



Investigating a Noninvasive, At-Home Diagnostic Technique for Gastrointestinal Disorders Pedro L. Boscan, DVM, PhD, Colorado State University

Gastrointestinal disorders, such as vomiting, diarrhea, and weight loss, are often associated with a change in the motility, that is, the rate of movement, of food through the stomach and intestines. It is difficult to diagnose and treat motility disorders, but a novel, noninvasive, wireless sensor capsule, called a SmartPill, was recently developed to study gastrointestinal motility disorders in dogs.

Using the SmartPill technology, Morris Animal Foundation–funded researchers at Colorado State University are comparing typical gastrointestinal transit times for dogs in a nonstressful home environment with transit times in an often stressful veterinary hospital environment. So far, the researchers have given the SmartPill to 37 client-owned dogs, about 75 percent of their planned patient enrollment. They expect to complete the clinical trial this summer and have final data analysis available by year end.

Preliminary data analysis appears to confirm that gastrointestinal transit times vary greatly between dogs and may correlate with body size. For example, the time for food to move through the gastrointestinal tract in a Chihuahua may be different from that of a Great Dane. Transit time may also be dependent on the environment in which dogs are evaluated. The researchers showed that hospitalization decreased gastrointestinal transit times in some, though not in all, dogs.

The research team has not encountered any major complications during clinical trials; however, they have found that smaller dogs weighing between 20 and 40 pounds have a higher chance of not passing the SmartPill beyond the stomach. For this reason, the researchers are focusing the remainder of the study on larger dogs.

This study will help veterinarians evaluate gastrointestinal motility problems associated with such diseases as bloat, gastritis, inflammatory bowel disease, enteritis and colitis. This diagnostic method may also provide a less stressful and more accurate alternative to hospitalization for testing motility disorders in dogs. This is important as gastrointestinal function varies depending on such factors as stress levels. (D10CA-016)