nance, as an option for correcting aggression in ferrets. This technique was popularized by trainers with little knowledge of animal behavior and was abandoned long ago by knowledgeable behaviorists as a pointless, counter-productive, and even confusing intervention for the animal. The author also recommends a flooding technique, holding the ferret wrapped in a towel until it settles. Flooding techniques can be highly effective if used correctly but can also be dangerous and worsen behavior problems in many cases. The chapter concludes with an excellent review of behavior changes associated with medical conditions.

The book continues with a chapter about guinea pig behavior. The author uses the term "dissociative behavior" in this and other chapters. This term is not defined, but I suspect the author is referring to a displacement behavior. This chapter contains some wonderful suggestions for enrichment and an excellent overview of the medical implications of abnormal behaviors.

A chapter on small rodent behavior follows, organized similarly to previous chapters, including valuable information about behaviors unique to the species commonly kept as pets. The final chapter includes miscellaneous species: chinchillas, fennec foxes, hedgehogs, prairie dogs, opossums, and sugar gliders. This chapter contains client education information organized into tables for each species.

Although it is clear that all contributors to this text are experts in the area of exotic animal medicine, their interest, experience, and didactic knowledge of ethology is not as clear. Behavior is a complicated subject, made more complicated by the prevalence of misinformation, even in some veterinary literature. A large number of diplomates of the American College of Veterinary Behaviorists have pursued advanced graduate training in animal behavior, psychology, behavioral ecology, and neuroscience to better understand the complicated mechanisms of behavior and the unique aspects of data collection. To become board certified, veterinary behaviorists must be knowledgeable about all species for which behavioral data exist, so it is unfortunate that when scientific endeavors are pursued in our field of expertise, we are not consulted. Any text about animal behavior would benefit from, and should include, contributions from a behavior expert (an American College of Veterinary Behaviorists diplomate). Veterinary behaviorists rely on American Board of Veterinary Practitioners diplomates for exotic animal medical expertise, just as we rely on other specialists for the valuable expertise that they contribute to our education and our patients' welfare. Likewise, rather than relying on nonacademically trained behavior consultants, or texts containing inaccurate information, exotic animal practitioners should rely on veterinary behaviorists for their expertise in behavior. A collaborative effort would produce a higher-quality reference and help further our knowledge, improving our ability to help our patients.

LYNNE M. SEIBERT,
DVM, MS, PHD
Veterinary Behavior Consultants
Kirkland, WA 98034

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Abstracts

Carter RT, Murphy CJ, Stuhr CM, et al: Bilateral phacoemulsification and intraocular lens implantation in a great horned owl. J Am Vet Med Assoc 230(4): 559-561, 2007.

This report describes the case of a great horned owl (*Bubo virginianus*) of estimated age <1 year that was captured from the wild after being perched on a fence with limited activity for 3 days. Ophthalmic examination revealed prominent nuclear cataracts and multifocal punctate cortical cataracts in both eyes but no evidence of anterior uveitis. Ocular ultrasonography did not demonstrate any evidence of retinal detachment or other ocular defects, and electroretinogram values were within reference limits in both eyes. Cataract surgery was planned, and intraocular lens design was determined on the basis of values obtained from a mathematical model representing a normal eye for the species, developed with data obtained from 6 mature great horned owls. The intraocular lens was a 1-piece, custom-made polymethylmethacrylate lens with a 17-mm haptic diameter, 1-mm central optic, and power of +13.8 diopters. The cataracts were removed with a combination of phacoemulsification with irrigation and aspiration. Intraocular lenses were placed in both eyes. Minimal ocular inflammation occurred postoperatively, and refraction was found to be −0.75 diopters in the right eye and −0.25 diopters in the left eye. Two months after surgery the owl successfully captured live prey and was released after 3

months of rehabilitation. The bird was released with a radiotransmitter and was successfully monitored for 6 months before the tracking system was lost, as planned. This report demonstrates that successful intraocular lens implantation for visual rehabilitation and successful release into the wild is achievable for raptors that initially present with cataracts.

Desmarchelier M, Rondenay Y, Fitzgerald G, et al: Monitoring of the ventilatory status of anesthetized birds of prey by using end-tidal carbon dioxide measured with a microstream capnometer. J Zoo Wild Med 38(1):1-6, 2007.

The objective of this study was to assess the relationship between partial pressure of carbon dioxide in arterial blood (P_aCO_2) and end-tidal pressure of carbon dioxide ($P_{ET}CO_2$) measured with the handheld microstream capnograph in different species of birds of prey anesthetized with isoflurane by using a Bain nonrebreathing system with manual, intermittent, positive-pressure ventilation. Eleven raptors of varied species were used in this study. Each was mask induced with isoflurane in oxygen as a carrier gas via a semi-open, nonrebreathing Mapleson D modified Bain circuit. The sampling tube of the capnograph was connected to the lateral port of a pediatric connector of the endotracheal tube. Birds were manually ventilated with peak inspiratory pressure varying between 15 and 20 cm H_2O, and ventilation rates were modified to reach different levels of $P_{ET}CO_2$. Arterial blood samples were drawn from the superficial ulnar artery at 5 levels of $P_{ET}CO_2$: 20, 30, 40, 50, and 60 mm Hg. The following tests were run for each sample: pH, partial pressure of CO_2, partial pressure of O_2, SO_2, hematocrit, Hb, Na^+, K^+, Cl^-, Ca^{2+}, Mg^{2+}, glucose, lactate, urea, HCO_3^-, anion gap, and osmolarity. Birds were euthanized at the end of the procedure for a complete postmortem examination, which included necropsy and histopathology. In birds, the partial pressure of CO_2 in air exiting the pulmonary parenchyma is higher than the P_aCO_2 because of the highly efficient cross-current gas exchange system present in the avian lung. A strong correlation was observed between $P_{ET}CO_2$ and P_aCO_2 values in this study. However, the level of agreement varied considerably, especially at higher values of CO_2. At low values of end-tidal CO_2, the levels measured were usually an overestimate of the P_aCO_2. However, this difference was less reliable at high levels of $P_{ET}CO_2$. A strong negative correlation was observed between $P_{ET}CO_2$ and arterial pH. Arterial partial pressure of O_2 and O_2 saturation of hemoglobin remained normal throughout the procedures. Macroscopic examination and histopathology did not reveal any disease processes that could have interfered with respiratory function. The authors concluded that the values of P_aCO_2 calculated in this study provide valid estimations of the circulating CO_2 as long as correction is made for higher avian body temperatures. The results suggest that levels of $P_{ET}CO_2$ from 32 to 42 mm Hg would be, on average, associated with the target range of P_aCO_2. In addition, the results suggest that a $P_{ET}CO_2$ between approximately 35 and 45 mm Hg will maintain a normal acid-base balance.

Johnston MS, Son TT, Rosenthal KL. Immune-mediated hemolytic anemia in an eclectus parrot. J Am Vet Med Assoc 230(7):1028-1031, 2007.

A 2-year-old female Solomon Island eclectus parrot (*Eclectus roratus*) was evaluated for a 4-day history of progressive lethargy, weakness, poor appetite, and inactivity. In addition, biliverdinuria was noted on initial physical examination. The complete blood count revealed marked regenerative anemia, increased reticulocyte percentage, and many red blood cell precursors. A saline solution agglutination test demonstrated autoagglutination. Blood lead and zinc concentrations were within normal range. Results of the polymerase chain reaction assay for *Chlamydophila psittaci* were negative. Tests for polyomavirus and psittacine circovirus were also negative. Microbial culture and cytologic examination of feces revealed no abnormal bacterial gastrointestinal flora. Plasma bile acids were mildly elevated. Plasma protein electrophoresis revealed a large β-globulin fraction, consistent with acute inflammation or infection. Radiographs showed possible splenomegaly and an asymmetric cardiohepatic silhouette. Cytologic examination of bone marrow aspirates was considered within normal range. The bird's condition continued to decline over the next 3 days, with bloodwork indicating a mild leukocytosis and high levels of aspartate aminotransferase and creatine kinase. The identification of many erythroplastids or anucleate red blood cells in the second blood smear was suggestive of ongoing damage to the erythrocytes. A gastrointestinal barium series was suggestive of delayed transit time. Treatment consisted of fluid and nutritional support, enrofloxacin (20 mg/kg by mouth every 24 hours), and, because of the suspicion that the bird had immune-mediated hemolytic anemia, cyclosporine at 3.5 mg/kg by mouth every 12 hours. Cyclosporine was chosen because it is a potent T-cell suppressor that interferes with antibody action and macrophage function and is not myelosuppres-