a particular section of the bladder called the upper part of the trigone (the trigone is at the lower section of the bladder – see drawing below).

It was thought for years that EUS was gender based and bitches were the only sex afflicted by the disease. Time and study has proven this theory wrong and dogs and bitches are equally at risk for the disease.

Artwork of Renal Systems – dog and bitch (three pictures)




Bitch Reproduction and Renal
Right Adrenal
Caudal Caval Vein
Left Adrenal Gland
Right Kidney
Aorta
Left Kidney
Right Ovary
Ureter
Ureter
Left Ovary
Right Uteran Horn
Left Uteran Horn
Colon
Uterus and Cervix
Trigone
(below line)
Urethra



There are two tiers of severity involved in this condition; 'Ectopic Ureters' and 'EUS'.

Ectopic Ureters

Ectopic Ureters are very common in the Entlebucher breed; ectopic means 'misplaced', thus any ureter that enters anywhere besides the correct placement at the upper trigone of the bladder is ectopic. We have proven through extensive mapping of Ureter placement at both Michigan State University and the University of Zurich that very few Entlebuchers have 'normal' Ureter placement. We also know from this extensive mapping that in most cases ectopic ureters DO NOT affect the dog's renal health or life expectancy. While at a meeting in Switzerland in 2011 to discuss the ongoing EUS Study with the Swiss Breed Commission, Paul Boss, DVM (Swiss Breed Commission President) reviewed the data, the incident of clinical symptoms of EUS, and the general health of the European and North American population.

Based on the collected data, Dr. Boss was in agreement that the Entlebucher had evolved over generations to live well with ectopic ureters.

Entlebucher Urinary Syndrome (EUS)

EUS is the name of the disease used for a group of symptoms that sometimes are associated with Ectopic Ureters and cause health problems. These symptoms (clinical presentation) can range from occasional leaking of urine (awake or asleep), bladder infections, constant dribbling of urine, to renal failure and death. For dogs with minimal clinical symptoms, such as incontinence, medication is the extent of treatment necessary. Severe cases that have led to hydronephrosis (the kidney becomes urine soaked, inflamed and non functional) prompt removal of the afflicted kidney and ureter, which can assure the dog a long and healthy life. Where both kidneys are affected, the prognosis is very poor.

Note: While EUS can be deadly, it is still rare in both North America and Europe.

We have always considered EUS to be a Breeder's problem. It is rare if the disease is severe enough to lead to kidney removal or death if it doesn't manifest before the puppy is eight weeks old, and leaves the Breeder.

Symptoms that a Breeder watches for:

- frequent urination with large volumes of urine
- a bloated, overly distended abdomen
- failure to thrive
- recurring bladder infections
- sudden repetitive vomiting

Both the Michigan State University and the University of Zurich have searched extensively for the gene that caused EUS with no clear results. This was so disappointing for everyone that had worked and contributed so much to the studies. This conclusion leaves us with more knowledge regarding the symptoms and treatment of the disease, but without a documented solution or cure.

We are firm believers in that knowledge is power, and am unbelievably grateful to Entlebucher Breeder Janis Miller, PHD., who after losing a puppy to EUS stepped forward and was instrumental in assembled a team at Michigan State to study the disease. Despite the lack of a cure, due to Dr. Miller's efforts, we have a sound knowledge base of the symptoms and treatments that will give our Entles the best opportunity for a long healthy life.

Orthopedic Health

Three of the orthopedic conditions that can afflict Entlebuchers are discusses below. All are rare in the North American population. Torn ACL injuries are the most common, and a dog that is kept lean and fit is far less likely to suffer that injury.

Anterior Cruciate Ligament (ACL) Injury

Torn ACLs are the most common orthopedic injury reported for the Entlebucher Breed.
Every canine has two cruciate ligaments in its knee. They criss-cross the space between the femur and the tibia, and prevent these bones moving forwards and backwards against each other. Between the two bones lie two little crescents of cartilage called menisci (singular is meniscus). These act as shock absorbers when your dog walks and runs, and protect the cartilage at the end of the two bones.
Rupture of the anterior cruciate ligament (ACL) is by far the most common injury that can occur to a dog's knee. There are two common scenarios that occur when this ligament ruptures. Firstly, a young active dog hurts his knee while he's

running around playing games or chasing. Secondly, an elderly dog with weakened ligaments or a degree of arthritis may sustain the same injury because the ligament has degenerated with age. In both cases, there is a sudden onset of lameness, and the leg is so painful that they can't put their foot down.
If your dog has ruptured his cruciate ligament, you have several treatment options to choose from. In most cases, surgery is necessary to prevent excess movement in the joint, which will inevitably lead to arthritis. Surgery also allows your veterinarian to tidy up any ragged edges to the menisci, which can cause ongoing discomfort.
Note: As a Breeder, we concur with the premise that ACL injuries are considered to be a 'Weekend Warrior Injury' and if the dog is kept fit and trim, the incident significantly decreases.

Hip Dysplasia

Hip Dysplasia is an abnormal formation of the hip socket. It is considered a genetic (polygenic) trait that is affected by environmental factors. It can be found in many animals, but is most commonly associated with dogs.

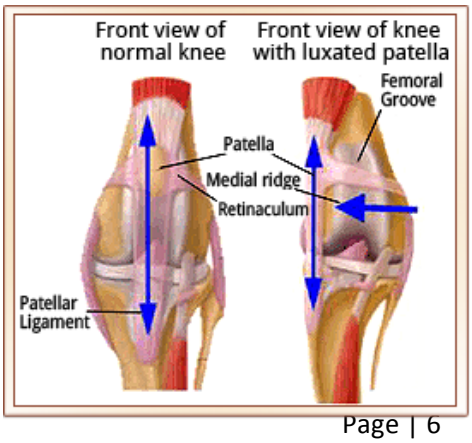
In the normal anatomy of the hip joint, the thigh bone is connected to the pelvis at the hip joint. The almost spherical end of the femur head fits into the acetabulum (a concave socket located in the pelvis). The bony surfaces of the femur head and of the acetabulum are covered by cartilage. While bones provide the strength necessary to support body weight, cartilage ensures a smooth fit

In a hip suffering from dysplasia, two things are commonly abnormal. First, the femur head is not deeply and tightly held by the acetabulum. Instead of being a snug fit, it is a loose fit, or a partial fit. Secondly, the caput or acetabulum are not smooth and round, but are misshapen, causing abnormal wear and tear or friction within the joint as it moves.

So the joint may suffer degradation due to the abnormal wear and tear, or may not support the body weight as intended. The joint becomes inflamed and a cycle of cartilage damage, inflammation and pain commences. This is a self-fueling process, in that the more the joint becomes damaged, the less able it is to resist further damage. The inflammation causes further damage. The bones of the joint may also develop osteoarthritis, visible on an X-ray as small outcrops of bone, which further degrade the joint.

The x-ray at the side is of CH Tali von Adhem's hips . One thing that is considered when each x-ray is rated by the Orthopedic Foundation for Animals (OFA) is the depth and fit of the femur head into the acetabulum. You can see on Tali's x-ray that the joints are even and the femur has a depth of over 50%.

Luxating Patella



When the structures that make up a dog's knees (***stifles***) are misaligned or misshapen, a problem called patellar luxation often occurs. A dog's kneecaps are an important component of a normally-functioning knee joint. These kneecaps (***patella***) are meant to ride in a groove on the face of the femur. The patella acts as a pulley, giving leverage to extend the knee as your dog walks.
In the drawing at the side, there are two views of a canine knee. The kneecap should ride smoothly in a groove (***trochlear groove***) over the femur, (***the large bone of the thigh***). On the end nearest your dog's body, a strong ligament attaches the patella to the large thigh muscles. On the other end, a ligament attaches the patella to the dog's shinbone or tibia. Alignment ligaments located

on the inner (***medial patellar ligaments***) and outer side (***lateral patellar ligaments***) of the knee help keep the patella riding in its track.

When a dog has a luxating (***out of place***) patella, this small bone jumps out of its normal grove as the leg is in motion. In over 90% of these cases in dogs, the patella jumps out of its tract to the inside of the dog's knee (***medial patellar luxation or***MPL).

A luxating patella will not get better without surgery, but it is considered a simple surgery as well as very successful.

Eye Health

PRA: Entlebuchers had a history of Progressive Retinal Atrophy (PRA), a disease that causes blindness in dogs. In 2004 a research team from Cornell University led by Dr. Greg Acland, isolated the gene for PRA in Entlebuchers; and on June 1, 2004 Optigen, Inc. announced a DNA Test for PRA was available for Entlebucher Mountain Dogs, and PRA became a disease of the PAST!!

Following a DNA Test from Optigen an Entlebucher will get one of the following designations:

- NORNAL/CLEAR – Homozygous Normal: Does not carry a gene for PRA
- CARRIER – Heterozygous Healthy Carrier: Carries one gene for PRA, but will never go blind
- AFFECTED – Homozygous Mutant PRA: Carries two genes for PRA and will ultimately go blind.

Cataracts: Posterior Polar Cataracts (PPC) are a small cataract found on the back of the cortex. They rarely change and neither your or your dog will know they are there unless diagnosed by an Ophthalmologist. They are somewhat common in Entlebuchers. Geriatric cataracts have also been reported, but are not common.

Glaucoma: Glaucoma means 'swelling' and is increased pressure inside the eye due to the buildup of fluid. Primary Glaucoma, although rare in Entlebuchers is an inherited disease in dogs which can lead to blindness and loss of the eyes. Secondary Glaucoma can be caused by inflammation/infection, tumors, or trauma.

- Symptoms of glaucoma may include: redness, cloudiness, tearing, vision impairment, squinting, enlarged eyeball and pain.

General Health

In 2002 and 2012 the National Entlebucher Mountain Dog Association (NEMDA) sent out an extensive Health Survey to the North American Entlebucher owners. In 2002 George Padgett, DVM world respected Geneticist and author of 'Control of Canine Genetic Disease' analyzed the collected data. In his report he wrote, "The Entlebucher is the healthiest of any purebred dog for which I have analyzed data, and has less heritable genetic disease." While this was glorious news, we are also aware that the Entlebucher also has 'a little of everything' a few skin problems, an occasional case of cancer, some heart disease, the rare neurological disorder, EUS, and the occasional orthopedic or eye problem.

As Breeders we hope against hope that every one of our puppies will be perfect!! While we have been extremely blessed with general good health in our North American population, we also have had 'a little of everything', and are always open to discussing any health issues.

KNOWLEDGE IS POWER!! Open communication between breeders and the owners of or puppies IS our BEST source for the healthiest future for our puppies and the Entlebucher Breed. We are so grateful to our wonderful puppy families that love and care for the puppies we have placed in their care, and proud to be part of a group of Breeders that embraces that principle!!