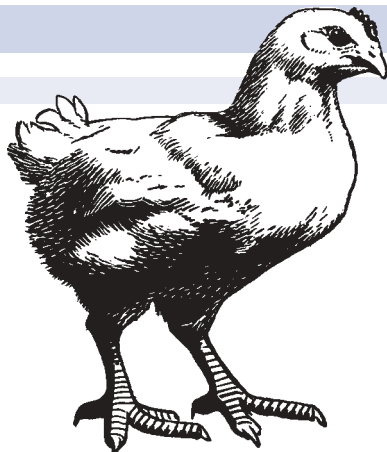


# Leg Problems in Broilers and Turkeys

R. Scott Beyer  
Poultry Specialist  
Animal Sciences and Industry



Kansas State University  
Agricultural Experiment Station and  
Cooperative Extension Service

***Leg problems can occur in fast-growing strains of broilers and turkeys. These disorders are not unique to small flocks; they also occur in commercial broiler and turkey flocks. Estimates of the incidence of leg and foot problems range from 0.5 to 4 percent of all broilers grown.***

## ***What is a leg problem?***

Some birds may develop crooked legs, toes and feet; bowlegs; twisted joints; or swollen hock joints between the drumstick and the foot. Most are not severely affected and will grow quite normally. Others are more severely affected and may not be able to stand, or their feet may deviate drastically from their normal position. Birds with leg problems so severe and painful that they are unable to obtain food should be terminated.

Wide fluctuations in occurrence and multiple pathological conditions indicate that leg disorders are caused by many factors. Selection for rapid growth may add to this problem because of the increased stress on the skeletal, muscular, and tendon tissues of the birds.

## ***What causes leg problems?***

An average weight gain of 4.25 pounds in seven weeks, a high ratio of white to dark muscle, stress, and improper management may lead to leg problems. The largest, fastest growing males in the flock are usually the ones affected. Although a small percentage of birds may be predisposed to leg problems, use of highly selected fast-growing strains is recommended because savings in feed costs and time far outweigh the loss of a few birds.

Infectious agents also have been identified as direct or indirect causes of leg disorders. Staphylococcus and viral arthritis/tenosynovitis are two common agents. Leg disorders

caused by these agents can be easily confused with nutrition-related conditions.

If hatching your own chicks, be sure they have a firm surface to stand on while inside the incubator. It takes a few hours after hatching for their leg muscles to function fully. Slippery surfaces also may lead to leg problems.

Many leg disorders of Kansas broilers appear to be the result of nutritional deficiencies. Broilers need a well-fortified starter ration that contains 22 to 24 percent protein. Certain adjustments may be necessary if a lower protein, such as 20 percent starter ration, is all that is available. Equal parts of a 20 percent protein chick starter and 28 percent protein gamebird starter will provide a 24 percent protein ration.

If this option is not available, protein supplements such as meat meal or fish meal can be used to fortify low-protein starter rations. Have the local K-State Research and Extension agricultural agent help you formulate this mixture.

Other nutrition-related causes of leg disorders include switching from starter ration to grower ration too soon, or diluting the starter ration with cereal grains. Never dilute a complete ration with cereal grains unless specified on the product label. Either practice results in dilution of the nutrients in the rations, which can result in leg disorders from nutritional deficiencies.

### **Rickets**

Rickets is a condition characterized by a lack of mineralization of the bone caused by a calcium, phosphorus, or vitamin D deficiency. A vitamin D deficiency is the most probable cause and can be due to a mixing error, under fortification, or the presence of mold toxins that interfere with normal metabolism. Rickets resulting from a phosphorus deficiency may be due to insufficient available phosphorus in the ration. A calcium deficiency is not common when standard ingredients are used.

### **Perosis**

Symptoms of perosis include swelling of the hock joints, slipped tendons, and severe shortening of the long bones. Deficiencies of the trace minerals manganese and zinc and the vitamins choline, niacin, folic acid, biotin, and pyridoxine can produce a perosis-type condition. Birds fed complete rations with a mineral premix rarely have perosis.

### **Tybial Dyschondroplasia**

Many fast-growing birds may develop tybial dyschondroplasia (TD). This problem is most associated with bone growth that is so rapid that it exceeds the capacity of the bird's system to put calcium into the bone. When the bird gains weight, the growth plate twists or fractures. This condition worsens if the calcium to available phospho-

rus ratio is incorrect. It should be about 2 parts calcium to 1 part available phosphorus.

### **Fast- vs. slow-growing**

Recently, a lot of interest has developed for breeding slower-growing strains of meat-type birds. Research indicates that slower-growing birds often have fewer leg problems. For some producers the problem with slower growing birds is that they take longer to reach body weight. A fast-growing strain of bird should be ready for processing in 6 to 8 weeks compared to the slower strains, which will need 12 to 15 weeks. Birds that take longer to grow have a greater chance of dying from other causes and require more time and labor.

### **What to do**

Most treatments are not likely to correct the problem. An exception is the use of a water-soluble vitamin mixture in the drinking water and the addition of a trace mineral mix to the feed. This treatment may be beneficial if administered at the first signs of trouble. A positive response indicates a higher fortified ration is in order. A complete ration from a commercial manufacturer does not require vitamin or mineral supplements.

Minimize the potential for leg disorders by following good management and sanitation practices, using quality rations, and minimizing stress.

One alternative to consider is using fast-growing strains, and growing them slowly. This can be done by feeding less concentrated rations or by limiting feed intake. Many fast-growing strains are grown in 24 hours of light. Turning the lights off for a few hours each night will limit feed intake. Be sure to ask your hatchery exactly what breed they are producing and choose proper management strategies.

If steps have been taken to reduce the occurrence of leg problems, don't panic if a few birds in the flock are affected. Many of these birds will continue to grow and can be processed.

If the problem persists, a laboratory diagnosis of the condition is needed because of the difficulty in distinguishing between infectious and nutritional causes in the field.

A diagnosis can be obtained by shipping a sample of two or three affected birds to the Kansas State University Veterinary Diagnostic Laboratory, D-117 Mosier Hall, Manhattan, KS 66506, 785-532-5650.

If the birds cannot be delivered alive, they should be sacrificed, placed in a waterproof plastic bag, packed in ice in a foam cooler, and shipped by courier.

Refer to K-State Research and Extension publication *Prevention Control of Poultry Diseases*, L-754, for more information.

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