

A Surgical Aid in the Treatment of Morbid Obesity



LAP-BAND®

Adjustable Gastric Banding System

Contents

Introduction	4
The concept of obesity	5
What causes obesity and morbid obesity?	5
The risks of being severely obese	6
What can be done for severe obesity?	7
The LAP-BAND® System	9
Advantages of the LAP-BAND System	11
Who can use the LAP-BAND System?	12
• Indications !	12
• Contraindications !	12
Risks, complications and adverse events you need to know about	13
• What are the general risks? !	13
• What are the specific risks and possible complications? !	13
The operation	15
Eating and drinking after the operation	16
Frequently asked questions about the LAP-BAND System	19
Your food	21
BMI charts	22
More about obesity and the LAP-BAND System...	24

Note: Cover photo is not meant to represent weight loss results.

Introduction

Almost every day, you see reports in the media about an amazing new diet or some new pill for weight loss. Even so, the number of people with a serious weight problem keeps going up. If you are one of those people, you probably already know that weighing more than you should is bad for your health.

If you are severely obese, you have higher risk for problems such as heart disease and diabetes. Plus, weighing more than you should can affect the way you feel about yourself. It can give you a negative self-image. It also can cause you to become socially isolated.

The best remedy for being overweight is to exercise more while you eat less and eat sensibly. That way you can use up more energy than you take in and lose weight. A diet can help people lose weight. And some people can have success with drugs that make them feel less hungry. But over the long term, these methods don't work for everyone. Some people quickly regain the weight they lose on a diet. Some even end up weighing more. Drugs that make you feel less hungry do not usually produce weight loss that lasts.

If you've tried these methods and still have a problem with excess weight, you may want to consider surgery. Surgery can help some people lose weight and keep it off. This booklet gives you important information about one type of surgery used to treat severe obesity with the aid of the LAP-BAND® Adjustable Gastric Banding System.

What is the LAP-BAND® System?

The LAP-BAND System includes an adjustable band that is surgically placed around the stomach. (This will be explained in more detail later in this booklet.) The band is designed to limit food intake. When you eat less food your body draws on its own fat reserves to get the energy it needs. The result is you lose weight.



The LAP-BAND Adjustable Gastric Banding System

Besides telling you about the LAP-BAND Adjustable Gastric Banding System, this booklet looks at obesity and the health risks it brings. It explains some treatment options, and gives you information you need to decide what is best for you. But please be sure you talk to your doctor about all your options. The LAP-BAND System is an aid to weight loss. It is not a miracle cure. Not everyone will lose weight or keep it off. You will still need to work to have long-lasting weight-loss results.

The concept of obesity

Not everyone who has a weight problem should consider surgery. It depends on whether or not you are overweight, obese, or morbidly obese. One way to tell is by your Body Mass Index (BMI). Your BMI depends on both your weight and your height. There is a chart on page 22 to help you find your own BMI.

Who should consider surgery?

An ideal BMI is between 18.5 and 24.9.¹ If your BMI is between 25 and 29.9, you are thought to be overweight. If it is higher than 30, you are obese. That means you are at risk for health problems.

If your BMI is 40 or more, you are said to have severe or "morbid" obesity. A BMI higher than 40 suggests surgery might be a proper approach. For some people with a BMI between 35 and 40, surgery might also be a good choice. These are people who have other conditions. For instance, if your BMI is 37 and you have severe sleep apnea, diabetes mellitus, or heart problems, your doctor might suggest surgery to help you lose weight.^{2,3}

In the following pages, you will find out more about the causes of obesity and morbid obesity. You will also find out about problems connected with excess weight and learn about methods for treating it.

What causes obesity and morbid obesity?

Many things can lead to obesity and morbid obesity. The five main causes are discussed below:

Energy balance

To work right, your body needs the energy that comes from food. When you eat the same amount of food your body needs, your weight stays the same. If you get more energy from your food than you need, some is left over. Your

body stores that extra energy as fatty tissue. If your body never uses the extra fat, you will gain weight. How much food you need depends on how fast your body uses energy. Some people with higher metabolism use energy faster than others. Some need more energy because they are more active.

Heredity

If others in your family are obese, then you have a higher risk for obesity. A study in Canada looked at 12 sets of identical twins. Each twin consumed 1000 extra calories a day for three weeks. All of the subjects in the study gained weight. But not all subjects gained the same amount of weight. The interesting thing, though, was that in each set of twins, one twin gained the same amount as the other.⁴

"It's really awful to have to go through life as someone who is obese. You feel worthless. Sometimes you are lonely and unhappy. You often want to apologize for being the way you are. You don't ever dare eat a single snack because you are afraid people will say, 'It's your own fault. It is all your doing.' There are practical problems you face, like seats that are too small on buses or in theaters, and not being able to find reasonably priced clothes in your size. You also have to fight all kinds of prejudices. You are seen as dirty, lazy, antisocial, and stupid. You also have to put up with all kinds of comments like 'cow,' 'elephant,' and 'pig.' Even from your closest associates! I also have a hard time finding work and having relationships. People go by what you look like. What I really find hardest is that people don't take you seriously. That means, in the end, you feel totally alone."

(Patient before the LAP-BAND System surgery)

In 1994, scientists found a gene in mice that was linked to obesity. This gene produces the protein leptin, which contributes to feeling full. Mice with a defective gene eat large amounts of food. But when humans were studied, the results were not the same. So it seems unlikely that a single gene can explain severe obesity.

Genetic research does show that a number of processes don't work as well in obese people as they do in others. These include how fat is burned, metabolism, and feelings of hunger and fullness.

Metabolic disorders

Metabolism refers to how your body gets energy from food. Lots of things can affect metabolism. For instance, trouble with your thyroid gland can change your metabolism and lead to obesity or morbid obesity.

Eating and social habits

Your eating habits can affect your weight. Things like not eating a balanced diet or eating fast-food and fatty snacks between meals can all cause obesity. Another habit that can cause obesity is eating portions that are too large or too rich. Drinking too many high-calorie soft drinks can also cause it. Not getting enough exercise can make the effect of these habits worse.

Psychological factors

Most people's eating habits are affected by their surroundings. For some people, smell and color will cause them to eat more. Some will eat to be social. For instance, someone might say to you, "Don't be such a snob. Have a piece of cake."

Some people eat for comfort. They may eat in times of grief or stress. The "blow-out" is a common response after a diet fails. Then a person might say, "It never works." Thinking that way can lead to a vicious cycle of eating and dieting that will only make the person gain more weight.

The risks of being severely obese

If you are morbidly obese, you have major risks to your

- health
- psychological and social well being
- day to day living

Health risks

Obese people have more risk for

- diabetes
- joint problems
- high blood pressure
- high cholesterol
- cancer
- gallbladder problems
- breathing difficulties
- coronary artery disease

If you already have some diseases, such as diabetes or heart disease, they can get worse. Plus, the more weight you gain, the more risk you have. As a result, your life expectancy is shorter. You also may be less able to do things to help your health improve. Exercise is important to good health. But severe obesity makes you less mobile. It is hard to exercise or take part in sports. Severe obesity can also affect fertility. That means you are less likely to become pregnant. On the other hand, if you do become pregnant, you have more risk of problems during pregnancy and childbirth.

Risks to your psychological and social well being

People with a weight problem often have a negative self-image. Their environment can make this worse. Obese children, for instance, may be teased at school and have few friends. You may find it hard to buy clothes that look good. Bus or train seats, telephone booths and cars may be too

small. You are also likely to be left out of social functions that require exercise. People with severe obesity often find themselves socially isolated.

Risks in day to day living

Even normal tasks become harder when you are severely obese. You tend to tire more quickly. You may also have breathing problems. Not being able to move as well makes it hard for some people to maintain personal hygiene.

What can be done for severe obesity?

There are several options for treating severe obesity. Some treatments do not involve surgery and some do.

Non-surgical treatments

The most common approach for losing weight is to eat less, eat more sensibly, and exercise more. But if you are severely obese, this approach may not be enough. Sticking to a diet and exercise plan is hard and sometimes painful. Many who lose weight quickly gain it back when the diet ends. That leads to more diets, or taking special drinks that replace a meal, or using a so-called "wonder pill." The cycle of losing weight and gaining it back is called the yo-yo effect. While temporary weight loss can help, the yo-yo effect can also make it harder to lose weight in the future.

Asking professionals can help. A physician or a dietitian can help you change your lifestyle. A program of improved eating habits and exercise will be important over time. A doctor may even prescribe drugs to reduce your appetite for a while. But studies show that diets and weight-loss aids rarely work in helping severely obese people reach the goal of long-lasting weight loss. Nor do other options that don't use surgery. Those options include jaw wiring, hypnosis, or counseling, for example.

"Obese people experience many problems in their immediate environment because obesity is directly visible to other people, which means that it affects social interaction. People not only have firm opinions on the outward appearance of someone suffering from obesity, but they also make judgements about his or her character. For example, obesity is often seen as a sign of weakness and laziness - that obese people have no control over how much they eat. Most of the patients I see in my practice have experienced this attitude from other people. You will also find this pattern repeated in studies on quality of life.

According to one study (Rand and MacGregor, 1990, eds.), prior to surgery the majority of obese patients considered themselves unattractive and felt as if people were talking about them behind their backs. They also felt that they were discriminated against when it came to trying to get a job, and found that doctors frequently treated them with little respect. It is noticeable that around 18 months after a stomach operation this self-image changes completely. I see this change in my patients too, and it gives me enormous satisfaction every time."

(LAP-BAND® System surgeon)

Surgery as an option

If non-surgical methods have not helped you lose weight and keep it off, you still have another option. Surgery to reduce how much your stomach holds may work for you. But keep in mind that a positive attitude is key to the success of the surgery. Surgery can help you achieve your long-term goal only if you are ready for and committed to losing weight and keeping it off.

Surgery Options

There are two types of surgery for obesity. One is called malabsorptive. This surgery shortens the digestive tract. The other kind is called restrictive. This surgery reduces how much food the stomach can hold. Some surgeries are combinations of the two types. The two most common obesity surgeries in the United States are the Gastric Bypass and the Vertical Banded Gastroplasty.

The Gastric Bypass

The Gastric Bypass is both a restrictive and a malabsorptive procedure. With this surgery, most of the stomach and part of the intestines are bypassed. With the Gastric Bypass, the stomach is stapled to make a smaller pouch. Then a part of the intestines is attached (usually stapled) to the small stomach pouch. The result is that you cannot eat as much and you absorb less nutrients and calories from your food.



Gastric Bypass

Vertical Banded Gastroplasty (VBG)

The VBG is a restrictive surgery. The surgeon uses staples to make a small stomach pouch. This reduces how much food your stomach can hold. When the amount of food the stomach can hold is reduced, you feel full sooner. But at the same time, the stomach digests nutrients and calories in a normal way.



Stomach Stapling/VBG

There is more than one way to reduce how much food the stomach can hold. VBG is one. Another is to use the LAP-BAND Adjustable Gastric Banding System.

LAP-BAND Adjustable Gastric Banding System

This option restricts how much the stomach can hold by placing an adjustable band around the upper part of the stomach. There is no cutting or stapling needed to divide the upper stomach pouch from the lower stomach. The result is you take in less food. But unlike stomach stapling, the LAP-BAND can be adjusted to suit your situation, and can be removed if necessary.



The LAP-BAND System

The LAP-BAND System uses new surgical technology to help you lose weight by reducing how much your stomach can hold and lengthening the feeling of being full. The success of this process, however, also depends on how motivated you are and how committed you are to your goal of long-lasting weight loss.

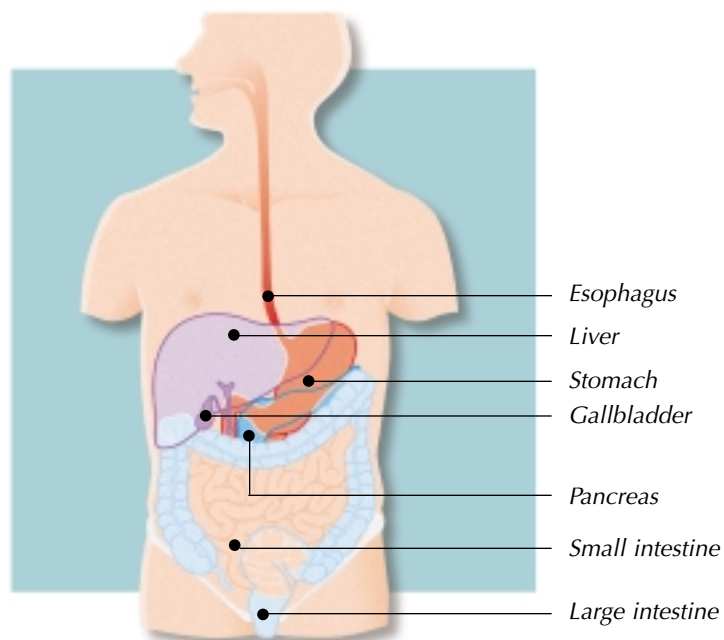
The LAP-BAND System

The LAP-BAND System was designed to help you lose excess body weight. It uses a process called laparoscopic banding. That process is the least invasive way to use surgery to reduce the amount of food your stomach can hold. The name "LAP-BAND" comes from the surgical technique used (laparoscopic) and the name of the product used (gastric band).

One big advantage of the LAP-BAND System is that the band's size can be changed to meet your needs. This is not possible with other techniques.

How does the LAP-BAND System work?

Your body gets energy from food while it passes through the alimentary canal. This consists of the mouth, the esophagus, the stomach, and the small and large intestines. Digestion starts in the mouth with chewing and the addition of saliva. After the food passes through the esophagus, this process continues in the stomach. The stomach then provides temporary storage for food. Gastric juices, which contain enzymes, break down the food. That way, energy can be carried through the body by the blood.

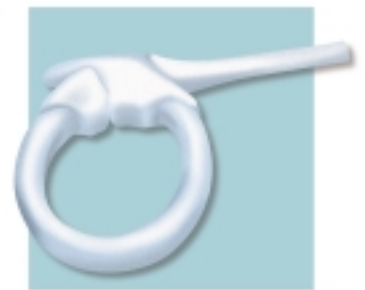


The LAP-BAND System's adjustable band is placed around the upper part of the stomach. That creates a new small stomach pouch, with the larger part of the stomach below the band. That way, the food storage area in the stomach is reduced. The pouch above the band can hold only a small amount of food. The band also controls the stoma (stomach outlet) between the two parts of the stomach. That slows the passage of food from the upper to the lower part and lets you feel full sooner. The feeling also lasts longer.

To change the size of the stoma, the inner surface of the band can be adjusted by adding or removing saline. This process is called inflating or deflating. Saline is a salty solution like other fluids in your body.



The LAP-BAND inflated



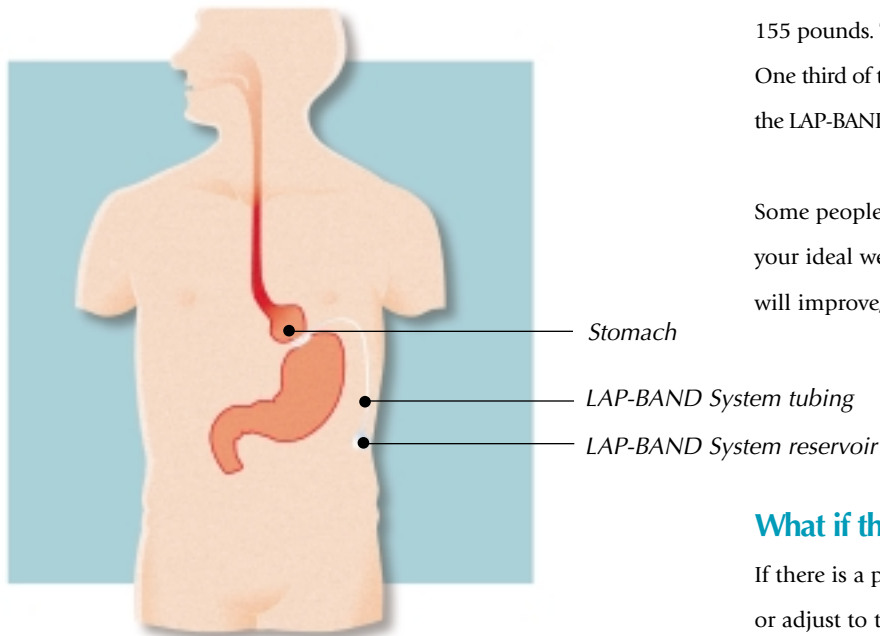
The LAP-BAND deflated

The band is connected by a tube to a reservoir placed beneath the skin during surgery. Later, the surgeon can control the amount of saline in the band by piercing the reservoir through the skin with a fine needle. If the band is too loose and weight loss too small, adding more saline can reduce the size of the stoma. If the band is too tight, the surgeon will remove some saline. This too can be done without more surgery. Being able to adjust the band is a unique feature of the LAP-BAND System and is a normal part of the follow-up. If adjusting the band does not help you lose weight the way you want it to, or if the band is still too tight, another surgery may be needed.

How is the LAP-BAND System placed around the stomach?

The LAP-BAND System is usually placed laparoscopically. Laparoscopic surgery requires general anesthesia. First the surgeon makes a few small incisions in the abdominal wall and inserts narrow, hollow tubes. Thin surgical instruments are then passed through the tubes. The surgeon can see inside the abdomen by using a small camera that also goes through the tubes. The picture the camera takes is shown on a monitor that is like a TV screen. This technique is called "laparoscopy" and is considered "minimally invasive."

There are clear advantages to this kind of surgery. In an "open" surgery, a larger incision is made. After a laparoscopic surgery, most people feel much less pain. There are fewer wound complications. Patients also recover faster and are able to resume normal activities sooner.



Sometimes, for a variety of reasons, the surgeon may need to make the larger incision to place the LAP-BAND System. The surgeon may need to decide this during the operation. Both techniques are discussed in this booklet. You and your surgeon should decide together what plan is best for you.

How is the LAP-BAND System used?

The LAP-BAND System is an aid to help you achieve longer-lasting weight loss. It does this by limiting how much you can eat, reducing your appetite, and slowing digestion. You should still remember, though, that the LAP-BAND System by itself will not solve your problem of severe obesity. Nor will it ensure that you reach your goal weight or even lose weight. The amount of weight you lose depends both on the band and on your motivation and commitment to a new lifestyle and eating habits.

How much weight will I lose with the LAP-BAND System?

The average weight loss after a LAP-BAND System is placed is between one-third and two-thirds of excess weight. Some people lose up to 100% of their excess weight and some do not lose any weight. Assume that you weigh 330 pounds. Also assume that for your height your ideal weight is 155 pounds. That means you weigh 175 pounds more than the ideal. One third of this is 59 pounds. Two-thirds is 118 pounds. With the aid of the LAP-BAND System, you can probably lose between 59 and 118 pounds.

Some people lose more than others. You will probably never reach your ideal weight. At the same time, chances are good that your health will improve, along with your self-image.

What if the LAP-BAND System needs to be removed?

If there is a problem with the band, or if you can't lose enough weight or adjust to the new eating habits, your surgeon may decide to remove the band. That decision will come after your surgeon consults with you. Removing the LAP-BAND System will most likely restore your stomach to its original form. Also, the digestive tract will again function normally. Please keep in mind, though, that when the band is removed, your weight will likely increase.

Advantages of the LAP-BAND System

The LAP-BAND System has the following advantages:

- It is patient friendly.
- The band can be adjusted.
- The process can be reversed.
- It requires less hospital time than other techniques.
- Recovery is quicker.

The process is patient-friendly:

Of the surgeries used to treat obesity, the one used to place the LAP-BAND System causes the least trauma. That's because the LAP-BAND System can usually be placed laparoscopically. The main benefits of that kind of surgery are

- fewer complications
- less pain
- faster recovery

With this surgery, it's possible to avoid large incisions and scars. Also, there is no need for cutting or stapling the stomach.

The band is adjustable:

Normally, you don't need more surgery to adjust the size of the stomach. Band adjustment is a regular part of follow-up for this procedure. It's also a feature that may become more important as you lose weight. There are reasons you might need to change how much food you can eat. These can include your weight-loss progress, pregnancy, and illness. With the LAP-BAND System, the amount of food you can eat at one time can often be changed without more surgery. This can be done simply by inflating or deflating the band.

Changes can be reversed:

If it needs to be, the LAP-BAND System can be removed. When it is, the stomach generally returns to its original form. In general, it's easier

to remove the LAP-BAND System than it is to reverse other procedures. Reversing other procedures typically leaves staples and more traumatized tissue.

You need less hospital time:

Patients normally leave the hospital one to three days after laparoscopic surgery. If a large incision is required or if there are complications, more days in the hospital may be needed.

You recover more quickly:

After the procedure, patients usually get back to their normal activities in a week or two. It may take four weeks or more if the procedure is not done laparoscopically or if there are complications.

"The advantage of LAP-BAND is that it goes around the outside of the stomach, and the procedure can be reversed. I wouldn't have other surgeries. Having my stomach stapled is so final. Obviously, the LAP-BAND is also final, because you have to 'wear' it for the rest of your life. But it's good to know you can have it removed if there is a problem. With the LAP-BAND method, your new small stomach won't let you eat much. This means you can lose a lot of weight in a short time. It also means the weight loss is long lasting. With a diet, you always put the weight back on or even put on more. I've won the battle with my body and my mind. I'm going to make sure it stays that way."
(LAP-BAND System patient)

Who can use the LAP-BAND System?

The LAP-BAND System is not right for everyone. You and your surgeon should work together to decide if this is the right treatment for you. Here are some of the things your surgeon will consider.

Indications⁵

The LAP-BAND System may be right for you if

- 1) You are between 18 and 56 years old.
- 2) Your BMI is 40 or higher or you weigh at least twice your ideal weight or you weigh at least 100 pounds (45 kilos) more than your ideal weight.
- 3) You have been overweight for more than 5 years.
- 4) Your serious attempts to lose weight have had only short-term success.
- 5) You do not have any other disease that may have caused you to be overweight.
- 6) You are prepared to make major changes in your eating habits and lifestyle.
- 7) You are willing to continue working with the specialist who is treating you.
- 8) You do not drink alcohol in excess.

If your BMI is less than 40, the LAP-BAND System may not be right for you. On the other hand, your surgeon may consider it if you have health problems that are related to obesity. Your surgeon may also have other criteria he or she uses. Ask him or her to discuss the criteria with you.

Contraindications

The LAP-BAND System is not right for you if

- 1) You have an inflammatory disease or condition of the gastrointestinal tract, such as ulcers, esophagitis, or Crohn's disease.
- 2) You have severe heart or lung disease that makes you a poor candidate for surgery.
- 3) You have some other disease that makes you a poor candidate for surgery.
- 4) You have a problem that could cause bleeding in the esophagus or stomach. That might include esophageal or gastric varices (a dilated vein). It might also be something such as congenital or acquired intestinal telangiectasia (dilation of a small blood vessel).

- 5) Your esophagus, stomach, or intestine is not normal. For instance you might have a narrowed opening.
- 6) You have a large hiatal hernia. This is a hernia that happens when a part of your stomach pushes through the diaphragm muscle. It could make it so the LAP-BAND device could not be put into the correct place.
- 7) You are pregnant. (If you become pregnant after the LAP-BAND System has been placed, the band may need to be deflated or removed. The same is true if you need more nutrition for any other reason, such as becoming seriously ill.)
- 8) You are addicted to alcohol or drugs.
- 9) You have an infection that could contaminate the surgical area. The same is true if you need a procedure that could do the same thing.
- 10) You use aspirin or non-steroidal anti-inflammatory drugs often.
- 11) You cannot or do not want to follow the dietary rules that come with this procedure.
- 12) You might be allergic to materials in the device.
- 13) You cannot tolerate pain from an implanted device.
- 14) You are not emotionally stable.
- 15) You or someone in you family has an autoimmune connective tissue disease. That might be a disease such as systemic lupus erythematosus or scleroderma. The same would be true if you have symptoms of one of these diseases.

Some surgeons say patients with a "sweet tooth" will not do well with the LAP-BAND System. If you eat a lot of sweet foods, your surgeon may decide not to do the procedure. The same is true if you drink milkshakes or other high-calorie liquids often.

Your motivation is key

Your surgeon will not do the operation unless he or she knows you understand the problems your excess weight is causing. Also, your surgeon will make sure you know you have responsibilities. Those include new eating patterns and a new lifestyle. If you are ready to take an active part in reducing your weight, your surgeon will consider the treatment. First, though, your surgeon will want to make sure you know about the advantages, disadvantages, and risks involved.

Risks, complications, and adverse events you need to know about

All surgical procedures have risks. When you decide on a procedure, you should know what the risks are. Talk with your surgeon in detail about all the risks and complications that might arise. Then you will have the information you need to make a decision.

What are the general risks?

Using the LAP-BAND System includes the same risks that come with all major surgeries. There are also added risks in any operation for patients who are seriously overweight. You should know that death is one of the risks. It can occur any time during the operation. It can also occur as a result of the operation. Death can occur despite all the precautions that are taken. Your age can increase your risk from surgery. So can excess weight. Certain diseases, whether they were caused by obesity or not, can increase your risk from surgery. There are also risks that come with the medications and the methods used in the surgical procedure. You also have risks that come from how your body responds to any foreign object implanted in it. Published results from past surgeries, however, do show that LAP-BAND System surgery may have fewer risks than other surgical treatments for obesity.

Is there a chance the device will need to be removed?

You should not think of the LAP-BAND System as a lifetime device. It may have to be removed or replaced at any time. For instance, the device may need to be removed to manage any adverse reactions you might have. The device may also need to be removed, repositioned or replaced if you aren't losing as much weight as you want.

What are the specific risks and possible complications?

Talk to your doctor about all of the following risks and complications:

- ulceration
- gastritis
- gastroesophageal reflux

- band erosion
- heartburn
- gas bloat
- dysphagia
- dehydration
- constipation
- weight regain
- perforation of the stomach or esophagus during surgery
- death

Laparoscopic surgery has its own set of possible problems. They include

- spleen or liver damage (sometimes requiring spleen removal)
- lung problems
- thrombosis (blood clots)
- rupture of the wound

There are also problems that can occur that are directly related to the LAP-BAND System.

- The band can spontaneously deflate because of leakage. That leakage can come from the band, the reservoir, or the tubing that connects them.
- The band can slip.
- There can be stomach slippage.
- The stomach pouch can enlarge.
- The stoma (stomach outlet) can be blocked.

Obstruction of the stoma can be caused by

- food
- swelling
- improper placement of the band
- the band being over inflated
- band or stomach slippage
- stomach pouch twisting
- stomach pouch enlargement

There have been some reports that the esophagus has stretched or dilated in some patients. This could be caused by

- improper placement of the band
- stoma obstruction
- binge eating
- excessive vomiting
- the band being over-inflated

Infection is possible. Also, the band can erode into the stomach. This can happen right after surgery or years later.

Complications can cause reduced weight loss. They can also cause weight gain. Other complications can result that require more surgery to remove, reposition, or replace the band.

Some patients have more nausea and vomiting than others. You should see your physician at once if vomiting persists. Rapid weight loss may lead to symptoms of

- malnutrition
- anemia
- related complications

It is possible you may not lose much weight or any weight at all. You could also have complications related to obesity.

If any complications occur, you may need to stay in the hospital longer. You may also need to return to the hospital later. A number of less serious complications can also occur. These, though, may have little effect on how long it takes you to recover from surgery.

If you have an existing problem, such as diabetes, you may need to take extra precautions. You may have more complications. You also have more risk of complications if you've had a surgery before in the same area. If the procedure is not done laparoscopically by an experienced surgeon, you may have more risk of complications.

Anti-inflammatory drugs that may irritate the stomach, such as aspirin and NSAIDs, should be used with caution.

Some people need folate and vitamin B12 supplements to maintain normal homocysteine levels. Elevated homocysteine levels can increase risks to your heart and the risk of spinal birth defects.

You can develop gallstones after a rapid weight loss. This can make it necessary to remove your gallbladder.

Some studies have shown that the material in the LAP-BAND System can cause slight irritation when implanted in animals. This does not seem to be a problem in its clinical use.

There have been no reports of autoimmune disease with the use of the LAP-BAND System. Autoimmune diseases and connective tissue disorders, though, have been reported after long-term implantation of other silicone devices. These problems can include systemic lupus erythematosus and scleroderma. These conditions have mainly been connected with silicone breast implants. At this time, there is no conclusive clinical evidence that supports a relationship between connective-tissue disorders and silicone implants. Long-term studies to further evaluate this possibility are still being done. You should know, though, that if autoimmune symptoms develop after the band is in place, you may need treatment. The band may also need to be removed. Talk with your surgeon about this possibility. Also, if you have symptoms of autoimmune disease now, the LAP-BAND System may not be right for you.

Removing the band

If the LAP-BAND System has been placed laparoscopically, it can usually be removed in the same way. This is an advantage of the LAP-BAND System. Surgeons report that after the band is removed, the stomach returns to essentially a normal state.

At this time, there are no known reasons to suggest that the band should be replaced or removed at some point unless a complication occurs or you do not lose weight. It is difficult, though, to say whether the band will stay in place for the rest of your life. It may need to be removed or replaced at some point. Removing the device requires a surgical procedure. That procedure will have all the related risks and possible complications that come with surgery. The risk of some complications, such as erosions and infection, increase with any added procedure.

The operation

The more you know about the LAP-BAND System procedure, the easier the process should be for you.

Getting ready for surgery

Before your surgery, you should talk about the procedure in detail with your surgeon. Your doctor may also want you to meet with other experts. They can help you understand what will happen during and after the operation.

These experts might include

- a dietitian
- a physiotherapist
- a psychologist
- other specialists

You will also need to have a number of tests before your surgery. These are to evaluate your health. When it is time for the surgery, you will be admitted to the hospital either the day before or on the morning of your surgery.

The surgery

When it is time for the operation, you will receive a general anesthesia. If your case is typical, the operation will be done laparoscopically. During the operation, the band part of the LAP-BAND System will be fastened around the upper part of your stomach. This will create a small stomach pouch. Part of the lower stomach will then be sutured over the band. The

rest of the lower stomach will stay in its normal position. The reservoir for adjusting the band will be placed under your skin. To do this, the surgeon will slightly enlarge one of the incisions that he or she made for the laparoscopic tubes.

Open operation

Sometimes laparoscopic surgery can't be done. Or sometimes, even after the laparoscopic surgery has started, the surgeon may switch to the "open" method. There could be a number of reasons for this. For instance,

"A number of examinations have to be carried out before a patient can undergo surgery. The patient also needs to visit a dietitian. The dietitian may give him or her a food diary in order to obtain a comprehensive picture. The aim is that the patient should keep a detailed diary of what he or she eats for a week. This diary is used to assess whether surgery will be helpful. We can only decide to carry out the operation involving a band around the stomach once we have the green light from all quarters. The patient is usually admitted the day before the operation. The results of all the examinations are checked again. Then I again explain to the patient what the operation involves, and the anesthesiologist talks to him or her about the anesthesia and the form of pain relief that will be used after the operation. When the patient has been admitted, he or she is also seen by a physiotherapist, with the emphasis being on respiratory therapy. After the operation, the patient may find it less easy to breathe deeply, and it may be painful to cough up mucus. So before the operation, the physiotherapist gives the patient instructions on the correct way to breathe and cough, so that post-operative treatment can be carried out efficiently and well."

(LAP-BAND System surgeon)

bleeding or problems placing the band could make the open method with the larger incision necessary. If this is the case, you will not be aware of it while you are under the anesthesia. The surgeon will make a larger incision in the abdomen to perform the operation. After this "open" surgery, you will most likely need to stay in the hospital longer. That's because there could be more complications. It also may take more time for you to get back to your normal routine.

After the surgery

Once the anesthesia has worn off, you may feel some pain. This pain can usually be relieved with ordinary painkillers. The hospital staff will help you get out of bed and start moving as soon as possible. This will help prevent blood clots, respiratory problems, and bedsores.

On the day after the surgery, you will likely be given an X-ray. This is so your health team can see that the LAP-BAND System is in the right place. It is also to see that the new stomach outlet is open. You may be asked to swallow a liquid that can be seen on X-ray.

After a laparoscopic surgery, you will normally stay in the hospital for 1 to 3 days. The hospital stay may be longer after the open procedure or if there are complications. If there are no complications, you should be able to resume normal activities within a week or two after the surgery.

Eating and drinking after the operation

After your surgery, you will need a new diet. You should discuss this in detail with your surgeon and/or dietitian. They can help you learn and get used to the changes in lifestyle and eating habits you need to make.

Note: Your surgeon may give you specific instructions just for you. The following information is meant to be an overview. Be sure you know the instructions your doctor wants you to follow.

It is very important to follow the eating and drinking instructions right from the start after the operation. That's because you must allow the new stomach structure to heal completely and in the right position. It may take a month or more for this to happen. It is important, especially in the early weeks, not to stretch the small stomach pouch above the band.

The first few days after the operation

Right after the operation, you can have an occasional sip of water or suck on an ice cube. You shouldn't drink more than this. The day after the operation, you can take a little more fluid. But you should take only a small amount at a time. Besides water, you should also choose liquids that have an adequate number of calories. To prevent nausea and vomiting, do not drink too much.

The first one to four weeks

These drinks and very soft foods are recommended for the first four weeks after the operation:

- clear broth or soup (with no vegetables or meat and not creamy)
- low-fat yogurt
- milk (preferably skim)
- jello
- fruit juice or pureed soft fruit.

As time goes on, you will slowly move to solid food based on your surgeon's and/or dietitian's advice.

In the first four weeks, you will be able to eat foods that may not be allowed in your diet later. That's because they may contain too many calories. In the first four to six weeks, though, you need to let your stomach adjust to the LAP-BAND System. That is more important than it is to lose weight. In general, you should follow the advice of your dietitian about these foods.

Four to six weeks

At this time, you may start having slightly thicker, creamier soups. This will help you switch gradually to more solid foods later. Some products like bread, red meat, and rice may still cause you problems. So it is better to eat softer foods that are easier to digest. These might include foods such as moist white meat (chicken, veal) and fish.

Chew all your food well. If you have dentures be sure to cut your food into small pieces and to chew it thoroughly. If you don't follow these precautions, you may have vomiting, stomach irritation, and swelling. You could also have stomach obstruction. If you have problems with solid foods and suffer from nausea or vomiting, go back to the liquid diet you had earlier. Then slowly add soft foods to help you transition to solid foods later. Always ask for advice that is specific to your situation from your doctor or dietitian.

Your new diet

When you can eat solid foods without problems, you will need to pay close attention to your diet. Liquids will pass through the reduced stomach pouch quickly and will not make you feel full. You should avoid high-calorie drinks from this point on. Drink water, broth, tea, and coffee (without sugar).

Too much food or big chunks of food can block the stomach pouch outlet. You can avoid this problem by chewing food well and eating small bits at a time. Eat only three small meals a day. Make sure that these meals contain adequate nutrients. A healthy meal has vegetables, fruit, meat, bread, and/or dairy products.



A general guide on page 21 of this booklet can help you create good and healthy meals that contain adequate nutrients but little sugar and fat. Also, ask your surgeon and/or dietitian about your food choices.

10 important rules

Here are ten rules for eating, drinking, and exercise that will help you get the best results you can with the LAP-BAND System. How willing you are to follow a new way of eating is key to making the operation a success.

- 1) Eat only three small meals a day.
- 2) Eat slowly and chew thoroughly (approximately 15 to 20 times a bite).
- 3) Stop eating as soon as you feel full.
- 4) Do not drink while you are eating.
- 5) Do not eat between meals.
- 6) Eat only fresh food.
- 7) Avoid fibrous food.
- 8) Drink enough fluids during the day.
- 9) Drink only low-calorie liquids.
- 10) Exercise at least 30 minutes a day.

Why the rules are important and how to make them work

Rule 1: Eat only three small meals a day.

The LAP-BAND System creates a small stomach pouch that can hold only about half a cup (3 to 4 ounces) of food. If you try to eat more than this at one time you may become nauseous. You may also vomit. If you routinely eat too much, the small stomach pouch may stretch. That will cancel the effect of the operation. Frequent vomiting can also cause certain complications, such as stomach slippage. You need to learn how much your stomach pouch can hold comfortably and then not exceed this amount.

Rule 2: Eat slowly and chew thoroughly

Food can pass through the new stoma only if it has been "chopped" into very small pieces. Always remember to take more time for your meals and chew your food very well.

Rule 3: Stop eating as soon as you feel full

Once your stomach is full, your body receives a signal that you have eaten enough. It takes time, though, for you to become aware of this signal. If you hurry your meal, you may eat more than you need. This can lead to nausea and vomiting. Take time over your meal. Try to recognize the feeling of fullness. Then stop eating at once.

Rule 4: Do not drink while you are eating

This operation can work only if you eat solid food. If you drink at mealtimes, the food you have eaten becomes liquid. Then the effect of the LAP-BAND System is greatly weakened. You should not drink anything for one to two hours after a meal. That way you can keep the feeling of fullness as long as possible.

Rule 5: Do not eat between meals

After a meal, do not eat anything else until the next meal. Eating snacks between meals is one of the major reasons for weight-loss failure. It is very important to break this habit.

Rule 6: Eat only fresh food

With the LAP-BAND System in place, you should be able to eat only a small amount. So the food you eat should be as healthy as possible. Do not fill your small stomach pouch with "junk" food that lacks vitamins and other important nutrients. Your meals should be high in protein and vitamins. Fresh vegetables, fruit, meat, and cereals are good foods to choose. Foods high in fat and sugar are not. You may eat apples and oranges, but try to avoid orange juice and apple juice. Ask your doctor or dietitian before you take any vitamin supplements.

Note: Solid food is more important than liquid food. The LAP-BAND System will have little or no effect if you eat only liquid food. Liquid food passes through the stomach outlet very quickly and does not make you feel full.

Rule 7: Avoid fibrous food

Food such as asparagus that contains many fibers can block the stoma. That's because you can't chew this food well enough to break it up into small pieces and your saliva can't break it down. Fibrous food should be avoided. If you would like to eat asparagus or other fibrous food once in a while, cut it into very small pieces first and then chew it thoroughly.

Rule 8: Drink enough fluids during the day

If you lose weight, your fat content will drop. That results in waste products. You will need to drink large amounts of liquid every day in order to urinate more and excrete these waste products from your body. Remember: you should only drink water, tea, or coffee (without milk or cream and sugar). Also, keep your food and drinks completely separate during the day.

Rule 9: Drink only low-calorie liquids

Drinks, including those containing calories, simply run through the narrow outlet created by the band. If you drink liquids high in calories, you will lose little weight, even if you otherwise follow your diet.

Rule 10: Exercise at least 30 minutes a day

This rule is just as important as the other nine rules. Physical exercise consumes energy and so burns calories. That is very important to successful weight loss.

Exercise can help improve your general health. Your size may make it hard for you to exercise as much as you should. But get started, even if it is a little at first. The more weight you lose, the easier it should get. Start with simple exercises, such as walking and swimming. Gradually expand your program to include more vigorous forms of exercise such as cycling, jogging, and aerobics.

Important: Always check with your doctor about the amount and type of exercise that is best for you.



Note: Although these rules restrict your food intake and the types of food you are able to eat, make sure to keep your diet as varied and balanced as possible.

The rules described above are based on recommendations from Prof. P. O'Brien, Melbourne, Australia; Dr. R. Weiner, Frankfurt, Germany; and J. Gabrielle Rabner, MS RD, New York, United States.

Frequently asked questions

Q: Will I be sick a lot after the operation?

A: The LAP-BAND System limits food intake in a patient-friendly way. If you feel nauseous or sick on a regular basis, it may mean you are not chewing your food well. It could also mean you are not following the diet rules properly. Another reason you would feel sick may be that there is a problem with the placement of the band. So you should contact your doctor. Vomiting should be avoided as much as possible. It can cause the small stomach pouch to stretch. It can also lead to slippage of part of the stomach through the band. That would reduce the success of the operation. In some cases, it would also require another operation.

Q: Will I suffer from constipation?

A: There may be some reduction in the volume of your stools. That's normal after a decrease in food intake, because you eat less fiber. This should not cause severe problems. If difficulties do arise, check with your doctor. He or she may suggest you take a mild laxative and drink plenty of water for a while. Drinking plenty of water is a good idea, anyway.

Q: Will I need to take vitamin supplements?

A: You may. It's possible you may not get enough vitamins from three small meals a day. At your regular check-ups, your specialist will evaluate whether you are getting enough vitamin B12, folic acid, and iron. Your surgeon may advise you to take supplements.

Q: What about other medication?

A: You should be able to take prescribed medication. You may need to break big tablets in half or dissolve them in water so they do not get stuck in the stoma and make you sick. You should always ask the doctor who prescribes the drugs about this. Your surgeon may tell you to avoid taking aspirin or other non-steroidal anti-inflammatory pain relievers. That's because they may irritate the stomach. The problems these drugs may cause could mean the band would need to be removed.

Q: What about pregnancy?

A: Becoming pregnant can be easier as you lose weight. Your menstrual cycle may become more regular. If you need to eat more while you are pregnant, the band can be loosened. After the pregnancy, the band may be made tighter again. Then you can go back to losing weight.

Q: Can the band be removed?

A: Although the LAP-BAND System is not meant to be removed, it can be. In some cases this can be done laparoscopically. Surgeons report that the stomach generally returns to its original shape once the band is removed. After the removal, though, you may soon go back up to your original weight. You may also gain more.

Q: What if I go out to eat?

A: Order only a small amount of food, such as an appetizer. Eat slowly. Finish at the same time as your table companions. You might want to let your host or hostess know in advance that you cannot eat very much.

Q: What about alcohol?

A: Alcohol has an excessive number of calories. It also breaks down vitamins. Therefore, it should be avoided as much as possible. One glass of wine at a reception, a birthday, or a dinner party, though, should not do much harm.

Q: Will I need plastic surgery for the surplus skin when I have lost a lot of weight?

A: That is not always the case. As a rule, plastic surgery will not be considered for at least a year or two after the operation. Sometimes the skin will mold itself around the new body tissue. You should give the skin the time it needs to adjust before you decide to have more surgery.

Q: What will happen if I become ill?

A: One of the major advantages of the LAP-BAND System is that it can be adjusted. If your illness requires you to eat more, the band can be loosened. This can be done by removing saline from it. When you have recovered from your illness and want to lose weight again, the band can be tightened. This can be done by increasing the amount of saline. If the band cannot be loosened enough, it may have to be removed.

Q: How is the band adjusted?

A: Adjustments are often carried out in the X-ray department. They are done there so the reservoir can be clearly seen. When X-rays are used, your reproductive organs should be shielded. Sometimes adjustments can be done in an outpatient clinic or office. Local anesthesia may or may not be needed. A fine needle is passed through the skin into the reservoir to add or subtract saline. This process most often takes only a few minutes. Most patients say it is nearly painless.

Q: How much weight will I lose?

A: You may lose between one-third and two-thirds of your excess weight. That depends, though, on several things. The band needs to be in the right position. And you need to be committed to your new lifestyle and eating habits. You should lose weight gradually. Losing weight too fast creates a health risk and can lead to a number of problems. Nausea and vomiting are only the most minor examples. A weight loss of 2 to 3 pounds a week in the first year after the operation is possible. It is not, though, a rule. Twelve to 18 months after the operation, weekly weight loss is usually less. Remember that your main goal is to have a weight loss that prevents, improves, or resolves health problems connected with severe obesity.

One final point:

It is important that you ask your surgeon all the questions you may have about obesity surgery and the LAP-BAND Adjustable Gastric Banding System. It is also essential that you follow his or her advice.

Your food

Use this section to help you plan what you eat. You may choose what you would like from each of the these food groups each day:

1. Fruit and vegetables

- 2 to 3 servings of fresh vegetables daily
- 1 to 2 servings of fresh fruit daily

2. Bread and cereals

- 1 small portion of corn flakes for breakfast
 - 1 to 2 slices of whole wheat or rye bread each day
- (If you want, you can spread just a little margarine or butter on the bread)

3. Meat, fish, poultry, eggs

- 1 oz. to 2 oz. of meat, fish, or poultry or one egg each day
- (Remove all visible fat from the meat. Remove the skin from poultry. Prepare the meat in ways that need very little fat. Grilling, steaming, microwaving, or boiling are all good ways to do that.)

4. Dairy products

Milk and yogurt are calories in liquid form. In theory, then, they should be avoided. But these types of food have calcium. That makes them an important part of a healthy daily diet. Choose a maximum of 2 cups of skimmed milk or low-fat yogurt and 1 oz. of cheese a day.

5. Fats

Restrict the use of fat to 3 to 4 teaspoons of margarine, butter, or oil per day. You can have low-fat salad dressings and mayonnaise in moderation.

6. Drinks

Drink as many calorie-free liquids per day as you wish. Suitable drinks are:

- tea or coffee
- water

- non-carbonated beverages containing few or no calories
- clear soup

Some doctors have reported that carbonated beverages may contribute to enlargement of the small pouch and should be avoided.

Foods that must be avoided

These foods have a concentrated supply of calories with little nutritional value. These empty-calorie foods should be left out of your healthy diet.

Sugar and foodstuffs containing large quantities of sugar, such as

- high-calorie soft drinks
- syrups
- cakes
- biscuits
- sweets
- jam
- marmalade
- honey



High-fat foods including

- chocolate
- chips
- pies
- pastries

Alcoholic drinks should also be avoided as much as possible. These are drinks such as

- beer
- wine
- liquors
- port
- sherry
- cocktails
- champagne
- other high-calorie drinks.

BMI Chart (kg/m) BMI = kg/m²

		Height (m)									
		1.45	1.5	1.55	1.6	1.65	1.7	1.75	1.8	1.85	1.9
Weight (kg)	70	33	31	29	27	26	24	23	22	20	19
	75	36	33	31	29	28	26	24	23	22	21
	80	38	36	33	31	29	28	26	25	23	22
	85	40	38	35	33	31	29	28	26	25	24
	90	43	40	37	35	33	31	29	28	26	25
	95	45	42	40	37	35	33	31	29	28	26
	100	48	44	42	39	37	35	33	31	29	28
	105	50	47	44	41	39	36	34	32	31	29
	110	52	49	46	43	40	38	36	34	32	30
	115	55	51	48	45	42	40	38	35	34	32
	120	57	53	50	47	44	42	39	37	35	33
	125	59	56	52	49	46	43	41	39	37	35
	130	62	58	54	51	48	45	42	40	38	36
	135	64	60	56	53	50	47	44	42	39	37
	140	67	62	58	55	51	48	46	43	41	39
	145	69	64	60	57	53	50	47	45	42	40
	150	71	67	62	59	55	52	49	46	44	42
	155	74	69	65	61	57	54	51	48	45	43
	160	76	71	67	63	59	55	52	49	47	44
	165	78	73	69	64	61	57	54	51	48	46
	170	81	76	71	66	62	59	56	52	50	47
175	83	78	73	68	64	61	57	54	51	48	
180	86	80	75	70	66	62	59	56	53	50	
185	88	82	77	72	68	64	60	57	54	51	
190	90	84	79	74	70	66	62	59	56	53	
195	93	87	81	76	72	67	64	60	57	54	
200	95	89	83	78	73	69	65	62	58	55	
205	98	91	85	80	75	71	67	63	60	57	
210	100	93	87	82	77	73	69	65	61	58	

<i>Body Mass Index Classification</i>					
Underweight	Ideal BMI	Overweight	Obesity	Severe Obesity	Super Obesity
< 18.5	18.5-24.9	25-29.9	>30	>40	>50

Please note that the BMI does not distinguish between fat and muscle. It is possible for a heavily muscled individual to have a BMI in excess of 25 without increased health risks.

BMI Chart (lbs/in) BMI = lbs./inches² x 704.5

		Height (ft)									
		4'9"	4'11"	5'1"	5'3"	5'5"	5'7"	5'9"	5'11"	6'1"	6'3"
Weight (lbs.)	154	33	31	29	27	26	24	23	22	20	19
	165	36	33	31	29	28	26	24	23	22	21
	176	38	36	33	31	29	28	26	25	23	22
	187	40	38	35	33	31	29	28	26	25	24
	198	43	40	37	35	33	31	29	28	26	25
	209	45	42	40	37	35	33	31	29	28	26
	220	48	44	42	39	37	35	33	31	29	28
	231	50	47	44	41	39	36	34	32	31	29
	243	52	49	46	43	40	38	36	34	32	30
	254	55	51	48	45	42	40	38	35	34	32
	265	57	53	50	47	44	42	39	37	35	33
	276	59	56	52	49	46	43	41	39	37	35
	287	62	58	54	51	48	45	42	40	38	36
	298	64	60	56	53	50	47	44	42	39	37
	309	67	62	58	55	51	48	46	43	41	39
	320	69	64	60	57	53	50	47	45	42	40
	331	71	67	62	59	55	52	49	46	44	42
	342	74	69	65	61	57	54	51	48	45	43
	353	76	71	67	63	59	55	52	49	47	44
	364	78	73	69	64	61	57	54	51	48	46
375	81	76	71	66	62	59	56	52	50	47	
386	83	78	73	68	64	61	57	54	51	48	
397	86	80	75	70	66	62	59	56	53	50	
408	88	82	77	72	68	64	60	57	54	51	
419	90	84	79	74	70	66	62	59	56	53	
430	93	87	81	76	72	67	64	60	57	54	
441	95	89	83	78	73	69	65	62	58	55	
452	98	91	85	80	75	71	67	63	60	57	
463	100	93	87	82	77	73	69	65	61	58	

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Please note that the BMI does not distinguish between fat and muscle. It is possible for a heavily muscled individual to have a BMI in excess of 25 without increased health risks.

More about obesity and the LAP-BAND System...

In America, obesity is a leading cause of preventable death. As such, it is a major public health challenge. Millions of adults are overweight or obese. Because they are, they have a greater risk for health problems. Those problems include

- high blood pressure
- heart disease
- type 2 diabetes
- sleep apnea
- respiratory problems

The BioEnterics LAP-BAND® Adjustable Gastric Banding System can help. Combined with diet and a program of behavior modification, it offers you a chance to reduce your weight. When you do that, you can also minimize the risks to your health.

The LAP-BAND System is not a miracle cure. It is an aid to losing weight. Not everyone will lose weight or keep the weight off. To get the long-lasting weight-loss results you want, you will need to work at it.

The purpose of this booklet is to give you the following information about the LAP-BAND System:

- how it works
- what its benefits are
- what its potential risks and complications might be

This booklet also covers topics such as

- obesity
- related health risks
- surgical and non-surgical options to treat obesity
- eating habits
- frequently asked questions about the LAP-BAND System

¹ Ideal body weight is associated with the lowest death rate in insured populations and is taken from the 1983 Metropolitan Life Insurance Company tables.

² National Heart, Lung and Blood Institute, National Institutes of Health, *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults*, 1998, p. X.

³ American Society for Bariatric Surgery, Web site 10/99.

⁴ Bouchard, C., et al., *The Response to Long-Term Feeding in Identical Twins*. *New England Journal of Medicine*, 1990, 322 (21): 1477-82.

⁵ American Society for Bariatric Surgery, National Institutes of Health, and the International Federation for the Surgery of Obesity Guidelines.

This booklet was developed with the help of the patients treated with the LAP-BAND System and the patients receiving treatment for severe obesity.

The content is based partly on the patient booklet produced by Professor Paul O'Brien of Melbourne, Australia. Contributions were also made by Dr. W. Tuinebreijer of Beverwijk, the Netherlands; R. Hörchner of Beverwijk, the Netherlands; Dr. W.L.E.M. Hesp of Dordrecht, the Netherlands; Dr. R. Weiner of Frankfurt, Germany; Gabrielle Rabner of New York, United States; and several dietitians and psychotherapists.

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CAUTION: This device is restricted to sale by or on the order of a physician.

The LAP-BAND® Adjustable Gastric Banding System contains no latex or natural rubber materials.



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