



The Dirt on Bumblefoot

An ounce of prevention is worth a lot of eggs!

By Maurice Pitesky DVM, MPVM, ACPVM

When dealing with any disease, we tend to focus all of our energy on treating the disease before moving on to other issues. However, like most diseases and conditions in poultry, bumblefoot is largely a consequence of less-than-ideal husbandry practices. This means that you can prevent bumblefoot by optimizing a few simple husbandry practices. If you have some birds that already have bumblefoot, you can prevent it in the future. By making necessary changes, you can improve your flocks' overall health and well-being in ways other than bumblefoot, too. In short, good husbandry has a "multiplier effect" that will produce benefits beyond the single issue you may be focusing on.

What is bumblefoot?

Bumblefoot is a bacterial infection or abscess of the foot. It's caused by a cut or scrape to the chicken's foot that then becomes contaminated by different species of bacteria that are often ubiquitous in the surrounding environment, including *Staphylococcus aureus* (*S. aureus*), *E. coli*, and *Pseudomonas*. Once the bacterial infection is established in the foot, a large, inflamed red area is often apparent (see Figure 1). The initial infection is in the footpad, with severe cases spreading to the joints and tendons in the leg and beyond.

Like most infections, prevention, early diagnosis, and quick treatment are essential for an optimal outcome. If not treated, the infection can spread and—in severe cases—the chicken can die. If you see a suspected case of bumblefoot (or for that matter any other chicken that looks sick), it's important to quickly isolate the sick chickens in order to try and prevent the spread of any potential infectious disease throughout your entire flock. Next, call your

veterinarian and proceed accordingly. While there are still many veterinarians who don't treat chickens, there are more and more that are coming online as a response to the growing interest in poultry. Check with your local offices to find veterinarians who treat chickens in your area *before* your chickens need treatment.



Figure 1

Picture provided by Dr. Michelle Hawkins from the UC Davis School of Veterinary Medicine.

What causes bumblefoot and what should I look for?

Typically, there is a cascade of events that lead to bumblefoot. As mentioned above, it usually begins with an abrasion or scrape to the bird's foot that creates a "window" for a bacterial infection. These scrapes can come from poorly constructed perches or cages.

Bacteria is just part of the normal microbial flora in the environment. While it is important to keep a clean and relatively dry environment for your birds to reduce the microbial load, it is impossible to disinfect dirt or other organic material. Overly moist litter material can create an environment conducive to higher amounts of these organisms. Subsequently, keeping your litter dry (but not *too* dry since dust can cause respiratory problems) is key in reducing risk. It is important to understand that while [*S. aureus*] is the primary causative agent, the root cause is usually husbandry related.

Other cascading scenarios that can cause bumblefoot include:

1. Lameness in one leg which causes increased weight-bearing on the unaffected leg. This can lead to excessive pressure being placed on the good foot, causing increased chance of a small cut, which can then lead to infection. Consequently, in cases of a single leg lameness, the opposite leg should always be closely examined.
2. Over-nutrition. Extra weight can cause a similar scenario as above in both feet, particularly with older, obese chickens.

It is always important to assess and examine your chickens to identify any abnormalities and to identify small problems before they become big problems. When examining your chicken's legs you should:

1. Pay close attention to the legs, feeling for any bony deformities that may be a sign of a broken leg.
2. Make sure the scales on the feet and legs are smooth and closely adhered to each other. (Uprturned scales may be caused by a scaly leg mite infestation.)
3. Check the pads of the feet for the presence of calluses, inflammation, and infection. The bottoms of the feet should also be free from scratches, swelling, scabs, or ulcerations.

How to prevent bumblefoot

Bumblefoot is never seen in wild birds but can be seen in domesticated poultry and captive poultry, implying that the disease is one of improper management. Correction of the underlying predisposing factors will often reverse this disease process. Aside from performing routine physical examinations of the birds and their feet, optimizing perches (such as using smooth, nonabrasive materials), providing optimal nutrition to prevent obesity, and keeping the environment as clean as possible can help thwart the spread of the disease. You might also consider changing from wire- to solid-flooring—chickens can catch their toenails in wire floors, increasing the risk of injuring their toes and legs when trying to escape.

With respect to nutrition, don't over-feed your birds: Use a commercial total-mixed ration pellet or crumble feed. Resist the temptation to over-feed your birds with high-calorie chicken scratch and bird seed.

Recent research shows that the optimal perch shape should be square with rounded edges and around 48 mm (approximately 2 inches) in diameter to maximize contact area and reduce footpad pressure. In addition, adding a softer material on the outside of the perch has been shown to allow for a better grip while also reducing footpad pressure. Try insulating tape or another material that is soft and easy to clean, being sure to replace when necessary.

How to treat bumblefoot

Prevention is the best tack, but there are options for successful treatment. It is best to start by identifying a veterinarian who has some experience treating poultry or other avian species. While there are effective antibiotics to treat bumblefoot, the challenge is getting an effective level of the drugs to the affected tissue, which, in the case of bumblefoot, tend to have a poor blood supply—like the footpad. Consequently, treatment may require the use of antibiotics in combination with debridement (removal of infected tissue) and wound cleaning.

It is also important to realize that different bacteria can cause bumblefoot. Therefore, the selection of a specific antibiotic should be done after your veterinarian has done a culture and sensitivity test in order to identify the most effective drug. Many antibiotics have associated withdrawal times, or the number of days you need to wait until the antibiotic residues are no longer in the eggs or meat. You can contact the Food Animal Residue Avoidance Databank for assistance regarding withdrawal times in any "food animal" at www.farad.org.

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Don't just focus on one thing—in this case, bumblefoot—but look at the entire chicken as part of a routine physical exam before moving on to the legs and feet. You should also adopt this same approach for your coop and surrounding area. By being preventative—and staying ahead of the curve—you can prevent most diseases in your chickens.

Can I get bumblefoot?

While humans can't get bumblefoot per se, *Staphylococcus aureus*, which is the most common organism that causes bumblefoot, can infect humans—yet another good reason to handle your birds, sick or not, with care. Even healthy chickens can carry organisms that make us sick, so wear gloves and always wash your hands with soap and water when dealing with a suspected case of bumblefoot. Remember that humans are the primary spreader of disease via fomites, so be sure to have dedicated clothes and shoes for working in your coop which don't go inside your house. 🐔

About the author

Maurice Pitesky is a faculty member at University of California Cooperative Extension (UCCE) with an appointment in poultry health and food safety epidemiology. Pitesky earned his BS in biology from UCLA and his DVM and MPVM from UC Davis. Pitesky is also boarded in preventative veterinary medicine (DACVPM).



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