



## THE BIRD CLINIC VETERINARY CORPORATION

### TOXINS IN PET BIRDS

Pet birds, being previously unexposed to the many dangers of our industrial world, are prime candidates for the ingestion/inhalation of numerous toxins. What follows is a highlight of the many common toxins found in our homes that presents to The BIRD Clinic in the form of sick pet birds. These will include "acute" fast acting fatal toxins and the "chronic" longer term, but still deadly toxins. REMEMBER: WHEN CONSIDERING IF A PRODUCT MIGHT BE TOXIC OR NOT, ENVISION "CLEAN LIVING".

### **Birds DO NOT know what is safe!**

### **Birds ingest things based on FAMILIARITY (color, shape, texture), Not taste!**

Since COVID-19 with people home more, their birds given more opportunities to roam, and many social media sites encouraging free flying birds in the home, The BIRD Clinic has seen a 1000% incident of ingested toxicities! We as bird owners need to be much more careful and not listen to those with less knowledge about avian husbandry and preventative medicine. The BIRD Clinic was literally seeing at least one poisoned bird every day of the week. As of this update we still see at least three cases per week.

### **FATTY DIET**

Although most people do not think of "fats" as toxins, they can be when consumed in excess over several years. This can also occur when simply the bird gets too many calories and forms fat in the body over the years. Numerous studies in humans have shown the relationship between high fat intake and heart disease, liver malfunction, and endocrine problems (i.e. *diabetes*, *pancreatitis*). Birds do need more "calories" than mammals based on body weight, but 30-50% should be high quality carbohydrates. Any excess fat the body cannot utilize is either stored in the millions of liver cells or recirculated in the bloodstream (*Lipemia*). Chronic over-ingestion of fats (especially from nuts) overloads the liver and the **liver gradually degenerates**, being unable to perform its many important body functions. Symptoms of the eventual liver failure can be very sudden with the only symptoms being death or severe weakness, paralysis, or seizures. "*Hepatic Lipidosis*", meaning Fatty Liver, is one of the most common presentations in birds and it has been documented at The BIRD Clinic in some individuals as young as one year of age. In chronic conditions one might notice a more rapidly growing beak/nails or even necrosis (death) of the beak tissue. **If a bird needs its beak trimmed there is most likely a liver problem!** Normal beaks never need to be trimmed. Excess circulating fat can also create *fatty tumors* which carry a high blood volume, taxing the circulatory system and which, if traumatized, can bleed profusely. This condition is common in budgies, cockatiels, amazons, macaws, and some species of cockatoos. **Atherosclerosis** (blocking of vessels with fat) also exists in birds with the associated heart maladies and circulatory problems that can affect almost any organ in the body with the associated symptoms. This condition is being seen more and more as our pet bird population ages. The BIRD Clinic has confirmed these conditions in many species upon necropsy (autopsy). Research (First published Aug 2010) by Dr. Nemetz using blood triglycerides/cholesterol in combination with Ultrasound examination can help diagnose these problems much earlier than in the past. Once diagnosed, there are now treatments to manage these cases and extend birds lives in a quality way.

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Revised 05/01/2024



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However, it is much easier to prevent this problem than trying to manage the process once it is in an advanced stage.

### ALCOHOL

This includes hard liquor, wine, and beer. Alcohol is very destructive to the liver. With a bird's high metabolic rate and the ability to ingest a much higher volume compared to its body weight, liver failure occurs in a VERY short period of time. Yes, birds like the taste of beer, but the outcome is not a good one.

### TOBACCO PRODUCTS

This includes cigarettes, cigars, chewing tobacco, marijuana, CBD oil, THC, etc. Both the products themselves and the smoke can be deadly to birds. Chronic sinusitis, lung disease, allergic dermatitis (feather picking), heart disease and acute liver pathology have all been confirmed in birds housed with smokers. Tobacco residues on one's hands can even be transferred to the bird's feathers during petting and later be ingested during the normal daily preening behaviors. The BIRD Clinic has seen cases where toxicity has occurred in less than one year after exposure. Birds are migratory animals with a very efficient respiratory system. In any given breath, a bird can extract **70% MORE** air particulate than a human. This fact, in addition to a bird's increased respiratory rate, makes birds very susceptible to any airborne toxin. Remember the story of the: "Canary in the coal mine"? The miners did not smell the toxic fumes before the canary died. Currently CBD products are marketed as almost a cure-all for all animals, but are extremely dangerous in birds and currently **ILLEGAL** to be prescribed for use in animals in the state of California.

### AVOCADOS

In 1989, a research group performed a study to define avocado's toxic role in birds. The findings demonstrated that this fruit is **DEFINITELY TOXIC**. Budgerigars were most susceptible with 6 out of 8 birds dying within 47 hours after the ingestion of one drop from a 1:10 dilution mixture. Avocados had already been shown to be toxic to cattle, goats, horses, rabbits, and mice. The BIRD Clinic's recommendation is to **NEVER** feed any part of the fruit (meat, skin, pit, oil) or tree to your animals. The toxicity is unpredictable. Death is caused by kidney failure and there is no antidote except intravenous fluid dilution and supportive care. The BIRD Clinic has only saved two birds from ingestion of this fruit in thirty-seven years.

### CAFFEINE AND DERIVATIVES

Chocolate, soda pop, cocoa, coffee, and tea containing caffeine and/or its structurally similar compounds tend to affect the body muscles, including the heart, with signs such as restlessness, vomiting, or hyperactivity with more severe signs of a drunken-like appearance, muscle tremors, cyanosis, seizures and possibly death from cardiac or respiratory collapse. This toxic group is dose related, so just because your animal ingested one of these products and did not appear to show any of the above symptoms, does not mean it could not be more serious the next time. Again, the only treatment is supportive care with a questionable prognosis.

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### LEAD or "PLUMBISM"

The toxicity of lead is well documented. Sources include lead-based paints, drywall joint compound (2021), lead shot, solder in electronic products, bird toys (containing lead weights), linoleum, costume jewelry, beads, ceramics, curtain weights, stained glass windows, tiffany lamps, glitter from trendy clothes and on Christmas ornaments/cards, and foil from the top of wine bottles. Very small amounts (< 1mm) are sufficient to create toxicity. Lead adversely affects all body systems. South American species, particularly amazons and macaws, are acutely sensitive to lead poisoning. Signs usually show up only 1-2 days after ingestion, but proceed rapidly and can lead to death within 48 hours. Symptoms can be vague, but usually have a sudden onset, with one day the bird acting fine and the next day demonstrating weakness, anorexia (not eating), or other neurological symptoms.

**If a bird suddenly regurgitates and becomes lethargic, one should seek veterinary attention immediately and request a radiographic evaluation!**

Time is critical once symptoms manifest themselves. Antidotes are available to control the symptoms, and then further medical or surgical therapy can be undertaken. A very serious problem has arisen in the last several years by the ingestion of lead-based Swarovski-like crystals. These small crystals (and the like) that are attached to shirts, finger nails, cell phones, and to "bling" up many products are **extremely toxic** and a rapid diagnosis by radiographs, therapy, and surgical removal is critical to the survival of these patients. These crystals do not release lead into the blood stream so blood lead tests will not indicate a toxic condition. Only radiographs (x-rays) can find these very characteristically shaped crystals. Birds can die very quickly within a few days from internal hemorrhaging. Surgical intervention in most cases, once the crystals are identified, is the bird's only chance for survival. Be so careful with birds around these shiny objects.

### ZINC

Zinc poisoning has become the most common toxicity in pet bird medicine and is very often under-diagnosed. The symptoms can occur within a few days after ingestion or there have been documented cases at the clinic where the symptoms occurred over ten years after ingestion of the zinc containing product. Because so many products contain zinc as a component, clinical symptoms are quite variable dependent on quantity ingested, concentration of zinc, and the species of bird. In 2020 The BIRD Clinic diagnosed over 80 cases of zinc poisoning with symptoms ranging from feather picking, regurgitation, lameness, mental aberrations, marked depression and sometimes death. If your bird is a heavy chewer, replace all galvanized hardware with stainless steel as a precaution. A little prevention could save your bird's life. Cockatoo species seem most capable of chipping off metal objects and ingesting them.

Some of the sources of Zinc:

- Paint primers on powder-coated cages, especially cages produced pre-1995
- Bronze coating on metals
- Hardware used to manufacturer shoes and boots (nails, clasps, key chains, grommets)
- Galvanized products (the brighter the metal, the higher the zinc level)

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- Zinc coated Quick-links and Toy parts
- Anodized aluminum windows since aluminum alloys are used that contain copper or zinc
- Costume jewelry, key chains, and sequins
- All portions of metal zippers (the zipper “keys” are one of most commonly ingested items)
- Many hardware products, metal washers, bolts, screws, etc.
- “Chicken Wire” used in making homemade wood bird carriers
- Post-1982 pennies (96-98% zinc with copper coating)
- “Hot spots” in colored food pellets (The BIRD Clinic recommends natural-colored products)
- Many forms of rubber products (the white ink erasers)
- Concrete and tile grouting – BEWARE of ALL mineral perches sold for “self-nail trimming” as we have seen many poisonings from ingesting material from these kinds of perches
- Stucco (especially in our poultry/duck patients)
- Rusted steel bars from any cage (from the paint primer) as well as Iron toxicity
- Brass products. These contain Lead, Iron, Copper, and Zinc which are all toxic to birds.

### OTHER HEAVY METALS

Various other metals are also toxic to birds. There are twenty-one (21) heavy metals including the lead and zinc discussed above. **CADMIUM:** Recently has been seen in some toys produced in China. Cadmium is extremely toxic with very minute quantities capable of causing death. **TIN:** Found in aluminum foil, gum wrappers, and cans. There is no antidote. Death can occur in under 72hrs without surgical removal. **COPPER:** Certain toys, old pennies, designer furniture and home electrical cords. Symptoms are similar to zinc toxicosis. There is a blood test for this toxin. **IRON:** Found in rusted steel products, especially from old cages that have rusted and degraded. In recent years we have seen more of this and often it triggers neurologic signs, vision loss, but blood testing for heavy metals is negative. There is a test for iron now, but very expensive. Medical therapies only help temporarily, so surgery is usually required to remedy these cases. This is why radiographs are so important. One must be very careful what a bird has access to in your house. **Birds should never be allowed to “free-range” in a home. It takes a bird less than 6 seconds to fly down and ingest an object from the floor.** There are so many toxic metal containing objects including just rocks.

**REMEMBER:** All rocks come from the earth and all metal toxins are contained in rocks.

### TEFLON® VAPORS

When “non-stick” cookery (Teflon®, Silverstone® etc.) is heated above a critical temperature (530°F) an invisible, odorless vapor is emitted. The irritating vapors accumulate in the lungs, cause fluid production by the body in response to the irritant and subsequent *anoxia* (lack of oxygen) with often the only sign being acute death within 1-5 minutes. Birds seem to be highly sensitive to this toxin compared to other animals or humans. The critical temperature is usually not obtained during the “normal” cooking processes, but is often reached when pans are used for searing meat or when using Teflon®-coated Chinese woks or electric skillet (cookware that has thermostats). Teflon containing oven liners have also been the cause of death in

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some of our patients. To be safe, never keep your bird in/near the kitchen and be aware of which products contain Teflon®. Also, bathrooms are not safe locations as some curling irons have Teflon coatings as well as fumes from hair sprays, colognes, and perfumes can be deadly (see household chemicals).

### SIMPLE SUGARS

Foods like sweet rolls, danish, candy, glazed products, and even oversized portions of sweet fruits, or fruit cocktail have caused acute toxicity or even death in some patients presented to The BIRD Clinic. Dr. Nemetz sees at least one case every month. The cause stems from the simple sugars causing a fermenting process in the lower bowel and a change from an aerobic (with oxygen) environment to an anaerobic (without oxygen) environment. **A bacterium (*Clostridium perfringens*) already existing in the small intestines** proliferates under anaerobic conditions and then creates a toxin that can cause quick illness (<24hrs), shock and/or even death if selective antibiotic and fluid therapy is not rapidly administered. Apples, grapes, and melons are often given to birds for no dietary reason other than “they like it” and birds unfortunately have an affinity for these sweet types of foods so **BE EXTREMELY CAREFUL** as these could be the cause of a life-threatening condition.

### ACIDIC FOODS

Another observed cause of toxicity in avian species is foods with a relative low pH (acidity). Examples are oranges (citrus), raspberries, blackberries, granny smith tart apples, pineapple, or tomatoes. Small birds are again more susceptible since this is dose related. The symptoms are similar to sugar toxicity; however, in one case of an umbrella cockatoo that ingested tomatoes, it literally vomited fresh blood from the stomach ulcers caused by the acidity. This happened several times, but luckily the cause was found and the bird is symptom free today. When ingested, acidic foods lower the pH in the crop and lower bowel loops. This both slows or stops the crop's normal function as a passageway to the lower gastrointestinal (GI) tract and/or the lowered pH kills off the aerobic bacteria flora and create the same condition as mentioned under the “Simple Sugars” section. This leads to the absorption of “normal” toxic food by-products or endotoxins from the Clostridial overgrowth leading to dehydration, depression, regurgitation, shock, and death if there is no medical intervention.

### PLANTS

Some SAFE plants if dried include: eucalyptus, pine, oak, manzanita, and fir. Plants TOXIC to birds include: Japanese Yew, Philodendron, Oleander, Poinsettia, Dumb Cane, Redwood, Bird of Paradise, Mistletoe, Nightshade, and Ground-cherry. People do not think the seeds/pits of fruits such as apples, apricots, peaches, cherries, or papayas are toxic, but are in fact quite dangerous! (PLEASE refer to the handout on Poisonous Plants for a more complete list).



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### CHEESE

There has been much debate and discussion about whether cheese is good or bad for birds. There is even controversy in the veterinary community. However, because of the numerous cases of extremely ill birds (or death) due to the ingestion of cheese or dairy products seen at The BIRD Clinic, we **STRONGLY** recommend **NEVER feeding cheese/dairy products to any pet bird.**

The facts regarding birds and lactose containing products are;

1. Birds are lactose intolerant! Not being nursing animals they never evolved the process of producing lactase, the enzyme needed to break down lactose in the bowel. This is physiologic fact and is agreed upon in all referenced veterinary literature.
2. Most cheese is made with various gums that give it shape and texture and are non-digestible. This increases the risk of bowel obstruction after ingestion. Dr Nemetz once removed a 3-inch diameter 'cheese-ball' out of a crop from a macaw!
3. Symptoms can be mild or unnoticed because of the small quantity ingested, but still impairs the health of the bird by causing varying degrees of gastrointestinal inflammation.

The reason there is still a debate is because there is a poor history taken of the foods being fed to the bird, the overlap of symptoms with other toxic agents, the fact birds have eaten cheese and "seemed" healthy, and the confusion in the literature. Very few clinics in the world see as many pet birds as The BIRD Clinic sees each year or have the capacity to diagnose and manage these cases. **PLEASE DO NOT FEED CHEESE / DAIRY PRODUCTS** and **PLEASE TELL OTHERS.** (Please refer to our "Cheese Handout" for even more explanation)

### HOUSEHOLD CHEMICALS

As mentioned earlier, birds are highly sensitive to airborne products and many still remember about miners taking a canary into the coal mines. The canary (known as a "sentinel bird"), being highly sensitive to toxic gases, would expire before any workers could notice the odor and thus would alarm the miners of impending danger in time to escape the mine. Today's birds are in danger from many household cleaners, especially those with any phenol derivatives (Pine-Sol<sup>®</sup>, Lysol<sup>®</sup>, etc.), which are extremely toxic. Also be aware of toxicity from bleach (chlorine gas), ammonia, perfumes, and ingestion of rubbing alcohol. Construction fumes (for example, the "breathing" of treated wood or new carpet glue) and especially the fumes from painting (even one room in the other end of the house) have led to many emergencies at The BIRD Clinic. Oil-based paints are worse than water-based paints, with the danger lasting a longer time, but again, toxicity is based on quantity of toxin, species of bird, and duration of exposure. Fragrances found in candles and many hand lotions have also caused death in birds as well as plug-in fresheners and Febreze<sup>®</sup>. When in doubt, call our clinic for specific recommendations or remove the bird from the premises and ventilate well with fans that exhaust the fumes out of the house.



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### VENTILATION

Though not a toxin, lack of good ventilation in a home can cause immunosuppression in a bird and make it more susceptible to illness. With the goal of more efficient homes, newer homes are better insulated, but are also better “sealed”. This is good for overall energy conservation, BUT increases the risk to pet birds if airborne toxins/particulates exist. There are always fungal spores in our air and environment, so if a bird becomes immunosuppressed (through poor diet and poor ventilation) these spores can invade a bird’s respiratory tract and cause severe disease. Also, just the natural ‘shedding’ of feather dust from the bird is an irritant to their own respiratory system over time. The number of fungal cases seen at The BIRD Clinic has increased dramatically since 2007 and in 2020 we saw a case every week. We believe the stricter building codes are one contributory factor to this situation. Cures were very rare until 2008 when a new antifungal drug was discovered for humans. A professor at the North Carolina Veterinary College analyzed the drug to establish therapeutic levels in birds and then Dr Nemetz worked with him to establish a treatment protocol. The success rate is now very high, but still very long in duration (6+ months) and expensive. It is a good idea to well ventilate a house at least once a week, use HEPA air filters around the birds, along with feeding a good balanced diet. Prevention is key with fungal infections.

### BRAZIL NUTS and WALNUTS

These nuts can be very dangerous and should not be fed at all to any pet birds. Besides their high fat count, they each can be toxic to birds if ingested. Brazil nuts contain a very high level of Selenium and just one Brazil nut contains 96 micrograms of selenium, almost twice A HUMAN’s daily requirement! Selenium toxicity can lead to heart and kidney damage as well as gastrointestinal signs and joint pain. So, a macaw eating only one Brazil nut twice a week can over months cause long term irreversible effects that are not easily diagnosed and are not reversible. **DO NOT FEED Brazil nuts to your birds!**

Walnuts (and many nuts especially Macadamia nuts in the shell) are very susceptible to mold contamination and are a more insidious problem in our pet birds. Inside the shell of the Walnut, fungal organisms can grow and produce aflatoxins that contaminate all of the nut content. These aflatoxins are damaging to several body systems, but especially the liver and the nervous system. In one study “over 86% of walnut samples exceeded the maximum residue level (MRL) for total aflatoxin concentration”. At the BIRD Clinic we had a case of a seizing African Grey Parrot that got a small amount of a walnut every week for years. The bird had extremely high liver enzymes and several other pathologies that finally corrected months after the walnuts were removed from the diet. Could there be permanent effects? Sure!! This is why it is better to never feed Walnuts to our pet birds even if “they like them”.

### CONCLUSION

This has been an overview of many toxic compounds that a bird might be exposed to when it lives in our homes. If your bird ingests any of these products or suddenly does not seem right, contact your avian veterinarian immediately as only a one-day delay may make the difference between life and death!