

Goiter (Thyroid Enlargement) in Birds: Causes, Signs, Diagnosis, Treatment, and Prevention

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What is a goiter?

The term 'goiter' refers to a medical condition called 'thyroid hyperplasia.' In this condition, the cells of the thyroid gland increase in large numbers and the gland actually enlarges. This condition has been diagnosed in multiple bird species including wild birds as well as pigeons, canaries, cockatiels, and budgerigars (budgies); it is a common disease of the thyroid gland in budgies.

Under normal conditions, the thyroid gland produces several hormones, including thyroxine. Iodine is necessary for their production. There is a feedback mechanism to control the amount of hormone production. If the brain senses the thyroid hormones are too low, it will signal the thyroid gland to produce more. The reverse is also true, if thyroid hormone levels are too high, the brain will signal the thyroid gland to slow production. If the thyroid gland is stimulated by the brain to produce more hormones over a long time period, the cells of the gland multiply, and the thyroid gland enlarges. This enlargement occurs even if an iodine deficiency makes it impossible for the thyroid gland to produce its hormones.

What causes a goiter?

A goiter can result from several conditions including:

- Iodine deficiency-usually the result of eating an iodine-deficient seed diet
- Ingestion of excess amounts of foods containing goitrogenic agents (chemicals that interfere with the normal function of the thyroid gland,) including soybean, flax, rapeseed, turnips, and members of the cabbage family such as kale, cabbage, and broccoli
- Severe infections that cause inflammation of the thyroid gland
- Toxins such as organophosphates and chlorinated biphenols

What are the signs of a goiter in birds?

The thyroid gland of a bird is located in the chest cavity, and, when enlarged, can place pressure on the heart, digestive system, lungs, and air sacs. The pressure on the heart may also cause buildup of fluids in the respiratory system. Excess fluids may also be produced in the digestive system. Signs of an enlarged thyroid include:

- Seizures and sudden death due to a physical compression of the heart and large blood vessels
- Difficulty swallowing
- Crop distention
- Regurgitation
- Weight loss
- Lack of appetite due to blockage of the esophagus
- Difficulty breathing
- Wheezing
- A "squeak" during inspiration or expiration
- A change in song or voice

Clinical signs in pigeons are related to the lower than normal levels of hormone produced, resulting in:

- Immunodeficiency
- Making the bird more susceptible to infections
- Obesity
- Poor reproduction

- Abnormal skin and feathers
- Depression
- Lethargy

How is a goiter in birds diagnosed?

The veterinarian will need a thorough history, including a description of the bird's diet, when the signs first appeared, any exposure to toxins, and any signs of infection. Large masses may be palpable in the neck in some bird species, but the enlargement may be restricted to the chest cavity, especially in budgies. Blood tests may be conducted to evaluate thyroid function and the levels of the thyroid hormones. Radiographs may be helpful. A goiter must be distinguished from other causes of thyroid enlargement including tumors and cysts.

What is the treatment?

If the goiter is due to iodine deficiency, iodine supplementation can be given, usually in the water. In serious cases, the bird may need to be placed in an oxygen-rich environment and receive sodium iodide injections. The diet needs to be corrected if it includes goitrogenic agents. Access to any potentially toxic insecticides or other chemicals must be restricted. Any infections or other health conditions should be treated appropriately.

How can goiters be prevented?

In geographical areas in which iodine is deficient in the soil (and drinking water), iodine can be added to the drinking water according to your veterinarian's recommendations. A bird should receive a high quality formulated commercial diet and not have access to goitrogenic foods and toxins. Finally, any medical conditions, including infections, should be treated promptly.