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Comparison of Intramuscular and Intranasal Midazolam in Great Horned Owls (*Bubo virginianus*)

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Abstract: There are few studies evaluating safe and effective sedatives for wild birds. Most sedatives are injectable drugs that are commonly administered intramuscularly (IM) or subcutaneously (SC); however, needle injuries occasionally occur from the bird struggling during the injection. Previous research in parrots and other bird species explored the effects of intranasal (IN) midazolam compared with IM administration; however, this delivery method has not been well studied in wild birds, such as raptors. To our knowledge, there is only 1 study that has been published evaluating midazolam IN in a raptor. In the present study, we compared midazolam sedation via IM and IN administration in great horned owls (*Bubo virginianus*; GHOW). Six GHOWs were randomly assigned to receive midazolam at 2 mg/kg IN or IM using a crossover study design. For each treatment type, sedation score, heart rate, respiratory rate, and muscle tone were recorded. Linear mixed models were used to interpret and compare the data. Results for both IN and IM treatments showed no significant difference in onset of sedation, overall muscle tone in the wings, legs, and jaw, heart rate, or respiratory rate over time. These data indicate that IN midazolam sedation at the same dose used IM is a viable option for sedation of GHOWs. Further research is needed for other species of raptors.