**Point-of-care ketone meters may be used to estimate serum β-hydroxybutyrate concentrations in healthy African penguins (*Spheniscus demersus*).** *American Journal of Veterinary Research*. 2022. 83(6):1-8.

Laura Martinelli

**Question:** Do point-of-care ketone meters tend to under or over-estimate β-hydroxybutyrate concentrations in African Penguins? If using a point-of-care ketone meter to estimate β-hydroxybutyrate would you use whole blood or plasma? Why?

**Answer:** Over-estimate. Whole blood because it exhibited less bias and more accuracy as compared to plasma on point-of-care ketone meters.

------------------------------------------------------------------------------------------------------------------------------------------

**The effects of critical care nutrition on weight gain in African Penguin (*Spheniscus demersus*) chicks.** *Journal of Avian Medicine and Surgery.* 2023. 37(3): 217-225.

Laura Martinelli

Question: Which of the following has been documented as a prognostic indicator of African penguin chick survival?

1. PCV
2. TP
3. WBC count
4. Weight gain
5. Diet offered

Answer: B

*Journal of Wildlife Diseases, 58(4), 2022, pp. 836–846*

*Summarized by MR*

PREVALENCE AND PATHOGEN LOAD OF EIMERIA IN WILD YELLOW-EYED PENGUINS (MEGADYPTES ANTIPODES) AND THE MORPHOLOGIC CHARACTERIZATION OF A NOVEL EIMERIA SPECIES

Emily Kay,1,2,4 Melanie J. Young,3 Chris Muller,1 Laryssa Howe,1 Wendi Roe,1 and Brett D. Gartrell1

1. Which of the following statements about the novel *Eimeria* species identified in two populations of Yellow-eyed Penguins (*Megadyptes antipodes*) is correct?
2. The Eimeria species found in yellow-eyed penguins was identical in morphology to *Eimeria pygosceli* found in chinstrap penguins.
3. Morphological analysis and regression results supported the presence of a single Eimeria species across both penguin populations.
4. The prevalence of the novel Eimeria species was higher in the mainland population compared to the sub-Antarctic population.
5. The study concluded that Eimeria infection definitively caused reduced body condition in Yellow-eyed Penguins.
6. Gastrointestinal tissue tropism is suspected based on a high association between pathogen load and body weight in yellow-eyed penguins.

**Correct Answer:**  
**B)** Morphological analysis and regression results supported the presence of a single *(novel)* Eimeria species across both penguin populations.

* A – distinct, novel morphology when compared to *Eimeria pygosceli*
* C – the Sub-antarctic/island population had a higher prevalence
* D/E – There was no evidence of association/statistical significance between pathogen load and body weight/BCS. To determine tissue tropism, further molecular analysis will be needed in subsequent studies

*Journal of Zoo and Wildlife Medicine 55(3): 585–594, 2024*

*Summarized by MR*

EFFECT OF SUBSTRATE AND WALKING SURFACES ON CENTRAL METATARSAL FOOT PAD WEIGHT LOADING IN MAGELLANIC PENGUINS (*SPHENISCUS MAGELLANICUS*) WITH AND WITHOUT PODODERMATITIS: AN EX VIVO STUDY

Su Hyun Faith Yang, Jessica Aymen, DVM, DVSc, DACZM, and Hugues Beaufrère, DVM, PhD, DACZM, DABVP(Avian), DECZM(Avian)

1. In a recent study evaluating substrate options in Magellanic penguins (*Spheniscus magellanicus*) with and without pododermatitis, what was a key finding pertaining to husbandry recommendations?
2. Firm surfaces were found to be the most effective in redistributing weight away from the central metatarsal pad.
3. Neoprene surfaces were ineffective in providing cushioning for pathological feet with pododermatitis.
4. Doubling compression forces resulted in a proportional increase in pressure on granular surfaces.
5. Granular surfaces, such as fine sand and crushed ice, were better at decreasing central metatarsal pad pressure than pea gravel.
6. Pododermatitis lesions had no significant effect on weight distribution patterns across substrates.

**Correct Answer:**  
**D)** Granular surfaces, such as fine sand and crushed ice, were better at decreasing central metatarsal pad pressure than pea gravel.

A – Firm surfaces were LEAST effective in redistributing weight away from central MT pad

B – Neoprene surfaces were EFFECTIVE for cushioning pathological feet

C – Doubling compression forces did not result in an equivocally proportional increase in pressure

E – presence of pododermatitis did have a significant effect on weight distribution patterns

Journal of Zoo and Wildlife Medicine, 55(3): 595-601, 2024.

**ADAPTATION OF A COMMERCIALLY AVAILABLE WESTERN BLOT KIT FOR THE DETECTION OF ANTIBODY TO *ASPERGILLUS* IN PENGUINS IN FRANCE AND THE UNITED STATES** - reviewed by HSS

Antoine Leclerc, Raphaël Piarroux, Adriana Callico, Ellen Bronson, Carolyn Cray

Question:

Which of the following diagnostics is considered the gold standard method to diagnosis *Aspergillus* in Spheniciformes?

1. Culture and bacterial identification
2. Protein electrophoresis
3. ELISA for Aspergillus antibody
4. Galactomann
5. 3-hydroxybutyrate

Answer: A

Journal of Zoo and Wildlife Medicine, 55(2): 479-489, 2024.

**FATAL ACUTE HEMOLYSIS FOLLOWING TRIAZOLE THERAPY IN AFRICAN PENGUINS (*SPHENISCUS DEMERSUS*)**- reviewed by HSS

Courtney N. Patson, Elizabeth J. Elsmo, Lauren Trepanier, Michael M. Garner, Michael J. Murray, Ellen Bronson, Lorelei L. Clarke, Sherry K. Cox, Robert J. Ossiboff, Marley E. Iredale, Bryce M. Miller, Lindsey Waxman, Eric Littman, Mary I. Thurber

Question:

Which of the following post-mortem findings was most commonly reported in African penguins (*Spheniscus demersus*) that died following triazole administration?

1. Cardiac myonecrosis
2. Extramedullary hematopoesis
3. Splenic eyrthrophagocytosis
4. Hematuria
5. Renal tubular necrosis

Answer: E

**Q:** Which protein fraction might you expect to be negatively correlated with age in a healthy Humboldt penguin (*Spheniscus humboldti*)?

1. Pre-albumin
2. Albumin
3. α-globulin
4. β-globulin
5. γ-globulin

Answer: A - but albumin is negatively correlated with age in American flamingos (also on reading list!)

*Source: Leineweber et al. JAMS 2024. Capillary Zone Electrophoresis in Humboldt Penguins (Spheniscus humboldti).*

**Q:** Which adverse effect would you expect in a gentoo penguin (*Pygoscelis papua*) during alfaxalone total intravenous anesthesia?

1. Metabolic alkalosis, hypotension
2. Hypotension, prolonged recovery
3. Prolonged recovery, vomiting
4. Vomiting, hypoventilation
5. Hypoventilation, Metabolic alkalosis

Answer: E

*Source: Ono et al. JAMS 2023. Effects of Alfaxalone on the Induction and Maintenance of Total Intravenous Anesthesia in Gentoo Penguins (Pygoscelis papua).*

Penguin Questions

1. In Mota et. al, the researchers evaluated Aspergillus lateral-flow device (AspLFD) for diagnosis of aspergillosis in captive gentoo penguins. When comparing plasma and swab sample AspLFD to galatomannin (GM) method, they found that:
2. AspLFD had better specificity compared to GM
3. GM had better specificity compared to AspLFD
4. AspLFD and GM had the same sensitivity
5. ASPLFD had better sensitivity compared to GM
6. GM had better sensitivity compared to AspLFD

Answer: D-> optimal performance was seen by combining the results of AspLFD in plasma and swabs (making 75% of cases detectable in the asper group- which is a better SENSITIVITY compared to GM (67%)

Note: SENSITIVITY: test ability to correctly ID someone with disease

SPECIFICITY: test ability to correctly ID someone WITHOUT disease

2. Latent herpesviral infections are commonly found in which nerve ganglia?

1. Vagus Nerve
2. Facial Nerve
3. Glossopharyngeal Nerve
4. Trigeminal Nerve
5. Vestibulocochlear Nerve

Answer: D-> those listed above all have cranial nerve ganglia associated with them (not all cranial nerves do)-> VIII (Vestibulocochlear Nerve) has two ganglions associated: spiral ganglion and vestibular ganglion