



Just 'cuz he looks friendly, doesn't mean this tuna is your cat's friend !

All about tuna fish

from Pat with help from Sally

Awhile back a post linked to an article online that read: "Research confirms that levels of mercury are higher in canned tuna* than in commercial tuna cat foods by a ratio of 10 to one. Such results may raise some concern in owners who feed tuna to their cats instead of commercial cat food."

I emailed the vet/author for an explanation of 'why', and the nicest thing I can say is that I was not impressed by his brief non-answer. I then contacted the British Vet Journal (super nice folks) to get a copy of the research article that instigated this vet's article. I also took advantage of Sally (and Penny's) web search service and began a look at what should, IMHO, be included in articles/discussions about tuna fish.

Here is a summary of what was found:

The research referred to was done circa 1995 in Japan. 41 cats & 34 dogs, (all pets whose owners had brought them to vet clinics for vaccinations) were tested for mercury levels in their hair. The owners were asked which category of diet their pet was fed.

The results of the tests in cats were:

<i>Dry cat food diet</i>	0.008 mercury /parts per million
<i>Wet cat food diet</i>	0.014 mercury ppm
<i>Canned tuna diet</i>	0.029 ppm
<i>Dried sardine diet</i>	0.031 ppm
<i>Fresh tuna diet</i>	0.153 ppm

To relate to this data you should consider the following:

1) Nearly all fish contain trace amounts of mercury. The higher up on the predator chain (the more smaller fish it eats), the higher it's accumulated mercury level. The FDA limit for human consumption is 1.0 ppm, the EPA is 5 times lower, both claim to be 10 times lower than the lowest level associated with the onset of adverse effects. Cats tolerated 10X higher levels (compared to humans) before showing signs of effects.

In a year 2001 report sampling data, listing the highest end (vs. low, mean or average) – shark is 4.5, swordfish 3.2, tilefish 3.7, mackerel 1.6, large fresh tuna 1.3, snapper 1.4, North American lobster 1.3, trout 1.2. All other fish were well below 1.0 . Salmon is .18 Research done on museum fish show fish had these same mercury levels over 100 years ago, so this is not a new issue, although industrial pollution does effect certain near-land areas more than others.

2) “Fresh” tuna is NOT the same ‘tuna’ in the Bumble Bee can you buy. The species of tuna used in human grade canned tuna is either albacore (white meat which rated .3) or skipjack (red/light rated .17), both of which are smaller fish than ‘tuna’ (which is very large and mostly used for tuna steaks and sushi, or in Japan- scraps for pets.)

3) In the Japanese study the dry food fed was not analyzed for amount of fish content vs. non-fish content. Thus, the mercury sample here is presumably lower due to a higher amt of non-fish ingredients in the total food, but also it’s unknown what type of fish was used. The dry food may have been high in fish content using whiting or a very low mercury level fish –or it may have been extremely low in fish but using ‘fresh’ tuna.

4) The same applies to the commercial canned cat food –no way to know how much fish was in the total can, only that the cats fed canned with all it’s contents had more mercury than those fed dry foods (as measured by the cat’s hair analysis.)

5) The human grade canned tuna was presumably 100% fish. The same is true here in reverse: no way to know if these cats ate other foods, hunted, or really ate pretty much just canned tuna.

So is feeding canned tuna bad, and feeding commercial cat food better? NO, and NO –the key is moderation in feeding fish, period, regardless of the source.

So how much is too much? You’ll need to decide this for yourselves. For humans: 1.0 ppm is agreed to have a considerable safety margin for all. The suggested weekly limit is 26 oz. of fish rated under .2 ppm and lesser amounts as the ppm rises (note: pregnant women & children under 6 have lower limits as mercury can effect early mental development). Remember white is .3 & light tuna is .17 ; and an average tuna fish sandwich is 2-3 oz.

The general conversion for cats is one-tenth the human limit, but in this case cats metabolize differently and tested out effect free at 10X the level where humans showed effects. So that brings you right back to: the human levels- and that’s over 3 cans a week of canned tuna any way you look at it. Going back to the study, NONE of the cats tested showed signs of mercury illness, not even the cats fed “fresh” tuna rated the highest in contamination. Why? No one’s sure, but researchers found that some fish, including tuna, can block and reduce the toxicity of mercury in their tissues. In other studies cats fed light canned tuna for 100 days straight showed no signs of ataxia; cats given 176 mugs of injected mercury showed ataxia after 14 weeks.

Which ‘tuna’ is used in cat foods? I doubt they’d tell us if we asked. What really matters is the mercury content, so a detailed analysis of your cat food would spell out the percentage if you really cared to know. Tuna is expensive, so most likely ‘fish’ on your list of ingredients is really whiting or tilapia unless a specific fish is actually named. However, tuna “oil” is regularly used to flavor contents of even non-fish cat foods, wet and dry.

Does cooking or processing fish lower the mercury level? NO.

Do Vitamin E and Selenium lower mercury toxicity? YES. Several studies in both humans and cats have proven that low levels of E & selenium prevent toxic effects in even high levels of mercury. E & selenium are antioxidants so they act not to decrease the mercury, but to prevent oxidation thereby lessening the damage from it.

Does it matter whether I feed tuna in oil vs. tuna in water? For mercury levels- NO; for other reasons – YES. The oil has been shown to deplete vit E which in long term use (kittens 30 days, cats 13 months) causes steatitis** or fatty liver disease. Giving 34-68iu’s

of E daily prevented all lesions (signs of damage) in the control cats fed the same tuna in oil. Keep in mind they ate nothing else –just tuna in oil. Tuna in water did not lead to steatitis when fed for the same time lengths.

*Note: if you read the label you'll notice that it's not 'water', but broth, and broth *may' contain onion without onion being listed as an ingredient. How much onion? Probably so little as to be inconsequential, but it's something you should know.*

What else should you know? –Fish, other than clams or some shellfish, has no taurine and taurine is one of the few things cats cannot produce on their own, and it is essential. One meal a week (of tuna) would not lead to any problems overall. If you were feeding fish regularly you'd need to add 50-100mg of taurine per meal to prevent long term problems.

Canned tuna (all fish, really) is excellent quality protein, low fat, no carbs but it is not balanced vitamin wise. Again, one meal is not a problem; but if you feed regularly (more than 1X week) add veggies, E, taurine and a multi vitamin/mineral tab to balance out the fish.

A cat's sense of smell is 8-12X that of a human. Tuna oil to them is fresh cod liver oil to us, only they LIKE it- and it's addictive. Know how you feel when you enter a kitchen where a pie's baking in winter and coffee's brewing? Fish is a salivary gland kick starter for cats. If you feed your cat that same 'smell' daily, it loses it's effect over time. It may be best to not abuse it, so that if you ever need to use it as an appetite enhancer, it still has that effect. To break a tuna junkie addiction –feed variety, add tuna juice to other meats, gradually decreasing until none is needed.

Fish is higher than meat in most minerals, including magnesium. While it doesn't *cause* FUS, I could not find a clear answer on how magnesium breaks down or how severely it effects an already ph-unbalanced cat, so I'll leave this issue to someone who knows the answer. I don't.

I've read that cats are originally desert animals and fish is not a 'natural' feline diet. Anyone who's ever lived on an island will tell you that cats evolved, made it to non-desert regions, and do indeed catch fish. People in Japan would just politely laugh. Your call.

My purpose in putting this together was to respond to an article that, to me at least, presented tuna fish as dangerous. If you are feeding 26oz or more of tuna fish a week, with no E, taurine and veggies –I'd agree it's unwise. If you are feeding fish once a week or as snacks, even without any supplements at all, it's my opinion that it's a high quality meal, and fine. I would even argue that it is preferable to the majority of ingredients in the majority of commercial cat foods on the market. If you choose light tuna in water/broth, and add 100iu's E, taurine, and a little veggie, I would even go so far as to say it's an excellent meal. I still wouldn't feed it more than one day a week to be super fanatically on the safe side, but I'd feed it with no trepidations.

FOR NEW PEOPLE: I warn that keeping the protein, fat and carb levels consistent is important from day to day to match the insulin dosage you are giving. If your usual meals are not extremely low carb, feeding tuna fish may lower the cat's need for insulin. Tuna alone is not something you should feed unless you can be home to monitor your cat and preferably hometest to avoid a dangerous situation. Until you have a good understanding of your cat's sensitivity to carbohydrates it is best to stay with a steady diet and avoid fish unless it is simply an ingredient in a commercial cat food, which is fine, at least as far as not leading to insulin-need swings.

FYI: Consumer Reports rated Progresso Light Tuna in olive oil the best tasting canned tuna, but those were humans doing the tasting. Cats may not agree.

Feel free to question, counter, add to or comment on any of this.

Cheers, Pat et al (with credit gratefully given to Sally & Penny for the research effort this required -Thanks so much, Sally!)

*Important note: tuna is protein. Cats with food allergies are sometimes having a reaction to a protein they are unable to assimilate...tuna is just as likely to be the culprit in these cases as chicken, turkey, etc. If you think you're dealing with a food allergy research further, don't give tuna as a substitute for complete and balanced cat food, and research a "novel protein" diet (i.e. rabbit, venison, buffalo – a novel protein is one that is not part of the regular diet and is "new" to the system, less likely to cause an allergic reaction).

For more info on protein and allergies see this link:
<http://education.vetmed.vt.edu/Curriculum/VM8264/11/>

**Steatitis: Cats can develop yellow fat disease from having too much tuna. Here's (see this article for more info). Here's information on steatitis (reprinted from Carrboro Plaza Vet – carrboroplazavet.com).

Tuna fish, and many other fish species, contain relatively large amounts of unsaturated fats. Although health-minded people eat fish to decrease their consumption of saturated fats, the excessive unsaturated fat in a cat's diet may be harmful.

Tuna and certain other fish possess very little vitamin E. Vitamin E is an important antioxidant. When a cat's diet consists mostly of tuna fish that is not commercially formulated as cat food, the cat becomes deficient in vitamin E. Dietary unsaturated fats from the fish are oxidized by a biochemical called peroxidase into a substance called ceroid. Since the affected cat has low vitamin E levels, this oxidation process is not restrained. Ceroid, an abnormal, pigmented, yellow-brown breakdown product of unsaturated fat oxidation, is formed and deposited in fat cells. The result is yellow fat disease (steatitis).

Ceroid triggers an inflammatory response by the immune system as if it were a foreign invader. The subcutaneous fat of cats affected with yellow fat disease causes pain; these cats become hypersensitive and will resist handling and petting. The muscles of affected cats will atrophy and become weak; these cats do not want to move. As the disease process progresses, the body fat degenerates and is replaced by fibrotic tissue, leaving the skin hard and nodular. Affected cats may also develop fevers unrelated to infection.

Yellow fat disease occurs most commonly in young, overweight male and female cats with inappropriate diets. Treatment includes discontinuing the inappropriate diet and administering therapeutic doses of vitamin E. Corticosteroids may also be prescribed to relieve the inflammatory response.

Even if a tuna-fed cat receives prophylactic or supplemental doses of vitamin E, there are other problems besides steatitis that make feeding tuna unwise. Some believe that tuna contains specific substances (allergens) that stimulate allergic-like disorders in cats. Cats should be fed a balanced, commercially prepared diet to avoid these problems.

For more info on steatitis see this link:
<http://www.listservice.net/wellpet/aboutcats/tunafish.htm>