



Leg and Foot Disorders in Domestic Fowl

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Leg and foot problems in domestic fowl can be a serious welfare problem, with consequences for production too. Most leg and foot disorders in fowl can be prevented through proper nutrition and management. However, some problems can be genetic. For modern meat-type birds such as broiler chickens and turkeys, the problems become very complex since the birds put on weight faster than they build their bone structure to support the weight. Here we consider the causes of these problems in fowl. By taking proper management precautions, you can prevent leg and foot disorders from ever occurring.

Nutritional Deficiency in Breeders

The first signs of leg and foot problems can be noticeable after hatch. The adult breeding stock needs to be fed a well-balanced diet since the chicks' development depends on the nutrients in the egg from the hen. If the breeder's diet is deficient in vitamins and minerals, the chick's quality is off to a poor start. Nutritional deficiencies of Vitamin D3, causes soft bones and an increase in lameness in chicks. Riboflavin deficiency will cause a high incidence of curly-toe paralysis, straddle legs and chicks going down on their hocks.

Chick quality (including leg condition) can be assessed by using an objective score system:

Parameters	Assessment
Activity	Activity is assessed by laying the chick on its back to determine how quickly it returned to its feet. A quick spring back onto its feet was regarded as good, but trailing back onto its feet or remaining on its back was assessed as weak.
Down and appearance	The chick body was examined for dryness and cleanness. It was regarded as normal if it is dry and clean. If it is wet or dirty or both (which can be a source of contamination), then it is not good.
Retracted yolk	The chick was put on its back obliquely on the hand palm until abdominal movement totally stopped. The height of its abdomen was estimated. The consistency of the abdomen to touch was then estimated. If the height of abdomen was estimated to be higher and harder to touch than normal, then yolk retracted was regarded as large and consistent.
Eyes	The chick was put on the legs, and its eyes were observed. The state of brightness and wideness of the gape of the eyelids were estimated.
Legs	The chick was put on its feet to determine if it remained upright well. The toes were examined for their conformation. If the chick remained upright with difficulty, articulations of the knees were examined to detect signs of inflammation or redness or both.
Navel area	Navel and surrounding areas were examined for closure of the navel and its coloration. If the color was different from the skin color of the chick, then it was regarded as bad.
Remaining membrane	Observation of the navel area allowed estimation of the size of any remaining membrane. The size of any remaining membrane was classified as very large, large, or small.
Remaining yolk	Observation of the navel area allowed estimation of the size of any remaining yolk. The size of any remaining yolk was classified as very large, large, or small.

Chick quality can be assessed by observing their activity, down, eyes, legs, and navel (from Tona et al., 2003. Effects of Egg Storage Time on Spread of Hatch, Chick Quality, and Chick Juvenile Growth).

Hatch and incubation conditions

Old Hatching Eggs – Eggs stored too long (10 days or more) before being set in the incubator can cause an increase in the number of crippled and weak chicks.

Humidity and Temperature – Eggs incubated with insufficient moisture tend to develop poorly, stick to the membranes and have a hard time hatching. "Dry sticks" or chicks hatching in these conditions are more prone to crippling and other leg problems. Large fluctuations in temperature or humidity may also result in leg and foot problems.

Remember, any leg and foot disorders in young fowl may be genetic. This means that if you treat lame birds and breed with them, chances are likely their offspring have issues too.

Management

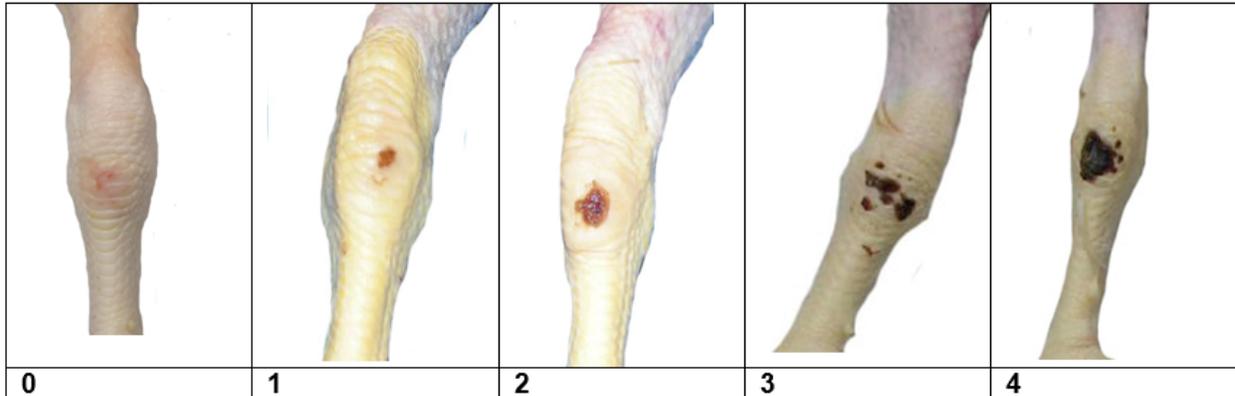
Slippery Floor Surfaces – Newspaper, wood, and other slippery surfaces cause excessive leg problems for all young fowl, especially waterfowl, game birds and feathered-legged fowl. Provide a soft absorbent litter that gives the birds good footing and traction. Textured paper towels, old cloth towels, or burlap work well for the first two weeks. After two weeks of age a 3-inch base of pine shaving, chopped straw or peanut hulls are recommended. Do not use materials like corn cobs or sawdust which become packed down and mold if it gets wet.

The biggest problem with slippery surfaces is straddled legs or splayed legs. Once the fowl gets to this point as shown below, the problem is nearly impossible to correct, although some home remedies are discussed on the internet.



Straddled or splayed legs in chicks

Lack of Feed and Water Space - Crowding at feeders and waterers tends to put undue stress on the birds' legs. This can result in hock disorders. Hock dermatitis can be painful and should be monitored. A scoring system is shown below.



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Hock dermatitis or hock burns can be caused by lack of space near feeders/waterers, poor litter quality, and is associated with high body weight. Severity can be scored with this scoring system (0-4 score).

Wet Litter - Birds walking on damp litter tend to develop tender footpads. Both moisture and chemicals in the litter cause problems for footpads, hocks, and breasts. They are prone to sit on the wet litter leading to breast blisters and swollen hocks with dermatitis. If the pads on their feet get badly cracked, they often get infections leading to bumble foot. Bumble foot is a puss-filled core in the footpad, which swells and causes the bird to go lame. This is a very painful condition.



Photo: Leonie Jacobs

A commercial-type broiler chicken with severe footpad dermatitis

Bumble foot can also be a problem for birds raised on wire, gravel, concrete floors, or hard-packed ground. Waterfowl are especially prone to bumble foot if they are raised on packed ground or in an area with a lot of weed stubble (weeds cut off with lawn mower).

If you can remove the bumble foot core and clear up the infection, you can sometimes correct this problem, although this treatment is painful too. Consider changing the litter management (more frequent replacement and/or turning of litter, increase airflow, change feed, change waterer-type) and/or bandaging the feet to allow time to heal.

Improper Diet - Starter diets that are adequate for laying chickens do not do the job in meat chickens, turkeys, and waterfowl. Use a complete starter and grower mash balanced for the specific types of fowl whenever possible. People often feed whole grains to young fowl trying to save money. This often results in nutritional deficiencies that causes lameness. Diet can affect the consistency of defecation, which in turn may increase litter moisture.

Improper Equipment - Make sure any mesh wire brooders are small enough to prevent the young fowl from getting their hocks stuck in the wire, or even provide litter housing rather than wire caging.

Be sure doorways are large enough for the birds to move through easily. Make sure ramps have good traction for the bird. Use ramps and walkways so the birds do not crowd over a high sill or jump onto hard ground from elevated doorways.

Proper Use of Perches - Do not use traditional perches for large meat-type birds, rather provide them with platforms or hay bales to perch on. Perching fowl are highly motivated to perch at night, so providing a perch is important to fulfill behavioral needs and avoid damage because they fly at the ceiling looking for a place to roost.

Disturbances - Keep children, pets and other fast-moving or noisy objects away from young fowl. Forced exercise or sudden scares can result in pulled muscles, slipped joints & lameness. This is especially true with waterfowl. Never catch fowl, especially waterfowl, by the legs. Never run waterfowl or chase them. Waterfowl have especially tender legs and joints and can go lame very easily.

Ectoparasites - Scaly leg mites in chickens can cause lameness. Scaly leg mites bore under the scales on the legs of the chicken. The scales enlarge, get rough and become infected. If not treated early the bird may go lame. To treat, soak the bird's legs in an oil or cream to suffocate the mites. Treat every 3 to 4 days for 2 weeks. The old scales will then fall off over time and will be replaced with new scales.

Treatment of Lame Birds

Contact a veterinarian in severe cases for proper treatment or euthanasia. Some home remedies are suggested below.

If lameness occurs, remove the bird (and another for companionship and avoidance of stress due to isolation) from the rest of the flock and raise in a small pen to limit the bird's movements. Provide easy access to fresh water and feed. Allow the lame birds to get rest for a week or so and most times, they will recover. Do not put back with the rest of the flock until the lame bird can move easily and freely.

If the bird has badly straddled legs like shown earlier, you can tape the legs together with a harness so that the legs must stay in the normal position. If the bird does not show improvement after a week, it will most likely be best to have the bird humanely killed so it does not suffer.

Footpad problems may be treated by disinfecting the wound (e.g. with iodine) and bandaging the feet daily for approximately a week.



Photo: Leonie Jacobs

Feet may be cleaned and bandaged to treat footpad disorders

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