PET POISON HELPLINE®

There's xylitol (birch sugar) in that too?

By Ahna Brutlag, DVM, MS, DABT, DABVT
Director of Veterinary Services

Surprise! Xylitol appears in products you'd never suspect.

Xylitol, also referred to as birch sugar, is a sweetener which causes hypoglycemia and hepatic necrosis in dogs that often shows up in some very unexpected places. In addition to the common places we see xylitol, such as sugar-free gums and candies, edible and non-edible products on the market including peanut butter, weight loss products, nasal sprays, OTC sleep aids, deodorant, multivitamins, prescription sedatives, antacids, stool softeners, make-up remover, smoking cessation gums, and more may contain unexpectedly large amounts of xylitol. Dogs that ingest these products face a double risk—not only may poisoning result from the active ingredient but also from the xylitol. This can lead to a variety of serious and unanticipated clinical signs which can complicate clinical treatment and prognosis.

Xylitol is a natural sugar-alcohol normally found in small amounts in many fruits and vegetables. Because of its sweet taste and plaque fighting properties, it is frequently used as a sugar substitute in chewing gum, breath mints, and dental products like toothpaste and mouth wash. Non-toxic amounts are even used in some pet dental products. Due to its low glycemic index, it is also sold in bulk as a substitute for table sugar. PPH has had several cases of dogs becoming intoxicated after ingesting homemade bread, muffins and cupcakes made with xylitol. Finally, due to its humectant properties, xylitol is also used in non-food products such as deodorant and skin care products.

Tips and caveats:

1. How to obtain the amount of xylitol in a product

   Xylitol may be considered part of a product's "proprietary ingredients" so the quantity may not be listed on the package label. While some companies are willing to release the amount of xylitol in their products, others are hesitant to do so and may even ask veterinarians to sign confidentiality statements prior to release. At Pet Poison Helpline, we work diligently to obtain and catalog the quantity of xylitol in products. Most companies have been willing to share information with us for use in emergency case management. When in doubt of the xylitol concentration in a product or food, it's best to contact Pet Poison Helpline for assistance.

2. Interpreting the placement of xylitol in an ingredient list

   In some cases, it can be helpful to use the location of xylitol within an ingredient list to estimate its quantity in the product. For example, in the USA, all foods must list their ingredients in descending order of predominance by weight. This means that the ingredient that weighs the most is listed first, and the ingredient that weighs the least is listed last. In general, for most chewing gums, the amount of xylitol is often clinically insignificant if it's listed as the 4th or 5th ingredient. If it's listed as one of the first three ingredients, extreme caution should be taken.

   For drugs and dietary supplements, the regulations regarding the order of ingredients is considerably different. In this case, xylitol is often considered an "inactive ingredient" or "other ingredient"—such ingredients are not required to be listed in order of predominance. Often, they are listed in alphabetical order which may lead an uninformed pet owner or veterinary professional to incorrectly assume that there is a very low concentration of xylitol in the product.

Toxic doses and treatment recommendations:

The toxicity of xylitol is dose dependent. The dose necessary to cause hypoglycemia in dogs is approximately 0.1 grams/kg, while the amount needed to cause hepatic necrosis is approximately 0.5 grams/kg. Rarely, hepatic necrosis occurs without prior hypoglycemia. Chewing gums and breath mints contain a wide range of xylitol per piece of gum or per mint. In many cases, only one piece of gum may result in hypoglycemia in a 10-pound (4.5 kg) dog. Hypoglycemia is typically evident within 1-2 hours of xylitol ingestion but, in rare cases, has been delayed as much as 12 hours. Prompt and appropriate gastric decontamination in asymptomatic patients is essential to prevent poisoning. Activated charcoal does not bind well to xylitol and is not recommended. Should hypoglycemia develop, supplementation with intravenous

dextrose is needed until the dog can self-regulate its blood glucose concentrations (typically 12-48 hours). For dogs exposed to hepatotoxic doses of xylitol, preemptive administration of dextrose (prior to the onset of hypoglycemia) may be helpful. Additionally, close monitoring of hepatic enzymes is warranted as evidence of necrosis may be seen 1-2 days following exposure. The prognosis following xylitol exposures is excellent when the ingestion is caught early, decontamination is performed, and blood glucose is monitored frequently. The prognosis becomes guarded in the event of hepatic failure.

Pet Poison Helpline, an animal poison control center based out of Minneapolis, is available 24 hours a day, seven days a week for pet owners and veterinary professionals that require assistance treating a potentially poisoned pet. The staff provides treatment advice for poisoning cases of all species, including dogs, cats, birds, small mammals, large animals, and exotic species. As the most cost-effective option for animal poison control care, Pet Poison Helpline's per incident fee includes follow-up consultations for the duration of the treatment time. Pet Poison Helpline is available in North America by calling **800-213-6680**. Additional information can be found online at www.petpoisonhelpline.com.