

## Gastric Bypass Surgery Attenuates Alcohol Consumption in High Alcohol Consuming Individuals

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### Abstract

Roux en Y gastric bypass (RYGB) surgery is an effective weight loss strategy employed to treat obesity and associated complications. Importantly, in addition to imparting beneficial effects in terms of weight loss and metabolic disease, the RYGB procedure has been reported to attenuate hedonic behaviors. The present study investigated alcohol intake in human bariatric patients who consumed moderate levels of alcohol prior to receiving the RYGB procedure. In addition we utilized a rodent model of RYGB to examine ethanol consumption and ethanol reward in male rats selectively bred to consume large volumes of ethanol. RYGB surgery significantly decreased alcohol intake in patients that are recreational alcohol users. Moreover, the RYGB procedure decreased ethanol intake and the formation of an ethanol-induced conditioned place preference in rats genetically predisposed to consume large volumes of ethanol. Notably, the attenuating effect of RYGB surgery on ethanol consumption was modulated by the gut hormone glucagon like peptide-1 (GLP-1) and restored by pharmacological replacement of the gut hormone ghrelin.

Collectively this finding unveils the potential of RYGB surgery to reduce alcohol intake in individuals that regularly consume alcohol. Furthermore our rodent data indicate that this regulation is achieved through reduction of ethanol reward and is modified by the gut hormones GLP-1 and ghrelin. These data highlight the potential for bariatric procedures to be used as therapy for addictive behaviors and underscore the gut-brain signaling as a critical modulator of this effect.

### Biography

Jon Davis has completed his Ph.D at the age of 30 years from The University of Cincinnati and postdoctoral studies were also conducted in the Cincinnati College of Medicine. Dr. Davis has quickly emerged as an expert in the field of ingestive behavior with particular emphasis on the metabolic regulation of motivated behavior. His current focus includes investigating the impact of bariatric surgical procedures on addictive behavior. He has published many high impact research articles detailing and describing the CNS control of reward-based feeding.