Balancing ACT

Is your bird getting the right amount of vitamins and minerals?

Just like with our diet, the nutritional makeup of the diet of birds is essential to their health and well-being. This nutritional dietary makeup is broken down into the raw products of food, vitamins and minerals. We have to be careful in supplementing these vitamins and minerals into the diet, as less is not more and more is not better.

Vitamins

Vitamins that birds require are vitamins A, D and E (the fat-soluble vitamins), the complex B vitamins and vitamin C (the water-soluble vitamins). Fat-soluble vitamins are held in the body fat and are more likely to cause toxicity if over-supplemented. Water-soluble vitamins are passed in the urine. Minerals that are required include calcium, phosphorus, magnesium, iron and selenium. Iodine and zinc are also important, as are sodium and chloride.

VITAMIN C

Vitamin C is a water-soluble vitamin found in fresh fruits, green leafy vegetables and in animal organs. Most birds are able to make their own vitamin C in the kidney and liver, but there are some species of passerines (i.e. the vented bulbul) that cannot make their own vitamin C.

Vitamin C deficiency results in problems with reproduction and growth. Vitamin C improves growth, eggshell production and eggshell strength. While the adult bird is usually able to synthesize enough vitamin C for the body's needs, some breeds of chickens cannot and require that it be found in the diet. Vitamin C is easily destroyed by improper processing and handling. Heating at low temperatures for long periods, freezing and thawing can destroy vitamin C. However, in the normal manufacture of pellets, vitamin C is usually stable. Vitamin C degrades in time if food is stored too long.

Providing vitamin C in excess can be just as harmful as having a deficiency of...
VITAMIN A

Vitamin A is a fat-soluble vitamin that is involved in normal growth and reproductive processes. It is also necessary for the maintenance of the epithelial cells that line the digestive, respiratory, and reproductive tracts. Deficiency of vitamin A can lead to night blindness, dry skin, and impaired immune function.

VITAMIN D

Vitamin D is a fat-soluble vitamin that is involved in the regulation of calcium and phosphorus metabolism. It is also necessary for the maintenance of bone health. Deficiency of vitamin D can lead to rickets in children and osteomalacia in adults.

VITAMIN E

Vitamin E is a fat-soluble vitamin that is involved in the maintenance of cell membranes and the prevention of oxidative stress. It is also necessary for the maintenance of reproductive function.

VITAMIN K

Vitamin K is a fat-soluble vitamin that is involved in the coagulation of blood. It is also necessary for the maintenance of bone health.

VITAMIN B

The B vitamins are a group of water-soluble vitamins that are involved in a variety of metabolic processes. They are necessary for energy production, protein synthesis, and the maintenance of normal metabolism.

VITAMIN C

Vitamin C is a water-soluble vitamin that is involved in the maintenance of connective tissue and the prevention of scurvy. It is also necessary for the maintenance of immune function.

VITAMIN B6

Vitamin B6 is a water-soluble vitamin that is involved in the metabolism of amino acids, lipids, and carbohydrates. It is also necessary for the production of neurotransmitters.

VITAMIN B12

Vitamin B12 is a water-soluble vitamin that is involved in the metabolism of methyl groups and the production of DNA. It is also necessary for the maintenance of normal nerve function.

VITAMIN B3

Vitamin B3 is a water-soluble vitamin that is involved in the metabolism of carbohydrates, lipids, and amino acids. It is also necessary for the maintenance of normal blood pressure and the prevention of pellagra.

VITAMIN B5

Vitamin B5 is a water-soluble vitamin that is involved in the metabolism of carbohydrates, lipids, and amino acids. It is also necessary for the maintenance of normal adrenal function and the prevention of fatigue.

VITAMIN B9

Vitamin B9 is a water-soluble vitamin that is involved in the metabolism of folate and the production of DNA. It is also necessary for the maintenance of normal blood cell formation and the prevention of neural tube defects.

VITAMIN B2

Vitamin B2 is a water-soluble vitamin that is involved in the metabolism of carbohydrates, lipids, and amino acids. It is also necessary for the maintenance of normal vision and the prevention of dermatitis.

VITAMIN B1

Vitamin B1 is a water-soluble vitamin that is involved in the metabolism of carbohydrates. It is also necessary for the maintenance of normal nerve function and the prevention of beriberi.

VITAMIN B12

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and pantothenic acid. Folic acid is required for the synthesis of some amino acids and nucleotides. A lack of folic acid in the diet can lead to anemia, retarded growth, poor feathering and perosis. Parsley of the neck muscles and wing tremors may also be seen. Grains are a good source of this vitamin.

Vitamin B12 (cyanocobalamin) is critical in the metabolic pathways of protein, fat, carbohydrate and nucleic acid synthesis. Vitamin B12 must be obtained by consuming a bacterial source due to its production by bacteria. Vitamin B12 can also be found in liver, muscle, peas, beans and spirulina. A shortage of this vitamin can result in poor growth and poor hatchability.

Choline is required for the production of cartilage production in the body. It also prevents the buildup of fat within the liver. Choline sources are widespread, and deficiencies are less likely than other B vitamins. Deficiencies, when found, are associated with poor growth, perosis and fatty liver in adult birds. Excesses of choline should be avoided at all costs due to the risk of death.

**MAGNESIUM**
Magnesium activates enzymes involved with phosphate transfer. Phosphate is a form of phosphorus. If calcium levels are too high, magnesium requirements increase so that calcium and phosphorus are maintained in the proper ratio.

Deficiencies of magnesium can cause poor growth, lethargy, seizures and death. Too much magnesium can cause diarrhea, decreased egg production and thin-shelled eggs.

**IRON**
Iron is essential for the production of hemoglobin, the component of blood that is needed for oxygen exchange within the cell. Iron is absorbed by the intestine in a controlled fashion that prevents overabsorption.

Deficiencies in iron cause poor feathering and anemia.

Birds fed a high level of dietary iron may develop iron-storage disease. This is most often seen in mynahs and toucans. Birds affected with iron-storage disease present with signs of liver failure. Treatment of this disease is done by lowering iron levels in the diet, and, in some cases, regular blood-letting to lower the iron level. This condition often poorly responds to treatment, and the outcome is often sudden death.

**SELENIUM**
Selenium acts with vitamin E as an antioxidant. While it functions synergistically with vitamin E, it cannot be used by the body to replace vitamin E.

Deficiency of selenium affects pancreatic function and may cause poor feathering, growth retardation and impaired fat digestion.

Deficiencies of selenium cause decreased hatchability, deformed embryos, decreased immune function, abnormal feather loss and emaciation.

**IODINE**
Iodine is needed to form thyroid hormones. These hormones are used in the regulation of metabolism within the body. Deficiencies of iodine may result in goiter (commonly seen in budgies) or in hypothyroidism (common in pigeons).

Goiter is an enlarged thyroid gland. Symptoms include wheezing, respiration difficulties, crop dilatation and vomiting. Treatment of goiter involves adding an iodine supplement to the water, or the use of iodine-supplemented food.

**ZINC**
Zinc is involved in cell replication and in the formation of cartilage and bone. It is also needed for the formation of insulin and other enzymes in the body. Deficiencies can lead to bone deformities, but these are rarely seen. More commonly seen are immune dysfunction, early embryonic death, weak chicks at hatching, feather loss and dermatitis.

Zinc toxicosis is a common occurrence often caused by birds chewing galvanized coating off of cage wire. Signs of zinc toxicity include lack of appetite, vomiting, diarrhea, and neurologic abnormalities such as seizures. Death can be a common outcome if left untreated.

**SODIUM & CHLORIDE**
Sodium and chloride are also important in small amounts. Deficiency causes weight loss, poor egg production and, occasionally, cannibalism. It may also be associated with self-mutilation syndromes.

Excesses of salt can be toxic with intense thirst, muscle weakness and seizures being common signs. Overfeeding salty foods, such as potato chips, can be a cause of salt toxicity.

Don’t let your bird become victim to nutritional deficiencies or toxicities. All seed diets, diets of all table foods and even diets made up only of fruits and vegetables can lead to deficiencies and toxicities. A balanced diet made up of pelleted food, supplemented with seeds and fresh foods, can minimize these nutritional problems.

Mineral and vitamin supplements are not needed when a balanced diet is fed. Watch what you feed your birds, and pay attention to what your birds are eating to avoid the perils of dietary imbalances and keep your cherished pet in good shape.

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