

Veterinary Viewpoints

compiled by Amy Worell, D.V.M.
Woodland Hills, California

Question #1: I am very concerned about the oil spill in Valdez, Alaska, and the damage it has done to the wildlife. Could you please enlighten me in regards to how feathers protect the bird and how oil can damage the feathers?

G. Carlos, New York

Answer: Feathers protect the bird by acting as an insulation and maintaining body temperature.

In birds, normal body temperature varies between 102 and 109 degrees F and any disruption of the feathers will cause the loss of body heat. Oil interferes with the barbules and causes loss of contour of the feathers, rendering them useless for insulation. Robert B. Altman, D.V.M.
Franklin Square, New York

Answer: Feathers provide a number of essential functions in birds. They cover the body and offer protection from physical trauma. They add air-foil surface area, improving flight. Feathers are modified for display, concealment, and courtship and, most important, feathers provide a coat of waterproof insulation conserving the bird's body heat and protecting the bird from the ambient temperature, which at times can be 70 to 80 degrees F below the bird's body temperature.

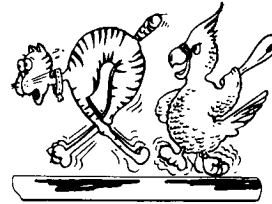
Waterproofing and insulation are functions of feather structure. The barbs, barbules, and hooks that make up the structure of the vane of the feather, when joined together, make an impervious surface that water will bead up on. The down feathers, lying under the coverlet feathers, trap air and thus create a layer of efficient insulation.

Oil and feathers do not mix. This is true of petroleum, cooking oils, ointments, skin oils, or any other oily substances. The oil breaks down the structure of the feather resulting in a loss of waterproofing. Instead of beading up, water penetrates the feather, wetting the bird to the skin, resulting in chilling, hypothermia, and in the case of the pelagic (ocean

living) species, rapid death.

Oils must be prevented from contacting feathers. We must not spill petroleum. We must not have birds loose in the kitchen when oils or fats are being used. Medications used on birds should be water-based, not oily. We should not use hand creams or lotions before handling birds and, as a courtesy, we should powder our hands before handling them. James M. Harris, D.V.M.
Oakland, California

Answer: Among the many functions of the feathers of birds, insulation for the conservation of heat is undoubtedly the most significant in terms of survival. This important function sadly is abruptly brought to light in the devastating scenario of an oil spill disaster such as in Alaska. Feathers that once were able to allow flight, insulate the bird and provide waterproofing capacities, are quickly rendered useless due to the overpowering, destructive nature of oils.



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Oils disrupt the finely tuned structure of the feathers, thus allowing significant bodily heat loss and water penetration to the skin itself. Hypothermia rapidly occurs, with senseless death losses often following.

Amy Worell, D.V.M.
Woodland Hills, California

Question #2: I would like information regarding the current use of chlortetracycline and doxycycline in hand-feeding Amazon parrots as a precautionary measure against psittacosis. These babies are mostly Blue-fronts and Yellow-napes and are being fed 30 ml twice daily by syringe. I would also like the proper oral dosage for both of these medications. D. Gonzalez, Texas

Answer: Chlortetracycline and doxycycline are not used as a prophylactic means of protection against psittacosis. There are many problems associated with the long-term use of these drugs in young birds and it is not common practice to utilize these drugs for this purpose. The majority of veterinarians in aviculture feel that this practice is contraindicated because of the increased incidence of Candidiasis.

Robert B. Altman, D.V.M.
Franklin Square, New York

Answer: The appropriate precautionary measure against psittacosis is not having the disease in your aviary. Stock should be tested prior to inclusion into your population. There is no need to add antibiotics to the formula unless the birds being fed have been diagnosed as having psittacosis.

On the other hand, giving antibiotics is fraught with risks. Long term use inhibits normal bacterial populations and chronic yeast infections become a problem. Strains of bacteria develop resistance not only to the antibiotic being used, but to other antibiotics as well.

Please call and discuss the proper dosages of chlortetracycline and doxycycline with your veterinarian.

James M. Harris, D.V.M.
Oakland, California

Answer: The initiation of antibiotic therapy without just cause for treatment is imprudent, and there are many reasons contraindicating prophylactic therapy for psittacosis. Such action could result in the emergence

of antibiotic-resistant strains of bacteria other than the intended target, *Chlamydia psittaci*, the causative agent of psittacosis. Prolonged usage of antibiotics, including tetracyclines, can result in the overgrowth of yeast (*Candida spp.*) in the gastrointestinal tract due to the eradication of indigenous normal bacterial flora, especially in handfed stock. Calcium, an essential element for proper bone development, can inhibit the absorption of tetracyclines, therefore preventing therapeutic drug levels. In the adult bird where bone growth is complete, calcium intake can be curtailed during the treatment period without serious adverse sequelae. However, if calcium is withheld from the developing chick, growth deformities will occur. This problem does not prevent but further complicates treatment of psittacosis in the juvenile. Also, tetracyclines are not innocuous agents and many preparations are irritating to the GI tract causing regurgitation. The use of parental (injectable) tetracycline is not recommended.

Prophylactic drug therapy should not supplant proper nursery management, especially if the operation is an "open" nursery, meaning that babies are being introduced from outside multiple sources; then the risk of infection with *Chlamydia psittaci* or other pathogenic agents such as papovavirus, poxvirus, or Pacheco's herpesvirus is significantly increased. Proper techniques of testing and quarantine should be implemented to prevent the entrance of pathogens into the nursery environment.

However, in the event of a breach of biosecurity, the infected birds should be identified and separated from the remainder of the nursery to avoid spread of the infection. Then all exposed birds should be cultured for bacteria as well as the psittacosis agent and treated appropriately. Case management should be under the supervision of a qualified veterinarian since psittacosis is a zoonotic (contagious to people) disease.

Published dosages for doxycycline and other tetracycline analogs may be found in the Proceedings of the Association of Avian Veterinarians or in Clinical Avian Medicine and Surgery by Harrison, for adult birds. However, there have been no published clinical studies of dosages in neonates or juveniles, so usage in this age group will be empirical.

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