



## Dogs and Cats Can Develop Diabetes Too!

Welcome guest writer, Jean Hofve, DVM, an internationally-known holistic veterinarian. She is a respected writer, speaker, and consultant in all areas of pet health, writing hundreds of articles and regularly appearing on radio and TV. Dr. Hofve writes and maintains a popular pet health website at [www.littlebigcat.com](http://www.littlebigcat.com).

Pets are susceptible to many of the same diseases that humans develop, including diabetes mellitus, or “sugar diabetes.” In healthy dogs, cats, and humans, the hormone insulin is produced by pancreatic cells, which acts as the “key” that allows glucose to enter the cells, thus maintaining blood glucose levels within an optimal range. In diabetic pets and humans, this process is impaired. There are two basic types of diabetes:

- ◆ Type I diabetes is the result of insufficient or faulty production of insulin in the pancreas, often due to pancreatitis or immune system dysfunction. This is the more common type in children and dogs. In this type, the “key” that operates the lock is missing.
- ◆ Type II diabetes occurs when the body loses its ability to respond correctly to insulin (insulin resistance). This is typically due to diet and weight issues, and is the primary type in adult humans and cats. In this case, the “key” is present, but the locks are essentially jammed.

Both types of diabetes may require treatment with insulin injections, although cats can be “transiently” diabetic, meaning that they can reverse the disease with a change in diet.

Diabetic complications in dogs and cats include urinary tract infections and other recurrent infections, hypertension, and diabetic ketoacidosis. Cataracts are a common complication in dogs but rare in cats, and diabetic neuropathy (which typically involves loss of function/sensation in the hind legs) is a common complication in cats but rare in dogs.

Since clinical studies on omega-3 fatty acid supplementation in diabetic dogs or cats have not been published, relevant literature typically cites human studies, as diabetes in pets is perfectly analogous to human Type I (dogs) and Type II (cats) diabetes. These human studies have shown that fish oil can be effective in treating several disorders relating to lipid metabolism—including obesity, insulin resistance, metabolic syndrome (a pre-diabetic state), and diabetes mellitus.

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*Q: Dr. Hofve, how can I best protect my pets from developing diabetes?*

A: Although the causes and forms of diabetes differ between dogs and cats, a diet of fresh organic meat and vegetables is much better for both dogs and cats than commercial pet foods. Processed commercial pet foods tend to be high in carbohydrates, which contributes to obesity. Supplementation with fish oil helps stave off insulin resistance, a major step on the road to diabetes in cats, by providing the omega-3s EPA and DHA. A fresh, unprocessed diet, supplemented with omega-3 fish oil, may prevent the type of chronic inflammation associated with development of type I diabetes in dogs. Proper diet and exercise, along with omega-3 fish oil—which has many benefits for the cardiovascular, endocrine, renal, immune, and nervous systems—are the keys to your pets’ overall health and well-being.



Fish oil is a valuable food source for your dogs and cats.

## Research Spotlight

- ◆ Omega-3s alleviate insulin resistance, a key factor in the development of Type II diabetes.

Obesity-induced insulin resistance and hepatic steatosis are alleviated by omega-3 fatty acids: a role for resolvins and protectins. González-Pérez A, Horrillo R, Ferré N, *et al.* *FASEB J* 2009 Jun;23(6):1946–57.

- ◆ Omega-3s can improve blood glucose balance and slow the progression of inflammation, oxidative stress, and obesity.

Omega-3 Long-Chain Polyunsaturated Fatty Acids in Type II Diabetes: A Review. Nettleton JA, Katz R. *J Am Diet Assoc* March 2005;105(3):428–440.

- ◆ Omega-3s can treat inflammation in insulin-producing pancreatic cells, an early event that leads to Type I diabetes.

Omega-3 polyunsaturated fatty acid intake and islet autoimmunity in children at increased risk for Type I diabetes. Norris JM, Yin X, Lamb MM, *et al.* *JAMA* 2007 Sep 26;298(12):1420–8.

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## PRODUCT SPOTLIGHT Nordic Naturals Premium Omega-3 Fish Oil for Dogs and Cats!

PET COD LIVER OIL available in 8 and 16 oz bottles

OMEGA-3 PET available in 90 and 180 count soft gels

- ◆ Support healthy joints, skin, coat, heart, eyes, and weight
- ◆ Same quality standards as Nordic Naturals' human products, but specially formulated for dogs and cats
- ◆ Third-party tested, surpassing all international pharmaceutical standards for freshness & purity
- ◆ Easily added to food—*cats and dogs love it!*



## Fish oil supports **optimal** dog & cat health

There are two main classes of essential fatty acids required by both dogs and cats: omega-6 and omega-3. In fact, dogs and cats have the same need as humans for these essential fats. Just like us, dogs and cats cannot adequately produce them and must obtain them from diet or supplementation.

Whereas omega-6s are abundant in the typical pet diet (vegetables, grains, and commercially-produced meat), the most important omega-3s, EPA and DHA, are deficient in the typical pet diet; cold-water fish are nature's best source. And even though some pet foods may add omega-3s, it is a challenge to ensure adequate amounts of EPA and DHA in even the highest quality pet diets.

Giving your pet sufficient levels of omega-3 fish oil is vital to your pet's health!

Fish oil is the best source of the omega-3s, EPA and DHA, for your dogs and cats. But not all fish oils are created equal—look for fish oil that is specially formulated for cats and dogs while also manufactured to meet quality and purity standards for humans—including third-party testing to guarantee freshness and purity from toxins such as mercury.