



Abs of Steel Hernia Repair Brisbane

ABDOMINAL WALL RECONSTRUCTION AND MAJOR INCISIONAL HERNIA REPAIR

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AND DOES NOT SUBSTITUTE FOR DISCUSSION WITH YOUR SURGEON.*

YOUR ADMISSION DETAILS:

Your admission date is: _____

On your arrival to hospital, present to Admissions at the designated time. From the main entrance of the hospital, there is a pharmacy on the left. At the end of the pharmacy, there is a lift. Take this to Level 1. This is Admissions.

You will need to stop eating food from: _____

Drink the 2 DEX between: _____

You can drink CLEAR fluids until: _____ then it is NIL BY MOUTH.

Your operation date is: _____

The Rooms will call you a day prior to when you are due to enter the hospital to confirm your admission time and when to start fasting.

Register your admission to confirm your personal details and health history.

This must be done at least 48 hours prior to your admission. It can be done in two ways:

You can complete the admission form online at:

<http://www.greenslopesprivate.com.au> then click on the ONLINE ADMISSION button

OR

Call Greenslopes Private Hospital Admissions on phone 1800 777 101.

Monday to Friday 8am – 7:30pm or Saturday 8:15am – 12:45pm.

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WHAT IS AN INCISIONAL HERNIA? WHAT PROBLEMS DO THEY CAUSE?

The abdominal wall has many functions. It protects the bowels and abdominal organs. During urination and bowel movements it helps to push the waste out. These muscles are also responsible for posture and movement.

An incisional hernia occurs when there is a hole in the deep layers of an old surgical scar. As the muscle layers separate, a piece of bowel or fat from inside the abdominal cavity may protrude through this hole. A hernia will appear as a lump in the surgical scar and become more prominent when standing up. The lump may disappear or become smaller when lying down. Hernias come in all shapes and sizes.



Figure 1. Illustrates how the bowel protrudes through a hole in the deep muscle layer beneath a surgical scar

An incisional hernia often occurs after serious or repeated abdominal surgery. The muscles that have been stitched together after the operation come apart and allow the bowels to protrude through. An incisional hernia patient may have spent a long time in the hospital and suffered many complications. There may be open wounds on the abdomen. There may be bowel or stomas coming to the surface of the skin leaking mucous or faeces.

Normally, muscle and skin cover the bowels entirely, but when an incisional hernia occurs, there may be a wide gap between the muscles and the bowels may protrude, covered only by a thin layer of skin or skin grafts. In extreme cases, the bowels may sit completely outside the abdominal cavity. The bowels may even be exposed to the air and their only protection might be a special dressing.

When there is an incisional hernia, the abdominal wall does not perform its normal functions. The bowels may be very susceptible to injury. Bowel that has no coverage is at

risk to developing holes called fistulas. Faeces will flow out of these holes and onto the skin. This is a very challenging problem to fix. The other feared complication of a large incisional hernia is when a piece of bowel becomes trapped in scar tissue and causes a bowel obstruction or even worse, loses its blood supply and dies. This is a surgical emergency and can be life threatening. Symptoms of this include sudden, extreme pain in the hernia, inability to push the hernia back in, vomiting, and redness over the wound. This can be a catastrophe for a patient with an incisional hernia as any surgery needs to be well planned.

In addition, living with an incisional hernia makes simple tasks like sitting up, walking and having a bowel movement very difficult. Finally, incisional hernias are cosmetically unappealing.

WHAT CAUSES AN INCISIONAL HERNIA?

There are many factors that contribute to a hernia.

- Obesity
- Poor wound healing after surgery
- Many operations via the same incision
- Wound infections after surgery
- Diabetes
- Operations for severe pancreatitis or other abdominal catastrophes
- Colostomy or stomas
- Long term prednisone or immunosuppression drugs

Patients with these types of hernias are very special. They have usually had life threatening surgical problems and may have been unwell for many months. They might have had multiple procedures and can be very run down. They may be very overweight or could have lost a great deal of weight.

HOW ARE INCISIONAL HERNIAS TREATED?

Incisional hernias will not go away without surgical treatment. A great deal of planning must go into repairing a hernia like this. Each case is individual and there is no “one size fits all”. Patients with incisional hernias must be fully rehabilitated before an attempt at surgery is made. This is sometimes several years after the event that caused the hernia. Repairing someone’s abdominal wall may require the input of many other specialists including plastic surgeons, dietitians, physiotherapists, wound nurses and psychiatrists.

Incisional hernias can be extremely difficult to repair because the tissues we are working with are stretched thin and have very little strength. There may have been previous attempts made at repairing these hernias and this can make the surgery more complicated. A good way to think about fixing a hernia is to liken it to patching a hole in a plaster wall. The edges of the hole are difficult to pull together, so a patch or “mesh” is placed behind the defect. This reinforces the weakened tissue and muscle. The mesh can be made of several different types of material (see below). The mesh becomes incorporated into the body and adds extra strength. The mesh can be used in a variety of

ways but it is usually placed against the muscle inside the abdominal cavity. A combination of stitches and staples can be used to hold the mesh in place. The weakened muscle layer is then pulled closed over the top of the mesh. The aim is to try and bring the muscles together to reconstruct the abdominal wall to the way it was. These tightened layers will eventually weaken again and the mesh is there to bridge the gap as they separate.

Incisional hernias are mainly repaired with an open operation i.e. a big cut often through the previous scar or through a lower abdominal incision to perform a type of tummy tuck with the surgery. Sometimes keyhole techniques will also be used to help the muscles come together. These hernia repairs involve carefully separating the bowel from the abdominal wall. Sections of bowel may need to be removed to repair fistulas or removed sections of mesh and sometimes more than one operation is required. These operations can take hours.

Most often a variety of creative techniques are required to repair these hernias.

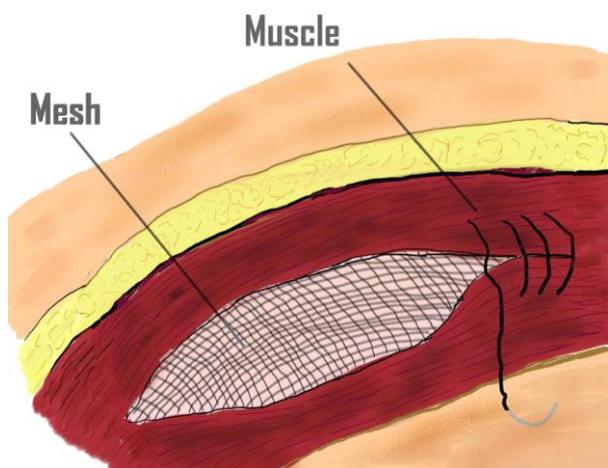


Figure 2.

This is how the mesh is inserted underneath the muscle layers.

Laparoscopic or Open Component Separation

The aim of good hernia repair is to bring the split muscles back to the midline. When the abdominal muscles are separated by more than about 10cm, it will be impossible to pull the muscles back together to the midline. Something must be done to loosen the abdominal wall. The abdominal wall is made up of three layers. It is possible to release the tissue of one of the layers and this provides more “spring” in the abdominal wall. This is called component separation. This surgery can be done via the main surgical incision or with keyhole surgery via three cuts in both flanks. Patients will not notice that these muscles have been cut and there will be no change in abdominal wall function.

Loss of Domain Hernias and other complicated issues

Sometimes the abdominal muscles are so far apart, that the bowels and other organs may protrude forward and sit permanently outside the abdominal cavity. This is called “loss of domain”. The bowels may be out of the abdomen for so long that there is no longer space in the abdominal cavity.

Loss of domain hernias are the highest risk cases to fix. When the bowels are returned to the abdomen, the body may not like this and there can be problems breathing and the

kidneys can be affected. There is a much higher risk of death associated with these hernias.

Sometimes there is a benefit to try and make the abdominal cavity bigger prior to surgery.

The following are the ways to achieve this.

1. **Botox** (yes, the same stuff people put in their face) can be injected into the muscles of the abdominal wall about two weeks prior to surgery. This appears to significantly elongate the muscles of the abdominal wall, making it easier to bring them to the midline. This will be done 2 – 4 weeks prior to surgery and if you are a private patient there will be an approx. \$1500 out of pocket cost for this.
2. **Chronic Pneumoperitoneum** This is a labour intensive procedure that might require a lengthy hospital stay. Under full anaesthetic, a small tube is placed in the abdominal cavity. You are then woken up and admitted to the ward. Each day several litres of air will be injected into the tube, effectively inflating the abdomen like a balloon. This technique increases the size of the cavity where the bowels should be, making way for their eventual return. This will also stretch the muscles sufficiently to allow them to close over the top of the bowels. Typically, air is injected daily for 1-2 weeks and then elective surgery is performed. You will be asked to wear a tight elastic garment to try and keep most of the air out of the hernia sac. This is major surgery with lots of risks. You will require intensive care after the operation because closing the abdomen like this can have an effect on your ability to take a deep breath for a while.
3. **ABRA** this is a complicated corset that is placed during surgery to slowly close the abdomen. You will be left asleep on the ventilator while it is on and I will slowly tighten the device. The abdomen takes 1-2 weeks to close. The advantage of this technique is that the abdomen can be closed slowly and allows the body to get used to the bowels being back in the abdomen. The disadvantage is that you need to be asleep on the ventilator for a prolonged period of time.



Figure 3.

The ABRA device (Medigroup) is used to close the abdomen slowly.

Multiple or staged operations

If you have heavily infected wounds associated with your hernia or a colostomy, your abdominal wall reconstruction may need to be done with more than one operation. It is likely you will stay in hospital between operations.

Flap repairs with the help of the plastic surgeons

Some patients have had a loss of abdominal muscle so devastating that there is no hope of pulling the abdomen closed. Plastic surgeons can take a piece of skin and muscle from the thigh or back and rotate it to the abdomen to fill the hole.

WHAT IS MESH?

Mesh is always used in an incisional hernia repair. If the muscles are simply stitched together the hernia repair has a high failure rate. There are many types of mesh on the market and the choice of mesh can be complicated. It will depend on the size and type of the hernia. Choice of mesh will also depend on whether active infection or colostomy is present. Mesh falls into three main categories.

1. Bioabsorbable mesh



Gore® Bio-A®

This material is made from synthetic (stitch like material) and is fully absorbed into the body within six months to twelve months. Your body will replace this mesh with its own collagen. I commonly use this mesh.

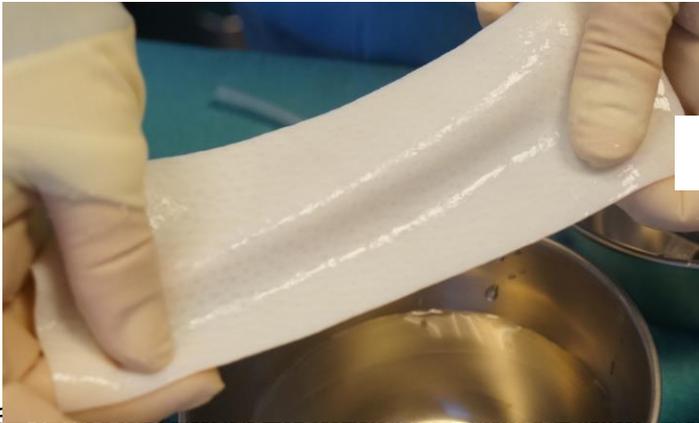
2. Synthetic mesh



Medtronic Progrid Mesh™

These meshes are made of a polyester or polypropylene often coated with a dissolving material that can make these types of mesh safer to place in near the bowel. There are many different brands of mesh and one is not generally more effective than another. Synthetic meshes are the used very commonly. They are not used if there is infection present.

3. Biologic mesh



Lifecell: Strattice™ Mesh

This type of mesh is made from naturally occurring products – usually pig or cow and are mainly used in infected wounds. I use these meshes only if there are no others available.

ARE THERE ANY RISKS ASSOCIATED WITH USING MESH?

Yes there are – like any medical device that is placed permanently in the body, there are risks. You may have read about problems with mesh and there is a lot of coverage in the media about legal cases relating to its use.

Whilst mesh has problems that I will outline, if a large hernia is not repaired using mesh, then the risk of the hernia recurring is 40%.

The risks associated with mesh are as follows:

1. Infection: This is rare but can happen in the first few weeks after the mesh is placed or can even present years later. You are never safe from mesh infection. If infection occurs, the mesh needs to be removed with another operation. Mesh infection that requires mesh removal is more common if synthetic, permanent mesh is used. The risk also goes up when there is opening of the bowel during the surgery or where an infected wound is already present. Synthetic mesh is rarely used in this situation. A biologic or bioabsorbable mesh will be used in this case. Mesh infection may present as unexplained fever, chronic pain or a small hole where the mesh is visible or a sinus that discharges pus.
2. Mesh erosion: When there is synthetic mesh placed next to the bowel, bladder or vagina, the mesh may erode through the wall of these organs. This will also cause the mesh to become infected and cause symptoms. The mesh will need to be removed. The mesh may also erode through the skin.
3. Mesh migration: the most common reason a hernia will come back is if the mesh pulls away at one edge and a section of bowel comes through the defect at the edge. This will require repair. This can be avoided by using an appropriately large sheet of mesh.

There has been a recent court case in Australia where the Judge stated that a drain placed near the mesh after surgery to drain away fluid is required to prevent the risk of mesh infection. This is absolutely not the case and sets a very dangerous precedent. While drains are useful in some patients, there is no scientific evidence that drains reduce the risk of infection. Some studies in fact suggest that they actually increase the risk of infection, especially if they are left in too long. I will be using my best judgment as to whether to leave a drain near your mesh and I will also decide when it should come out.

What about antibiotics?

There is no evidence that giving antibiotics reduce the risk of developing a mesh infection. Antibiotics also do not fix a mesh infection once bacteria are living on the mesh. Antibiotics may in fact increase the risk of infection, by breeding bacteria that are resistant to antibiotics.

CAN I HAVE A TUMMY TUCK AT THE SAME TIME AS FIXING THE HERNIA?

The answer is YES!

If you are thin without excess lower abdominal skin, your hernia surgery is likely to be done by opening the old scar.

Sometimes people have a fold of skin over their lower abdomen that hangs down over the groin. In the medical world this is referred to as the abdominal pannus or apron. The hernia may protrude into this skin.

The reasons for the excess skin are many. It seems to occur more commonly in women than men. Genetics probably play a role but weight gain and weight loss are the most frequent causes. A pannus can also be leftover after pregnancy when the skin and muscles of the abdominal wall become stretched and do not return to their original shape.

There are five different types (Graded 1-5) of pannus ranging from those that just begin to cover the genitals to the worst kind, which falls to the knees or below. (Figure 1)

Removal of a grade 1-2 pannus is largely a cosmetic operation, however a grade 3-5 pannus can cause significant difficulties with movement, balance, skin infections and toileting. There may be leg ulcers and varicose veins present from the severe swelling that this fat causes.

In patients with a Grade 5 pannus, this fat almost becomes like an organ in its own right. It has a huge blood supply and the channels returning fluid to the heart can become blocked causing significant swelling. Grade v aprons can weigh over 20 kg. They may leak fluid from ulcers on the skin.

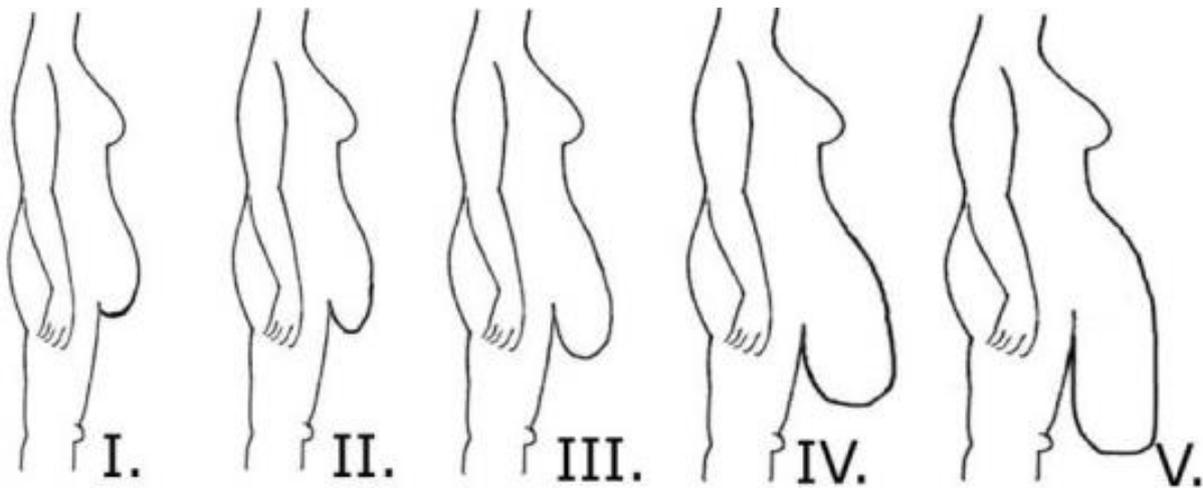


Figure 4. The different types of pannus. (Igwe, D., Stanczyk, M., Tambi, J. et al. OBES SURG (2000) 10: 530.)

WHAT IS INVOLVED IN HERNIA REPAIR WITH APRONECTOMY, ABDMINOPLASTY, TUMMY TUCK OR PANNICULECTOMY?

These are different words for surgical removal of the pannus at the same time as fixing the hernia. It is not really much more than just fixing the hernia alone. It seems to reduce the risk of wound problems as there is no longer a large volume of redundant skin present.

A long incision is made from hip to hip just above the bikini line and a second cut is made across the abdomen just above the belly button. This wide ellipse of skin and fat is removed. The skin at the top is then pulled down to meet the bottom just above the pubic bone (Figure 5 & 6).

For grade 3-5 aprons, this can be a major operation and the decision to do it should not be taken lightly. It is important to remember that obesity problems are not solved by removing the pannus and there will be a lot of hard work to be done by you with regards to this.

Pitanguy Abdominoplasty – (Pronounced Pit-ang-gee)

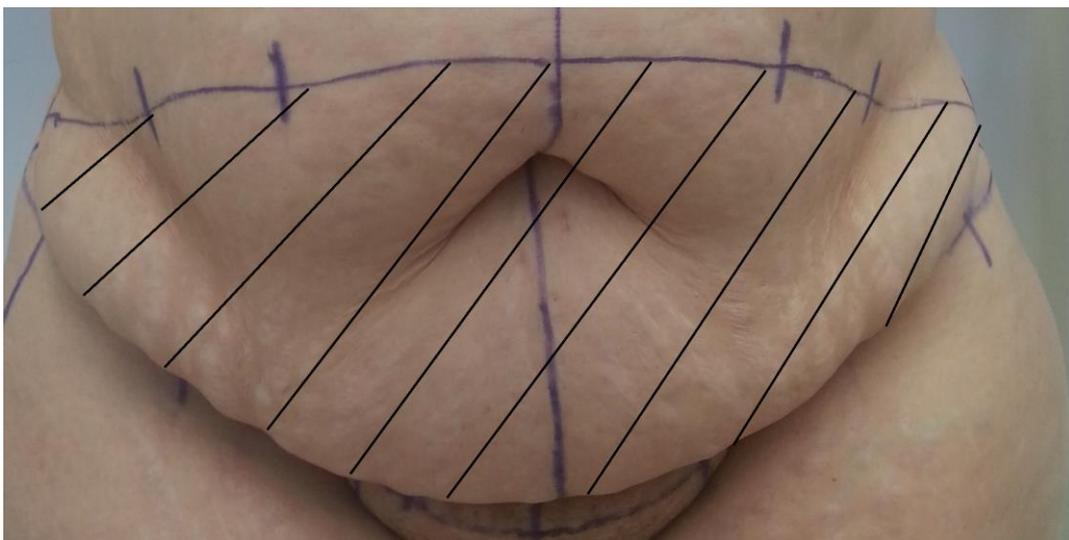


Figure 5. Illustrates the mark up that I will do before the operation. All the tissue in the shaded area will be removed.

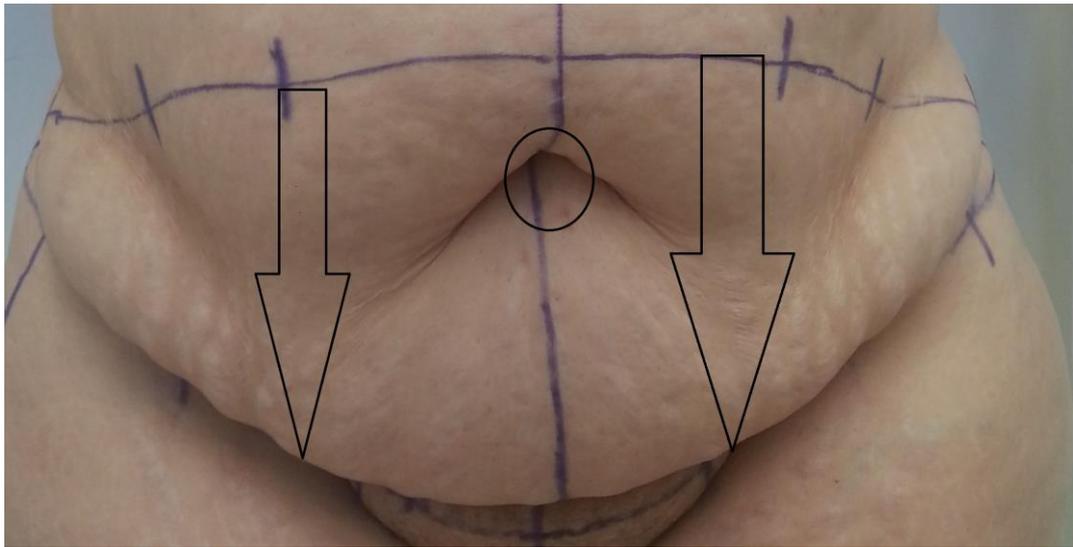


Figure 6. After the skin is removed, the top line will be pulled down to meet the bottom line and stitched together.

Fleur-de-Lis Abdominoplasty (FDL – pronounced Fler-de-lee)

This operation is very good for patients who have a lot of loose skin above the belly button or have a scar up the middle of the abdomen. It is also good for patients who have had their gallbladder removed through a cut under the right ribs. It makes repairing large hernias a little easier.

This surgery involves removing a section of skin across the lower abdomen and another section from the middle of the abdomen. Your scar will be an inverted T. While this scar is more visible, it will give you a much flatter contour, and will also help to flatten the rolls of skin of the back. It is likely that your belly button will be removed and I will discuss this with you.



Figure 7a.

Before surgery.



Figure 7b.

Everything within the black line will be removed.



Figure 7c.

Six months after Fleur-de-Lis abdominoplasty with removal of the belly button.

HOW WILL I LOOK AFTER THE SURGERY?

If your BMI is <30 – you can expect your abdomen to be flat. If it is >30 , many people are surprised at how round their upper abdomen can be after surgery. The skin however will be tight. This is because only the apron is being removed – just the fat of the lower abdominal wall. There is still a considerable layer of fat on the upper abdomen and remember, there is a great deal of fat stored around the abdominal organs. The only way to get rid of this is to continue to lose weight.

The scar will be in different places depending on where the hernia is. If you do not have an apron, the old incision will be opened. If you are having a tummy tuck at the same time, the incision will be on the bikini line and/or in the midline.

A little bit about belly buttons

Most people really like their belly buttons. It is the punctuation point of the abdomen. After you are born however, it does not have a function.

If you are having a hernia repair I will discuss with you what we are going to do with your belly button.

In some people – where the hernia does not involve the belly button and with a Body Mass Index (BMI) under 35, I can preserve your belly button. An incision will be made around it and the belly button will remain in its place on the abdominal wall.

While keeping the belly button may be cosmetically desirable for some people it can be a source of problems after surgery. In patients with a BMI >35, a hernia at the belly button or previous scars or a large apron, the stalk of the belly button can be very long and its blood supply may not be great. In this case I will recommend that I remove your belly button completely. The risk of leaving it is that the belly button can turn black and die. This will not affect the rest of the abdominoplasty, but a return to the operating theatre will be required to remove the deceased belly button. This increases the risk of infection of the mesh.

The final option is for me to remove your own belly button and create a new one at the time or sometime later. I will always discuss with you what you would like and what is possible before the operation.



Figure 8. This is the appearance of the abdomen after abdominoplasty where the umbilicus has been removed. Note the scar below the bikini line.



Figure 9.

Sometimes an incision shaped like an anchor is required to fix the hernia and remove the apron.



Figure 10a.

Before surgery with an incisional hernia.



Figure 10b.

After surgery with repair of the incisional hernia and apronectomy.

Note the anchor scar.

What is the mons pubis and why are we talking about it?

The mons is the triangular pocket of skin and fat that is just above the labia and entrance to the vagina. In men it is the mound at the base of the penis. In obese patients, the mons is quite pronounced. When you have an apron, it covers the mons. After the apron is removed, the mons may seem more prominent. Like the skin of the abdomen, the mons accumulates fat too. Reshaping the mons is part of abdominoplasty. After the surgery, it may look very different. For the first three months after surgery it will become swollen and seem especially so, as you may not have seen it for some time. The mons gets pulled upward during the surgery and the swelling can take months to go away. It will take some time to get used to this appearance. Sometimes we will need to do a smaller operation later to improve the appearance of the mons.

What about my legs and arms?

If you have lost a lot of weight, taking away the apron will expose loose skin especially on the inner thigh. You may also have excess skin under the arms. You may wish to have this removed.

Will my stretch marks go away?

All the stretch marks in the skin below the belly button will be gone. I cannot remove the marks above the belly button or make them less prominent. There is no magic cream for this either.

After the bowels are returned to the abdominal cavity, many patients will have excess skin. In addition, many people undergoing abdominal wall reconstruction may have a flap of fatty tissue that hangs over their genitals. This is called the pannus. It may be possible to remove this flap of skin combined with the hernia repair. This will involve a long incision across the bikini line from one hip to the other. It will leave a long scar and may need to be combined with a vertical incision in the middle of the abdomen to repair the hernia. This is a very common strategy when fixing large hernia and despite the incision being large, it can give a very nice cosmetic and functional result.

WHAT IS A DIVARICATION?

A divarication is a pronounced ridge of weakened tissue that runs vertically from the breast bone to the pubic bone. It is especially prominent when the abdominal muscles are tensed. This can best be demonstrated when lying flat and tensing your abdominal muscles by trying to put your chin on your chest. Many people mistake this for a hernia. It is possible to have a divarication and hernia at the same time. The central muscles of the abdominal wall are usually closely opposed straps. Anytime a patient develops enlargement of the abdomen, e.g. during pregnancy, obesity or fluid in the abdomen, these muscles may separate, and a bulge will develop between them.

It is very common for a woman to develop a divarication in addition to a hernia at the belly button after giving birth. After childbirth or significant weight loss, the muscles may come together a little bit, however, no amount of exercise, Pilates, muscle strengthening or time will restore them fully to the centre.

After childbirth many women find that the disruption of their abdominal core leads to chronic back issues due to the instability of the abdominal core. If an abdominoplasty is being performed, the divarication will be repaired as part of the procedure. That is, the muscles are brought back to the midline, restoring the abdominal “core”.

If there is a hernia present at the belly button, the divarication is also usually repaired because it creates a weakness around the hernia.

There are circumstances where it is not helpful to fix the divarication. Because a divarication is not a true hernia as there is no risk that bowel can get caught in this type of weakening. Since a divarication by itself is not dangerous it is usually not repaired as a stand-alone operation especially when it occurs in a man who is overweight and carries the majority of that weight in their abdomen. Because men have relatively little fat just under the skin and most of it inside the abdomen, divarication's appear to be quite prominent. Fixing the divarication in this situation frequently fails because the pressure in the obese abdomen pushes the repair apart.



Figure 11. Illustrates how the muscles of the abdominal wall stretch apart creating a bulge.

ARE THERE ANY ALTERNATIVES TO HAVING INCISIONAL HERNIA SURGERY?

There are no alternatives for fixing incisional hernias other than surgical repair. Some people wear a support garment called a truss. This is an elastic band that can attempt to keep the hernia in place. This will not fix the hernia and can be quite uncomfortable and hot. These garments are generally used when someone is unfit to undergo surgical treatment

PLANNING FOR SURGERY

THE IMPORTANCE OF YOUR WEIGHT

One of the important risk factors for getting a hernia is obesity. If your BMI is >40 , you will have some work to do to get ready for your abdominal wall reconstruction. This is really important if a lot of your bowel is protruding out of your abdominal cavity. Your internal organs are surrounded by fat and as your weight reduces, your hips and thighs will not be the only places you will lose weight. The fat around your organs will reduce too and make it much easier to return the bowels back into the abdomen.

Reducing your weight also goes a long way to reduce your risk that the hernia repair will pull apart in the future.

Most doctors measure obesity by a number called the Body Mass Index or BMI. This is calculated by taking your weight in kilograms and dividing it by your height in metres². It is not an ideal measure of obesity, but it does tell me about your surgical risk.

Being overweight (BMI >35) increases your risk of:

- getting a hernia.
- treating your hernia
- having the repair fail
- infection and blood transfusion
- heart attacks, chest infections and clots in the legs
- death.

Getting your psyche right before you and I commit to surgery

Many patients who have a hernia and abdominal apron will have struggled with their weight their entire life. You may have felt depressed about your appearance. Some people may have been laughed at or ridiculed by strangers. There are a multitude of reasons why people have weight issues, but everyone has a story to tell as to how they got to this point.

Up until two years ago, I would not have contemplated performing hernia and abdominoplasty on patients with a BMI >30 . However, as obesity is the toughest problem our society faces, I have had to adapt to meet the need and to help people on their weight loss journey.

I take every case on its merits and there is no weight that is too heavy that I will not consider for surgery, however, patients with a BMI >35 or weight over 120kg face a significant work up and a commitment to their ongoing health and rehabilitation. We are doing this to change your life, not to carry on as you are.

Some patients come to me believing if I could just cut the fat off, their life will be better. They do not accept they are overweight. This is not the case. If you are overweight before the surgery, you will be overweight after. Removing the apron will make things like movement and toileting easier, but you will still have some weight loss to achieve. Removing the apron will also not fix all your problems with your life. Surgery helps, but is

not a miraculous cure. There is no magic pill for anything in this world. You will have to do some of the work and this begins long before your surgery date.

Many people in this weight range have got to that point quite slowly. They feel helpless, like they cannot do anything about it. They say “I don’t eat much”, “if only I didn’t have the apron, I could exercise”. Sadly, once you reach a certain size, you don’t move very much and you have to eat very little to maintain the weight because you cannot burn it off. You will never be able to exercise enough to move the weight, so this is not the answer.

The good news is that weight loss is possible for every person. There are no fad diets or gimmicks, no low carb, high fat, soup or bacon diets. It is about eating less fuel than your body needs – every single day. Every person can and will lose 1kg per week if they do this. It is a scientific fact. The reasons people fail is that they can’t maintain a starvation lifestyle forever because feeling hungry is not pleasant. There are also all the other emotional issues that go along with eating food. There are also many complex family relationship issues in play. This is where a psychologist and dietitian can help a lot.

If your BMI is >35 I will ask you to make a commitment to some weight loss prior to surgery. I do not expect you to achieve supermodel size, however if you are in the morbidly obese weight range, I ask for you to change your lifestyle and get dietary advice. For patients with BMIs >50 I will expect a weight loss of 15 – 20 kg prior to contemplating surgery.

I will help you to see a dietitian. Patients can be very negative about this, but you must open your mind to getting healthy. You will be surprised how motivated you can become once you have a goal to have your abdominal wall repaired. It will be lifechanging!

Once you mentally reach the point of owning the problem, everything becomes easier. You will then move to an acceptance stage and you are over halfway there. This is what I am looking for as the right time to start planning surgery. You are committed to the process.

I would ask you to consider the following things:

1. There is no magic cure for obesity – losing weight is hard work.
2. You must take responsibility for your weight – you need to get healthy for you and no one else.
3. Everyone’s goal is different and I will help you set yours.
4. I will fix your abdomen when it is the right time.
5. There will be bad days, but keep your eye on the prize – a better life.

What about obesity surgery?

There is no doubt that obesity surgery (removing part of the stomach with an operation) can be very effective. At this point in time, it seems to be the only option for weight loss and keeping it off permanently.

It is not for everyone however. Patients with a complex hernia may not be a candidate. In Australia, obesity surgery is really only available in the private health sector. It can be very expensive and out of reach for many people. It is a drastic step with lots of risks. If you

have decided to have obesity surgery, you will also get better results with the apronectomy after the surgery.

SMOKING IS BAD TOO

You will not undergo incisional hernia surgery while you are still smoking. This is non-negotiable. If you are asking me to perform high risk surgery, the least you can do for yourself is lower your risk. There is strong evidence that smoking leads to poor wound healing and failure of the repair. In fact one cigarette a day reduces the blood flow to your skin by 38%. This has a huge impact on healing. Many studies show that even stopping for one month before surgery makes a big difference to complications. Ideally, it would be great if you could stop smoking for good, but for this operation to be successful you need to stop smoking one month before and two months after the surgery. There is lots of help available and nicotine patches are OK to use prior to surgery. Electronic cigarettes are just as bad as smoking. See your GP for alternatives or call the Quitline (13 18 48) if you wish to seek advice.

CONTROL OF DIABETES

It has long been understood that good control of diabetes is vital prior to major surgery to prevent wound infection and improve healing. I will be checking your HbA1C (blood test to measure your overall control). If it is over 7, I will ask you to see a diabetic specialist to improve your levels. Remember that weight loss will improve your diabetes and in some instances will cure it.

WHAT CAN YOU DO TO HELP LOWER THE RISKS OF SURGERY AND HAVE THE BEST OUTCOME?

Exercise or Prehabilitation

There is lots of good evidence that light exercise prior to surgery helps to reduce the risk of having complications after. Ideally, you should be trying to walk about 20-30 minutes at a moderate pace every day. I understand that for many hernia patients this is not possible but any physical activity will help. I will give you some exercises that I think are good. Remember that even small amounts of exercise help.

You could try:

- Walking around the block – even 10 minutes helps
- Riding an exercise bike or walking on a treadmill while watching TV
- Water exercises in a swimming pool (I can give you an exercise sheet for this)
- Use your Smartphone or Fitness watch and set alarms to remind you to take some deep breaths or go for a walk
- See a physiotherapist or gym trainer to give you some other ideas.

Medications and supplements

I recommend that you take:

- A multivitamin every day prior to your surgery (purchased from the chemist or the supermarket, any brand)
- A probiotic like Inner Health (from the chemist). There is lots of evidence to suggest this decreases the risk of post-op infections.
- Fibre supplement like Metamucil or Benefiber. These can be taken in capsule or drink form and are excellent to keep the bowels moving regularly prior to surgery.
- The amino acid arginine and omega three fatty acid has been shown to be beneficial for wound healing and reducing wound infection. I will ask you to purchase a drink called Impact Advanced Recovery – from my office. They are available in vanilla and there are recipes available to add flavour to them. Please drink three of these a day for five days prior to surgery.

Diet

It is very important that you eat a healthy diet prior to surgery and for the rest of your life. Your body relies on what you put into it so it can heal and high protein food just before the surgery is very important. Most people think that they understand about healthy eating but it is rare that they have the full story. Typically, Australian's eat far more than their body needs. It is so much more than just avoiding fatty foods. I recommend that you see a dietitian prior to surgery for abdominal wall reconstruction so you can understand the principles of healthy eating.

If you have been on weight loss shakes like Optifast, I recommend that you stop this a week before the surgery and eat a normal, well balanced diet. This will allow your liver to accumulate the sugars you will need to heal after the surgery.

Prevention of Clots in the Lungs

Patients having surgery for incisional hernia seem to be at increased risk for clots in the legs. These clots can break off and travel to the lungs. This may be fatal. There is a device call an IVC Filter that may reduce the risk of dying from clots in the lungs. This device is like an open ended birdcage that is placed in the vein that connects the legs to the lungs. It is inserted via a vein in the leg or neck and it done in the x-ray department. It does not stop clots forming, but can prevent them from becoming fatal.

These filters need to be removed via the same route in the months following the surgery.

If you develop clots in the legs, severe swelling can occur and you may need strong blood thinning medication for the rest of your life.

The decision to place an IVC filter is not straightforward and I will discuss this with you.

Sleep Apnoea and Snoring

Sleep apnoea (stopping breathing in the night because your airway closes off) is very common in obese patients. If you already have a sleep apnoea machine, you should use it religiously before the surgery and bring it to the hospital with you. If you snore and have

not had a sleep study, I will order one and if you require a machine it will improve your chances of a good operation and outcome.

Patients with incisional hernias become lazy breathers because your abdominal wall does not work properly. After the surgery, your abdominal wall will be tight and all the work of breathing will be transferred to the diaphragm (the muscle between your lungs and abdomen). You can struggle with your breathing after the surgery until this muscle gets strong again.

Wearing your sleep mask properly before and after the surgery will lower your operative risk and help you to take deep breaths.

WHAT TESTS MIGHT I HAVE BEFORE AN OPERATION IS CONSIDERED?

Planning for an incisional hernia repair requires a number of tests. You must be medically and physically fit to undergo an operation of this calibre.

Some of the tests you can expect to have may include but are not limited to:

1. Blood Tests

Full blood count, Kidney and Liver function tests. If you are diabetic, you will have your HbA1C checked with a blood test and it should be less than 7. If you have been a smoker, I will check a urine test to make sure there are no traces of cigarette smoke in your body.

2. CT scan of the abdomen

This scan is performed to inspect the state of the muscles of the abdominal wall and measure how far apart they are. It will also assess how much of the bowel is outside the abdominal cavity. This scan is also done to look for any undiagnosed problems in the abdomen like gallstones and tumours.

3. Ultrasound of the abdomen

Ultrasound is the best test to look for gallstones. If you have gallstones I will talk to you about having your gallbladder removed at the time of the surgery.

4. Colonoscopy

Bowel cancer is relatively common in our society (1 in 12) and if you have not had a colonoscopy (a telescope passed around the large bowel) this may be done to ensure you do not have an undetected cancer.

5. Heart and lung tests

These will be performed to assess your fitness for major surgery. This will depend on your age and other health problems. The tests may be an ultrasound of the heart (Echocardiogram), lung function tests, sleep studies and exercise tests. You may be

asked to see a heart or lung specialist. In patients with BMI >50 or with a large volume of bowel outside the abdominal cavity the postoperative strain on the heart and lungs may be enormous. There are some heart medications we use to try and reduce the risk of complications.

WHAT ARE THE RISKS THAT MAY OCCUR WHEN YOU HAVE HAD AN ABDOMINAL WALL RECONSTRUCTION?

- **Recurrence of the hernia:** Mesh pulling away from the edge of the repair can occur. It is a reality that approximately 20 - 30% of incisional hernias come back. In my hands the risk is less than this. This risk can be minimised by looking after yourself and not gaining weight after surgery. Normal daily activity is fine. Lifting heavy things like pianos and furniture is not OK and after an abdominal wall reconstruction will be off limits forever. The risk of the hernia returning is increased in patients who have a poor immune system, diabetes, obesity, smokers, wound infections or those who have had multiple previous hernia repairs.
- **Injury to the bowel** may occur. This is because the bowel may be caught up in scar tissue (adhesions) and easily torn. This is usually repaired at the time of the operation but it may prohibit the use of synthetic mesh. Rarely, bowel contents may leak out of the wound after surgery (fistula) and require another operation with many weeks in the hospital. Bowel perforation can occur several days after the operation and can occasionally be fatal. I may also be required to remove sections of bowel that are caught up in old mesh. These join ups may leak.
- **Mesh infection:** The mesh used to repair the hernia may become infected. This is rare. (2-5%) of patients. If infection occurs, the mesh needs to be removed at another operation. Synthetic mesh is rarely used where there has been leakage of bowel content or if the wound is already infected. Biologic or bioabsorbable mesh will be used in this case. Mesh infection can occur weeks and even years after the surgery. Typically, when mesh is infected it all needs to be removed.
- **Exposed Mesh:** Occasionally the mesh may wear through the skin and become exposed. If this happens it will usually need to be removed. Mesh has been known to migrate from its original position and end up in the bowel, bladder or other organ. Further surgery is usually required in this situation.
- **Wound infection:** Occurs in 4 - 20% of patients having this surgery.
- **Loss of skin:** When you have had multiple incisions, there is a risk that the blood supply to the skin may be very poor. Another incision may result in the death of the skin over the wound. This is a big problem if it occurs and may require weeks of dressings and further plastic surgery including skin grafts and wearing a special dressing called a vac.
- **Abdominal compartment syndrome and abdominal hypoventilation syndrome:** This can be a deadly condition. The bowels and kidneys do not get enough blood supply due to a corset like effect from the closed abdominal muscles. The kidneys may stop working and an urgent operation to release the tight abdominal wall will be required. You may require prolonged ventilation in intensive care. You may need a tracheostomy if you are asleep for a long time. Your abdomen may need to be reopened to release the pressure and if this is the case, you will be asleep on the ventilator for a long time.
- **Numbness of the skin:** After any surgery, there will be numbness of the skin around the wound that is permanent. This is something that your body gets used to.

- **Bowel obstruction:** Because the mesh may be placed fully in the abdominal cavity, there is the risk of a piece of bowel sticking to the mesh leading to a blockage of the bowel or leakage of bowel content. This is uncommon but the risk is life long.
- **Pain:** It is very common to have discomfort or pain for several days and weeks after the surgery. This is usually manageable with pain medication. Sometimes there can be pain related to nerves being trapped in scar tissue. This can be permanent and required treatment by a pain specialist. Occasionally these trapped nerves can result in chronic pain that alters lifestyle.
- **Complications from the metal or absorbable tacks used to hold the mesh in place:** It is possible that the tacks occasionally used to secure the mesh may erode through bowel, muscle, bladder and skin and cause further problems.

If parts of the surgery are performed via a keyhole or laparoscopic technique

All the previously mentioned complications apply in addition to:

- **Injury to the bowel** may occur more easily in laparoscopic surgery and is more difficult to detect. This will result in a leak of bowel fluid into the abdominal cavity and require an open operation to repair. This is a serious and possibly life threatening complication and can result in many months in hospital.
- **Conversion to open operation:** This is not really considered a complication. Sometimes it is just not possible to repair hernias with keyhole surgery. This is usually due to bowel stuck in the hernia that is not safely removable. If this is the case then we will make a bigger cut and fix it with the open technique. This is considered sound judgment.
- **Injury to any other organ** in the abdomen may occur with laparoscopic surgery: aorta, liver and stomach. This is rare.
- **Gas embolism:** In keyhole surgery, gas is used to inflate your abdomen. A bubble of carbon dioxide may get into a blood vessel and cause life threatening heart problems. This is very, very rare.
- **Re-operation:** If we have to re-operate for any reason, this may be done with keyhole surgery or an open operation.

General Risks:

- **Death:** approximately 1/1000 risk for all patients having this type of operation. The risk of death will increase significantly if you have a large amount of bowel outside your abdomen. For a hernia where all the bowel is out, obesity is present or there is a very wide defect the risk of death may go up to 1/50.
- **Bleeding:** usually occurs in the first 24 hours and may require further surgery. This bleeding may be from the abdominal wall or from inside the abdomen. You may require a blood transfusion if the bleeding is severe.
- **Other blood vessel problems:** heart attack, stroke. This is very rare.
- **Infections:** wound, pneumonia, urine, intra-abdominal, IV line related.
- **Permanent or temporary damage to nerves** in the arms, legs and neck due to prolonged immobilisation on the operating table. This may result in loss of feeling or movement in arms or legs.
- **Clots in the legs or arms** that may travel to the lungs and be fatal.
- **Wound pain, abnormal (keloid) scarring** of the wound.

WHAT TO EXPECT IMMEDIATELY AFTER SURGERY

Intensive Care

Because your abdominal wall has been tightened, you may need the support of Intensive Care. After the operation is finished, you will be transferred to the Intensive Care Unit. You may be kept asleep (induced coma) for a time after the operation. If you have had a significant amount of bowel outside the abdominal cavity, you may require ventilation for days until your abdominal cavity accommodates. Alternately, you may be woken up straight away. There are many factors that go into making this decision and your family will be told whether you will be awake or left asleep. You will spend at least one night in Intensive Care. When you are stable you will move to the ward.

Sometimes patients with exceptionally large hernias where most of their bowel is outside the abdominal cavity may need to be on the breathing machine for days. Some will require a tracheostomy – a breathing tube placed in your windpipe by a surgeon.

Pain Relief

In the first few days after surgery there may be a moderate amount of discomfort. All efforts will be made to ensure you are not in terrible pain but you will have a number of tubes attached that will make things reasonably uncomfortable.

You will have some form of pain relief. There will usually be a choice of:

- Patient Controlled Analgesia (PCA) – A button you will press that results in strong pain killers (like Morphine) running straight into your IV line. These devices are very safe and have locking mechanisms to prevent overdose.

IT IS VERY IMPORTANT THAT YOUR RELATIVES DO NOT PUSH THE PAIN BUTTON FOR YOU. THIS WILL RESULT IN AN OVERDOSE OF MEDICATION THAT MAY STOP YOUR BREATHING.

- Strong morphine based medication may be given by mouth.

We will decide what is best for you.

Regular Panadol and anti-inflammatories are also used and are very effective.

Every effort will be made to minimise the discomfort and make it bearable. It is very important that you keep your pain under control so you can move and cough. Your nurses will be monitoring your level of pain frequently. When you are eating, you will be converted to oral pain relief.

Tubes and IVs

You will have a number of plastic tubes in your body following the operation. They will vary a little depending on your particular medical need. They will be removed at variable times following your surgery under my direction. All tubes except for an IV in your hand will be put in under anaesthesia so you will not be aware of them going in.

1. IV line: central venous line placed in your neck (done under anaesthesia) to give you fluids and pain relief after surgery.
2. Urinary catheter: tube placed in your bladder so you don't have to get up to pass urine.
3. Arterial line: a fine catheter inserted into the artery of the wrist to monitor the blood pressure.
4. Nasogastric tube: some patients require a tube that goes from their nose into their stomach for a variable time after the operation. This is not very common.

Drain tubes

It is likely that you will wake up after surgery with one or more soft plastic drain tubes coming out of your abdomen. I will advise when these need to be removed. When using the biologic mesh made from animal products, the manufacturer recommends that the drains be left in for many days after the operation. These types of mesh tend to make the body produce a great deal of fluid as they incorporate into the tissues. You may need to go home with the drains in place and they will be removed as an outpatient.

Eating

You will not have anything to eat or drink for a short time after surgery. This depends on how much dissection of the bowel has taken place. Your bowels may be slow to wake up. An intravenous infusion will provide you with the necessary fluids. You may have a nasogastric tube (NG) in your nose that will usually be removed following the surgery. I will let you know when you will be able to eat. You will start on liquids first and then take solids. If you are unable to eat adequate amounts of food after a short period of time, you will be fed via an IV or a tube in your nose.

People who drink more than two cups of coffee a day may notice caffeine withdrawal headaches and irritability for a few days after surgery.

You may lose your taste for food. It will return within a few months. It is normal to have a sore throat for a few days after the surgery because of the anaesthetic tube and the nasogastric tube.

Urinating/Bowel Movements

For the first few days after the surgery, a tube placed in your bladder will drain your urine. As your bowels start to wake up, you will pass excessive amount of urine. This is a good sign.

After any surgery, a patient may have trouble passing urine once the catheter is removed. This is uncommon and if it occurs, is usually temporary. Occasionally, a catheter needs to be reinserted to help you pass urine. If this is the case, a urology doctor (kidney specialist) will be asked to see you. It is normal to have the sensation of passing wind with the urine. This will go away.

You will probably not have a bowel movement until 5 – 7 days after the surgery. Many patients worry about this but it is normal. You will pass wind a few days before your bowels work.

There may be some disturbance to your bowels for many weeks after surgery. Moving your bowels relies heavily on the muscles of the abdominal wall. The best strategy is to drink plenty of water (about 8 glasses a day –do not go overboard). Do not lie in bed all day long. I recommend continuing to take a fibre supplement. If this does not work, you should take a mild laxative like Movicol. When you sit on the toilet to have a bowel movement, lean slightly forward and relax. Sometimes, sitting with your feet resting on a small footstool will help.

Activity

If you have had an abdominoplasty (tummy tuck) with your hernia repair, you will be positioned in bed so you bent at the hips. This is called the beach chair position. This is because your skin has been tightened. You can roll onto your side in this position. You cannot lie flat for about 10 days.

When you get up to walk, you will walk bent over at the hips and you will naturally straighten up over the following week as your skin stretches again.

You can expect your nurse and physiotherapist to help you get out of bed on the first day after surgery. You will be able to walk short distances even with all of the tubes and intravenous lines. As each day passes, your tolerance for walking and sitting in a chair will increase. This is extremely important to prevent pneumonia, clots in the legs and loss of general condition.

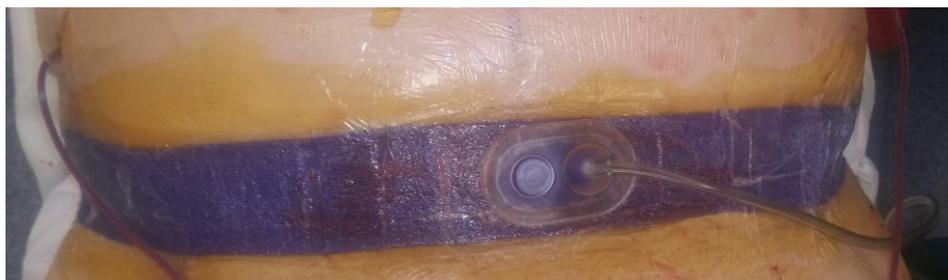
Other Medications and Preventative Measures

You will be given a blood thinner once or twice a day as an injection under the skin. This helps to prevent clots in the legs or deep vein thrombosis (DVT) that may travel to the lungs and be life threatening. If you are in a high risk group for DVT, you may be sent home with this injection for several weeks after surgery. You or a family member will be taught how to give the injections. You will be asked to wear TED stockings throughout your hospital stay. These prevent clots in the legs. You may stop wearing these when you are able to get up and walk easily by yourself.

In some instances you will be given a medication to decrease the acid secretions in the stomach. This prevents stomach ulcers that may occur after major surgery. You must not smoke at all.

Your Incision

If your hernia or wound is large, your dressing will be in the form of a sponge dressing connected to a machine that applies suction. This keeps the wound fully sealed and free of moisture. This dressing is called Prevena™ and will look like the picture below.



Your dressing will be waterproof and left in place for 5-7 days after the surgery. The dressing is like a second skin. You may wear loose clothing over the top of it and carry the vac pump as you are walking around.

Your wound will be closed with dissolving stitches and there will be no stitches to remove.

Some patients have wounds that are not suitable to close with stitches. This is when there has been a colostomy, infection or the skin is at risk of dying. If this is the case, the wound will be left open and a special sponge "vac" will be inserted into the wound and suction applied. The wound will then close slowly over days and weeks and be without infection

Your deep muscle layers are sewn together with nylon stitches that do not dissolve. If you are thin, you may feel the knotted end of one of these stitches under your wound. This is harmless. If it annoys you, it can be easily removed at some time after your surgery. Occasionally, a stitch may poke out of your wound. This is quite safe. Please come and see me on a non-urgent basis if this occurs.

It is normal to have patches of numbness around the surgical wound. This will not go away but you will stop noticing it.

Length of Stay in Hospital

Length of stay is variable depending on the size of the hernia. Patients with incisional hernia on average stay 5-7 days after surgery and some may need many more days and even weeks in hospital. You may even need some time in the rehabilitation ward if the hernia is very large.

Seromas – fluid collections

Almost all incisional hernia operations will result in an accumulation of fluid under the surgical wound. This is expected and is not a complication. Frequently, one or more surgical drains will be left in the wound for a few days or even a few weeks to minimise this problem. I will also use a substance called talc to glue the tissues together and prevent this problem.

Despite this, it is still common, for a leak of fluid to occur and this will often present as a lump under the wound several days and even weeks after surgery. Occasionally, it is necessary to insert a fine needle into these fluid collections to drain them. This may need to be done several times. It is usually painless. Sometimes the fluid may escape from the wound in a dramatic gush and the wound may open up.

When biologic mesh is used, the inflammation that occurs as the mesh incorporates can be significant. The wound may suddenly become red several weeks after the repair. The seroma will persist for weeks and even months. This is normal.

If you have a scan, there may always be fluid around the mesh – this is normal.

Will I have to wear a tight elastic garment called a binder after surgery?

There is no evidence that a wide elastic binder will worn around your body after surgery will do anything to enhance your recovery. However, many patients find they feel more supported if they do. You may be supplied with a pair of elastic bike shorts called "SurgiHeal" recovery pants. These are ordered through your health fund and you will receive these in recovery. These are for you to take home and wear when you feel comfortable with the pressure on your abdomen. Many of the retail stores such as Big W and Target sell inexpensive high wasted bike shorts that may provide you with comfort after the surgery.

Good results take time

Abdominal wall reconstruction patients take many months to heal. Your abdominal wall will change shape over time. It will take at least six months for the inflammation, fluid collections and scarring to settle completely. Be patient during this time.

Other Important Information

You can expect to see me every week day. On weekends or at times when I am operating elsewhere, you will see one of the practice partners. All are very experienced in this type of surgery and commonly assist each other in the operating theatre.

We will make every effort to keep you informed of your progress. We are always honest and open with you and your family. Feel free to ask questions.

WHAT ELSE DO I NEED TO KNOW BEFORE THE OPERATION?

Hospital

The hospital will contact you in the week before surgery to confirm your personal details and medical history. They will also let you know about any hospital excess you may have to pay.

Fasting

You must have nothing to eat or drink for six hours prior to surgery. (You may take sips of water up until 2 hours before the operation and you may take your medications with a sip of water). You may be given two pre-op drinks to have two hours prior to surgery. You must not chew gum or smoke on the day of the operation.

Shaving and showering

You do not need to shave any body hair from your abdomen before the surgery. If needed, I will do this with sterile clippers after you are asleep, just before the surgery commences. Shaving the day before or many hours before increases the risk of infection.

There is no evidence to suggest that having a shower in antiseptic prior to surgery decreases infection rates so just shower normally on the morning of surgery. Do not use any perfume.

Make up, nail polish and jewellery

I understand that some women feel quite anxious about going without their make up. Most of your body will be covered during the operation so it is important that the anaesthetist can see your face clearly. Your colour can be a good monitor of how much oxygen you are getting. For this reason, it is best to come to theatre with a clean, make up free face.

Nail polish is OK with me as long as you keep it clear on your fingernails. Coloured nail polish can interfere with the device we use to measure the oxygen in your blood. For many women, having a pedicure the day before the surgery is a good way to relieve anxiety.

Any jewellery you are comfortable with removing, you should leave at home. If you would like to leave your wedding ring to stay on, you may, but this will be covered with tape for the duration of the surgery.

Glasses and contact lenses

You must remove your contact lenses prior to coming to the hospital. You don't need to bring your glasses to the operating theatre. Just put them with your belongings and they will be given back to you in the ward.

False teeth, caps, crowns

Do not take your teeth out before you come to the operating theatre. They will usually be removed by the anaesthetist after you go to sleep. Keeping your teeth in will help the anaesthetic doctor get a good seal on your mouth with the oxygen mask. Your teeth will be well taken care of during your operation and returned to you in recovery before anyone can see you.

Preparations at home

Ensure that you have someone to care for small children for a little while to take the pressure off your recovery. If you are handy in the kitchen, try to cook and freeze some easy meals to have on hand for when you do not feel like cooking. Another option is to consider ordering precooked meals from companies like Lite'n Easy. Consider hiring some help around the house for a few weeks after the surgery or enlist willing (or unwilling) relatives to help out. Make sure all your bills are paid ahead or on automated payments to reduce the things you have to think about in the recovery period.

Medications

- Aspirin is usually fine to continue taking before the surgery.
- If you are on blood thinners such as Warfarin, Plavix, Iscover, Clopidogrel, Pradaxa, Dabigatran, Rivaroxaban, Xarelto or anti-inflammatory drugs (Brufen, Mobic, Voltaren, etc), they can cause bleeding during surgery. I will advise you about what to do with these drugs prior to the operation. You must let me know about these drugs and the decision to stop them is based on each individual patient's needs.
- Diabetic medications: I will give you advice on whether to take your diabetic medications on the morning of surgery or not. Some diabetics will be admitted the night before the operation and be looked after by a diabetic doctor.
- If you are on Prednisone, you should not stop this drug suddenly.

- Cholesterol lowering medication should not be taken when you are fasting.
- If you are taking any complementary medications e.g. St John's Wort, fish oil or garlic, you should stop these tablets one week before surgery as they may result in excess bleeding.
- Continue to take all other medications, even on the morning of surgery, with a small sip of water.

Other things to know

- You must bring all relevant x-rays to the hospital with you.
- You should also abstain from drinking alcohol 24 hours prior to any surgery and before that, no more than two standard drinks a day.
- Bring all your current medications with you to the hospital.
- You will wear a hospital gown for the first few days but have comfortable pyjamas on hand along with personal toiletries, small change for newspapers etc.
- Bring something to do - DVDs, books, laptops. Alternately, you can use hospitalisation as an opportunity to rest completely without distractions of the outside world.
- Do not bring large amounts of cash or valuables.

WHAT WILL THIS SURGERY COST ME?

I largely work as a 'no-gap' doctor. This means that the surgeon fee for your operation will be sent to your health fund and there will be no 'gap' or extra amount of money to pay. If your skin removal is not covered by your health fund, both my anaesthetist and I will charge an out of pocket fee. There are always exceptions and decisions regarding this are made on a case-by-case basis.

If you do not have private health insurance or if you have overseas insurance, you will be given a quotation for surgery, anaesthetic and hospital fees which **must pay in full prior to the operation.**

Outpatient consultations are not covered by the health funds and there will be a charge for these meetings. You will get a proportion of this money back from Medicare. There is no fee to be paid for normal care after the operation.

If you have having a major incisional hernia repair I will ask you to drink Impact Advanced Recovery drinks for five days prior to surgery. There are 15 drinks in total and the cost for these is \$90. These are available for purchase in our offices.

If your Body Mass Index is >35, the surgery is far more difficult and the risks of complications is higher. If it is medically suitable, we may recommend a period of weight loss before contemplation of this operation so it can be done more safely. This may involve a supervised weight loss program called INTENSIV to get the best results in the shortest time. It could also involve a dietitian. This will incur an extra out of pocket expense.

There may be other out-of-pocket fees from your anaesthetist and any other specialists who are asked to look after you. You should ask them ahead of time about any out-of-pocket costs. Ask us who will be performing your anaesthetic and you can make enquiries with them about any out-of-pocket expenses.

There may be extra costs for x-ray, pharmacy and pathology. You have a right to gain 'informed financial consent'. Fees from other practitioners are beyond our control and you should ask for the costs from each person who is asked to look after you. Patients have a choice when it comes to paying for their health care and you are fully within your rights to shop around.

If you do not live in Brisbane, you will be responsible for all accommodation, hotel, meal and transport costs for you and your family. There is some monetary assistance available for private patients through the Patient Travel Subsidy Scheme (PTSS) providing assistance to patients and in some cases their carers, to enable them to access specialist medical services that are not available locally. Please see Queensland Health's Patient Travel Subsidy Scheme site for details <http://www.health.qld.gov.au/iptu/html/ptss.asp>.

YOUR JOURNEY THROUGH THE OPERATING THEATRE

HOW YOU MAY FEEL BEFORE SURGERY

Having a general anaesthetic (being fully put to sleep) can be very scary for some people. It brings up issues about loss of control. People worry about what may happen when they are asleep.

Having an anaesthetic involves a lot of trust and in the end you will have to take a leap of faith and believe that you have chosen a team that will look after every part of your body. You should read this article if you would like to know exactly what goes on just before, during and after an anaesthetic for major surgery. For some people, understanding precisely what happens in the operating room brings a sense of calmness.

CHECKING INTO THE OPERATING THEATRES

You will be greeted at the front desk by one of our friendly executive staff who will do the administrative paperwork. They will also collect any hospital excess you may have to pay. Please bring your health fund and Medicare cards. They will also want to know about your next of kin. With your permission I will call a nominated family member at the end of the surgery and the recovery nurse will also let them know when you are ready to go to the ward.

For major surgery, it is best that you remove **all** your normal clothes including your underpants and bra. This is so we don't lose them or mess them up with blood or antiseptic fluid during your surgery. You will meet one of the pre-op nurses who will help you change into your glamorous theatre gown and paper underpants. For abdominal operations, it is very common that you will wake up completely naked i.e. without your paper underpants. We often remove them in the operating theatre keep them away from the area we are operating on. Your modesty will be protected as much as possible. Contrary to what you see in the movies, your bottom will not be on view out the back of your gown. Hospital robes wrap around your rear. You will be measured and fitted with white, knee high stockings to prevent clots in the legs. For some operations, you may have a pair of pneumatic leg warmers placed on your calves to gently massage your legs while you are asleep. This prevents clots in the legs. The look is complete with a puffy paper hat. Any jewelry you would like to keep wearing, like a wedding band will be covered with tape.

You will be weighed and your temperature, blood pressure and pulse will be checked. You will be asked about your allergies and will be given an ID band that will stay on for your entire stay. The nurse will ask you if there are any implants or metal in your body. We ask this because we need to place an earthing plate on your body during the surgery and need to place it away from any internal metal.

You will then go through many repetitive identification processes to make sure we have the right patient and that everyone agrees on the operation you are having done. You will be put on a bed and you will wait and wait and wait until it is your turn to be called into theatre. This waiting can be quite stressful and you can get hungry. You may want to bring something to do during this time. There is also a TV to watch and magazines to read.

Rest assured we are moving as fast as we can and because unexpected events happen all the time, delays in hospitals are inevitable. It is possible to develop a headache due to caffeine withdrawal. This is not harmful and you may have two Panadol with a sip of water to help.

Your clothes, glasses, valuables will be put into a bag and your belongings will be put into a locker whilst you are in theatre. You will be reunited with them when you return to your room in a ward or intensive care. If you have come to theatre from the ward, your belongings will stay in your room and await your return. If you are going to ICU after the surgery, your belonging will travel with you.

Why do I have to fast before surgery?

For an arranged operation, you must have nothing to eat or drink for six hours before. When you have an anaesthetic, all the muscles in your body relax. If you have food in your stomach, it can reflux back up into your mouth and even worse, your lungs. This can produce a life threatening pneumonia. You must also not chew gum prior to surgery as this increases the fluid in your stomach. If you are having a particularly big operation, your anaesthetist may give you a sugary drink two hours prior to surgery to help your recovery. It is OK to take your normal medications with a sip of water any time before surgery. It is also fine to brush your teeth.

Special circumstances

There are a few instances where certain precautions take place.

Latex allergy:

Please let the admission nurses know if you have a latex allergy. We need to remove all the latex products from the operating theatre to protect you.

If you take certain medications:

If you have recently had chemotherapy or take immune suppressing drugs like azathioprine or methotrexate special measures will be taken to protect staff members against coming into contact with these drugs.

If you have certain bacteria on your skin:

Many people have bacteria living on their skin that have been given special names by hospitals. It is likely you will know this from a previous hospital admission. This does not mean you have an infection. We all have bacteria living in and on our bodies, some just have special names and some have a higher chance of being resistant to some antibiotics. It is best if these bacteria are not passed onto other patients as it promotes antibiotic resistance. If you are MRSA "golden staph", VRE, CRE or MRAB positive, then isolation precautions will be taken throughout your stay in the hospital.

If you have false teeth or plates:

Please leave these in. It makes it easier for the anaesthetist to help you breathe as you go off to sleep. If needed, the anaesthetist will remove them after you are asleep and they will be returned to you in recovery.

TAKING YOU INTO THE OPERATING THEATRE

You will be wheeled around to the operating room by one of the theatre orderlies or a nurse. This is where you will say goodbye to your relatives. They will be next able to see you when you return to the ward. Because there are other patients in the recovery unit, relatives are not permitted in.

The next stop is the anaesthetic room. This is a small cubicle adjoining the main operating theatre. The orderly will hand you over to the nurse assisting the anaesthetist. You will then have another identification check (you will be very good at reciting your name by this point). The nurse will check that your consent form is completed and if you are having a surgery where the side is important, I will mark the area with permanent marker.

Then the anaesthetist will arrive. They are the person with the good drugs that will make you relaxed, so be nice to them! If they have not met you earlier, they will go through your medical history again and what to expect. They may also explain some risks of anaesthesia, but because you have read this book, you will be aware of them already. This is not meant to scare you. It is our job to tell you about the good and bad aspects of surgery.

The only thing that will go into your body while you are awake is a small plastic tube in your hand called a cannula, drip or IV. This is a small needle and will hurt for a second or two. When it is in the vein, the needle is taken out and a soft plastic tube is all that is left. Once in, you should not be able to feel it. This tube is used to give the medication that will put you off to sleep. In addition, if you are having an epidural for post-operative pain relief then this will be done prior to going off to sleep.

Occasionally, some patients have a severe needle phobia. This one small needle can create terrible anxiety. If this is the case, we can sometimes give the anaesthetic without a needle at the beginning. This is done by asking you to breathe on gas for a few minutes. You will drift off to sleep. The IV is placed once you are fully out and you will know nothing about it. This is a slower way to go off to sleep, but for some people avoiding a needle while awake makes a big difference.

Once the IV is in, you will be taken into the main operating theatre. This can be a confronting place too. There are usually 5 - 10 people in the room, all wearing masks and talking. We are all there to look after you. Most operating theatres are set up in a predictable way. There will be an anaesthetic machine with all the monitors to ensure you are safe. There will be several tables filled with surgical instruments ready to perform your surgery. There will also be nurses preparing this equipment and counting each and every instrument to ensure that nothing is missing at the end of your operation. There may also be junior medical staff and orderlies. The operating table is in the middle of the room under big lights. They will not be turned on until you are asleep. The table is narrow and cold. It is narrow because we need to stand close to you to operate and it won't be cold for long because during the surgery you will be covered with a heating blanket.

The trolley you are on will be placed beside the operating table and if you are mobile, you will be asked to move yourself across onto it. The nurses will make sure you are not lying on your gown as it will usually need to be moved aside to expose the area we need to operate on. If you are in pain or not mobile, we will slide you across to the operating table

on a special board or float you over on a noisy hover mattress. A lot of activity will then happen around you. We will place padded boards on the side of the bed for you to rest your arms on. Your leg massagers will be hooked up and switched on and you will feel a gentle compression on your calves.

You will have three stickers placed on your forehead. This helps the anaesthetist monitor how deeply asleep you are. Sticky dots to monitor your heart beat will be placed on your chest. Fluid will be hooked up to your IV line and a clip that reads your pulse placed on your finger. A blood pressure cuff will be wrapped around your arm and the first time it takes your blood pressure, it will inflate very tightly. It will only do that once.

You may already be feeling happy, drowsy or talkative as the anaesthetist may have given you a relaxing medication via the IV. You will not go to sleep yet, but it is unlikely you will remember anything after this until you wake up in recovery even though you will continue to talk to us.

WHAT HAPPENS DURING AN ANAESTHETIC

Sometimes knowing what happens during an anaesthetic really helps you relax and realize that you are well taken care of while you are asleep. Many people's greatest fear is the anaesthetic. They worry about vomiting afterward, being aware during surgery and not waking up. Whilst these things very, very rarely occur, having an anaesthetic is actually far safer than anything you have already done that day, like driving into the hospital.

General anaesthetic consists of three phases

1. Going to sleep – similar to taking off in a plane

Just before you go to sleep, the anaesthetic nurse will ask you to breathe into a mask and fill your lungs with oxygen. This makes sure that you have the maximal amount of oxygen in your blood. This does not put you to sleep. A white medication called Propofol is then given through your IV. The anaesthetist will ask you to keep your eyes open. As this medication goes into your veins, it can cause a stinging sensation in your arm. This is normal and does not damage you. After this injection you will be asleep in about ten seconds. Your breathing will temporarily stop and the anaesthetist will take over your breathing for you by blowing oxygen into your lungs. As soon as you are asleep and if you are having abdominal surgery, the anaesthetist will give a medication that stops your muscles moving. This has many functions. It allows your throat to relax so the anaesthetist can safely place the breathing tube into the windpipe. It also relaxes your abdominal muscles and makes surgery on the abdomen easier. If you have false teeth, they will be removed at this point and returned to you in recovery.

As soon as the muscle relaxer has worked, the anaesthetist will use a special tool called a laryngoscope. This is a smooth spatula with a light that is inserted over your tongue and deep into your throat. The anaesthetist will be able to see your vocal cords and beyond this is your trachea or windpipe. A specially designed hollow tube is placed down the spatula and into the wind pipe. A balloon on the end of the tube is inflated by the nurse to fully occlude your airway and stop any vomit or secretions from entering your wind pipe.

This is often the trickiest part of the anaesthetic and your life can depend on it. There are many signs the anaesthetist will look for before you go to sleep to predict whether getting this tube down will be difficult or not. If you have a small jaw, previous difficulties with intubation, neck problems, difficulty opening your mouth, the anaesthetist will be ready with a different strategy to get the tube down your throat safely. Because your breathing is our number one priority, occasionally putting the breathing tube down can result in damage to your teeth or cuts to your lips. All care is taken and this is uncommon. Having a tube in your throat can leave it sore and dry for a day or too. This is transient. You may also have a swollen uvula (the dangly bit at the back of your throat) for a few days.

Before the surgery starts, if appropriate, you will be given a dose of antibiotics via your drip to help lessen the risk of wound infection. Soft tape will be placed over your eyes to keep them closed and protected. There are other devices we use to monitor your wellbeing during surgery. Tubes like urinary catheters and IV lines will now be placed. Your arms and legs will be padded to protect your pressure areas and you will be positioned for surgery.

2. Staying asleep during the surgery – cruise control

You will be kept asleep by anaesthetic gas piped in via the tube in your windpipe or by a continuous infusion of Propofol in your drip. The anaesthetic machine will steadily and precisely breathe for you. Your anaesthetist will never leave your side and constantly monitors your vital signs. They will give you small doses of medications and fluids to keep everything steady.

3. Waking up – landing the plane

As the surgery comes to an end, the anaesthetist will give you strong dose of pain killer so you will wake up in comfort. They will turn the gas off and give a medication to reverse the paralysis. While you are still asleep, you will be transferred onto your bed. When you are breathing by yourself, the anaesthetist will remove the breathing tube and suction your throat. Patients rarely remember this. An oxygen mask will be placed on your face and you will be wheeled out to recovery.

APART FROM THE SURGERY, WHAT ELSE HAPPENS WHEN I AM ASLEEP

If you have body hair on the area having surgery, it will be clipped off. Often a larger area that is needed will be shaved. An earthing plate will be placed somewhere on your body so the electrocautery device can be used to stop bleeding as required. This will be removed before you wake up.

Just before surgery, everyone in the theatre will stop what they are doing and check once again your identity and the operation we are performing.

WHAT SOME PEOPLE WORRY ABOUT BUT WERE TOO AFRAID TO ASK

What if I have my period on the day of surgery?

This makes no difference to you or us. Having a period is a normal part of life. I would suggest that you use a pad and not a tampon as it may be some time before you can change it. If you have any questions about this, ask the nurse who checks you in.

My bladder feels full – will I wet myself?

Just before you go into the operating theatre, many people feel like they need to pass urine. This is usually anxiety. If you have gone to the toilet in the waiting area, it is very unlikely that you will need to go again.

For big operations, we will put a tube in your bladder that will catch all your urine. If you are having a smaller operation and still need to go once you reach the theatre, the nurse will take you to the bathroom.

It is a fact of life that some people occasionally wet themselves during the operation. It does not bother us and you will be cleaned up before you go to the recovery room.

What if I think I am pregnant?

You must let us know at check in, even if you are only suspicious. If you are pregnant it is likely we will delay the surgery. If you are not sure, there are quick pregnancy tests available to check. It is essential that we know because the surgery and anaesthetic drugs can harm your unborn child and even lead to miscarriage.

I always vomit after an anaesthetic

Nausea and even vomiting can happen after an anaesthetic. It is such an unpleasant feeling that it may be an enduring memory of previous surgery. Post anaesthetic nausea is more common if you suffer with motion sickness. Your anaesthetist will discuss this with you and there are many strategies to avoid this troubling side effect.

What if I am breastfeeding?

Breast feeding should not stop you from having a surgery you need. Very small amounts of anaesthetic and pain relieving drugs will pass into your breast milk. Theoretically, this is low risk for your baby. Anaesthetic guidelines suggest you pump and discard breast milk for 24 hours after an anaesthetic. Your baby will need to be fed with previously pumped milk or formula. It is almost certainly perfectly safe however to feed your baby less than 24 hours later. Whether you are up to it of course is another matter. Occasionally, surgery may cause a decrease or even the cessation of your milk supply.

Who will be in the operating theatre with me?

It is necessary for your safety for a number of staff, both male and female to be in the operating theatre both before and during your surgery. In addition to your surgeon and anaesthetist, there may be junior doctors, a number of nursing staff, theatre orderlies and x-ray technicians. As this is a teaching facility there may be medical students present.

All of these staff are highly professional. There are definitely moments where you will be exposed whilst preparing you for surgery, but extreme efforts are made to preserve your modesty.

Do you play music while I am asleep?

No. We are concentrating on your care. Music tends to be a distraction. There are many sounds of machines and monitors in the operating theatre and we are listening to those. We also need quiet to enable communication between staff.

What if my bowels work while I am asleep?

This is quite uncommon. If it does occur however, you will be cleaned up prior to moving to recovery.

I am worried about waking up during the operation

Awareness during anesthesia is exceptionally rare. Making sure you are fully asleep is the anaesthetists' main objective. There are a number of monitors and alarms that you will be hooked up to absolutely ensure that this doesn't occur.

I am on the oral contraceptive pill

There is a medication given as the end of some anaesthetics that can interfere with the effectiveness of the pill. Please tell your anaesthetist if you are on the pill. If the medication is used, then you will need to use an alternate contraception for two weeks to avoid pregnancy.

I am worried about my memory after the anaesthetic

There is no doubt that a condition called post anaesthetic cognitive disorder is a real thing. It is more common on patients over 60 and it can result in memory loss that may be permanent. It is not fully understood. If you have concerns your anaesthetist would be happy to discuss it with you.

RECOVERY – THE WAKE UP ROOM

When you wake up, is likely that you will be wearing a gown but be completely naked underneath. You will be covered with a blanket.

The recovery room is the first thing most patients will remember after going to sleep. It will almost be like no time has passed.

You will have a nurse by your side who will be monitoring your vital signs. You will stay in recovery until you are fully awake and your observations are within normal limits. The nurse will monitor your pain and keep you comfortable.

If you have a catheter in your bladder, you may feel a need to pass urine. This feeling will go away.

As you wake up you may have a tube in your throat that the nurse will remove. It is unlikely you will remember this.

If you snore you may have a small tube in your nose or mouth to help you breathe until you are fully awake.

If you have false teeth, they will be returned to you in recovery.

Your family is not allowed in recovery so we can respect the privacy of other patients.

RETURN TO THE WARD

When you return to the ward you may be drowsy, nauseated or in pain. Your nurse will be monitoring these things closely.

They will be checking you pulse, blood pressure, temperature and dressings regularly for abnormalities.

There is a very strict criteria of observations that the nurses must follow. If you fall outside these criteria for any reason the nurses must notify the medical team. Very often this is just a false alarm. It may sometimes seem dramatic, but it is done for your safety.

If you are on strong pain killers like morphine or Fentanyl you will be required to wear an oxygen mask.

HOW DO I HANDLE MY ANXIETY?

Every person suffers from some level of anxiety. You are not human if you do not. Having an operation is up there in the top ten of major life events. A little bit of anxiety can be good thing. It can make you hesitate before taking a misstep. When anxiety gets out of control however, it becomes a medical problem and stops you doing things that you should or want to do. Some people suffer anxiety about many things and for some it can be an issue only in certain situations.

Common symptoms of anxiety are:

- Overwhelming negative thoughts
- Sleepless with worry
- A constant stream of bad thoughts “the chatter”
- Physical symptoms such as chest pain, nausea, headache

There are many techniques to address your anxiety. There are mindfulness, meditation and distraction techniques. Sometimes anxiety is so bad that medication is needed.

It is normal to be anxious before surgery but if the feeling of anxiety is overwhelming please talk to me or your GP about it. Help and suggestions are also available at Beyond Blue: www.beyondblue.com.au

Intensive Care (ICU) Stress

Being in intensive care for any period of time can be very traumatic. By its very nature ICU is a 24 hour a day affair. There is little differentiation between night and day. This means that patients get very little sleep and their natural body rhythms are interrupted. This interferes with mood and can result in confusion, anger and depression. Even though you are typically sedated whilst you are on a ventilating machine, some patients can still remember it, especially when they are lightening the sedation just before the breathing tube comes out of your throat. There can be scary feelings of helplessness and loss of control. Frequently the morphine based pain relievers can make patients have frightening hallucinations that seem very real when they are happening. Rarely patients can experience post-traumatic stress. Talk to me about this if you experience it. Help is available.

ABOUT YOUR SURGEON

A/Prof Kellee Slater MBBS (Hons) FRACS FACS

2018	Associate Professor University of Queensland
2015	Fellow of the American College of Surgeons
2017-2019	National Chair of the Australian Board in General Surgery
2006 – Present	Staff Surgeon Hepatopancreatic-Biliary-Liver Transplant Princess Alexandra Hospital and Greenslopes Private Hospital Brisbane, Queensland
2004 – 2006	Hepatobiliary and Liver Transplant Fellowship Princess Alexandra Hospital Brisbane, Queensland
2002 – 2004	Liver and Kidney Transplant Fellowship University of Colorado Hospital Denver, Colorado, United States of America
2002	Fellow of the Royal Australian College of Surgeons (FRACS) General Surgery
1989 – 1994	MBBS (Honours) University of Queensland