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Selected Abstracts From the Literature

A preliminary investigation of the gastrointestinal bacterial microbiomes of barred owls (*Strix varia*) admitted to a wildlife hospital. Rhim H, Aguilar MG, Boykin KL, et al. *Animals*. 2025;15:1643.

Research on the gut microbiome, which includes microbial communities and genetic material in the gastrointestinal tract, has revealed essential roles beyond digestion, such as immune regulation, metabolism, and homeostasis. However, studies on bird microbiomes remain limited. Injured wild birds admitted to wildlife hospitals often receive antibiotics that can alter gut microbiota, leading to dysbiosis and promoting antimicrobial-resistant (AMR) bacteria. This study examined how hospitalization and antibiotics influence the cloacal microbiota of barred owls admitted for fracture repair. A total of 17 cloacal swab samples were analyzed using next-generation sequencing targeting 16S rRNA and AMR genes. Across all samples, Bacillota (Firmicutes), Actinomycetota (Actinobacteria), and Pseudomonadota (Proteobacteria) were the most abundant phyla. In non-antibiotic-treated owls, alpha and beta diversity showed no significant changes between admission and release; however, antibiotic-treated owls exhibited significant diversity shifts in these parameters at release. Antimicrobial-resistant genes were detected in most samples at admission, with some increasing significantly during hospitalization, suggesting an impact of antibiotic exposure. These findings provide insights into how antibiotics used in wildlife rehabilitation affect host microbiota and contribute to AMR gene dissemination.

Computed tomographic anatomy of the head in cockatiel (*Nymphicus hollandicus*). Seyedmehran K, Rezaei M, Alizadeh S, et al. *Vet Med Sci*.2025;11: e70234.

Computed tomography (CT) is a valuable tool for evaluating boney structures, especially in small animals where boney detail can be lost with radiographs. The goal of this cross-sectional study was to establish normal CT anatomical data for the head of the cockatiel (*Nymphicus hollandicus*). Six 6 adult cockatiel (3 males, 3 females) carcasses that were 1- to 3-years-old and ranged in weight from 75-110 g were used for this study. Reconstructed CT images were used to identify parietal, mandible, occiput, maxillary, premaxillary, palatine, pterygoid, quadrate, and temporal bones; epithelial membranes; external ear canals and bony labyrinths, ossicles, and entoglossal bones; different parts of the infraorbital sinus; brain hemispheres; various parts of the eyeballs; and conchae of the nasal cavities. A comparison of the CT and anatomical examinations of the skulls demonstrated a high correlation between measures. These results can be used as a reference atlas for identifying anatomical features of the cockatiel skull.

Polyglucosan storage disease in a black-capped parrot (*Pionites melanocephalus*). Fiddes KR, Magnotti J, Armien AG, et al. *J Comp Pathol*. 2025;216:20–24.

An 18-month-old female black-capped parrot (*Pionites melanocephalus*) that was presented for lethargy died while being examined. The gross examination revealed fluid in the coelom, hepatomegaly, and presumed cardiomegaly. There was a general pallor throughout the myocardium. Histological examination revealed that the cardiomyocytes were swollen and contained 6-12-µm diameter intrasarcoplasmic pale grey inclusions of storage material. Cardiomyocytes were occasionally karyomegalic with mitotic figures, lost, or replaced by fibrosis and inflammation. The liver had periportal and centrilobular fibrosis, mild lipid-type vacuolar changes, and signs of extramedullary hematopoiesis. Hemorrhage was noted in the lumens of the bronchi and parabronchi along with edema and hypertrophy of epithelium lining the parabronchi. The storage material was evaluated under transmission electron microscopy and found to be non-membrane bound, fibrillar, and intrasarcoplasmic. Based on the morphological features of the storage material and the histological findings, a diagnosis of polyglucosan storage disease and subsequent heart failure was made.

Examination of hierarchical form perception in African grey parrots (*Psittacus erithacus*). Qadri MAJ, Gray SL. *Learn Behav*. 2025;53:254–264.

What does it require for us to characterize an object? It is not something we often spend much time considering for ourselves as humans, but what about animals? For too long we assumed only humans could perform higher tasks; however, science is finding out we aren't as special as we once thought. Perceiving an object requires us to recognize visual elements and integrate them into a whole. Human vision prioritizes attention to the overall configuration, but data from other species suggests this bias towards global form perception is

not universal. Studies with pigeons suggest their primary attention is to local details when both local and global information may be diagnostic, but studies with other bird species are more limited. The authors of this study examined whether this local bias is class-wide for birds or potentially species-specific. Two African grey parrots (*Psittacus erithacus*) were tested using a computerized touchscreen 2-alternative choice task that presented displays that were local-relevant or global-relevant. The results of several successive acquisition phases suggest that these parrots have no local or global bias, indicating differing evolutionary or ecological drives for visual processing among avian species.

Surgical repair of a mandibular fracture in an Amazon parrot (*Amazona aestiva*). Ramos LR, de Agostinho Neto O, Sanz CK, et al. *J Vet Dent*. 2025; 8987564251371396.

Traumatic injuries for birds can present a real challenge for veterinarians. Because of their anatomy, repair often requires innovative approaches to restore normal function and ensure a good quality of life. In this case report, the authors describe the successful reconstruction of the mandibular beak of a blue-fronted Amazon parrot (*Amazona aestiva*) following a traumatic injury. The injury resulted in a significant reduction in function. Computed tomography was used for surgical planning and allowed for the visualization of the mandibular beak to obtain the appropriate dimensions for surgical hardware. Stainless steel plates were used to reconstruct the mandibular beak. The surgery followed an Enhanced Recovery After Surgery protocol, resulting in enhanced mandibular beak function and total adjustment to the plates. The beak components were found to be fused for 6 months and the plates detached. At the 1- and 2.5-year follow-ups, there were no concerns. This study highlights the effectiveness of employing surgical techniques derived from dental expertise and utilizing biomaterials, such as human maxillofacial plates, to successfully reconstruct complex structures in birds.

Patterns of antibiotic resistance in Southeastern US raptors before and after rehabilitation. Stahl LM, Kadletz S, Olson JB. *Comp Immunol Microbiol Infect Dis*. 2025;123:102388.

Antibiotic resistant bacteria remain a major health concern in both human and veterinary medicine. Most of the research on this topic in veterinary medicine is focused on livestock; however, wild birds can also serve as reservoirs of antibiotic-resistant bacteria. Moreover, combined with their ability to fly, these animals can further increase the risk of disseminating resistant bacteria. This study focused on measuring antibiotic resistant patterns in feces collected from raptors presented to a wildlife rehabilitation facility. A total of 389 isolates from the Enterobacteriaceae family were recovered from 61 raptors. Resistant phenotypes were recorded to 9 different antibiotics using the disk diffusion method, and the highest levels were observed when isolates were exposed to tetracycline (71/389 isolates; 18.3%), ampicillin (35/389 isolates; 9.0%), trimethoprim-sulfamethoxazole (21/389 isolates; 5.4%), and trimethoprim (19/389 isolates; 4.9%). Of the resistant isolates, 31.6% displayed resistance to 2 or more antibiotics within the same isolate and 6.3% displayed multidrug resistance. *Escherichia coli* and *Enterobacter hormaechei* isolates had the highest frequencies of antibiotic resistance. Birds slated for release had similar antibiotic resistance profiles compared to intake, while non-releasable birds harbored different types of antibiotic resistance. Logistic regression modeling found that time, antibiotic use, food type, and bird health all influence antibiotic resistance patterns. These findings add to our understanding of the complexity of this topic and reinforce the importance for the need for additional study into this important One Health field.

Prevalence and pathology associated with *Sarcocystis* spp. in raptors in Tennessee, USA. Baker E, Bower L, Gerhold R, et al. *J Wildl Dis*.2025;61:700–707.

Anthropogenic factors are influencing the movements of wildlife, resulting in increased encounters between different classes of animals (eg, mammals and birds). This increased exposure can result in the dissemination of different diseases, including *Sarcocystis* spp. Raptors have been found to serve as both intermediate and definitive hosts for *Sarcocystis* spp. Previous work has found this parasite can cause significant widespread disease in raptors or be limited to tissue cysts without evidence of disease. Because of limited studies addressing this disease in raptors from the eastern USA, the authors set out to measure the prevalence of tissue cysts and histopathologic changes associated with *Sarcocystis* spp. in raptors in eastern Tennessee. Tissues from 33 raptors from Tennessee, USA, were evaluated. Cysts consistent with *Sarcocystis* spp. were present in the heart, skeletal, or tracheal muscle of 11 (33%) raptors. There was no inflammation associated with these lesions. Tissues from these histopathologic-positive raptors were then tested with polymerase chain reaction assays targeting the 18S rRNA gene of *Sarcocystis*. Six raptors had sequences most similar to *Sarcocystis falcatula*, and 2 had sequences most similar to *Sarcocystis halieti*. A single *S. falcatula*-positive bald eagle (*Haliaeetus*

leucocephalus) was diagnosed with lymphoplasmacytic meningoencephalitis and was positive via immunohistochemistry for eastern equine encephalitis virus. The results of this study suggest that raptors can commonly serve as hosts for *Sarcocystis* spp without evidence of associated disease.

Bacterial diversity screening in endangered pelicans reveals high prevalence of methicillin-susceptible *Staphylococcus aureus*. Cardona-Cabrera T, González-Azcona C, Eguizábal P, et al. *Microb Pathog*. 2025; 208:108009

An avian influenza outbreak at the Mikri Prespa Lake (Greece) in 2022 resulted in a mass mortality of Dalmatian pelicans (DP, *Pelecanus crispus*) at their largest breeding colony, resulting in significant concerns for this endangered species. Moreover, great white pelicans (GWP, *Pelecanus onocrotalus*) sharing the same location were not affected. The goal of this study was to determine whether differences in the microbiomes of these 2 species could provide insight into the mortality event. Fifty-two choanal swabs were collected from 31 nestlings (20 DP/11 GWP) late in the 2022 breeding season and 21 adult DPs in early 2023. Isolates were identified using MALDI-TOF mass spectrometry and antimicrobial susceptibility was evaluated by disk diffusion. A total of 248 non-repetitive isolates were recovered, representing 39 bacterial species from 18 genera. The prevalence of *S. aureus* was high in both age groups (adults: 85.7%; nestlings: 77.4%). Most isolates were susceptible to the antibiotics tested, and none of the *S. aureus* was methicillin resistant. Nevertheless, 1 multidrug resistant *E. coli*-ST69 isolate was found in 1 adult DP. This study found a high rate of antimicrobial susceptibility and staphylococcal/mammaliicoccal diversity in choanal samples of pelicans, with the occasional detection of multidrug resistant isolates of concern, like the extended-spectrum beta-lactamase-producing *E. coli* strain.