

## Feasibility of a Novel Gastrointestinal Imaging Device for use in Dogs

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The purpose of this study was to test the safety and feasibility of a disposable and fully automated ingestible camera system that images the gastrointestinal tract in ambulatory dogs.

Five ambulatory light-based imaging (ALI) devices were constructed and contained within a translucent 11x31 mm capsule. The key components were a battery, a light source, 4 auto-focusing cameras, an internal memory system, and a microprocessor with an accelerometer that synchronized camera activity with device motion.

Five client-owned dogs were food restricted for 24 hours before and 8 hours after capsule administration. Capsules were administered using a direct pilling technique. Normal activity and access to water were permitted throughout the study. After recovery, capsules were inspected for damage. Images were then downloaded and independently reviewed by three board-certified internists.

Capsules were successfully administered to 5/5 dogs and were recovered within 24 to 36 hours. There were no adverse events. Median (min-max) study duration was 16 (8–18) hours. Capsules recorded a median (min-max) of 19,713 (8572–51,683) images. Median (min-max) gastric and small intestinal transit times were 89 (10–110) minutes and 134 (68–177) minutes respectively. Visualization of the mucosa and image quality were described as excellent for the stomach and small bowel. The colon was poorly imaged due to retained feces.

ALI is safe and feasible in dogs. It produced high quality images throughout the majority of the gastrointestinal tract. Visualization of the colon might be feasible with additional preparation. This non-invasive technique may expand the role of imaging in dogs with gastrointestinal signs.

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