

# Zinc-Responsive Dermatitis

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## BASIC INFORMATION

### Description

This disease is associated with thickening and scaling of the skin that responds to zinc supplementation. At least two forms of the disease exist:

- Syndrome I occurs in Alaskan malamutes and Siberian huskies and is not associated with a zinc-deficient diet. Lesions usually arise in young, immature dogs (often younger than 2 years of age), and signs may worsen with illness, during pregnancy, or when the dog comes into heat.
- Syndrome II arises when a diet deficient in zinc is fed to the dog or when absorption of zinc (from the intestines) is altered from excessive calcium or phytates (substances found in high-cereal foods) in the diet. This form of the disease occurs most often with generic dog foods. Any breed of dog may be affected, and lesions may vary among pups within a litter.

### Cause

Syndrome I may be inherited in malamutes and huskies and may arise from decreased absorption of zinc in the intestines. Syndrome II may arise for different reasons, such as insufficient levels of zinc in the diet, excessive supplementation with other minerals and vitamins, and poorly balanced diets.

### Clinical Signs

General clinical signs are possible with this disease, such as poor appetite, poor or slow growth, poor wound healing, lethargy, fever, and enlarged lymph nodes (glands). Skin lesions of syndrome I have this appearance:

- Focal hair loss and redness occur early and progress to dan-druff and scabbing.
- Lesions are typically seen around the eyes, mouth, foot pads, and anus, and at pressure points where skin overlies bone (such as the elbows and hocks).
- The hair coat may be dull and dry and may have a waxy feel.
- Secondary bacterial and/or yeast infections are common, which lead to itching.

Lesions of syndrome II are similar but occur primarily on the head and over pressure points.

### Diagnostic Tests

The diagnosis is suspected when the clinical signs occur in a young dog, especially in a breed known to be predisposed. Certain tests,

such as skin scrapings and cultures, may be recommended to eliminate other skin diseases that produce a similar clinical appearance in young dogs. A skin biopsy is important in making the diagnosis. Zinc analysis of the blood or hairs has not been very helpful in diagnosing this condition.

## TREATMENT AND FOLLOW-UP

### Treatment Options

Syndrome I requires lifelong supplementation with elemental zinc. If no response occurs within 4 weeks, the zinc dosage is often increased by 50% and a low dose of oral prednisone may be started to enhance zinc absorption. Sometimes, the addition of a fatty acid supplement to the therapy also improves zinc metabolism. Dogs that do not respond to these therapies may need injections of zinc sulfate, which are given weekly for a minimum of 4 weeks. Maintenance injections may be needed every 1-6 months to prevent relapses.

Syndrome II requires correction of nutritional imbalances, and zinc supplementation helps speed resolution of the symptoms. Once there is resolution of clinical signs in dogs with syndrome II, zinc supplementation is discontinued.

In all cases, secondary bacterial or yeast infections must also be treated.

### Follow-up Care

In syndrome I, rechecks are needed to assess the response to therapy and to make adjustments in the dosage of zinc. Once the signs are controlled, rechecks are done if any signs worsen or recur. If prednisone is used, even at low doses, blood tests may be recommended periodically to check for possible changes in the liver or kidneys from the drug.

For dogs with syndrome II, once the problem is resolved and the dietary problem is corrected, rechecks are usually not needed.

### Prognosis

Some cases of syndrome I are very difficult to control, and these dogs can relapse. In general, however, the outlook is good with lifelong zinc supplementation. The prognosis is good to excellent for resolution of syndrome II.