Response of the lower esophageal sphincter to gastric distention by carbonated beverages.

Gastroesophageal reflux disease often occurs in patients with normal resting pressure and length of the lower esophageal sphincter. Such patients often have postprandial reflux. The mechanism of postprandial reflux remains controversial. To further clarify this, we studied the effect of carbonated beverages on the resting parameters of the lower esophageal sphincter. Nine asymptomatic healthy volunteers underwent lower esophageal sphincter manometry using a slow motorized pull through technique after ingestion of tap water and carbonated beverages. Resting pressure, overall length, and abdominal length of the lower esophageal sphincter were measured. All carbonated beverages produced sustained (20 minutes) reduction of 30-50% in all three parameters of the lower esophageal sphincter. In 62%, the reduction was of sufficient magnitude to cause the lower esophageal sphincter to reach a level normally diagnostic of incompetence. Tap water caused no reduction in sphincter parameters. Carbonated beverages, but not tap water, reduce the strength of the lower esophageal sphincter. This may be relevant to the pathogenesis of gastroesophageal reflux disease, especially in Western society.