The purpose of this study was to determine whether aspirin (A) ingestion combined with prolonged exercise increases gastrointestinal permeability and whether consumption of a carbohydrate-containing (CHO) or a CHO + glutamine-containing (CHO+G) beverage would reduce this effect. Seventeen subjects completed six experiments. They ingested A (1,300 mg) or placebo (P) pills the evening before and before running 60 min at 70% maximal oxygen uptake. Also, before running they ingested a solution containing 5 g lactulose (L), 5 g sucrose (S), and 2 g rhamnose (R). During each trial, either a 6% CHO beverage, a 6% CHO+G (0.6%; 41mM) beverage or a water placebo (WP) was consumed. For 4 h after a run, all urine was collected to measure urinary excretion of L, R, and S. S excretion (percentage of dose ingested; measure of gastroduodenal permeability) was significantly greater (P <0.05) during the A trial while the subjects drank the WP compared with all other trials. Administration of A also significantly increased L/R (measure of intestinal permeability) for the CHO and WP trials compared with all P trials. Ingestion the CHO or CHO+G beverages significantly reduced S excretion and L excretion when A was administered, but it did not reduce L/R. These results indicate that gastroduodenal and intestinal permeability increase after A ingestion during prolonged running and that ingestion of a CHO beverage attenuates the gastroduodenal effect but not the intestinal effect. Furthermore, addition of G to the CHO beverage provided no additional benefit in reducing gastroduodenal or intestinal permeability.