Tibial Dyschondroplasia (TD)

Noticing an increasing trend of problems with mobility and lameness in your flock? Could this flock have rickets or tibial dyschondroplasia or is something else affecting their ability to move? While there are a number of potential causes for lameness in a flock we hope to explain what tibial dyschondroplasia (TD) is as well as describe some of the potential factors that could lead up to this condition in this article.

**What is Tibial Dyschondroplasia?**

Many bones in the skeleton of the chicken develop from a cartilage template. Dyschondroplasia describes an abnormality in the growth plate (figure 1) of the bone where this cartilage template is not properly resorbed and replaced by bone. This results in bone weakness and can cause lameness. This abnormality can also affect bones other than the tibia (drumstick) but as this bone is most easily and frequently checked for the lesion the conditions is often referred to as tibial dyschondroplasia or TD (figure 2).

**Figure 1:**
Normal Growth Plate

![Normal Growth Plate](image_url)

**Epiphysis**
**Physis** (or growth plate)
**Metaphysis**

Picture courtesy of PHS
When and why does TD occur?
This condition occurs at low levels in most flocks as a developmental abnormality associated with fast growth rate and possible genetic links. Breeding companies have worked hard to remove birds that develop this lesion from the breeding pool. In broiler flocks these lesions can be detected as early as 2 weeks of age and can be present up to and at the time of slaughter. Lesions in turkeys may be detected closer to 5 weeks of age with a peak incidence between 12-14 weeks of age.
Not all factors that may contribute to the incidence of tibial dyschondroplasia are known or well understood. When we see this condition in high levels it is usually secondary to
- a severe case of rickets or another nutritional factor.
- feeding an excess of phosphorus in relation to calcium
- the relationship of calcium, phosphorus and Vitamin D3 in the ration and available to the bird
- other dietary components such as sorghum, cysteine, homocysteine, copper deficiency, fusarium contamination and fungicides.
- the total balance of positive and negative ions (cation/anion) in the diet which includes water and feed is also reported as a potential contributing factor, likely in relation to the impact on the blood pH within the bird, which ultimately has an impact on the calcium/phosphorus relationship.

What do I do if I think the incidence of TD is increased in my flock?
Unfortunately, there are numerous potential causes for lameness in poultry flocks including, but not limited, to TD. Some are nutritional, some developmental and some are disease related. If a flock starts showing signs of lameness and you have concerns it is important to consult with your veterinarian. Not all causes of lameness can be treated and not all treatments are harmless to a flock. For specific diagnosis and treatment advice it is best to contact your veterinarian.

In cases of TD there is important to take steps to investigate potential underlying contributing factors as there is no treatment available for this condition once it has occurred. The collection of feed and water samples for testing are recommended as an initial starting point. Your veterinarian will be able to guide further testing if required.
This article was written by the veterinarians of Poultry Health Services Ltd. Poultry Health Services is a private veterinary practice providing diagnostics for Alberta poultry producers as members of the Poultry Health Centre of Excellence (PHCE). Bird submissions can be submitted to the PHCE via Government offices in Edmonton, Airdrie and Lethbridge. Please call 403-948-8577 if you have a mortality problem or want help making a submission.

References/Further reading


