

# Gastric Bypass Roux-en-Y

By Robin Blackstone, MD, FACS, and  
Melissa Davis, RN, MSN, ANP, APRN-BC, CNS

**W**orldwide, the gastric bypass Roux-en-Y is the most frequently performed obesity operation and accounts for 85 percent of all bariatric surgery in the United States.

It is unique in that it is the first of the gastric procedures for morbid obesity to combine restriction with malabsorption. Also, there is an element of intolerance for many patients. These three elements are what make the gastric bypass Roux-en-Y so popular and effective in creating a tool for successful, long-term weight-loss, and resolution of the co-morbidities associated with morbid obesity.

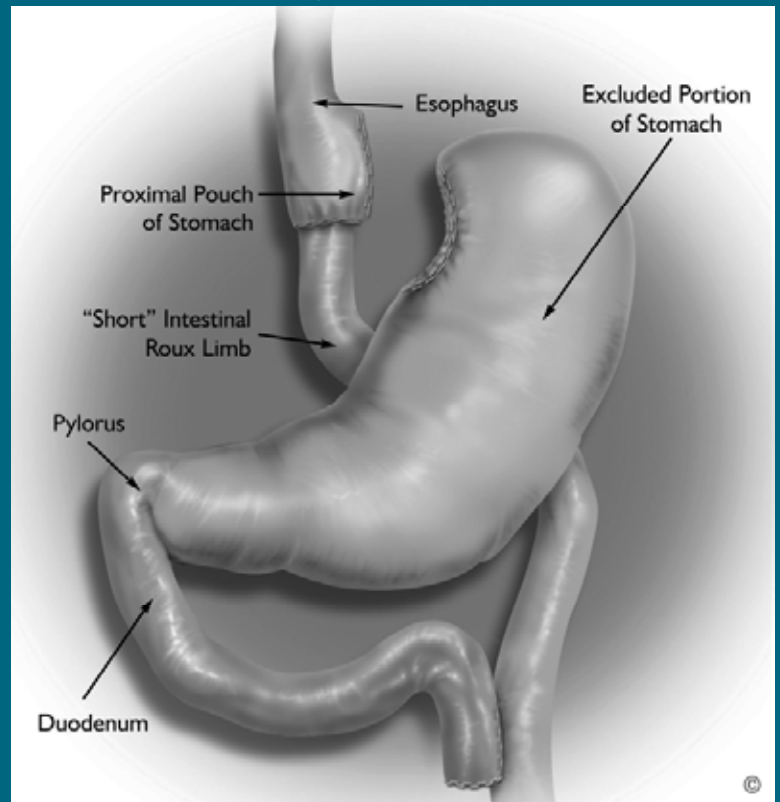
The gastric bypass Roux-en-Y can be performed by both open and laparoscopic techniques. It has been argued that there are advantages to both approaches, but these advantages seem to be related to the surgeon's capabilities and skill sets, and not the patient's recovery, surgical outcomes or resolution of co-morbidities. In the U.S., the laparoscopic technique has become the more popular approach by patients and competent surgeons, as recovery is quicker and post-operative wound healing complications are significantly reduced.

The gastric bypass Roux-en-Y surgery itself can be described in three significant steps. Each of these steps can be related directly to either restriction, malabsorption or intolerance.

- 1) creation of the pouch
- 2) creation of the jejunostomy
- 3) and the anastomosis of the jejunum to the pouch (the gastro-jejunostomy)

Often, the first step in the gastric bypass Roux-en-Y is the creation of the pouch. Restriction is produced because of the pouch. Restriction is one of the most significant outcomes of the surgery and is only related to volume of food able to be ingested at one sitting. This is what is achieved after the creation of a small gastric

## Gastrointestinal Tract after Gastric Bypass Roux-en-Y



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pouch with a small outlet that, with distention from eating food, causes the sensation of fullness.

The pouch can be created either horizontally or vertically, and is generally an average of 15 ml (one half of a shot glass) in capacity. This 15 ml is the size of the pouch initially, but because of the nature of stomach tissue, will eventually stretch to approximately the size of a small egg. Also, this is the size of the pouch at rest, which means that it is not the only amount of food that can be eaten at one time. The nature and texture of the food eaten at the time will determine volume of food eaten at each sitting. Although this initial small size of the pouch can create some challenges for the newly recovered gastric bypass patient, it's creation is necessary in order to avoid a pouch that is later too large, preventing a patient

from either reaching goal weight or being able to maintain long-term weight-loss.

The next step is the creation of jejunostomy, causing malabsorption. The malabsorptive element is created from the bypassing of the distal stomach, the entire duodenum and a distance of approximately 100 to 150 cm of the jejunum. A connection and opening are also made so that that food can be passed through the intestine and still receive the same digestive enzymes from the pancreas and liver. This connection is called the jejunostomy. The malabsorptive element is significant to the bariatric patient, requiring vitamin supplementation; however, this element does not seem to be as significant in regard to long term weight-loss as the element of restriction.

The third step in the gastric bypass Roux-en-Y is the creation of the gastro-jejunostomy. During this step, the second part of the small intestine, the jejunum, is connected to the pouch. This connection is called the gastro-jejunostomy, and it is because of this connection between the pouch and the jejunum that a patient can experience intolerance.

This intolerance is in relation to certain foods, and is often referred to as “dumping” or “dumping syndrome.” This intolerance is a direct result of the food, usually higher in sugars and starches, entering directly into the jejunum having only mixed with saliva and not stomach acid. The symptoms of dumping syndrome may vary from person to person, but can include the following:

- Sweating
- Low blood pressure
- Rapid heartbeat
- Dizziness
- Flushing skin
- Shortness of breath
- Vomiting
- Diarrhea
- Shakiness
- Fainting

Although dumping syndrome may not seem desirable, it can be. For the gastric bypass patient, it can be a strong motivator to eat healthier, protein-dense foods and to avoid junk food. This has been referred to as “forced behavior modification.”

Many patients wonder what happens to their old stomach or if the rest of it was removed. What they are referring to is the distal portion of the stomach, or the part of the stomach tissue that was separated from the tissue used to create the pouch. The “old” or “distal” stomach is not removed, as this would not be in a patient’s best

interest. First of all, it is still well connected to other organs in the body, and separating or removing it would provide an added risk.

Secondly, although the distal stomach will no longer receive food, it does continue to serve an important function. After gastric bypass, it still continues to receive digestive enzymes from the pancreas and liver, which are very necessary for digestion and absorption of nutrients. These enzymes continue to drain into the distal stomach, and flow through the duodenum, later mixing with food at the point where the food drains from the pouch and flows through the jejunum (jejunostomy).

### Weight-loss

Weight-loss after gastric bypass surgery usually exceeds 100 pounds, or can be anywhere from 65 percent to 100 percent of excess body weight. Weight-loss generally levels off after approximately one to two years, and a weight gain of up to 20 pounds is common. Long-term follow-up with a multidisciplinary program can usually provide the best weight-loss results.

### Complications

Short term complications include pulmonary emboli, anastomotic leak, bleeding and wound infection. Operative (30 day post-op) mortality is about 0.5 percent. This means that approximately one out of every 200 patients who have gastric bypass will die within 30 days of their surgery. Patients need to remember that this number is what is reported nationally, and they should inquire with their individual practice as to their own mortality rate. Laparoscopic approach provides a shorter hospitalization stay, lower wound complication rate and a higher rate of postoperative patient comfort.

Long term complications can include stricture (generally the gastro-jejunostomy), ulcers, staple line disruption and internal hernia. Nutritional complications are few, and can generally be avoided with life-long supplementation of a multivitamin, iron, calcium and B12. Peripheral neuropathy is also a rare complication, and can mostly be avoided with vitamin supplementation and adequate protein intake. Also, ventral hernia rates are significant with open gastric bypass Roux-en-Y, just as for any open abdominal procedure.

### Conclusion

All surgeries contain a certain level of risk. Be sure to speak with your physician to determine which weight-loss treatment option best fits your needs.