

# Pet Safety: Xylitol

The artificial sweetener xylitol is a sugar alcohol extracted from corn, birch, raspberries and plums. Often consumed by diabetics and people on low carbohydrate diets, xylitol is gaining popularity as a sugar substitute. Xylitol is toxic to pets.

Xylitol is used to sweeten the following:

- Sugar-free gum, mints and other candy
- Nicotine gum
- Certain prescription drugs
- Dental hygiene products
- Baked goods

Xylitol is also:

- Available in granulated form as a sugar replacement to sweeten beverages and other foods.
- Now being added to some human vitamins (including chewable vitamins) and certain prescription drugs, including pediatric elixirs that were once considered safe for dogs.

Response to xylitol is species-specific. In humans, rhesus monkeys, rats and horses that were given xylitol intravenously there was little to no insulin release.

However, there was an opposite effect on baboons, cows, goats, rabbits, dogs and ferrets. Currently, the effect of xylitol on cats is unknown.

When ingested orally, humans absorb xylitol slowly from about 50% to 95%. Dogs, however, absorb xylitol rapidly and completely within approximately 30 minutes to 60 minutes of ingestion. Insulin secretion can markedly increase when dogs consume xylitol and can result in severe hypoglycaemia (a low blood sugar). For example, one or two pieces of gum containing xylitol can cause hypoglycaemia in a 10kg dog (0.1g/kg).

Symptoms (signs of toxicity) may not appear immediately such that your dog may be fine for up to a day after ingesting xylitol—only to develop liver failure afterwards. Liver biochemistry values can increase within 8-12 hours of exposure to xylitol. Ingesting amounts above 0.5 g/kg can cause acute liver failure and death from hepatic necrosis (death of liver cells). For this reason, if symptoms of toxicity do not appear immediately following ingestion of xylitol, it is very important that you do not assume your dog is safe. Currently, the cause of xylitol-related liver failure is not well understood. Scientists suspect xylitol and its metabolites deplete adenosine triphosphate, a nucleotide that is a major source of energy for cellular reactions. Without sufficient amounts of adenosine triphosphate, cells in the liver die off.

Symptoms of xylitol intoxication include:

- Vomiting
- Weakness
- Lethargy
- Loss of coordination
- Collapse
- Seizures

If your dog is showing symptoms of xylitol intoxication, seek immediate veterinary care. Given that it is difficult to determine the quantity of xylitol contained in a particular product, we recommend that people avoid giving their dogs products containing xylitol and/or consult with their veterinarian prior to using any product that lists xylitol as an ingredient.

By taking some precautions, you can prevent your pet from ingesting xylitol:

- Inspect the labels on the products listed below for xylitol and, as with all products that are potentially harmful to pets, store these products safely out of reach from your pet:
  - Any sugar-free gum, candy or processed food
  - Oral hygiene products (toothpaste, mouth rinse, teeth whiteners, etc.)
  - OTC medications (over-the-counter medications) and supplements such as, but not limited to, chewable vitamins.
  - Prescriptions, particularly liquid medications
- Whenever you have visitors in your home, take the necessary precautions to avoid having your pet get into your guests' medications, handbags, etc. Also, inform your guests that xylitol is toxic to pets so that they do not leave any products containing xylitol lying around the house.
- During walks, train your dog to not eat any food, candy or gum found on the ground.

### Treatment

If a veterinarian treats your pet promptly, an uncomplicated drop in blood sugar brought on by ingestion of a relatively small amount of xylitol can be reversed.

With proper veterinary care, minor increase in liver enzymes (resulting from xylitol affecting the liver) should also resolve in a few days.

If the liver enzymes are significantly elevated in conjunction with increased levels of bilirubin and lack of blood clotting activity, conditions are life-threatening and your dog needs immediate veterinary care.

Hyperphosphatemia (abnormally high level of phosphate in the blood) is also an indication of a very poor prognosis for dogs that have ingested a significant amount of xylitol. Seek immediate veterinary care.