School of Veterinary Medicine
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Instructions for Canine Intestinal Model

Background: These models are made to practice an enterotomy and intestinal resection and anastomosis (Figure 1). While these are as realistic as possible, there are limitations. We acknowledge that the mucosal layer does not evert when cut into, the vasculature does not bleed, ingesta is not present and there is no peristalsis. We ask that you suspend judgement and approach use of these models as a low-stakes/low-stress experience that builds and/or reinforces motor skills in preparation for surgery on live tissues.

Figure 1 Top and side view of the Madison Intestinal Model

Anatomy: These models have 4 simplified layers to them- mucosa, submucosa, muscular, and serosa (Figure 2). The mucosal layer is the innermost layer and consisting of fingerlike projections of epithelium called villa (D). The submucosa consists of dense connective tissue, lymphatics, blood vessels, nerves, and in some areas glands that secrete enzymes and buffers into the lumen (C). The dense connective tissues of the submucosa make it the holding layer, so suture should pass through this layer. In this model, the submucosa has been reinforced to hold the suture. The muscular layer consists of two layers of smooth muscle (inner layer is circumferential and outer layer is longitudinal) and together are responsible for peristaltic waves (B). The outermost layer is the serosal layer, consisting of visceral peritoneum (A). A small section of mesentery has been included, as well as a synthetic blood supply.

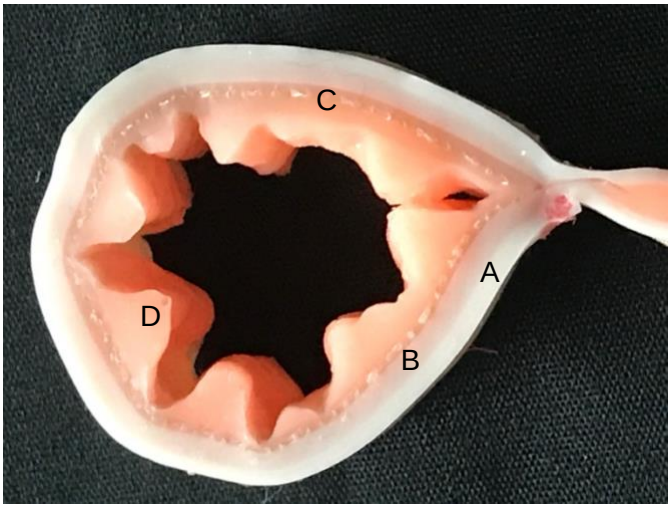

Figure 2: A is serosal layer, B is muscular layer, C is submucosa, and D is the mucosa

Directions:

First, perform an enterotomy. You may insert a foreign body into the intestines to make it more real, if you would like. You may use push pins into a pegboard to anchor the outer portions of the model as you work, if needed. Decide which end is oral and which is aboral and make your incision. Once the incision is made, you should be able to close it multiple times if you want more practice with various suture patterns.

For the anastomosis, you may use the two ends and curl it around and sew them together or you can perform a resection and anastomosis. Mesentery and blood vessels have been provided for vascular ligation.

Included with the kit:

Madison Intestinal Model*
3-0 Biosyn 2 packages
4-0 Biosyn 2 packages

*These models are made at UW Madison School of Veterinary Medicine by Dr. McLean Gunderson. The models take 3 days to make, and the cost of materials (does not include time) for one model is approximately $12.00. Use them wisely, as they are a valuable resource. The suture is an additional cost.