

**The Soft Coated Wheaten Terrier Club of America, Inc.
Recommended
Health Screening for
Protein-Losing Enteropathy (PLE), Protein-Losing Nephropathy (PLN),
Renal Dysplasia (RD) and/or Addison's Disease**

The SCWTCA Health Committee recommends that you annually health screen your Wheaten. If any laboratory abnormalities associated with PLE/PLN, RD and/or Addison's Disease are found, we strongly suggest that you carefully monitor your Wheaten.

Clinical Signs of PLE:

PLE is usually caused by irrfamīnātōry bowel disease or lymphangitis/lymphangiectasia. In affected Wheatens there is a stimulation of the immune system in the bowel wall.

Some of the common signs and symptoms are:

- Vomiting
- Diarrhea
- Weight loss
- Ascites, edema, pleural effusion

Laboratory abnormalities associated with PLE:

- Hypoalbuminemia*
- Hypoglobulinemia*
- Eosinophilia
- Hypocholesterolemia
- Lymphopenia

Note that not all of the laboratory abnormalities are seen in every case. The most important lab changes are indicated with an asterisk (*).

Clinical Signs of PLN:

PLN is difficult to diagnose. The initial stages of the disease may be mistaken for liver, glandular or other *enteric or kidney diseases*. *Wheatens with PLN may have serious thromboembolic events before renal failure starts, even before there is increased serum creatinine or BUN. An abnormality of the glomeruli usually causes PLN:*

Some of the common signs and symptoms are:

- Listlessness/depression
- Decreased appetite, vomiting, weight loss
- Ascites, edema, pleural effusion
- Increased water consumption, increased urination (less common)
- Thromboembolic phenomena & hypertension (less common)

Laboratory abnormalities associated with PLN:

- Hypoalbuminemia*
- Elevated serum creatinine, BUN
- Hypercholesterolemia
- Elevated urine protein/creatinine ratio*

Note that not all of the laboratory abnormalities are seen in every case. The most important lab changes are indicated with an asterisk (*).

Screening Tests for PLE/PLN:

- Biochemical profile (include total protein, albumin, creatinine, BUN, cholesterol, Na/sodium, K/potassium & phosphorus, etc.)
- Complete blood count
- Routine urinalysis (specific gravity, dipstick, urinary sediment)
- Urine protein/creatinine ratio
- Fecal API

Clinical Signs of RD:

Renal Dysplasia (RD) is the abnormal development of the kidney. This malformation can result in early renal failure. The Soft Coated Wheaten Terrier (SCWT) is a breed with a known inherited (genetic) basis for RD.

Some of the common signs and symptoms are:

- Increased water consumption
- Increased urination (dilute urine)
- Poor doer, decreased appetite
- Vomiting
- Possibly prone to urinary tract infection

Laboratory and radiographic abnormalities often associated with RD:

- Low urine specific gravity
- Elevated creatinine and BUN
- Small kidneys
- Small, hyperechoic kidneys with cysts seen via abdominal ultrasound

Screening Tests for RD:

- Biochemical profile (include total protein, albumin, creatinine, BUN, cholesterol, Na/sodium, K/potassium & phosphorus, etc.)
- Complete blood count
- Routine urinalysis (specific gravity, dipstick, urinary sediment)
- Abdominal radiographs/Ultrasound
- Kidney biopsy (wedge, not Tru-cut) call Dr. Littman to discuss size

Clinical Signs of Addison's Disease:

Addison's disease (Hypoadrenocorticism) is the insufficient production and secretion of hormones (glucocorticoids, mineralocorticoids) by the adrenal gland cortex. The clinical signs are often nonspecific and can mimic those of multiple other medical disorders:

Some of the common signs and symptoms are:

- Listlessness/depression
- Decreased appetite, vomiting, weight loss
- Inability to handle stress
- Sudden collapse
- Slow heart rate

Laboratory abnormalities often associated with Addison's disease:

- Decrease in Na/K ratio (Sodium/potassium ratio)
- Abnormal ACTH stimulation test
- Elevated serum creatinine, BUN

Screening Tests for Addison's Disease:

- Biochemical profile (include total protein, albumin, creatinine, BUN, cholesterol, Na/sodium, K/potassium & phosphorus, etc.)
- Complete blood count
- Routine urinalysis (specific gravity, dipstick, urinary sediment)
- ACTH stimulation test

If these test results show any abnormalities, please contact Dr. Littman or Dr. Vaden for further advice.

Dr. Meryl P. Littman
University of Pennsylvania
School of Veterinary Medicine
3900 Delancey Street
Philadelphia, PA 19104-6010
Phone: 215-898-9288
FAX: 215-573-6050 (include cover sheet)
Email: merylitt@vet.upenn.edu

Dr. Shelly Vaden
North Carolina State University
College of Veterinary Medicine
4700 Hillsborough Street
Raleigh, NC 27606
Phone: 919-513-6235
FAX: 919-513-6336 (include cover sheet)
Email: shelly_vaden@ncsu.edu

Health Screening Schedule for PLE/PLN in the Soft Coated Wheaten Terrier

Dr. Shelly Vaden, North Carolina State University, one of our chief research investigators, has offered a testing protocol for early detection and management for a Wheaten at risk for PLE/PLN.

She recommends beginning health screening for PLE/PLN at 6 months of age and continuing every 6 months until 3 years old. After three years of age, annual testing is recommended unless abnormalities are identified and require closer monitoring.

You will gather the most information about your Wheaten's health, if you do your health screening according to the below schedule. Since the intent of this kind of screening is to capture a "snap shot" of your Wheaten's health, we highly recommend that you follow the same procedure every time you health screening.

In order to insure the best results representing your Wheaten's health status at the time of testing we highly recommend you do the following:

- Before you collect samples for the Fecal API test, rule out the presence of parasites by conducting a fecal test.
- Giardia will cause moderate elevation of the API in some dogs according to Dr. Craig Ruau at the GI Laboratory at Texas A & M. If there is an endemic giardia problem in your area, consult with your veterinarian. See "Protocol for Fecal API Collection" for more details.
- It is recommended that you fast your Wheaten the night before your Health Screening. No food after 6 pm, no water after midnight.
- Try to schedule an early morning appointment at your veterinarian about the time your dog/bitch would yield its second urine sample (before 10:00 am).
- For spayed bitches, "free catch" urine samples are OK. On intact females, you should consider having your veterinarian collect by a cystocentesis. Dogs urine may be collected via "free catch."
- Always request copies of test results and keep them on file at home for future reference and breeding evaluation.

6 months

- Complete Blood Count
- Urinalysis
- Alpha 1 protease inhibitor (Fecal API)

Watch for:

*Increased eosinophils
Persistently low urine specific gravity
Protein in urine
Elevated alpha 1 protease inhibitor (Fecal API)*

1 year

- Complete Blood Count
- Biochemical profile (include total protein, albumin, creatinine, BUN, cholesterol, Na/sodium, K/potassium & phosphorus, etc.)
- Alpha 1 protease inhibitor (Fecal API)
- Urine protein/creatinine ratio

1 year – continued

Watch for:

Increased eosinophils
Persistently low urine specific gravity
Protein in urine
Elevated alpha 1 protease inhibitor (Fecal API)
Low serum albumin
Low serum globulin

1 ½ years

- Complete Blood Count
- Urinalysis
- Alpha 1 protease inhibitor (Fecal API)

Watch for:

Increase eosinophils
Persistently low urine specific gravity
Protein in urine
Elevated alpha 1 protease inhibitor (Fecal API)

2 years

- Complete Blood Count
- Biochemical profile (include total protein, albumin, creatinine, BUN, cholesterol, Na/sodium, K/potassium & phosphorus, etc.)
- Urinalysis
- Urine protein/creatinine ratio
- Alpha 1 protease inhibitor (Fecal API)

Watch for:

Elevated eosinophils
Elevated alpha 1 protease inhibitor (Fecal API)
Low albumin
Low globulin
Low hemoglobin or hematocrit (PCV)

High serum creatinine
High serum phosphorus
Protein in urine
Persistently low urine specific gravity
High urine protein/creatinine ratio

2 1/2 years and each year thereafter

- Check urine at 6-month intervals with dipstick for protein.
If 2 plus or greater protein, perform protein/creatinine ratio

3 years

- Complete Blood Count
- Biochemical profile (include total protein, albumin, creatinine, BUN, cholesterol, Na/sodium, K/potassium & phosphorus, etc.)
- Urinalysis
- Urine protein/creatinine ratio
- Alpha 1 protease inhibitor (Fecal API)

3 year – continued

Watch for:

Elevated eosinophils
Low albumin
Low total protein
Elevated cholesterol
Elevated serum BUN
Elevated serum creatinine
Elevated serum phosphorus
Protein in urine
Persistently low urine specific gravity
Elevated urine protein/creatinine ratio
Low hemoglobin
Low hematocrit (PCV – packed cell volume)

4 years and each year thereafter

- Complete Blood Count
- Chemistry panel
- Urinalysis
- Urine protein/creatinine ratio

Watch for:

Elevated eosinophils
Low albumin
Low total protein
Elevated cholesterol
Elevated serum BUN
Elevated serum creatinine
Elevated serum phosphorus
Protein in urine
Persistently low urine specific gravity
Elevated urine protein/creatinine ratio
Low hemoglobin
Low hematocrit (PCV – packed cell volume)

Symptoms of PLE

Vomiting
Diarrhea
Lethargy
Weight loss

Diagnosis of PLE

Early elevation in eosinophils
Early elevation in alpha 1 protease inhibitor
Low albumin
Low globulin
Intestinal inflammation
Low cholesterol

Clinical manifestations of PLE

Pleural effusion
Ascites
Edema
Thromboembolic phenomena

Symptoms of PLN

High consumption of water
Pungent breathe odor
Vomiting (late stage)
Weight loss (late stage)

Diagnosis of PLN

Elevated urine protein/creatinine ratio
Low serum albumin
Elevated serum cholesterol
Elevated serum creatinine
Elevated serum BUN
Elevated serum phosphorus
Low hemoglobin
Low hematocrit (PCV- packed cell volume)

Clinical manifestations of PLN

Glomerulonephritis
Renal lesions
Thromboemboli
Systemic hypertension
Anemia
Retinal detachment (uncommon)

Treatment for PLE & PLN

Early diagnosis is EXTREMELY important!

PLE

Hypoallergenic diet (NO TREATS!) See Canine ZD Homemade Treats Recipe.
Low fat diet
Immunosuppressives
Angiotensin converting enzyme inhibitor (e.g. Enacard, Vasotec)

PLN

Hypoallergenic diet (NO TREATS!) See Canine ZD Homemade Treats Recipe.
Low protein diet
Immunosuppressives
Phosphate binders
Mast cell stabilizers (sodium cromoglycate)
Antacids
Anticoagulants (if Thromboembolism is present)
Fluids (Ringer's solution)

Protocol for Fecal API Collections Screening Test for Protein-losing Enteropathy (PLE)

Early diagnosis of Protein-losing Enteropathy (PLE) in the Soft Coated Wheaten Terrier (SCWT) is challenging. Many cases show no clinical signs. The Alpha Protease Inhibitor (API) test has proven to be a valuable screening tool for intestinal protein loss in Wheatens even before other clinical signs develop. It is recommended that you screen your Wheaten annually for PLE. If any of the results show “*consistent with protein-loss*”, semi-annual screening is recommended to further monitor for PLE.

Intestinal parasitism can cause an elevated API test result. To exclude the chance of a false positive test result, have your veterinarian perform a routine fecal exam, and deworm your dog if necessary, prior to collecting for the API.

Giardia will cause moderate elevation of the API in some dogs according to Dr. Craig Ruax at the GI Laboratory at Texas A & M. If there is an endemic giardia problem in your area, consult with your veterinarian. Dr. Ruax has found a treatment of Fenbendazole for three days at 50mg/kg effective at clearing giardia for about a week after treatment. After treatment, there should not be enough giardia present in the gut to alter the API. They might re-infect, but this would give you a window to get the best sampling possible.

Fecal API Collection Kits may be requested from Tonya Harris, North Carolina State University, College of Veterinary Medicine (see below)

Contents of the API Collection kit:

- Three (3) small brown-top tubes
- Three (3) small plastic leveler sticks
- One (1) large 50ml red-top tube
- One (1) large wooden stick

Collection of fecal material requires adherence to the instructions provided with these kits. The instructions are detailed below:

- Feces must be collected on three (3) consecutive days in the brown-top tube containers provided. A small scoop is included with the brown-top tube to facilitate collection. Only a small amount (leveled scoop-full) needs to be collected; use the small plastic sticks provided to level off sample (this is approximately 1 gram of feces). Please dispose of the small plastic stick after leveling off the fecal sample, DO NOT leave the stick in the tube with the feces.
- The importance of a leveled sample must be stressed. When the feces is not leveled off in the scoop, after some thawing (possible in shipment), the feces will fall out of the scoop onto the inside of the tube. This makes it extremely hard to retrieve the sample for testing. A leveled scoop is needed in order to process the sample accurately. Samples that have not been leveled off cannot be accepted.
- The white label on the brown-top tube should be filled in with name and date. Being careful not to obscure the pre-marked number (the tubes have been weighed and marked with this weight). DO NOT place any stickers, tape or other items onto the tubes, it is very important so that the tubes can be accurately weighed.
- The large red top tube should be filled completely using the large wooden stick. Fill this tube with the same feces that was used to fill one of the brown-top tubes. Please write the name and date on the tube label and it will be stored at the laboratory for future testing of fecal IgE.

- A sample collection: collect 1st brown-top tube (leveled scoop-full) on Monday, collect 2nd brown-top tube (leveled scoop-full) on Tuesday, collect last brown-top tube (leveled scoop-full) on Wednesday, and also collect red-top tube on Wednesday.
- Collect all samples immediately after your Wheaten has defecated and freeze immediately after collection. Ship the samples FedEx priority overnight in Styrofoam cooler with ice packs. Samples should be shipped no later in the week than Thursday (shipping/receiving is not open on Saturday, Sunday or Holidays at the NCSU laboratory). Please notify Tonya Harris that you are shipping samples, so she can expect them.

Please ship samples to: **Tonya Harris**
North Carolina State University
College of Veterinary Medicine
4700 Hillsborough St./ Rm B236
Raleigh, NC 27606

The total cost of the API for one (1) dog is \$45.00 and \$76.50 for two (2) dogs.

Make you checks payable to: NCVMF, Inc. On the "memo" line please indicate: Soft Coated Wheaten Terrier Fund. Please mail the check with your samples.

If you have any questions or concerns please contact Tonya Harris at:
Lab: 919-513-6206
FAX: 919-513-6336 (include cover sheet)
Email: tonya_lewter@ncsu.edu