

EPI Exocrine Pancreatic Insufficiency

If Exocrine Pancreatic Insufficiency (EPI) is not properly diagnosed or treated, the dog will suffer. The good news is that with the correct diagnosis and treatment EPI can be successfully managed.

Claire, courtesy of adoptive mom Susan, prior to EPI diagnosis



Claire, 6 months after treatment for EPI



THE CONDITION

EPI is the inability of the pancreas to secrete necessary digestive enzymes, Amylase to digest starches, Lipase to digest fats, and Trypsin and Protease to digest protein. When these enzymes are not sufficiently available to help digest nutrients, the body, in essence, goes into starvation mode.

In addition, due to the lack of proper digestion of nutrients, EPI is often accompanied by structural and functional changes in the tissue lining of the small intestine that further impairs nutrient absorption. Many of these dogs, when first diagnosed with EPI also have a secondary

condition called SID (small intestinal dysbiosis). Over 80% of all EPI dogs will have B12 deficiency (low Cobalamin). With EPI, it is imperative to treat the whole dog or optimal results will not be achieved.

POSSIBLE SIGNS

(Exhibited after 85%-95% of the pancreas is atrophied)

- Some gradually waste away despite a voracious appetite
- Some eliminate more frequently with voluminous yellow/gray/tan cowplop feces
- Some eat their own feces, or other inappropriate substances
- Some have increased rumbling sounds from the abdomen
- Some have excessive flatulence
- Some exhibit personality changes
- Some experience intermittent or watery diarrhea, vomiting, or acid reflux
- Some do not show any typical signs



TESTING

A trypsin-like immunoreactivity (TLI) blood test <http://vetmed.tamu.edu/gilab/service/assays/tli> shows the dog's ability to produce digestive enzymes (Amylase, Lipase, Protease). The normal TLI range is between 5.75–45.2. A reading of 2.5 or below is clinical EPI. Values between 5.75 and 2.5 are not clinical EPI but may benefit from treatment or should be re-tested at a later date if malabsorption persists. A dog must food-fast at least 12 hours prior to the blood test. The TLI test costs approximately \$125+. When running the TLI it is recommended to also run a Cobalamin (B12) + Folate (that indicates SID) at the same time.

TREATMENT

Treatment of EPI may be regulated after trial and error to find the right balance of the recommended 4 considerations of the EPI protocol: Enzymes, Diet, Antibiotics (if needed for SID) and B12 (if needed).

 **Enzymes:** Treatment is with porcine pancreatic enzymes with all food for life. If using powdered enzymes, measure enzymes per volume of food; if pills, measure per volume of food then crush the pills; if enteric-coated, measure per meal. Once the dog is stable, you may be able to reduce the enzyme dose. When using powdered enzymes (i.e. Viokase, Pancrezyme, Pancreatin) or crushed pills, incubation for 20 minutes is recommended, but may not be necessary...this often helps to avoid possible mouth sores. For cost-saving 6x or 8x powdered Pancreatin enzymes visit Enzyme Diane www.enzymediane.com/.

 **Antibiotics:** Often antibiotics are needed to treat SID. Tylan / Tylosin for 30-45 days is preferred. A second choice antibiotic is Metronidazole for 30 days.

 **B12:** The Cobalamin (B12) level www.epi4dogs.com/b12.htm should be in the upper-mid range. If low or low-normal range, the dog will need to be placed on a B12 injection regimen until the B12 levels are sufficiently brought up and then maintained for life.

 **Diet:** More often than not, an EPI dog responds better to a low fiber diet of 4% or less fiber. A commercial kibble, canned, raw, home-prepared or hydrolyzed / prescription diet may be used. The best diet will depend on the individual dog. You may need to experiment with foods that have highly fermentable or lowly fermentable fiber to see which type agrees better with your EPI dog. www.epi4dogs.com/fiberinthediet.htm. Fat content need not be restricted for EPI. The only time fat should be restricted is if there is a concurrent health condition that requires fat restriction. For possible diets see:

www.epi4dogs.com/dogfoodoptions.htm

Although finding the right diet for each individual EPI dog can be the trickiest part to optimally managing EPI, it is often the final piece of the puzzle in getting an EPI dog healthy again.

RESEARCH

Previously EPI was suspected to be caused by autosomal recessive genes. It is now confirmed that EPI is not autosomal recessive, but more likely a multiple genetic condition with environmental factors involved. Dr. Leigh Anne Clark of Clemson Canine Genetics, at Clemson University in SC found some genetic indications. "Significant associations were found with three alleles. One allele confers an increased risk for EPI. Over 20% of EPI cases had at least one copy of this allele, whereas only one copy was observed in the control populations. Two other alleles were found to confer protection against EPI. These data support a role for the immune system in the development of EPI in GSDs." Obviously more research needs to be done.

In 2015, Epi4Dogs will be collaborating with Dr. David A. Williams, MA VetMB PhD, Diplomate ACVIM, ECVIM-CA, who is also the esteemed developer for the TLI test for EPI, and Dr. Patrick Barko, a Graduate Research Assistant. Both are from the College of Veterinary Medicine, University of Illinois at Urbana-Champaign, Champaign, Illinois. Together Epi4Dogs and Drs. Williams and Barko will embark upon this new research study, the *Maya Metabolomic Study*, to further investigate possible environmental factors that may be involved in EPI. Metabolomics is an emerging field in which a very large number of small chemicals can be analyzed from samples of body fluids and tissues. This new technology has the potential to identify previously undetectable abnormalities associated with development of various diseases, including EPI, and it is hoped that this new information will provide clues as to why this disease develops and what we can do to prevent it.

For further information regarding this study, please visit the EPI Research page on Epi4Dogs website
www.epi4dogs.com/epiresearch.htm

OVERVIEW

EPI was previously thought to appear mostly in German Shepherd dogs - - do not make this mistake!

Not only does EPI appear in Shepherds



But EPI is now in all breeds ...



and other species too.



Not properly diagnosed and treated, these dogs can suffer greatly. Some may eventually die a painful death from starvation or organ failure. Many are surrendered or euthanized out of frustration- - sometimes just from a lack of understanding "how to" manage the 4 considerations of EPI (Enzymes, Diet, B12 and / or Antibiotics if needed) or due to the cost because the owners are not aware of the affordable alternatives that are available to them.

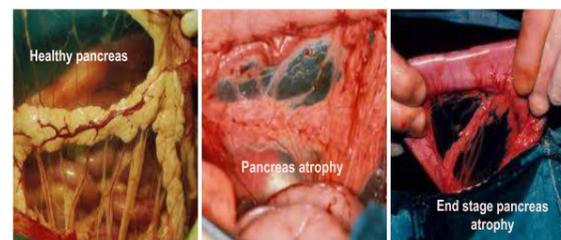
Please know that EPI is manageable!

If an EPI dog does not optimally improve after all 4 considerations of the EPI protocol have been implemented, this usually indicates that one or some of the 4 considerations of EPI protocol may need to be adjusted. What most often helps to identify the problem is to keep an EPI Log, record your observations of the dog's feces output while implementing a "one-change-at-a-time" trial for 3 to 5 days. What we are now seeing is by treating the whole dog with the right balance of the recommended EPI protocol many of these dogs eventually need to be placed on a diet as they have put on more than the needed weight- -a very nice problem to have with an EPI dog!

With EPI, signs may vary depending on the degree of severity. Signs may also be exacerbated by physical, emotional and/or environmental stress.

EPI is now showing up more frequently than ever before. At this point in time we can only test to confirm an EPI diagnosis, please do not mate a positively identified EPI dog (or cat), nor do a repeat breeding with parents that produced an EPI dog(s) or cat(s).

TAMU (Texas A&M Gastroenterology Laboratory) may be contacted by Vets only for an EPI consultation: 1-979-862-2861 or visit the TAMU website at : <http://vetmed.tamu.edu/gilab/service/assays/tli>



Please be aware of and help educate others about EPI only then can we reduce and hopefully someday eradicate this needless suffering in our beloved companions.

For complete information about EPI visit our 501c3 Non-Profit Public Charity: www.epi4dogs.com

Learn about symptoms/signs, treatments, cost saving options and many available resources in managing this devastating condition. Learn how Epi4Dogs is working hard to advance EPI Awareness and further EPI Research.



For EPI support, please visit: www.epi4dogs.com/apps/forums or Visit us on Facebook: [Epi4Dogs.com](https://www.facebook.com/Epi4Dogs.com)



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Exocrine Pancreatic Insufficiency

Before treatment



After treatment

