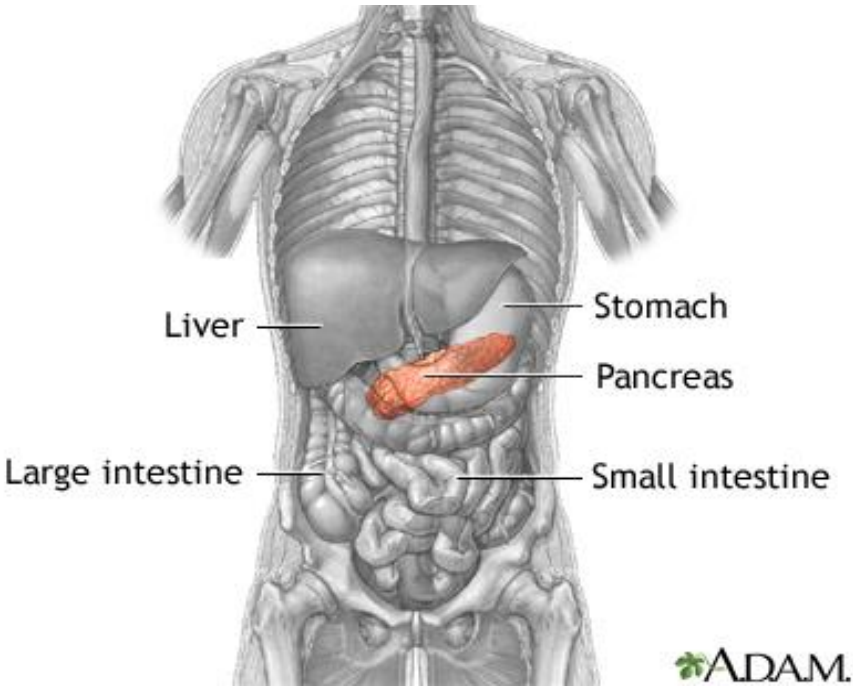
UCSF Helen Diller Family Comprehensive Cancer Center

DR. ADNAN ALSEIDI

Understanding Your Pancreas

A Patient's Guide to Pancreatic Surgery



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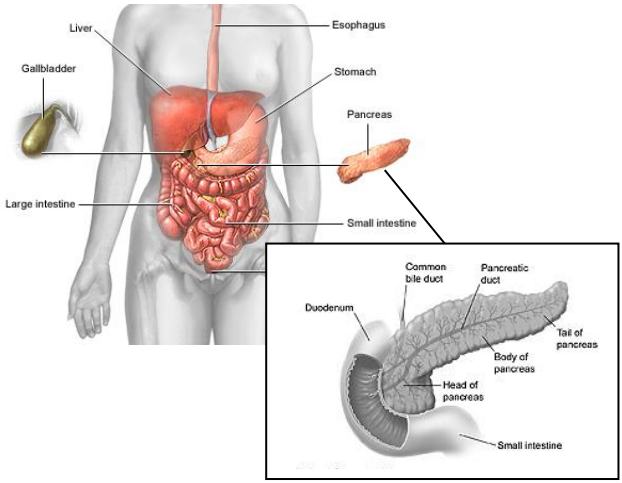
Introduction

You are scheduled to have a surgical procedure on your pancreas. The purpose of this booklet is to provide you with answers to some common questions about your surgery and the course of your hospital stay, including discharge home and moving toward a full recovery. Please read this booklet carefully and *bring it with you when you come to the hospital for your surgery so that you can refer to it as often as is needed.*

About your Pancreas

The pancreas is an organ located in the back of your abdomen, behind your stomach and underneath your liver. It has three parts: the head, the body and the tail. The head of the pancreas is closest to your right side. The tail is closest to your left side. Important functions of the pancreas include:

- Making enzymes that mix with your food and aid in digestion of proteins, fats, and sugars.
- Making hormones, such as insulin, that enter the bloodstream and regulate your body's metabolism.

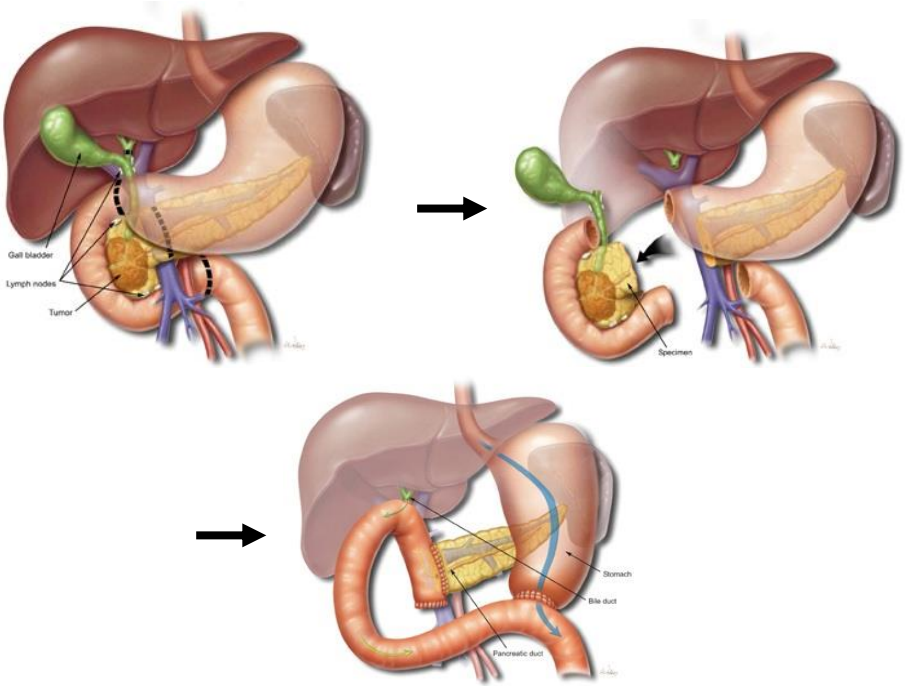


A. Digestive System VirginiaMason.org
B. Illustrator Ron Ross

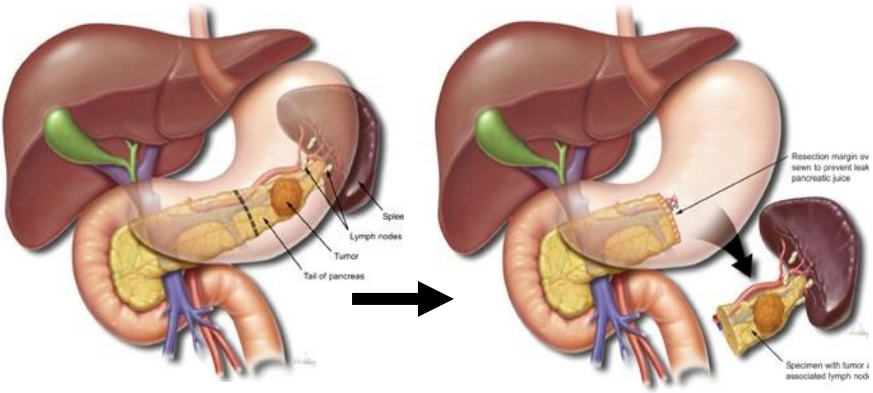
About your operation

Surgeries on the pancreas are performed for many reasons. A common reason is to remove a tumor. When the head of the pancreas is removed, the surgery is called a pancreaticoduodenectomy, or *Whipple procedure.* If the body-tail/left side of the pancreas is removed, the procedure is called a distal pancreatectomy or RAMPS (Radical Antegrade Modular Pancreatico-Splenectomy).

Tumors in the head of the pancreas require removal of the entire head of the pancreas, along with the duodenum, the gallbladder, and part of the bile duct. A complex reconstruction is then undertaken, where your stomach, pancreas, and bile duct are all reconnected to your small intestine.



Tumors in the tail of the pancreas usually require removal of the entire tail along with the spleen, as they share the same blood supply. Occasionally, the spleen can be preserved. No reconstruction is necessary after removal of the pancreas tail.



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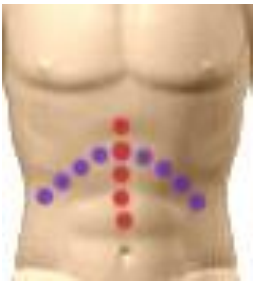
POSSIBLE COMPLICATIONS OF YOUR SURGERY

Complication	What Happens	Prevention & Treatment
Bleeding	Some bleeding during the surgery is expected. Large volume blood loss requiring transfusion is not typical but can sometimes occur.	Stop taking blood-thinning medicine (anticoagulants) as instructed (typically 5-7 days prior to surgery). Examples of medicines that can cause problems with clotting: Plavix, Coumadin, Ibuprofen, Aleve. Make sure to give your doctor a full list of medications, including over the counter, for evaluation.
Infection	Minor infections happen in about 17-28% of pancreas surgeries. They are usually treated with antibiotics and sometimes require drainage of the infection. Rarely, a repeat operation may be required to treat a serious infection.	You will be given intravenous antibiotics and your skin will be cleaned with sterile solution just before your surgery. We use a meticulous sterile technique in the OR and wash our hands before any exam or treatment.
Leak	Sometimes the connections between the intestine and the pancreas, bile duct, or stomach do not seal immediately after the surgery, resulting in fluid leaking into the abdominal cavity.	One or two drains may be placed at the time of your surgery to anticipate and control any minor leakage. Once the connections seal, the drains can be removed. Sometimes going home with a drain is necessary and/or an additional drain may need to be placed after your surgery to treat a leak or infection.
Delayed stomach emptying	While not dangerous, your stomach can take up to six weeks to regain its function. This is called delayed gastric emptying.	The use of medications can help your stomach regain function. If it does not, your nutrition will be supported via an intravenous line or by a feeding tube placed through your nose into your stomach. These tubes will be removed when your stomach starts to function properly.
Heart problems or stroke	Very rarely, a patient's heart will stop beating or a blood vessel will break during surgery. These complications do not occur any more frequently in patients who have pancreas surgeries than they do in patients who have other types of operations.	A careful pre-operative assessment of your general cardiovascular health will be conducted. If necessary, you will be evaluated by a cardiologist and special tests may be ordered before surgery.

POSSIBLE COMPLICATIONS OF YOUR SURGERY

Complication	What Happens	Prevention & Treatment
Pneumonia	A lung infection can result from intubation and general anesthesia, or from lack of deep breathing after your operation.	Deep breathing exercises and frequent use of your incentive spirometer after the surgery will help expand your lungs and prevent pneumonia. If pain prevents you from deep breathing, we will adjust your medication as needed as mobilizing and deep breathing are key aspects to healing.
Blood clots	Lack of movement during/after surgery and inflammation from surgery can predispose you to forming blood clots in your legs. Sometimes these clots can travel to the lungs and interfere with your breathing.	You will wear compression stockings on your legs during and after your surgery. You may also be given an injection of blood thinning medicine (heparin/lovenox) while you are in the hospital. It is very important that you begin to get out of bed and walk as soon as possible after your operation.
Pancreatic insufficiency	The pancreas does not produce enough digestive enzymes due to a combination of the condition of your pancreas before the surgery and how much pancreas tissue is lost.	A nutritionist will work with you to address your dietary and pancreatic enzyme (oral) supplement needs.
Diabetes	Loss of pancreas tissue due to surgery may cause someone who is a borderline diabetic to become diabetic or may worsen diabetes so that insulin is required.	Your surgeon can help assess your risk of becoming diabetic after the surgery. If you are found to need insulin, you will receive formal diabetic education prior to discharge from the hospital.
Kidney problems	A urinary tract infection or mild dehydration may occur after surgery. Rarely, acute renal failure may occur, where the kidneys fail to make urine properly.	Your urinary catheter will be removed as soon as possible after your surgery to prevent a urinary tract infection. Additionally, your urine output will be closely monitored after the surgery and additional fluids administered if urine output is not adequate.
Death	Death after pancreatic surgery is extremely rare, occurring in about 1.5% or less in high volume centers such as UCSF, depending on a patient's overall health.	Your surgical team is very careful in preoperative planning, including assessment of your general fitness for the operation. We will focus on giving you the highest quality care possible.

Your incision And Pain Control



Open Surgery
Many pancreas surgeries require on open incision. This incision can be beneath the ribcage like the one shown in blue, or it can be vertical, like the one shown in red.

Minimally Invasive Surgery (Laparoscopic/Robotic)
Some tumors can be removed through smaller incisions *(keyhole surgery*) with the help of a camera and special long instruments. This is called laparoscopic/robotic pancreatectomy. You will be informed if you are a candidate for this approach. For safety reasons, there may still be a chance of converting to the standard "open" procedure.

Pain control
Several methods of pain control will be utilized to help with your incisional pain. There are many different options and approaches for pain management, including intravenous pain medications, oral muscle relaxants, oral narcotics, and oral anti-inflammatory medications.

Epidural catheters (catheter in the back that helps make your trunk numb) are sometimes used for optimal pain control in addition to multimodal medications.

Additionally, you may be a candidate for non-epidural regional anesthetic approaches for pain control, such as a TAP block, ESP block, or an OnQ pain pump. Transversus abdominis plane (TAP) Block or Erector Spinae Plane (ESP) Block**:** A **local** anesthetic is injected into certain tissue planes. When either of these are performed, the nerves are numbed, and you will not feel as much pain in your abdominal area.

Continuous Regional anesthesia catheters (example OnQ Pain Pump)
Small catheters are placed intraoperatively and then connected to a pain pump. It will continuously deliver local anesthetic medication to block the pain in the area of your procedure.

Preparing for your Surgery

Preoperative Anesthesia Clinic

You may need some additional testing before your surgery to make sure you are healthy enough for major surgery and general anesthesia. Preoperative testing will be ordered through the Pre-Anesthesia (PREPARE) Clinic (415) 353-1099. This may include blood tests, chest x-rays or an electrocardiogram (EKG). Patients having major surgery may also require a scheduled telephone appointment to meet with the Pre-Anesthesia team. During this visit, your health history will be reviewed, and the type of anesthesia used during the operation will be discussed.

Smoking cessation

Smoking increases the likelihood of pneumonia, infection, and slower healing after your surgery. In addition, chronic cough due to smoking will make pain control more difficult after your operation. If you smoke, you should quit for at least three weeks before and two weeks after your operation. Smoking cessation aids like nicotine gum can be purchased over the counter. Other options like Wellbutrin or nicotine patches can be prescribed for you if you need further assistance to stop smoking.

Special diet instructions the day before your surgery

The day before your surgery your diet will consist of no solid food for 24 hours. You will be on a clear liquid diet. Clear liquids consist of clear bouillon, coffee, or tea (sugar is fine), Jell-o, carbonated and non-carbonated drinks, popsicles, Gatorade, and of course, water. Please DO NOT eat or drink anything (including water) after midnight on the night prior to your operation. If you are on blood pressure, heart, or anti-reflux medications, you can take the medication with a few sips of water the morning of your surgery. If you are a diabetic and take oral medication or insulin, please follow the preoperative instruction with respect to these medications. Often, you will be asked to take a smaller dose of insulin or medication or none at all.

Bowel cleansing before your surgery

Your surgeon may instruct you to take magnesium citrate the morning of the day before your surgery. You will be given one or two bottles in your preoperative visit with your surgeon. You can drink one bottle all at once or over time. The magnesium citrate tastes better when chilled. It will make you have loose stools and will clean out your bowels quickly. If you begin to have clear bowel movements, you may stop taking the magnesium citrate.

Additionally, if you do not have a bowel movement within two hours of ingesting your first bottle, you may take one additional 10-ounce bottle. Please drink a lot of clear liquids to ensure you do not get dehydrated.

If you will be having a colon operation (colectomy) at the same time as your pancreatic operation, you may be instructed to take an additional or alternative bowel cleansing regimen.

Medicines you may need to stop taking before your surgery

In your visit with your surgeon or with the anesthesia preoperative clinic your medication list will be reviewed in detail, and you will be instructed about which medications to continue the day of surgery (please note that the majority of your medication, but not all you take, will likely continue).

Please tell us if you are taking blood thinners such as Coumadin (also called warfarin), Plavix, or aspirin. You **MAY** be instructed to stop taking these medications 3-10 days before your operation. This needs to be specifically discussed with your doctor. You should also stop taking NSAIDs (e.g. over-the-counter pain medications such as Aleve, Advil, Ibuprofen) three days before your operation.

If you are taking any herbal/non-pharmacological supplements beyond simple vitamins, please tell your physician as some of these have blood thinning qualities and may need to be stopped 3-5 days prior to surgery.

If you have any questions about taking medication before your operation, please ask your surgeon in your preoperative visit.

SPECIAL INSTRUCTIONS FOR THE DAY OF SURGERY

Our office (or the preoperative care office) will call you 24-48 hours prior to your operation to inform you of your check-in time and location for surgery.

Please call us (415-502-5577) **IN ADVANCE** if:

- You are sick (e.g. cold or flu) and/or have a temperature over 100.5° F
- You get a cut, rash or infection on your abdomen
- Any change occurs in your overall medical condition
- You have ANY questions about medications
- You have ANY concerns about your operation

What to bring on the day of your operation:

- Insurance card
- Identification
- Your Advance Directive
- A list of your medications or your pill bottles
- This booklet
- Credit card of other means of paying co-pays as needed

Please **DO NOT** bring any jewelry or other valuables.

WHAT TO EXPECT IN THE OPERATING ROOM

You will arrive in the pre-operative room. There you will meet your surgical team, Operating Room Nurse, Anesthesia Team and Induction Room (IR) Nurse prior to you going to the Operating Room (OR). Note that the IR and OR are in the same location. Your OR Nurse will give you pre-operative teachings which will re-enforce what was discussed in the Surgeon's Clinic. This includes the catheters, drains and the Sequential Compression Device that will be put on your legs to prevent clots. We encourage that you ask questions and express your concerns at any time. Once you're in the OR, you will meet the Surgical Nurse and Anesthesia Tech. The OR team will put monitoring devices on you to monitor your vital signs. The OR Nurse will call the Family Waiting Room Area to notify family members when the surgery started and will frequently update them.

WHAT TO EXPECT DURING YOUR HOSPITAL STAY

Where will I go after the surgery?

After your surgery, you will be taken to a special care unit for recovery and close observation overnight. You will usually go to a different hospital unit the next day.

Enhanced Recovery After Surgery (ERAS) Protocol

We follow special postoperative protocols that will aide in healing and help you get back to your usual self. This includes but is not limited to the following:

- Blood glucose monitoring
- Early ambulation – it is important to sit in a chair and walk as soon as possible to prevent a lung infection and/or blood clots
- Incentive Spirometry use – helps with deep breathing to prevent pneumonia
- Early urinary catheter removal – to prevent a urinary tract infection
- Various methods of pain control – multiple approaches to control your pain will be utilized so you will not require high amounts of narcotics
- Dietician consult – education about nutrition and supplements to help you heal
- Physical and Occupational Therapy – safe mobilization and adjustments as needed with postoperative surgical pain

Will I have pain after surgery?

After surgery, your pain level will be managed with a multiple method approach. Your pain will unfortunately not be zero on a scale of 0-10, the goal is to have the pain moderately controlled, so you are comfortable.

An epidural is a tiny tube placed in your back prior to surgery through which pain medication can be given. It is intended to control your pain, facilitate early movement, and speed your recovery.

Beyond this, there are many non-epidural regional anesthetic options that were mentioned earlier. You will also be receiving a variety of oral and intravenous medications that will address your pain.

What will my first day after my surgery be like?

Assuming everything goes as expected, you will be transferred to the surgical floor on the day after your operation. You will have an IV. You will also have a urinary catheter (a tube used to drain your bladder). As soon as you are awake, you will be encouraged to **BREATHE DEEPLY** using a device called an incentive spirometer. **This is very important for preventing pneumonia after your operation.** You will be assisted out of bed to a chair on the first day after your operation.

If you are in so much pain that you cannot comfortably breathe or get out of bed with assistance, please tell your nurse immediately so that your pain needs can

be addressed in a timely manner. Do not try to act tough. It's important that you are comfortable to be able to cough, take deep breaths, and walk.

What will happen on the second and third days after surgery?

You will be assisted with walking on or before the day after your operation. **Walking as soon as possible after your surgery is very important to prevent blood clots, stimulate bowel function and prevent loss of muscle tone.** Once you are safely able to get out of bed, your urinary catheter will be removed. Sometimes the catheter needs to stay in until the epidural is removed.
If your nasogastric tube (a tube in the nose to decompress the stomach) was placed, it will most likely be removed. The following day, you are typically able to start a liquid diet, which is then advanced gradually as you tolerate oral intake. Once you can drink adequately, your IV fluids will be discontinued, and you will be started on pain pills so that you can be weaned from IV medication.

How long will I be in the hospital?

On average, most patients will be in the hospital for 5-7 days after major surgery on their pancreas if it was done by an open incision. 3-6 days are likely if the surgery was done laparoscopically/robotically. In general, conditions for safe discharge home include:

- You have bowel function.
- You can eat and drink.
- You no longer need IV medication.
- Your pain is controlled well with medication you take by mouth.
- You have no signs or symptoms of untreated infection or bleeding.
- You can walk and carry out basic functions independently.

How will I know when I am going to be discharged?

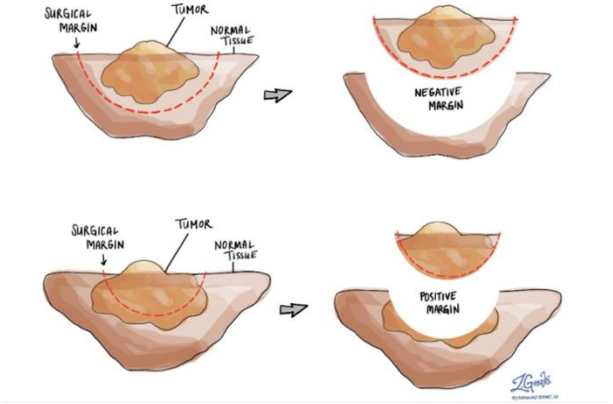
You will be informed at least one day in advance of your planned discharge date so that you can make appropriate arrangements for going home. A member of our surgery team will review your discharge paperwork, instructions, medication, and follow-up appointments in detail before your discharge. We realize that many patients do not live close to the hospital. Therefore, the surgery team will work with you and your family on your discharge planning as early as possible to help a smooth the transition back home. We will also provide copies of paperwork to your referring physicians, so they are informed of your condition.

When will I receive the pathology results?

The surgical specimen will be delivered to the pathology department where it will be examined under a microscope. Results from this examination will take anywhere

from 5 – 7 days. The final pathology report and next steps related to the results will be discussed with you. Below you will find what the pathology report will discuss.

- **Tumor type and size** – although imaging and biopsies are helpful, the true size and type of cells/make up of the tumor are more well defined once it is surgically removed
- **Margins** – how much distance is between the tumor and normal tissue (to ensure the entire tumor was removed), and if the tumor extends into any other organs or lymph node



- **Grade** – poorly differentiated (<50% of the tumor is made up of glands), moderately differentiated (50-95%), or well differentiated (>95%). Poorly differentiated tumors are typically associated with worse prognosis compared to well differentiated
- **Pathologic Stage** – This is a combination of the size of your tumor, nodal involvement, and/or cancer cells distant to the site of the tumor

QUESTIONS FOR YOUR SURGERY TEAM

While you are in the hospital recovering from your operation, your surgery team will see you twice daily, once in the morning and once in the evening. UCSF is a teaching hospital and residents will be involved in your operation as well as in your care every day as they are key members of your team. Morning rounds usually begin around 6 a.m., but the start time of evening rounds vary from early afternoon to late evening. The team does this "rounding" so that we can keep a close eye on your recovery and address all of your questions and concerns as efficiently as possible. Your attending surgeon or their partner will see you at least once a day and will direct and be involved in all aspects of your care. If at any time you or members of your family are concerned about your care, please bring your concern to the attention of any member of your team.

- *Use this space to write any questions that come up:*

Returning home after your Surgery

Activity level

It is normal to feel easily fatigued after your surgery. Simple tasks may be tiring. Asking someone to assist with errands like grocery shopping is recommended for the first four to six weeks after surgery. If you had an open incision, do not lift anything heavier than a gallon of milk until your first postoperative visit. Your surgeon will tell you when it is safe to resume certain activities.

Basic activities of daily living should not be limited. Although you may need to take a nap during the day, **AVOID STAYING IN BED** all day. You can shower every day unless otherwise instructed. Getting the wound or drain (if present) wet is OK. Get dressed and walk frequently to help build your strength.

Driving

Do not drive until you have completely stopped taking pain medication and are able to respond to emergency situations appropriately. Your doctor will advise you on timing if unclear.

Exercise

Resume moderate exercise as tolerated, generally 4-6 weeks after your surgery.

Sexual activity

When you go home, you may resume sexual activity unless instructed otherwise by your physician.

Diet

You may not have much of an appetite after your surgery. This is common and improves with time. Getting good nutrition in the first six to eight weeks after surgery can be challenging and requires a persistent attention on your part. You will need to adjust your portion size and eat more frequent, smaller meals daily. Typically, you will be advised to have six small meals a day as opposed to three regular size meals. Eat a protein-rich, low fat diet for the first month. Go slow and eat only what feels comfortable to you. It is important to stay hydrated. Consider supplementing your diet with protein rich shakes such as Ensure or Boost if you are not eating enough. Listen to your body. If you feel full quickly, stop eating and wait an hour or two and then try again. A nutrition specialist will see you before you leave the hospital to answer any questions about your diet. Eventually your diet will return to normal.

Wound care instructions

If your staples or stitches are not all removed before you leave the hospital, they will be removed at a follow-up clinic visit. Shower every day while home. It is okay to allow water and soap to wash over the staples/stitches, and then pat dry afterward. It is important to keep the wound clean for optimal healing. If any stickers or dressings are on, remove them and change them daily if they are still needed. If you develop any spreading redness, warmth, increased pain, or drainage from your wound, please call us right away.

Discharge medications

In general, by the time you are discharged home, you will have resumed all the medications you took at home before the operation. Sometimes your home medications will be changed by your surgical team. You will also be given a prescription for pain medicine. *A list of medications and dosing instructions will be discussed with and provided to you before your discharge.* If you have any questions about your medications at any time, please ask any of your team members. If you have questions after discharge, please call your surgeon's office.

NOTES:

REASONS TO CALL YOUR SURGEON:

- Chills or fevers of 101°F (38.3 °C) or higher
- Swelling, warmth, or increased redness around your incision
- Drainage of fluid from your incision, especially if it is cloudy, thick or foul smelling
- Any sudden increase in abdominal pain or new abdominal pain
- Persistent diarrhea, nausea, vomiting or inability to eat and drink
- Constipation or inability to pass gas for longer than 3 days
- Your skin or eyes turn yellow, or your urine becomes dark
- Any new or unexplained symptoms

Contact Information (during business hours) specify business hours and days of week

- Contact our clinic (415) 502-5577 for any questions
- You can send a MyChart message anytime directly to Dr. Alseidi
- Your clinical questions may be answered by our team of nurses and Nurse Practitioners

For after-hours concerns, contact the physician on-call at

(415) 502-5577*

**While there is always a physician on call, if a medically urgent situation arises, please call 911.*