# Blastomycosis and Long-term Effects in Canines

***Lakota Helton, Jay Miles DVM, Matthew Marcum DVM***

**Veterinary Health Sciences**

**Background:** Blastomycosis has been an uncommon and underdiagnosed fungal disease that has left a lasting effect on canines. It is caused by Blastomyces dermatitidis that grows in moist soil and organic matter. This disease can be detrimental to dogs if left untreated or not diagnosed in time. Understanding the prevalence of Blastomyces and how its long-term effects canines will allow us to better understand this disease moving forward. The standard for diagnosing this disease is through clinical signs and cytologic or histopathologic testing (Spector, 2008). The goal of this study is to determine the prevalence of *blastomycosis dermatitidis* in dogs that have been diagnosed with it in Southwest Virginia. By determining the level of clinical signs and the long-lasting effects that are present, we hope to be able to further the understanding of this disease and ways to effectively treat it. By understanding more about this fungal disease, this may help alter the methods of which we attempt to control this widespread disease.

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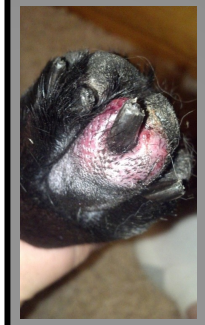
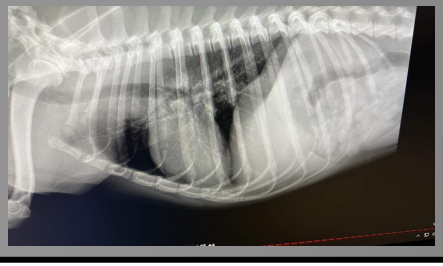
Richard A. Gillespie College of Veterinary Medicine
LINCOLN MEMORIAL UNIVERSITY
Veterinary Health Science

**•Methods:** Samples from each subject, such as urine, blood, and others will be used in this study. This collection method will allow the highest chance of obtaining an ample quantity of diagnostic material. The results from these tests can be compared with the subjects initial testing to see if there has been a decline in health. Once these samples are obtained, they will be sealed in sterile tubes and refrigerated until sent off for diagnostic testing. Each patient will have at least two samples submitted for testing to lessen the likelihood of contamination. Each patient will also have an updated chest x-ray to see if the disease has spread.

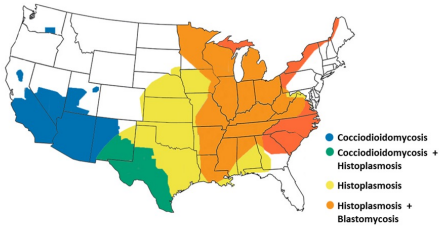
•Diagnostic testing will be done through MiraVista. Samples will be refrigerated and then sent for testing at the laboratories. Once the testing is completed, results will be returned to the researchers and be analyzed.



**Study Participants:** Canines, with approval from owners, that have been diagnosed with blastomycosis will be used in this study. Canines must be within the ages of 1 and 15 years of age and readily available to obtain a new sample from. The canine must have been diagnosed with Blasto within recent weeks, months, or a year of the start of study date.



Areas where fungi are found in the environment.*




*Map has been adapted from CDC. Borders are approximate.

**References:**

Spector, D., Legendre, A. M., Wheat, J., Bemis, D., Rohrbach, B., Taboada, J., & Durkin, M. (2008). Antigen and antibody testing for the diagnosis of blastomycosis in dogs. *Journal of Veterinary Internal Medicine*, *22*(4), 839-843. https://onlinelibrary.wiley.com/doi/full/10.1111/j.1939-1676.2008.0107.x

https://www.dhs.wisconsin.gov/disease/fungus.htm

Saccente, M., & Woods, G. L. (2010). Clinical and laboratory update on blastomycosis. *Clinical Microbiology Reviews*, *23*(2), 367-381. https://journals.asm.org/doi/full/10.1128/CMR.00056-09

https://www.duluthnewstribune.com/sports/fungal-disease-ravaging-minnesota-dogs-at-record-pace-this-year

**Anticipated Results and Discussion:** This study provides the best method to test for the prevalence of this pathogen in the subjects. Samples from each positive subject that is being used for testing is the most effective method to allow for the proper identification of the pathogen from the samples. Once this data is received, results will be compared to the subjects' first initial results. This is also the most cost-effective way of gathering data. Gathering urine and blood samples from each subject also lessens the likelihood of comparing the wrong results to one another. The current sample size may not accurately represent the whole population of canines; however, it does allow for a starting point for any new studies that may be conducted. It is also important to note that the MiraVista Blastomyces antigen test used is not always perfectly accurate, but the likelihood of inaccuracy is deceased significantly given the testing and sample collection methods used in the study.

**Acknowledgments**

**I would like to thank Dr. Jay Miles and Dr. Matthew Marcum for their help with this research.**