

Online Supplement Material

Video 1 Esophageal peristalsis is interrupted by partial disruption of muscularis externa integrity. This video demonstrates failure of propagation of peristaltic signals through the zone of disruption (apparent as a narrowed region in the proximal third of the esophagus – the pharynx/tongue is to the left of the image). Rostro-caudal peristaltic waves, originating at the pharynx/tongue, are weak and fail to propagate beyond the zone of disruption. Occasional peristaltic waves do appear to propagate through in a caudo-rostral direction, but are delayed across the zone of disruption, suggesting that the caudal and rostral sections are electrically uncoupled, with the peristaltic waves being triggered by mechanical activation (stretching). The video has been accelerated approximately 4× normal speed.

Video 2 Esophageal peristalsis persists in explanted fetal esophagus for up to 7 days. Frequent peristaltic waves traverse the length of the esophagus in both rostro-caudal and caudo-rostral directions. Gastric peristaltic activity can be observed to the right of the image and is often, but not always, coordinated with esophageal peristalsis. The video has been accelerated approximately 4× normal speed.