

Vitamin A Deficiency (Hypovitaminosis A)

Veterinary & Aquatic Services Department, Drs. Foster & Smith, Inc.

Vitamin A is one of the fat-soluble vitamins. It is an antioxidant, helps in the growth and repair of tissues, and is important for proper functioning of the eyes, hearing, skin, bones, and mucus membranes. It is found in many fruits and vegetables but not in many seeds. A deficiency in Vitamin A, called "hypovitaminosis A," is all too common and potentially disastrous when birds are fed seed-only diets. When feeding an all-seed or mostly-seed diet, the malnourishment that results weakens a bird, making it more susceptible to bacterial, viral, or fungal infections. These secondary conditions are, if left untreated, ultimately responsible for the demise of the bird. Hypovitaminosis A is easily preventable in companion birds if they are fed fruits and vegetables high in Vitamin A.

How does a deficiency in Vitamin A cause disease?

Vitamin A has its greatest effect on tissues that line the [respiratory](#), digestive, and reproductive tracts. When Vitamin A is low or absent from the diet, these cells undergo changes that prevent the secretion of mucous, thus destroying a critical line of defense against bacterial invasion. The microorganisms can then enter, and begin multiplying. The end result depends on what body system is primarily affected. Most often, it is the respiratory system.

Visually, one will often see small white patches or "plaques" in the mouth and on the tongue. The infection progresses and these plaques begin to swell and abscess, eventually becoming so painful the bird ceases to eat. Depending on how large they become, these abscessed plaques can block the choanae. This leads to labored or open-mouth breathing - something you never want to see in a bird. A profuse nasal discharge and severe swelling around the eyes will follow, also a result of obstruction of the choanae. The swelling may reach the point where the bird will not be able to swallow, preventing any nutrition from reaching the body. From here, the microorganisms move throughout the body with devastating results.

What are the other signs of hypovitaminosis A?

Symptoms range from obvious to obscure and include any of the following: sneezing, nasal discharge, wheezing, crusted and/or plugged nostrils, lethargy, depression, diarrhea, [egg binding and dystocia](#), tail-bobbing, lack of appetite, emaciation (severe weight loss), poor feather color, swollen eyes, [ocular](#) discharge, gagging, foul-smelling breath, white patches or a "slimy" appearance to the mouth. Most of these imply your bird is very sick and needs immediate attention. These signs do not develop suddenly, but happen over the course of several weeks to months.

What is the treatment of hypovitaminosis A?

Vitamin A supplementation will need to begin immediately. Other treatment depends on what system is involved. Since the major problem and most threatening condition is usually the microbial infection secondary to the lack of Vitamin A, the infection must also be treated immediately and aggressively. If diagnosed and treated early, the bird's illness can usually be cured without long-lasting effects. Treatment will often involve a period of hospitalization since the bird must receive specialized medical care. Your veterinarian may use an incubator or nebulizer, and the bird may also need to be tube fed and given injections.

How is hypovitaminosis A prevented?

The importance of a proper diet in preventing hypovitaminosis A cannot be overstated. In general, most birds should be fed a diet that consists of 65-80% formulated foods, 15-30 % vegetables, and the remainder fruits and nuts. Some species have specific nutritional needs so be sure to consult with your veterinarian. (See [Basic Nutrition in Parrots](#).) Following are listings of those fruits and

vegetables high in Vitamin A, and those low in Vitamin A. Generally, yellow and orange fruits and vegetables, and dark green, leafy vegetables are high in Vitamin A.

Foods High in Vitamin A	Foods Very Low in Vitamin A
Apricots Broccoli leaves and flowerettes Cantaloupe Carrots Collard greens Mango Nectarines Papaya Parsley Peaches Sweet potatoes Spinach Turnip greens Yellow squash	Apples Bananas Corn Grapes Lettuce Oranges Summer squash White potatoes

References and Further Reading

Roudybush, TE. Nutrition. In Altman, RB; Clubb, SL; Dorrestein, GM; Quesenberry, K (eds.). Avian Medicine and Surgery. W.B. Saunders. Philadelphia, PA; 1997.

Gout in Birds

[Holly Nash, DVM, MS](#)

Veterinary Services Department, Drs. Foster & Smith, Inc.

Gout is a common disease among humans, reptiles, and birds. It is more common in budgies, waterfowl, and poultry.

What causes gout?

Uric acid is one of the end breakdown products of dietary protein in birds and other animals. The uric acid is removed from the blood by the kidneys and excreted in the urine. Gout can occur if the level of uric acid in the blood exceeds the ability of the kidneys to remove it. In articular or synovial gout, the uric acid crystallizes in the joints, ligaments, and tendon sheaths. In visceral gout, uric acid deposits are found in the liver, spleen, pericardial sac (the covering of the heart), kidneys, and air sacs. When the uric acid crystallizes in tissues it forms small, white nodules called "tophi."

There are two types of gout. In primary gout, the high uric acid level is a result of an abnormal breakdown of protein. Primary gout is thought to be hereditary in humans. In secondary gout, the high level is due to the inability of the kidneys to adequately excrete the uric acid. This can be caused by medications, [chronic](#) diseases, kidney disease, overeating, improper diet (high protein, and possibly high Vitamin D or low Vitamin A), poor blood circulation, inactivity, decreased water intake or chronic dehydration, some infections, and other environmental factors which affect the kidneys' ability to eliminate uric acid.

What are the signs of gout and how is it diagnosed?

Joints may be enlarged, stiff, and painful, and the bird may continually shift weight from one foot to the other and have a shuffling [gait](#). The bird may be unable to perch and so remains on the floor of

the cage. If the wings are affected, the bird may be unable to fly. If other internal organs are involved, there may be a decrease in appetite, lethargy, weight loss, and abnormal droppings. The bird may show a change in temperament, or die suddenly.

After examining the bird and obtaining a thorough history of the diet, environment factors, availability of water, and previous health problems and treatments, the veterinarian will suspect gout. [Radiographs](#) and blood tests for uric acid help to substantiate the diagnosis; the identification of uric acid crystals in joint fluid, [biopsies](#), or tophi confirms it.

How is gout treated?

Any underlying dietary or environmental cause will need to be remedied. Birds with gout will be placed on a low protein diet. Vitamin A may be given to birds who had received an improper diet. Proper hydration is necessary and fluids may need to be administered. Medications such as allopurinol, probenecid, or colchicine may be used, but the exact dosage and safety of these drugs in birds have not been determined. Most birds will need to be treated for life or the condition will quickly reappear if therapy is discontinued. If arthritis from gout is severe, it is possible to surgically remove the uric acid crystals from the joint. Often the damage to the joints or organs is irreversible.

Pain medications such as aspirin may be given. Changes in the bird's cage such as moving the food and water dishes to easily accessible locations and increasing the diameter of the perches may be helpful.

The prognosis for a bird with gout is generally poor.

References and Further Reading

Quesenberry, K; Orosz, S; Dorrestein, GM. Musculoskeletal system. In Altman, RB;

Clubb, SL; Dorrestein, GM; Quesenberry, K (eds.). Avian Medicine and Surgery. W.B. Saunders Co. Philadelphia, PA; 1997.

Roudybush, TE. Psittacine Nutrition. In Jenkins, JR. (ed.) The Veterinary Clinics of North America: Exotic Animal Practice. W.B. Saunders Co. Philadelphia, PA; January 1999.

Rupley. AE. Manual of Avian Practice. W.B. Saunders Co. Philadelphia, PA; 1997