Interview with Dr. Michael Davis

Dr. Michael Davis is a professor, veterinary exercise physiologist Oxley Endowed Chair in Equine Sports Medicine, and director of the Comparative Exercise and Physiology Lab at Oklahoma State University. Dr. Davis has been involved in research for over twenty years. His research has focused on exercising in animal models as well as military working dogs and Alaskan sled dogs. While interviewing Dr. Davis he discussed his most recent publication, *Comparison of Postexercise Cooling Methods in Working Dogs*. The primary goal of this study was to determine the most effective and efficient way to cool down working dogs when they begin to overheat. When asked what the relevance of this study was to everyday people Davis stated, “Working dogs are a common tool for the U.S. Military, Law Enforcement, and similar agencies that function to protect and serve citizens. When these dogs work to their full potential in the line of duty, overheating is an inevitable and all too common injury. In order to protect the dogs and head off heat stroke, it was important to find out the most effective and efficient way to cool the dogs off and bring them back down to a normal temperature. Not only was finding the best way to cool them down important, but also one that made sense to the handlers in their typical working environment.” Dr. Davis explained that working dogs consume a great deal of oxygen when exercising. The biproduct of this oxygen consumption is heat and in order to maintain homeostasis this heat must be released. Unfortunately, dogs do not have a good means of getting rid of the heat that is being produced and that is why they are capable of overheating so easily.

The study was conducted by exercising dogs on a treadmill followed by immediately cooling them down. Three different cooling methods were tested which included a cooling mat, a temperature-controlled chamber, and a standard horse tank filled with 30-degree Celsius water. Before beginning exercising, all dogs were given a temperature sensor that monitored the gastrointestinal temperature throughout the entire session. When asked why a temperature sensor was given to the dogs instead of taking their temperature rectally Dr. Davis stated, “The internal temperature of the GI system and the rectal temperature read differently. When you take a rectal temperature, you are getting a reading of what the temperature is at that particular site, but it is not representative of the animal as a whole. The animal could be much hotter than the temperature measured, so internal temperature sensors ensure a more accurate temperature reading.”

Dr. Davis stated, “Our findings were that the superior cooling method of the three methods tested was complete submersion of the dog in a horse trough filled with water that was ambient temperature. This is an important finding because the use of an average sized horse trough filled with water is not only inexpensive, but it is extremely easy to do provides handlers with an easy way to cool their dogs down to prevent heat stroke while in the field.” The data collected from the tests showed that the dogs were able to cool down much faster when submerged in a water tank versus gradual cooling in the ambient environment and on a cooled mat. This information obtained from the data collected during the study is crucial to military and law enforcement, but it is good information that could be useful for common pet owners as well.