

# **COLON & RECTAL SURGEONS OF KANSAS CITY**

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## **ILEOANAL J-POUCH PROCEDURE**



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Our physicians have done the most Ileoanal J-Pouch procedures for the longest period of time in the Kansas City area. Dr. Bruce Graham was the first Colon Rectal Surgeon in the Kansas City area to perform Ileoanal J-Pouch.



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# Ileoanal J-Pouch Procedure

## **INTRODUCTION:**

The ileal pouch anal procedure or J-pouch procedure is a surgery performed for the cure of ulcerative colitis and familial adenomatous polyposis (FAP). The formal term for the surgery is restorative proctocolectomy with ileoanal J-pouch and temporary diverting loop ileostomy. This operation removes the diseased colon and rectum and makes a new reservoir, or pouch from the small intestine (ileum). This ileal pouch is then surgically attached to the anal canal. This procedure was devised to cure the disease and also to avoid a permanent ileostomy. It is performed in two stages.

The procedure was first developed by Sir Alan Parks from England in the 1970s. There have been further modifications and advancements in the United States by other colon and rectal surgeons. The procedure is a complex operation and should be done by an experienced colon and rectal surgeon specifically trained to do the operation.

When the ileal J-pouch is performed in the appropriate patient, results should be excellent with no physical limitations or restrictions. Mild or moderate dietary restrictions may be needed in order to avoid excessive diarrhea. Most surveys done after ileal J-pouch surgery revealed greater than 90% of patients are happy with the procedure. However, 5 to 10% will have difficulty, some of which will end up requiring removal of the ileal pouch.

# **THE DIGESTIVE SYSTEM:**

## **Stomach**

Initial breakdown of food by mechanical means and acid production.

## **Small Intestine**

Approximately 20 feet of small intestine is present. This is where all nutrients are absorbed. The small intestine is divided into three areas. The first is the duodenum; the middle, the jejunum; and the end segment is the ileum. The J-pouch is formed from two 15-centimeter limbs at the end of ileum.

## **Large Intestine (or the colon)**

Is a storage organ which absorbs water. Liquid stool from the small intestine is turned into formed waste. The colon and rectum are not essential for life or health.

## **Rectum**

The rectum is the anatomic end portion of the colon which functions mainly as a storage area until evacuation.

## **Transition Zone**

This is a two centimeter area between the lower rectum and the top portion of the anus. It is usually present for adequate sensation of stool. It is usually spared during the ileoanal J-pouch procedure. In familial polyposis (FAP), removal of this area (mucosectomy) may need to be done.

## **Anus**

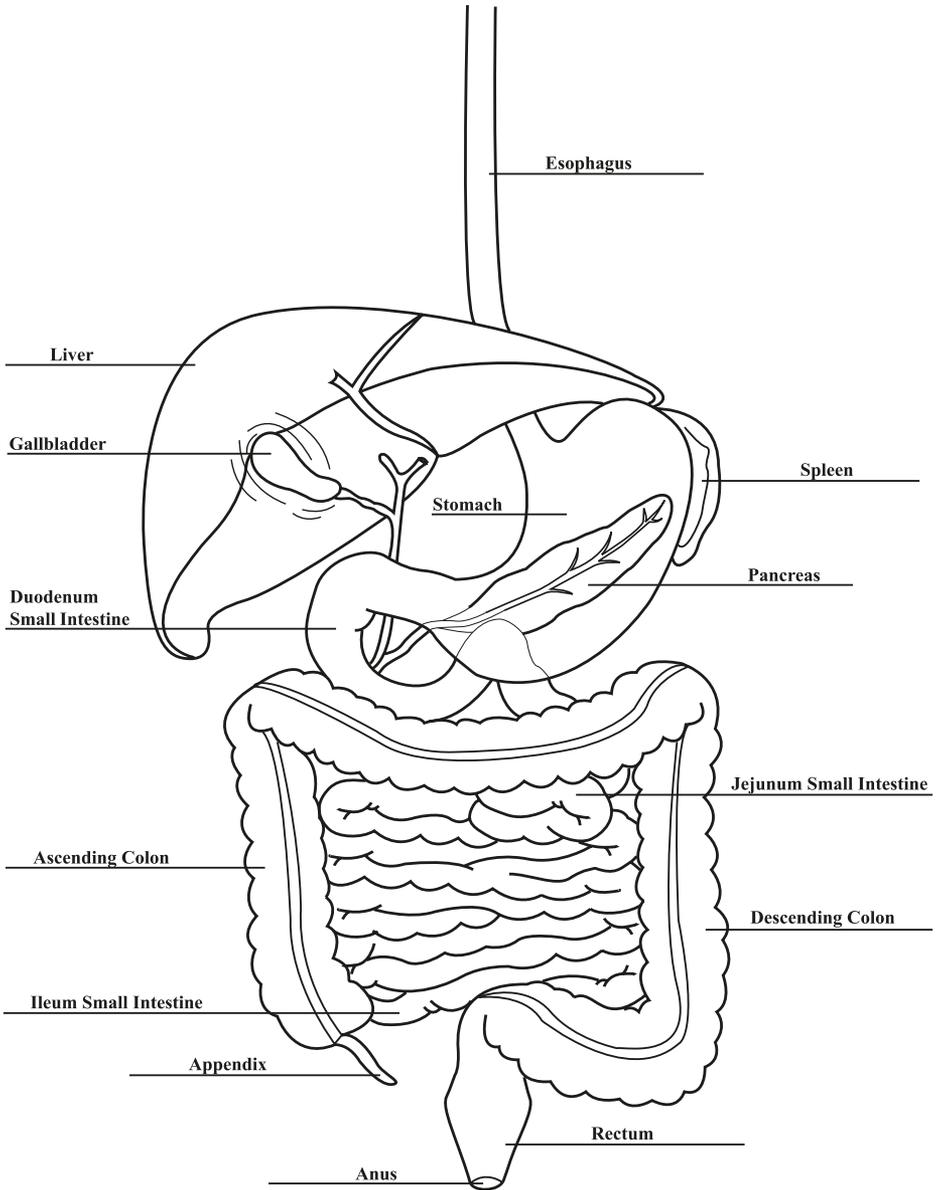
The anal canal is lined by sensitive skin and is the conduit out from the rectum. This is preserved with the ileal J-pouch procedure.

## **Gallbladder**

The gallbladder produces bile which helps digest fatty foods. Approximately 20% of patients with inflammatory bowel disease will have stones or inflammation of the gallbladder at some time. If the gallbladder is diseased, it usually requires surgical removal.

## **Pancreas**

The pancreas produces digestive enzymes, as well as insulin. This organ can become inflamed from 6-MP, steroids, or from gallbladder disease.



# ULCERATIVE COLITIS

Ulcerative colitis is thought to be an autoimmune disease affecting the lining of the colon and rectum by severe inflammation and ulceration. The disease may be very mild and controlled with medication or in severe circumstances, potentially life-threatening. Ulcerative colitis is more common in individuals of Northern European descent or of Jewish descent. However, any group can be affected with the disease. It is more common in family groups; however, there is no clear genetic transmission. Ulcerative colitis begins in the rectum and then advances upwards to affect the rest of the colon to varying levels. When this disease affects only the rectum, it is called ulcerative proctitis. This disease is confluent in nature without skip areas affecting the colon. Usually, ulcerative colitis presents fairly slowly and is chronic in nature; however, occasionally it can present suddenly with severe potentially life-threatening symptoms.

The symptoms of ulcerative colitis are usually abdominal cramps, diarrhea, and rectal bleeding. There is usually large amounts of electrolyte and protein loss with diarrhea that may cause metabolic problems, as well as anemia and chronic fatigue. Incontinence and urgency may be a problem not because of sphincter control, but due to rectal inflammation.

Five to 10% of patients will have toxic megacolon where the colon becomes greatly distended and may rupture. Ulcerative colitis can progress to fulminant colitis which causes extensive ulcerations of the colonic lining. This may cause systemic infection and may be life-threatening from either blood loss, infection, or perforation.

Studies have shown that if a patient has active ulcerative colitis for over 10 years affecting the entire colon (pancolitis), they are at risk of developing colon cancer at a rate of 1 to 2% per year. The type of cancer is usually very aggressive and rapidly spreading. If there is significant dysplasia noted on biopsy, this would be another indication for surgery. Dysplasia implies impending transformation of the lining of the colon to cancer.

When the entire colon is affected by inflammation, occasionally there may be some mild inflammation associated with a small segment of small intestine directly adjacent to the colon. This is called backwash ileitis. This is not a contraindication for a J-pouch; however, it needs to be differentiated from Crohn's disease.

When ulcerative colitis is relatively severe, it requires steroids (prednisone) to control. This suppresses the immune mechanisms affecting the colon with inflammation. Prednisone is one of the strongest and most effective medications used for ulcerative colitis. Asacol, Azulfidine, Pentasa, and Rowasa enemas are first-line drugs that are usually well-tolerated for mild to moderate ulcerative colitis.

Prednisone is usually used when first-line drugs are not successful. Long-term use of prednisone can have serious side-effects. It can suppress the immune system making one more prone to infection. It impairs the body's ability to heal wounds. It can cause thinning of the skin, hair loss, osteoporosis, joint necrosis, and cataracts just to name a few.

Prednisone may also result in the body's redistribution of body fat causing increased truncal girth with a wide round face. This is called cushingoid appearance. One of the indications for surgery is the inability to be removed off steroids taken over a long period of time without causing severe recurrence of symptoms.

6-Mercaptopurine (6-MP) is frequently used in order to reduce the amount of prednisone used or in place of it. 6-MP can also have serious side-effects, such as pancreatitis and suppressed immune system. Cyclosporin is another immune suppressive drug that can be used; however, it is relatively experimental at this time.

It is not necessary to be removed from prednisone or other medication prior to surgery. It is more important to keep the disease under adequate control prior to surgery than to risk a flare of the disease by removing the medications.

## **FAMILIAL ADENOMATOUS POLYPOSIS**

Although most ileoanal J-pouch surgery is done for ulcerative colitis, familial adenomatous polyposis (FAP) is another indication for ileal pouch surgery. Familial adenomatous polyposis (FAP) is a genetically transmitted disease that produces hundreds of tumors (adenomatous polyps) throughout the colon and rectum. The polyps usually begin forming after puberty. The polyps will invariably turn to cancer by the age of 40 or much earlier unless the colon is removed. If the rectum is relatively spared of polyps, the colon can be removed and the small

intestine attached to the rectum. This would require yearly rectal surveillance by flexible sigmoidoscopy. However, if the rectum is significantly affected by polyps, an ileal pouch anal procedure is indicated.

Patients are recommended to undergo upper endoscopy prior to surgery because of the possibility of polyps in the stomach and duodenum. Upper endoscopies will be needed in the future for appropriate surveillance throughout the patient's lifetime. All family members that are genetically related should be screened for polyps. Familial adenomatous polyposis syndrome is a dominantly transmitted gene.

## **SURGICAL OPTIONS**

There are three surgical options for cure of ulcerative colitis and familial adenomatous polyposis.

- 1. Total proctocolectomy with permanent ileostomy.** This operation has been done for the longest period of time. This operation removes the entire colon and rectum and results in a permanent ileostomy. The operation is one-stage with predictable results and few complications.
- 2. Restorative proctocolectomy with ileoanal J-pouch and temporary diverting loop ileostomy.** A more recent procedure performed now for over two decades with increasingly good results. Over 90% of individuals do extremely well and avoid a permanent ileostomy. This operation is a two-staged procedure.
- 3. Koch or Barnett pouch with continent ileostomy.** The entire colon and rectum are removed and an ileal pouch is constructed underneath the skin of the abdominal wall. There is an outlet from the pouch to the surface of the skin with a valve in place to prevent continuous outflow of stool. The patient must evacuate this pouch with a plastic tube three to four times per day. The benefit of this procedure is the avoidance of wearing a constant ileostomy appliance. This procedure is fairly complex and should be performed only if a permanent ileostomy is unsatisfactory.
- 4. Emergency surgery.** When patients are critically ill, it is many times too dangerous to perform an ileal J-pouch procedure. In these situations, removal of the colon with the placement of an ileostomy is performed. The rectum is left intact. Later, the rectum can be removed

and any of the above mentioned procedures can be performed when the general health of the patient has been improved. If the J-pouch procedure is selected, this would constitute a three-stage procedure.

## **CONTRAINDICATIONS FOR ILEOANAL J-POUCH SURGERY**

### **Crohn's Disease**

The presence of Crohn's disease is a definite contraindication to perform a J-pouch procedure. Crohn's disease is another inflammatory autoimmune bowel disease similar to ulcerative colitis; however, it can affect the small intestine and anus, as well as the colon and other parts of the gastrointestinal tract. Since the J-pouch is manufactured from small intestine, this would be at risk for future disease if the J-pouch procedure was performed.

Occasionally, there will be patients with some manifestations of Crohn's disease, as well as ulcerative colitis. In these patients, it may be difficult to differentiate between the two diseases. This is called indeterminate colitis. If a J-pouch is performed in this group of patients with indeterminate colitis, 10 to 15% will manifest Crohn's disease at a later date. If a J-pouch is constructed in a patient later found to have Crohn's disease, complication rates and pouch failure are over 50%.

### **Poor General Health**

Significant cardiac, pulmonary, renal, or liver problems creates a high surgical risk when an ileal J-pouch is performed and may be potentially life-threatening and complicate the patient's underlying disease.

### **Advanced Age**

Advanced age is a relative contraindication because of the extensiveness of the operation.

### **The Presence of Cancer**

The presence of cancer is a relative contraindication because of the possibility of recurrence and use of chemotherapy. This is dependent on the size and stage of the tumor.

### **Poor Anal Sphincter Function with Fecal Incontinence**

Poor anal sphincter function from previous surgery or birth trauma would be a contraindication for an ileal J-pouch procedure. If there is a question whether this is a potential problem, a full evaluation in the rectal physiology lab would determine the function of the sphincter mechanism prior to determination of the decision to perform the ileal J-pouch.

### **Obesity**

Significant obesity is a relative contraindication because of technical problems performing the surgery.

## **PREPARATION FOR SURGERY**

### **Testing**

An accurate diagnosis and understanding of the severity of the disease is important prior to performing the surgery.

- A recent colonoscopy with biopsies should be performed. Histologic slides of the biopsies will be reviewed.
- A small bowel follow-through barium x-ray study should be done to rule out the possibility of abnormalities which would imply Crohn's disease.
- A CT scan will occasionally be called for to determine the state of the disease in the colon and for possible small intestinal abnormalities.
- If there is any question about fecal incontinence and an ileal J-pouch procedure is considered, a full evaluation in the rectal physiology lab is recommended.
- A full battery of blood tests would need to be performed for evaluation of possible anemia or other metabolic problems.
- A complete stool study evaluation will frequently need to be obtained to evaluate for any possible enteric infection.

## **PREOPERATIVE PREPARATION FOR SURGERY**

It is essential to undergo a complete bowel preparation prior to elective surgery. This is necessary for an excellent result and avoidance of complications. GoLYTELY bowel prep is usually needed for complete colon clearance of stool prior to surgery. Oral antibiotics are given to reduce the bacterial content of the colon thereby preventing infectious complications. The antibiotics Neomycin and Flagyl are usually given one day prior to surgery, along with the mechanical bowel prep (GoLYTELY).

An enterostomal therapist (a nurse specializing in the care of ileostomies) will place a mark on the abdomen for the appropriate placement site of the ileostomy before surgery.

Extra nutritional support is frequently needed during a severe flare of ulcerative colitis. Large amount of calories are used by the body to control the severe inflammation of the colon. Large amounts of protein, electrolytes, and possibly blood are lost from chronic or severe diarrhea. Many patients with longstanding severe diarrhea from ulcerative colitis may be malnourished. Hyperalimentation or total parenteral nutrition (TPN) is frequently given through a special catheter to build the body's nutritional status prior to surgery. Blood transfusions may also be needed if significant anemia and continued blood loss is present.

Stopping smoking is a very important factor before surgery to avoid complications. Avoidance of aspirin or alcohol is also recommended at least one week prior to surgery.

## ILEOANAL J-POUCH SURGERY

This is an extensive operation with multiple steps. The entire colon and rectum is removed. A 2-centimeter segment of rectum above the anal canal is spared. This is called the transition zone and improves control of bowel movements and sensation. Occasionally, this area may need to be removed (mucosectomy) in patients with FAP and only occasionally with ulcerative colitis. This usually does not cause a significant problem when this is done. The small intestine is usually not able to reach the anus; however, by certain surgical maneuvers, enough length is usually obtained. Two 15-centimeter segments of ileum are spliced together making a pouch which functions as a storage organ and then is attached to the anal canal segment. This is called a J-pouch which is the most common type of pouch construction. A temporary loop ileostomy is made for safety reasons in order for the pouch to heal properly. The ileostomy is then taken down with a relatively minor operation three months later providing a barium pouch x-ray study is normal. The anal sphincter muscles remain intact.

The main surgery has three main steps:

1. Removal of the colon and rectum.
2. Construction and anastomosis of the ileal pouch.
3. Construction of a temporary diverting loop ileostomy.

The operation takes approximately three to six hours depending on the size of the patient and other technical factors.

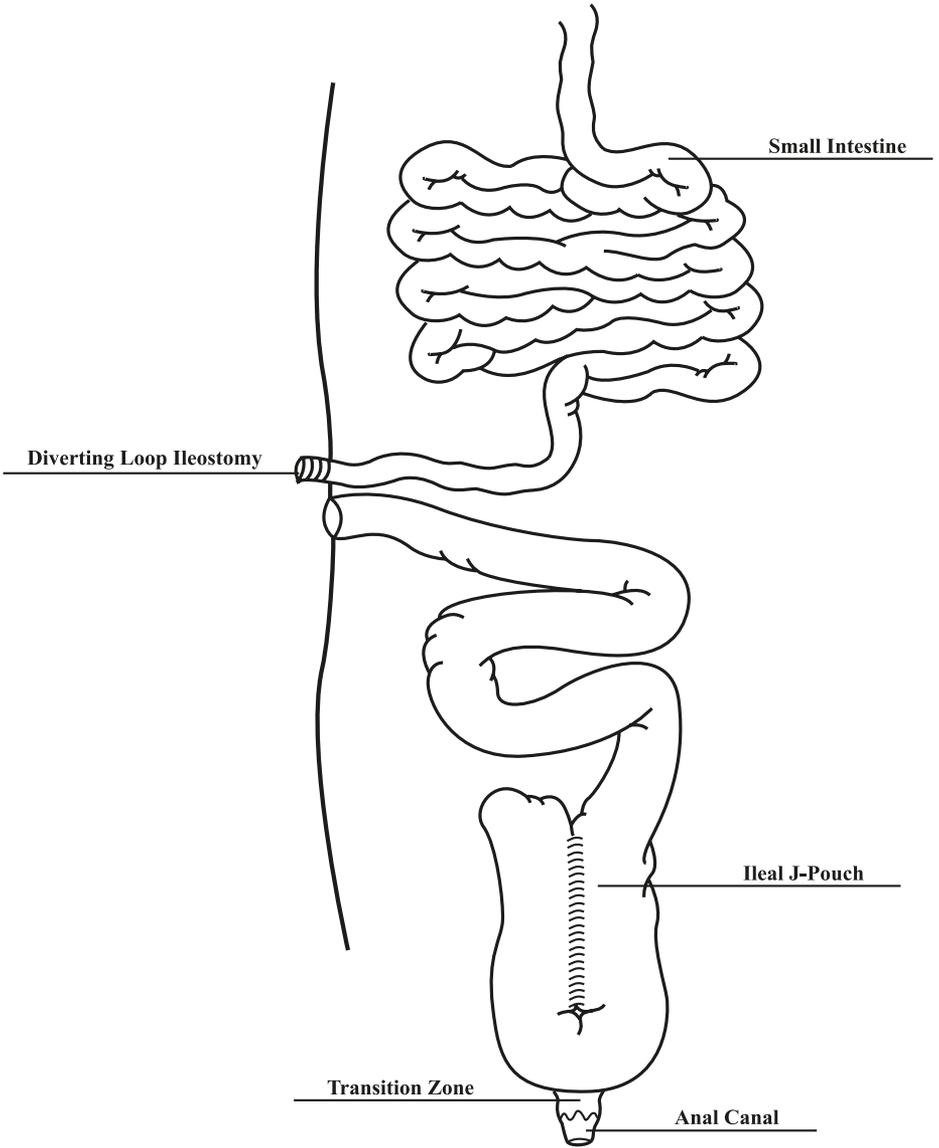
After surgery, a nasogastric tube is generally in place for two to three days. This is needed to remove excess fluid and air from the stomach and intestinal tract to prevent vomiting and abdominal distention. Another drainage tube exits from the left lower quadrant of the abdomen to drain the area around the ileal pouch. Another drainage tube exits the anus and is used to drain the pouch itself. A urinary catheter in the bladder will be in place measuring urine output. Usually, all of these tubes will be removed on the fourth to sixth postoperative day.

Pain control is usually managed by the patient through the IV or an epidural catheter in the back alleviating abdominal pain.

If the patient is on prednisone prior to surgery, there will be an elevated dosage of steroids given through the vein that are needed to support body function which will then be rapidly tapered during the hospitalization. The patient is discharged with prednisone, usually on a similar dosage on entrance to the hospital. The prednisone will then be tapered off completely over the next month or two.

It is important for the patient to take deep breaths every hour while awake. This avoids areas of lung collapse (atelectasis) and potential pneumonia. Also, early activity by walking or standing on the first postoperative day will be important to avoid blood clot formation in the legs. There will be pneumatic compression boots on the feet to improve blood circulation in the lower extremities.

Hospitalization is usually 6 to 10 days, but is greatly dependent on the patient's initial physical condition. Overall improvement of health returns fairly rapidly because the diseased colon has been removed. Most patients claim to feel extremely well and have new energy approximately one month after the procedure.



## AFTER SURGERY

The patient will not be discharged until he or she feels comfortable with the care of the temporary ileostomy. Close follow-up with an enterostomal therapist (a nurse specially trained in the care of ileostomies and colostomies) will be planned for. The patient will be prone to dehydration from the ileostomy so increased water intake is recommended. Dietary items high in roughage should be avoided for three months. Things to be avoided would be salads, raw vegetables, apple and potato peels, popcorn, and nuts. If there are large amounts of watery stool, the use of Metamucil and Imodium may be of benefit.

The temporary ileostomy can be somewhat more difficult to manage than a permanent (Brooke) ileostomy because of its mechanical construction. A small rubber bar underneath the temporary loop ileostomy will be removed around the seventh postoperative day by the enterostomal therapist. This bar is to keep the ileostomy above skin level and to avoid it from falling back into the abdominal cavity.

The effluent of the ileostomy is very caustic to the skin. Any leakage around the ileostomy must be addressed immediately. Initially, the effluent will be very watery, but later it will become more formed. It is much easier to manage a more formed ileostomy effluent. The use of fiber supplements and possible Imodium may be of benefit to add more form to the effluent.

A trial and error method is used to determine the specific type or brand of the ileostomy appliance used. All people and ileostomies are different and require different types of care. The enterostomal therapist will be critical in helping in this regard. Close contact with the therapist should be made until the ileostomy is under good control and the patient feels comfortable with its care.

There may be mucus discharge from the anus and it may be occasionally blood-tinged; this is expected. Mild incontinence may occur with this; however, this usually resolves once the ileostomy is taken down. The patient should pass the liquid at the toilet if the sensation of fullness is present.

The patient is seen at least once a month after the surgery in the office for follow-up. Digital examinations are performed to avoid narrowing of the ileal J-pouch attachment to the anal canal.

## **BIARIUM POUCH STUDY**

Approximately two months after the surgery, a barium x-ray test of the ileal pouch is performed. This is a minor outpatient procedure that evaluates the structure and the function of the ileal pouch.

## **TAKEDOWN OF THE ILEOSTOMY**

Providing the barium pouch study is normal, takedown of the ileostomy is performed. Usually, the only incision needed is around the ileostomy itself. There will be a large amount of diarrhea when the GI tract resumes function in approximately two days. The operation is not nearly as extensive as the initial surgery and is usually tolerated very well. The patient is usually discharged when excessive diarrhea has reduced and is manageable.

It is very common to have some minor abdominal cramps and bloating within the first four weeks after takedown of the ileostomy. This is because the caliber of the small intestine below the ileostomy takedown is much smaller since this area had been defunctionalized with nothing going through this area. In a short time, it will become normal size and caliber.

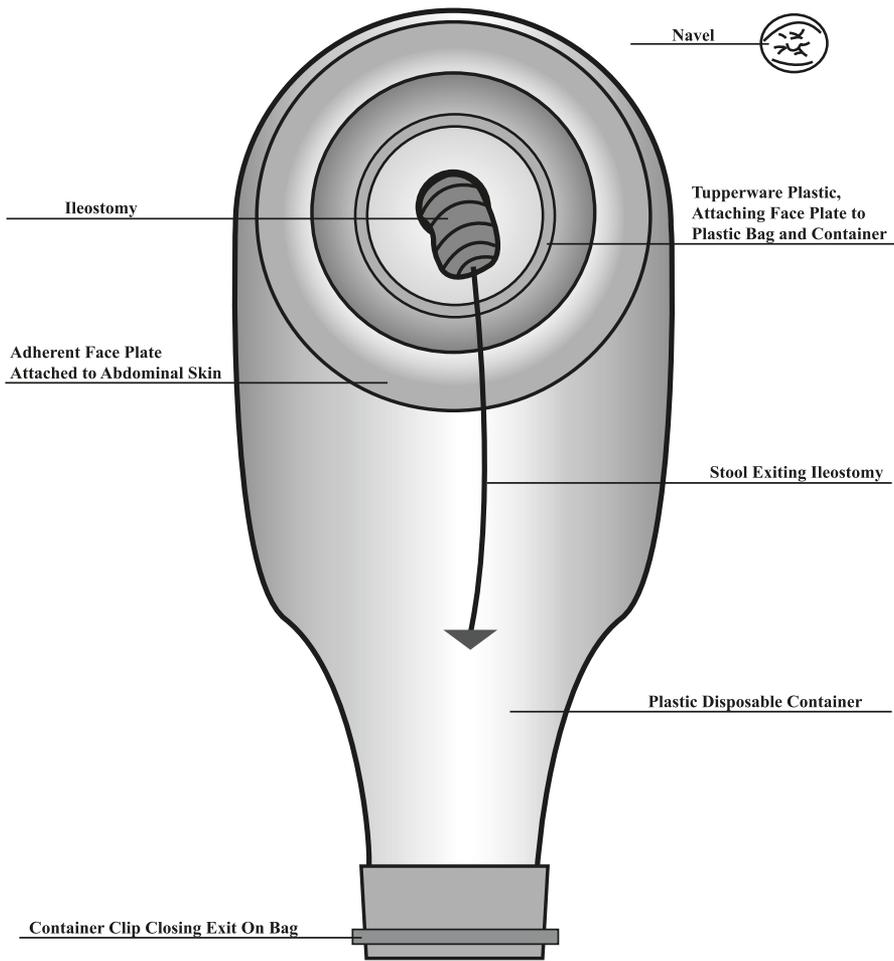
The ileal J-pouch will also enlarge in size over time with subsequent less stool frequency because of greater storage capacity of the J-pouch.

## **LIFE WITH AN ILEAL POUCH**

Stool frequency will be significant early on, but will decrease in time. By six months to one year, the average stool frequency is around six to seven bowel movements in a 24-hour period. There should be no urgency or incontinence. Many patients take Imodium to reduce stool frequency and they add fiber supplements to make more form to the stool and to achieve a more complete evacuation.

Fruit, fruit juice, spicy food, beer, coffee, soda pop, chocolate, and fatty greasy foods will cause increased stool frequency. There should be no nutritional problems since all of the small intestine remains intact.

Approximately 20% of patients will experience mild seepage or drainage from the anus. This is more common when the transition zone has been removed (mucosectomy). This usually occurs at night. The drainage usually does not represent a significant problem. It frequently can be resolved with dietary manipulation, use of Imodium, and avoidance of eating prior to sleep. A small gauze pad or tissue paper may be beneficial, to place near the anus if symptoms persist.



There should be no significant urgency as there frequently is in ulcerative colitis. One should be able to hold stool long periods of time with an ileal J-Pouch. Initially there may be some urgency after the take down of the ileostomy. However when the J-Pouch stretches over time, and becomes larger, this should resolve. If urgency becomes a problem after previously not being present, one should suspect inflammation from pouchitis or a dietary item such as spicy food. The former would be more persistent in nature.

Because of the increased stool frequency, the anal area can become irritated. This is more common in people with liquid diarrhea. The use of bulk-forming fiber agents to thicken the stool is frequently useful. The use of zinc oxide ointment to the anal area as a skin protecting and healing agent is useful. Occasionally severe irritation and rash may be present which frequently is associated with a yeast infection. This will need to be treated by the colon rectal surgeon. Soap and medicated wipes should be avoided on the anal area. The body produces fatty acids and waxes to the anal area which would be removed by these products. Irrigation of the anal area with water alone or baby wipes is all that is recommended for cleansing.

There are no restrictions after complete healing of surgery. Any physical activity is acceptable. If childbirth is anticipated, a C-section is usually recommended but not mandatory.

## **COMPLICATIONS**

### **Fecal Incontinence**

Fecal incontinence is uncommon; however, occasionally mild leakage is present usually during sleep. This usually can be resolved with dietary manipulation. Occasionally, a small gauze pad may be necessary.

### **Pouchitis**

This is a poorly understood problem that occurs in 15 to 20% of patients. The symptoms are increased stool frequency, abdominal cramps, a constant pressure sensation, and possibly bleeding. This problem is felt to be secondary to bacterial overgrowth and usually resolves with a course of antibiotics. This problem is usually episodic in nature; however, occasionally there are severe unresponsive cases which may require continued antibiotic usage. The antibiotics that are frequently used are Cipro and/or Flagyl.

## **Obstructive Defecation**

This is very uncommon with the ileal J-pouch and is usually seen with S-type pouches. Occasionally, enemas or catheterization of the pouch to empty is required. Sometimes, surgical repair is necessary to resolve this problem.

## **Hypermotility Syndrome**

Despite normal pouch anatomy and structure, some patients will have up to 20 stools per day if medication is not used on a daily basis. With medications, the stool frequency is brought down to an acceptable point. It is felt that this syndrome is similar, if not the same, as irritable bowel syndrome. This is where the small intestine is more rapid than in most individuals.

## **Infection/Fistula**

Infections of the pelvis and anal pouch areas are very serious, but fortunately very infrequent. They usually require some type of surgical procedure. Infection may eventually result in pouch excision and restoration of an ileostomy. The temporary ileostomy greatly reduces the chance of infection in this area.

## **Small Bowel Obstruction**

Any time any abdominal surgery is performed, scar tissue and adhesions may form to kink the bowel and cause obstruction. This will occur in 10% of individuals after any abdominal surgery during one's lifetime. 75% will resolve with a brief hospitalization; however, 25% will necessitate surgery to free the bowel from obstruction.

## **Crohn's Disease**

Crohn's disease is similar to ulcerative colitis; however, it can attack the entire GI tract. For this reason, an ileal pouch procedure is never recommended for this disease. Occasionally, the distinction between the two conditions of Crohn's disease and ulcerative colitis may be difficult. If the ileal pouch is affected by Crohn's disease, it may be successfully treated with medical therapy avoiding removal of the pouch. However, Crohn's disease affecting the pouch is perhaps the most frequent cause of pouch failure requiring its surgical removal.

## **Stricture**

The anal anastomosis may become narrowed causing obstructive defecation. This, again, is very uncommon and can usually be resolved by simple digital dilatation and by increasing the form of the stool. It rarely requires surgical treatment.

**Difficulty with Conception**

This is occasionally seen in females of childbearing age. This is usually from scar tissue or change in endocrine balance by long-term steroids. Many women in their childbearing years, however, have become pregnant and led successful term births.

**Urinary or Sexual Dysfunction**

This is exceedingly uncommon, but possible from damage to the nerves going to these organs during the surgical procedure.

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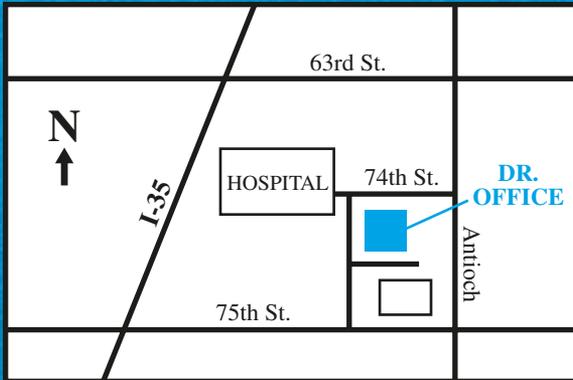
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**[www.jpouch.org](http://www.jpouch.org) The source for J Pouch Surgery Support.**

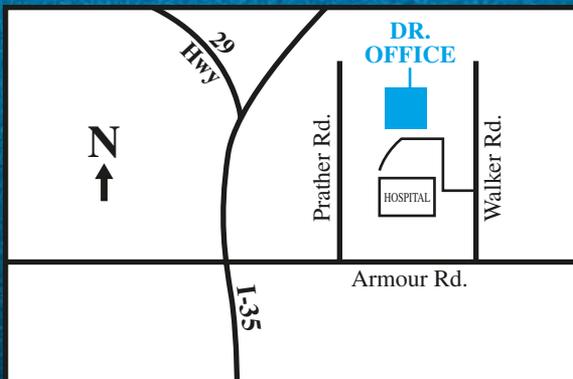
## **COLON & RECTAL SURGEONS OF KANSAS CITY COMMITMENT TO EXCELLENCE**

Our Surgical and Nursing staff are committed not only to the highest technical expertise, but to the long-term care and well-being of ileal pouch and ileostomy patients. No matter is too small to discuss. There is availability 24 hours a day, 7 days a week.





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