

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 also causes structural and functional changes in the tissue lining of the small intestine that further impairs nutrient absorption. All EPI dogs, when diagnosed with EPI, have a concurrent 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 cow-plop feces
- Some develop coprophagia and pica
- Some have increased tummy rumblings
- 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 <https://vetmed.tamu.edu/gilab/service/assays/tli/> measures the dog's ability to produce digestive enzymes by detecting trypsinogen and trypsin. As of Sept 2023, revised cTLI ranges are as follows:

- 0 to 2.5 µg/L Diagnostic for EPI.
- 2.6 to 7.5 µg/L Subnormal cTLI concentration, highly suggestive of EPI. Assess response to pancreatic enzyme replacement therapy to confirm diagnosis.
- 7.6 to 10 µg/L Subnormal cTLI concentration, EPI cannot be excluded. If signs are consistent with EPI, consider assessing response to pancreatic enzyme replacement therapy to confirm diagnosis.

A dog must be food-fasted 8 to 12 hours prior to the blood test. When running the TLI it is recommended to run Cobalamin (B12) & Folate. Folate results should not be used to diagnose SID because all EPI dogs have SID to one degree or another.

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, SID (small intestinal dysbiosis) treatment and B12. Check the website for more detailed information on Enzymes, SIBO/SID, B12 and Diet.

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 and 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, PancrePlus, Enzyme Diane, Pana Kare Plus etc.) 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 <https://enzymediane.com/>

SIBO/SID: Some have found success with treating SID with a prebiotic, if unsuccessful, treat with a pre+probiotic. If that is unsuccessful, treat with Tylan / Tylosin antibiotic twice daily for 30-45 days. (If in the UK, try 30 days of an Oxytetracycline antibiotic) If antibiotics fail, try a Fecal Microbiota Transplant (enema).

B12: The Cobalamin (B12) level should be in the upper-mid range. If low or low-normal, the dog will need to be placed on either high dose B12 pills or B12 injections until the B12 levels are sufficiently brought up to upper mid range or more. Most EPI dogs need B12 supplementation for life.

Diet: Start with a diet of 4% or less fiber content. Avoid foods with multiple pea sources. A prescription diet is not needed unless there is another health condition that requires it. Commercial kibble, canned, raw, or home-prepared may be used. If food sensitivities are suspected, then a prescription hydrolyzed diet may be necessary. The best diet will depend on the individual dog, sometimes less carbs are needed. You may need to experiment with foods to see what agrees best with your EPI dog. Keeping a detailed EPI log will greatly help you figure out what works best for your dog. 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: <https://epi4dogs.com/dog-food-options/>

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

Years ago, EPI was suspected to be caused by autosomal recessive genes. It is now confirmed that EPI is not autosomal recessive, but it could be a combination of multiple genetics with environmental factors involved. Previously Dr. Leigh Anne Clark at Clemson Canine Genetics, at Clemson University in SC found some genetic indicators. "Significant associations were found with three alleles". Currently 2023, Dr. Clark, is at the University of Georgia conducting new EPI genetic research with more highly advanced genetic tools in hopes of unraveling the mystery of why EPI happens.

Epi4Dogs collaborated with Dr. David Williams and Dr. Patrick Barko at the University of Illinois to investigate the roles that metabolism, nutrition and gut microbiome play in EPI. This study, "*Untargeted Analysis of Serum Metabolomes in Dogs with Exocrine Pancreatic Insufficiency*" completed in 2023, can be viewed at:

<https://www.mdpi.com/2076-2615/13/14/2313>

Some of the findings are (1) dogs with EPI have altered populations of gut bacteria (dysbiosis) that persists, despite pancreatic enzyme therapy (2) dysbiosis in the feces of EPI dogs associated with deficiencies in fat-soluble vitamins, dysregulation of bile acids, and persistent malabsorption of dietary fat (3) several abnormal metabolomic pathways were also identified.

For further information regarding this study and others, please visit the EPI Research page on Epi4Dogs website:

<https://epi4dogs.com/epi-research/>

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 management of SID) or due to the cost because the owners are not aware of the affordable alternatives that are available to them.

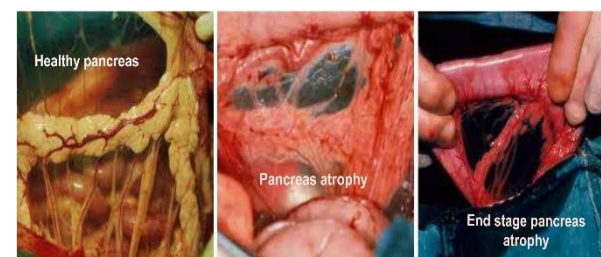
Please know that EPI is manageable!

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, or that there may also be a concurrent condition in addition to EPI, like IBD. What most often helps to identify the problem is to keep an EPI Log, <https://epi4dogs.com/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. 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 breed responsibly and 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, email: gilab@cvm.tamu.edu or visit the TAMU website at: <https://vetmed.tamu.edu/gilab/>



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: <https://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: <https://www.epi4dogs.com/forum/> or Visit us on Facebook: Epi4Dogs <https://www.facebook.com/Epi4Dogs>



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Exocrine Pancreatic Insufficiency

Before treatment



After treatment

