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Does *Helicobacter pylori* exhibit corkscrew motion while swimming?[1] MAIRA CONSTANTINO, JOSEPH HARDCASTLE, RAMA BANSIL, Boston University — *Helicobacter pylori* is a spiral shaped bacterium associated with ulcers, gastric cancer, gastritis among other diseases. In order to colonize the harsh acidic environment of the stomach *H. pylori* has to go across the viscoelastic mucus layer of the stomach. Many studies have been conducted on the swimming of *H. pylori* in viscous media however none have taken into account the influence of cell-body shape on the trajectory. We present an experimental study of the effects of body shape in the swimming trajectory of *H. pylori* in viscous media by a quantitative analysis of the bacterium rotation and translation in gels using phase contrast microscopy and particle tracking techniques. Preliminary microscopic tracking measurements show very well defined helical trajectories in the spiral-shaped wild type *H. pylori*. These helical trajectories are not seen in rod-shaped mutants which sometimes display whirling motion about one end acting as a hinge. We will present an analysis of the different trajectories for bacteria swimming in media with different viscoelastic parameters.

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