

Monitoring

- Efficacy
- Adverse effects (heart rate, CNS stimulation, appetite)

Client Information

- For this drug to be effective, it must be administered as directed by the veterinarian; missed doses will negate its effect. It may take several days for the full benefit of the drug to take place.
- Contact veterinarian if the animal demonstrates ongoing changes in behavior (restlessness, irritability) or if incontinence persists or increases.

Chemistry/Synonyms

A sympathomimetic, pseudoephedrine HCl is the stereoisomer of ephedrine. It occurs as a fine, white to off-white powder or crystals. Approximately 2 grams are soluble in one mL of water.

Pseudoephedrine may also be known as: pseudoephedrini, pseudoephedrina, *Equi-Phar Equi-Hist 1200 Granules*®, *Drixoral*®, *Equiphed*®, *Histgranules*®, *Sudafed*®, and *Tri-Hist*®.

Storage/Stability

Oral pseudoephedrine products should be stored at room temperature in tight containers. Oral liquid preparations should be protected from light and freezing.

Dosage Forms/Regulatory Status

In the USA, pseudoephedrine is classified as a list 1 chemical (drugs that can be used as precursors to manufacture methamphetamine) and in some states it may be a controlled substance or have other restrictions placed upon its sale. Be alert to persons desiring to purchase this medication.

VETERINARY-LABELED PRODUCTS:

Pseudoephedrine HCl 600 mg/oz and Pyrilamine maleate 600 mg/oz Granules in 20 oz, 5 lb and 10 lb containers; *Equiphed*® (AHC), *Equi-Phar Equi-Hist 1200 Granules*® (Vedco); *Tri-Hist*® Granules (Neogen); *Histgranules*® (Butler); (Rx). Approved for use in horses not intended for food. Do not use at least 72 hours before sporting events.

The ARCI (Racing Commissioners International) has designated this drug as a class 3 substance. See the appendix for more information.

HUMAN-LABELED PRODUCTS:

Pseudoephedrine HCl Tablets and Capsules: 15 mg (chewable), 30 mg (regular & softgel), and 60 mg; 120 mg and 250 mg extended/controlled-release. A common trade name is *Sudafed*®, but there are many others and generically labeled pseudoephedrine is available. All are OTC, but sales are now restricted to “behind-the-counter” status.

Pseudonephedrine Sulfate Tables (Extended-Release): 120 mg; *Drixoral 12 Hour Non-Drowsy Formula*® (Schering-Plough Healthcare); (OTC, restricted)

Pseudoephedrine Liquid: 3 mg/mL and 6 mg/mL in 118 mL, 120 mL, 237 mL, 480 mL and 3.8 L. A common trade name is *Sudafed*®, but there are many others, including generically labeled pseudoephedrine available. All are OTC, restricted.

Pseudoephedrine Oral Drops: 7.5 mg/0.8 mL in 15 mL and 30 mL; (OTC, restricted)

PSYLLIUM HYDROPHILIC MUCILLOID

(sill-i-yum hye-droe-fill-ik myoo-sill-oid)

Metamucil®, Equi-Psyllium®

BULK FORMING GI LAXATIVE/ANTIDIARRHEAL

Prescriber Highlights

- Bulk-forming agent used for treatment & prevention of sand colic in horses, as a laxative, & to increase stool consistency in patients with chronic, watery diarrhea
- **Contraindications:** Rabbits. Where prompt intestinal evacuation is required, & when fecal impaction or intestinal obstruction is present.
- **Adverse Effects:** Flatulence; if insufficient liquid is given, increased possibility of esophageal or bowel obstruction

Uses/Indications

Bulk forming laxatives are used in patients where constipation is a result a too little fiber in their diets or when straining to defecate may be deleterious. Psyllium is considered the laxative of choice in the treatment and prevention of sand colic in horses.

Psyllium has also been used to increase stool consistency in patients with chronic, watery diarrhea. The total amount of water in the stool remains unchanged.

Pharmacology/Actions

By swelling after absorbing water, psyllium increases bulk in the intestine and is believed to induce peristalsis and decrease intestinal transit time. In the treatment of sand colic in horses, psyllium is thought to help collect sand and to help lubricate its passage through the GI tract.

Pharmacokinetics

Psyllium is not absorbed when administered orally. Laxative action may take up to 72 hours to occur.

Contraindications/Precautions/Warnings

Bulk-forming laxatives should not be used in cases where prompt intestinal evacuation is required, or when fecal impaction (no feces being passed) or intestinal obstruction is present. Psyllium products are not recommended for use in rabbits as they may damage intestinal mucosa and cause blockage.

Adverse Effects

With the exception of increased flatulence, psyllium very rarely produces any adverse reactions if adequate water is given or is available to the patient. If insufficient liquid is given, there is an increased possibility of esophageal or bowel obstruction occurring.

Reproductive/Nursing Safety

Because there is no appreciable absorption of psyllium from the gut, it should be safe to use in pregnant animals. In humans, the FDA categorizes this drug as category **B** for use during pregnancy (*Animal studies have not yet demonstrated risk to the fetus, but there are no adequate studies in pregnant women; or animal studies have shown an adverse effect, but adequate studies in pregnant women have not demonstrated a risk to the fetus in the first trimester of pregnancy, and there is no evidence of risk in later trimesters.*)

Psyllium should be safe to administer to lactating animals.

Overdosage/Acute Toxicity

If administered with sufficient liquid, psyllium overdose should cause only an increased amount of soft or loose stools.

Drug Interactions

The following drug interactions have either been reported or are theoretical in humans or animals receiving psyllium and may be of significance in veterinary patients:

- **ASPIRIN** (and other **SALICYLATES**): Potential exists for psyllium to bind and reduce absorption if given at the same time; if possible, separate doses by 3 hours or more
- **DIGOXIN**: Potential exists for psyllium to bind and reduce absorption if given at the same time; if possible, separate doses by 3 hours or more
- **NITROFURANTOIN**: Potential exists for psyllium to bind and reduce absorption if given at the same time; if possible, separate doses by 3 hours or more

Doses■ **DOGS:**

- a) For a trial to treat chronic idiopathic large bowel diarrhea using *Metamucil*®: Median dose is 2 tablespoonsful (1.33 g/kg/day; range: 0.32–4.9 g/kg/day) per day added to a highly digestible diet such as Hill's *i/d*® (Leib 2004a), (Leib 2005)
- b) To increase fiber in dogs with chronic colitis: Add 1–2 tablespoonsful (15–30 mL) per 25 kg body weight to animal's regular diet. (Jergens 2007)
- c) 1 teaspoonful–2 tablespoonsful mixed with food every 12 hours (McConnell and Hughey 1987)

■ **CATS:**

- a) For chronic constipation: 1–4 teaspoonsful per meal added to canned cat food. Be sure cat is properly hydrated. (Washbau 2001)
- b) For adjunctive treatment of feline megacolon: 1–4 teaspoonsful mixed with food PO q12–24h (Scherk 2003b)

■ **HORSES:**

- a) For treatment of sand colic: 0.5 kg in 6–8 L (1 pound in 1.5–2 gallons) of water via stomach tube. Mix with water just before administration; simultaneously mixing water with psyllium as mixture is being pumped is ideal. May repeat as necessary as long as horse continues to pass feces and fluid does not accumulate in stomach. After initial treatment, may add up to 125 gm with each feeding; best if mixed with grain or sweet feed. Water must be available. (Calahan 1987)
- b) For sand impactions: 8 ounces in water via NG tube q24h. (Blikslager 2006a)

Monitoring

- Stool consistency, frequency

Client Information

- Contact veterinarian if patient begins vomiting
- Be sure animal has free access to water

Chemistry/Synonyms

Psyllium is obtained from the ripe seeds of varieties of *Plantago* species. The seed coating is high in content of hemicellulose mucilage that absorbs and swells in the presence of water.

Psyllium may also be known as *Metamucil*®; many other trade names are available.

Storage/Stability

Store psyllium products in tightly closed containers; protect from excess moisture or humidity.

Dosage Forms/Regulatory Status**VETERINARY-LABELED PRODUCTS:**

Equine Enteric Colloid® (Techmix); *Equi-Phar*® Sweet Psyllium (Vedco); (not for horses intended for food); *Sandclear*® (Farnam), *Anipsyll*® Powder (AHC), *Purepsyll*® Powder (AHC), *Vita-Flex Sand Relief*® (Vita-Ilex), *Equa Aid Psyllium*® (Equi Aid); (OTC). Products may be available in 28 oz, 56 oz, 1 lb, 10 lb and 30 lb pails and are labeled for use in horses.

Vetasyt Fiber Tablets for Cats® 500 mg, & 1000 mg tablets in bottles of 60 or 180; (Virbac) (OTC); Labeled for use in cats. Also contains barley malt extract powder, acacia and thiamine.

HUMAN-LABELED PRODUCTS:

There are many human-approved products containing psyllium, most products contain approximately 3.4 grams of psyllium per rounded teaspoonful. Dosages of sugar-free products may be different from those containing sugar.

PYRANTEL PAMOATE

(pi-ran-tel) Strongid T®, Nemex®

ANTIPARASITIC**Prescriber Highlights**

- Pyrimidine anthelmintic used primarily for ascarids in a variety of species
- Contraindications: Severely debilitated animals
- Adverse Effects: Unlikely, emesis possible in small animals

Uses/Indications

Pyrantel has been used for the removal of the following parasites in dogs: ascarids (*Toxocara canis*, *T. leonina*), hookworms (*Ancylostoma caninum*, *Uncinaria stenocephala*), and stomach worm (*Physaloptera*). Although not approved for use in cats, it is useful for similar parasites and is considered safe to use.

Pyrantel is indicated (labeled) for the removal of the following parasites in horses: *Strongylus vulgaris* and *equinus*, *Parasacaris equorum*, and *Probstymayria vivipara*. It has variable activity against *Oxyuris equi*, *S. edentatus*, and small strongyles. Pyrantel is active against ileocecal tapeworm (*A. perfoliata*) when used at twice the recommended dose, although resistance has been reported.

Although there are apparently no pyrantel products approved for use in cattle, sheep, or goats, the drug is effective (as the tartrate) for the removal of the following parasites: *Haemonchus* spp., *Ostertagia* spp., *Trichostrongylus* spp., *Nematodirus* spp., *Chabertia* spp., *Cooperia* spp. and *Oesophagostomum* spp.

Pyrantel tartrate is indicated (labeled) for the removal or prevention of the following parasites in swine: large roundworms (*Ascaris suum*) and *Oesophagostomum* spp. The drug has activity against the swine stomach worm (*Hyoststrongylus rubidus*).

Although not approved, pyrantel has been used in pet birds and llamas. See the Dosage section for more information.