

Establishing Healthy Baseline Blood Chemistry Values in Native Missouri Bat Species



Veterinary Research
Scholars Program
University of Missouri

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Abstract

With the advent of handheld analyzers such as the Abaxis VetScan i-STAT 1, requiring only 95 μ L of whole blood or less for measuring chemical blood parameters such as electrolytes, researchers can now measure these blood parameters using non-terminal blood collection methods. In bats, blood chemistry values have only recently begun being investigated and have largely focused on hibernating bats and have solely focused on comparing bats affected and unaffected by White-nose Fungus (*Pseudogymnoascus destructans*). Previous studies have not looked at healthy bats in the summer when they are actively foraging. The purpose of this study is to determine variability of blood chemical parameters and determine the number of bats required to establish healthy baseline blood chemistry parameters in wild-caught and captive bats. We will use a VetScan i-STAT 1 Handheld Analyzer using CG4+ and CHEM8+ cartridges to determine the blood chemistry parameters in native Missouri bats. We will analyze the blood from a minimum of 10 members of each of the following species: Big Brown Bats (*Eptesicus fuscus*), Little Brown Bats (*Myotis lucifugus*), and Red Bats (*Lasiurus borealis*).

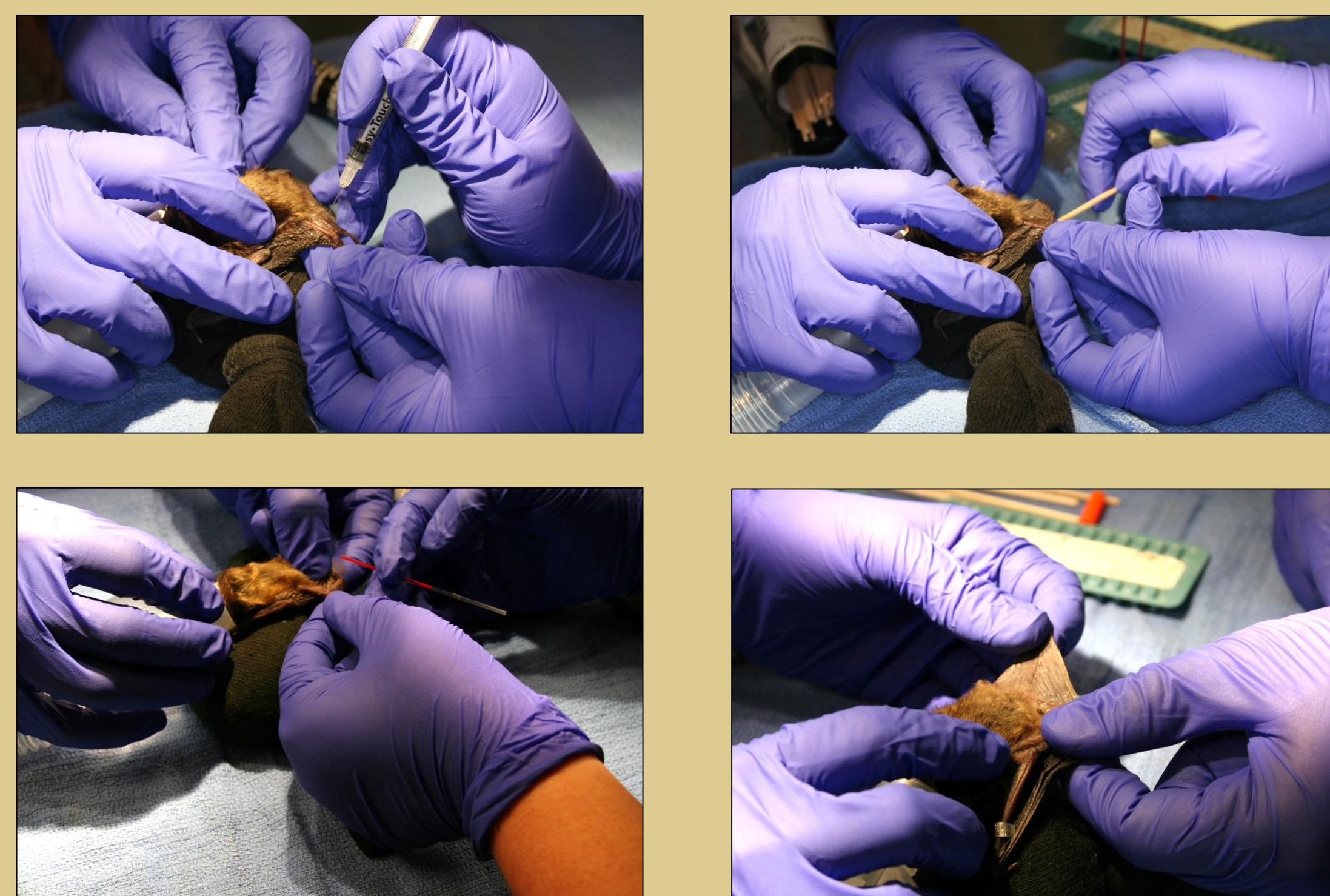
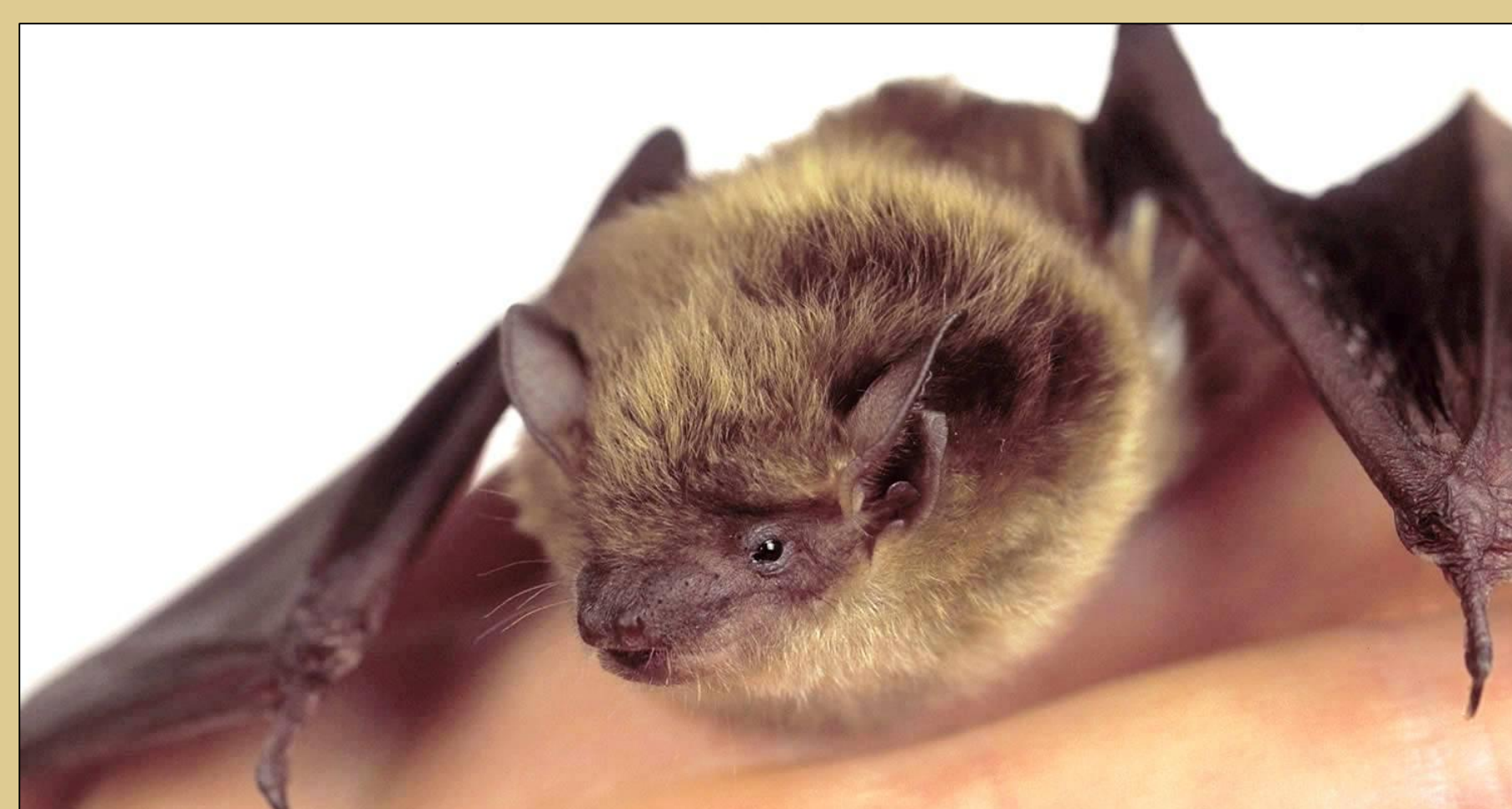


Figure 1. Procedure used to collect blood from the saphenous vein of bats. Pricking, collecting, and ensuring hemostasis shown above from top left to bottom right.

Methods

Once the bat is properly restrained, Vaseline (petroleum jelly) is applied to the skin around the saphenous vein. This allows the blood to bubble up away from the skin. An insulin needle is then used to prick the vein. Capillary tubes are used to collect the blood that bubbles up from the vein. The collected blood is then placed in the cartridges and the test is run on the iSTAT.



Results

Tests are still being done at this time, however some preliminary statistics were run to look at potential trends.

Sodium

Date	n	mean	std	max	min	w	p
8/28/2016	7	152	6.855655	166	144	0.837127	0.093402
8/30/2016	5	157.2	8.408329	171	150	0.865724	0.249539
12/11/2016	16	148	3.864367	157	143	0.930915	0.252054
12/25/2016	3	149.6667	4.932883	153	144	0.832192	0.193918
12/31/2016	10	144.2	3.489667	149	137	0.94324	0.5896
1/21/2017	4	156.75	6.184658	162	148	0.892625	0.395359
1/22/2017	12	153.0833	9.317221	172	138	0.935706	0.444521
1/25/2017	4	158.25	5.909033	163	150	0.879769	0.33765
2/11/2017	4	147.25	2.217356	149	144	0.800563	0.103233
2/20/2017	3	147	2	149	145	1	1
2/21/2017	4	143.5	1.290994	145	142	0.992912	0.971877
2/23/2017	1	143		143	143		
2/24/2017	3	147.3333	3.511885	151	144	0.993243	0.842833
3/15/2017	1	148		148	148		
3/19/2017	1	145		145	145		
3/26/2017	4	145	3.829708	150	142	0.863369	0.272453
3/30/2017	4	147.5	1	148	146	0.629776	0.001241
3/31/2017	1	148		148	148		
4/25/2017	5	145.4	3.04959	149	141	0.981076	0.940293



Acknowledgements

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