

EPI

Exocrine Pancreatic Insufficiency

Untreated or misdiagnosed dogs with EPI, may die a painful death either by starvation or organ failure.

Pandy, courtesy of rescue mom, Janis



The Condition

EPI is an exocrine pancreatic insufficiency condition. The pancreas has two major functions (1) endocrine: to secrete hormones/insulin (2) exocrine: to secrete digestive enzymes.

Exocrine pancreatic insufficiency (EPI) is the inability of the pancreas to secrete the necessary digestive enzymes, amylase to digest starches, lipases to digest fats, and trypsin and proteases to digest protein. When these enzymes are not available to help digest nutrients, the nutrients cannot be used by the body. The body in essence starts to starve. In addition, due to the lack of proper digestion of nutrients, exocrine pancreatic insufficiency is often accompanied by structural and functional changes in the tissue lining of the small intestine that further impairs nutrient absorption. SIBO (small intestinal bacterial overgrowth) and/or B12 deficiency (low cobalamin and high folate) often accompany EPI as secondary conditions.

Possible Symptoms

- Gradual wasting away despite a voracious appetite
- Eliminating more frequently with voluminous yellowish cow-plops (sometimes grayish)
- Eating their own stools, or other inappropriate substances
- Increased rumbling sounds from the abdomen
- Increased passing amounts of flatulence
- Some dogs do not show any typical signs
- Some experience intermittent watery diarrhea or vomiting

These symptoms are not exhibited until 85% -90% of the pancreas is destroyed.

Testing

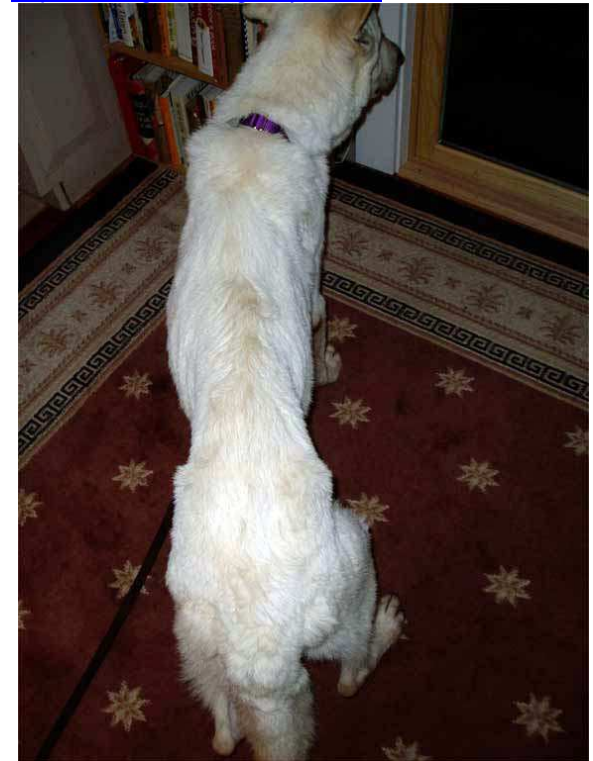
A trypsin-like immunoreactivity (cTLI) blood test <http://www.cvm.tamu.edu/gilab/assays/TLI.shtml> will show the dog's ability to produce digestive enzymes (lipase, protease, amylase). The normal range is between 5.75 – 45.2. A dog must fast at least 12 hours prior to blood test. The cTLI test costs approximately \$100.

Treatment

Treatment of EPI may be regulated after some trial and error. Treatment includes porcine pancreatic replacement enzymes necessary for life. Most EPI dogs respond well to these enzymes administered with every meal. Some may also need B12 shots for Cobalamin Deficiency, and/or Tylan or Metronidazole antibiotics to reduce possible SIBO. A change in diet is also often recommended to grain-free, raw (balanced) or hydrolyzed diets. Grains (food with more than 4% fiber in it) should be avoided. Some dogs need fat reduced diets, others do not. Not every vet recognizes the symptoms or realizes that breeds other than GSD can have EPI. Misdiagnosed, these dogs suffer greatly and may eventually die a painful death. Many are surrendered out of frustration or euthanized because of enzyme expense. But there are other reasonable alternatives!

For EPI Management, Resources, Updates and Support please visit: <http://www.epi4dogs.com/> And <http://www.epi4dogs.com/apps/forums/>

*Wayde from GSRNE (German Shepherd Rescue NE)
Photo is a courtesy of rescue dad, Peter
<http://www.gsrne.org/wayde.htm>*



Where does EPI come from???

Previously EPI was suspected to be caused by autosomal recessive genes. In preliminary data from a 2008 research study at Texas A&M and Clemson University, and a 2010 published Helsinki study, it is now confirmed that EPI is not autosomal recessive but rather more complex. It is most likely a multiple genetic condition and may possibly have some environmental factors. A larger study is currently underway at Clemson University in SC. With EPI, traits may vary in degrees of severity and symptoms may be exacerbated by physical or emotional and/or environmental stress.

What we can do!

There are now unidentified carriers everywhere and in all breeds. At this point in time we can only test to confirm an EPI diagnosis, so it is imperative that we identify the genetic markers and stressors to eventually eliminate this horrible condition.

Hope, courtesy of her rescue mom, Jodi



Researchers known for their expertise in EPI; Dr. Leigh Anne Clark, along with Dr. Keith Murphy, and Dr. Kate Tsai, all formerly from Texas A&M University, currently at Clemson University in South Carolina are heading up the EPI genetic research in an effort to identify EPI genetic marker(s). They are working with the latest SNP technology to handle the complexities of multi-loci genes. Once these genes are identified, dogs can be pre-screened prior to breeding EPI, preventing this horrible condition.

EPI was previously thought to only effect German Shepherd Dogs - - do not make this mistake! EPI is now surfacing at an alarming rate in all breeds. Every dog is at risk. Please help spread the word about EPI with others....only then can we stop this needless suffering in our beloved companions.

For additional information on the EPI research study, please contact Dr. Leigh Anne Clark at: lclark4@clemson.edu

For complete information about EPI visit:
<http://www.epi4dogs.com/>
Learn about symptoms, treatment, options and sources in managing this devastating condition.

The Researchers

- Keith Murphy, PhD, Prof & Chair of Genetics, Dept of Genetics & Biochemistry, Clemson University, Clemson SC. TAMU College of Veterinary Medicine 2004-2005 Grant for PAA from the CHF: Murphy, K.E. and L.A. Clark (Co-Is). Analysis of a candidate gene for pancreatic acinar atrophy in the German Shepherd Dog. Canine Health Foundation.
- Leigh Ann Clark, PhD in EPI Assistant Professor of Genetics & Biochemistry, Clemson University. Dr. Clark studied under Dr. Murphy at Texas A&M University for her PhD and continues to work with him at Clemson University. She received the Texas A&M University College of Veterinary Medicine Fisher Institute Medical Research Award, 2004, for her dissertation, titled: *Transmission genetics of pancreatic acinar atrophy in the German Shepherd Dog.*
- Kate Tsai, Ph.D., Research Assistant Professor of Genetics and Biochemistry, Clemson University. Previously Dr. Tsai worked with Dr. Leigh Anne Clark as an Assistant Research Scientist in the Dept of Pathobiology Texas A&M University, College of Veterinary Medicine and Biomedical Sciences
- Jörg M. Steiner, Med.Vet., Dr.Med.Vet., PhD, DACVIM, DECVIM-CA Associate Professor with the Department of Small Animal Medicine and Surgery Texas A&M University, College of Veterinary Medicine and Biomedical Sciences
- *And with special collaboration of:* David A. Williams MA VetMB PhD Diplomate ACVIM, ECVIM-CA honored developer of the cTLI test for EPI

EPI **Exocrine Pancreatic Insufficiency**

Stop this suffering in our canine companions
Learn to recognize EPI symptoms
Stop the misdiagnosis
Learn how to treat and manage EPI



Kathy's "Sophie" ...prior to treatment



Kathy's "Sophie" ...45 days after treatment