

**EXPERT PANEL DISCUSSION ON LAP-BAND AND ROUX-EN-Y BARIATRIC PROCEDURES
MARSHFIELD CLINIC AND SAINT JOSEPH'S HOSPITAL
MARSHFIELD, WISCONSIN
May 29, 2008**

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ANNOUNCER: Welcome to Saint Joseph's Hospital and Marshfield Clinic in Marshfield, Wisconsin. You're just moments away from a bariatric expert panel discussion on Lap-Band and Roux-en-Y procedure. Performing these procedures will be Dr. Anishur Rahman and Timothy Wengert. The Lap-Band and Roux-en-Y are proven effective tools to significant weight loss for morbidly obese patients. OR-Live makes it easy for you to learn more. Just click on the "request information" button on your webcast screen and open the door to informed medical care. Now let's go to the doctors.

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MARVIN KUEHNER, MD: Good afternoon to all of you that are watching out there. This is a live webcast from the Marshfield Clinic and Saint Joseph's Hospital in Marshfield, Wisconsin. I'm Marvin Kuehner, one of the surgeons here at the clinic and hospital, and on my right is Dr. Timothy Wengert, who is one of our bariatric surgeons, and Dr. David Winemiller, clinical psychologists, Chrisanne Urban, registered dietician. I'll get it right. And on my left here is Sheila Blackmun, who is the bariatric program coordinator. We're all part of the comprehensive bariatric team here at the clinic and hospital, and we hope to make this next hour very informative for you, very educational, very entertaining hopefully. We're going to show you some videos of a Lap-Band procedure and also a Roux-Y gastric bypass. If you or a loved one of yours is considering this, we hope that you will not only send in your questions but that we'll be able to answer all of your questions for you so that you can move forward with this process. Before I get started, there are just a few housekeeping items. First of all, you can send in your questions by clicking on the little icon on your screen and we will get those off the Internet and answer them as they come in hopefully. And there will be an archive posted later this evening so that if you miss some of what you want to review or if you want to review this with your family or friends, you can do that off of the archive.

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So before we get started, what I would like to do is to spend just a few moments as taking the moderator's prerogative here and talk to you a little bit about the history of bariatric surgery. I have called this "A Surgical Odyssey" because I've been doing this for many, many years and I've seen it when this field was an infant and was more or less an orphan in the surgical field. And I've seen it grow to where it's one of the most used operations or programs in the whole surgery field. So we're going to talk a little bit about the past, how this got started, we'll talk about what's going on now, and we'll talk a little bit about what's available in the future.

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First of all, what is morbid obesity? A simple definition that's very easy for you to remember is that if you're 100 pounds overweight or if you're two times what your ideal weight ought to be, you are probably morbidly obese. Now, the prevalence of obesity is increasing in the world, actually, U.S. particularly. As these numbers here show, the prevalence has

increased by maybe three times. There are some studies that show that perhaps 65 percent of the population is overweight. Now, that doesn't necessarily mean that they are obese in the sense that we're talking about, but at least overweight. One of the most disturbing things, however, is that adolescent obesity is also increasing and has increased perhaps three or four times over the last 10 or 15 years, although the trend may be slowing down in the recent past. The line doesn't seem to be going up as high as it was previously. At any rate, morbid obesity associated with a lot of comorbidities, we call them. One of the most common is diabetes mellitus. It is one of the most common things that occurs with morbid obesity, and some people actually say that it probably won't occur in most people that aren't obese. So be that as it may. Sleep apnea, liver disease, hypertension are some of the other major concerns that we see. There's also social problems as far as employment is concerned and some social interaction problems as well. Surgery for morbid obesity began sometime in the late '50s/early '60s and actually grew out of the concept that was recognized by Dr. Mason down in Iowa that weight loss tended to occur fairly regularly after people had part of their stomach removed or large parts of their intestine removed. And from that simple concept, the procedures evolved into what we have available today.

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So basically, there are three different kind of procedures that are available. The first is a restrictive procedure which simply limits the amount of food that you can eat at any one time. The second kind is a malabsorptive procedure where you can eat food but most of it passes through the gut undigested, unabsorbed, so you don't really get the benefit of the food that you're eating. And then probably the most popular and probably the safest and most widely used is a combination of these procedures, both restrictive and malabsorptive. So some pictures here of what we have done in the past. This is the classic intestinal bypass that was done back in the late '50s/early '60s. Here, as you can see, most of the intestine was rerouted so that the functional piece of intestine was about 14 inches long so that people could eat as much as they wanted to, but it was virtually unabsorbed, and so they lost a lot of weight with this procedure and it worked very well as far as weight was concerned. But overall, these patients became very ill and this operation was then largely abandoned. It did not get completely abandoned, however, because it more or less morphed into what we now call a biliopancreatic diversion with a duodenal switch, which is a modification of that original operation. Not quite as complicated as far as follow-up is concerned and not quite as harsh on patients, and actually is a very good operation as far as weight loss is concerned. And if proper follow-up is maintained, these patients do very, very well. The next kind of operation that we're going to spend some time on a little bit later on is the Roux-Y gastric bypass. This is just a picture of that, and I'll defer until later as far as discussing this, because this is going to be a major part of our program as we go along. The last type of operation are the restrictive operations. This is the classic vertical banded gastroplasty that was started also in the early '80s. And it made the stomach into two pieces basically, a very small pouch so that you couldn't eat very much and then there was a band put around the outlet of that pouch into the stomach so that that food could not get into the rest of the gastrointestinal tract very quickly. And so people lost weight. This kind of fell out of favor as far as being used because it seemed to have a poor long-term outcome, but it has morphed into what we now call a laparoscopic adjustable gastric band. And this is a picture of that. This has been around since the '80s as well, but it's stayed in Europe until about 2000, and then it became available in the United States. And it's rapidly becoming one of the popular operations in the States. We'll talk a little bit more about that later. Now, there are some other things that are available: gastric pacing, sleeve gastrectomies. There are some of these operations that are done in stages. If a patient is too big, perhaps just a part of the operation is done first to help them lose a little bit of weight, and then the second part of the operation is done at a later date so that they get the maximum benefit. We're not going to spend much time with that.

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The operations that we're going to talk about can be done either as an open operation, which is shown here, fairly big incision. Actually depends on how big the patient is as to how big an incision is actually needed for doing this as an open procedure. A more common way of doing it nowadays is laparoscopically, and this shows the what we call port placements, where the instruments are inserted and the operation is done on a video screen. It has essentially a lower morbidity than the large open procedure that I just showed. Now, why don't we treat morbid obesity medically? Well, this is a picture from the *New England Journal* about five years ago, which shows some of the mechanisms that go into maintaining your weight. And these mechanisms work no matter whether you're starving or whether you're overweight. And as you can see, this is a very complex thing. And so to try to interfere with this with a medication that might be safe is really pretty hard to do and so far hasn't really been accomplished. And this is another diagram from the *New England Journal* just this past month. And it shows similar things. And obviously, if you'll look at this, you'll see that this again is a very complex mechanism that helps us maintain our body. And to interfere with this medically is virtually impossible.

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Now, there's some other things that have been coming along to try to treat morbid obesity that are less invasive. There are -- all of these procedures, except robotic surgery, which is another way of doing the laparoscopic procedure, are done through endoscopes that are placed through natural orifices: restrictive endoluminal procedures, you can do stitching from the inside; malabsorptive endoluminal procedures are done by putting actually plastic tubes within the intestine so you can't absorb food; and then the last is just a combination of all of these other things kind of put together, and this is what it's called.

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This is a life-changing procedure, however, and it's a very important procedure, I think, because of the things that a morbidly obese person is going to have to contend with. So here's a couple sitting on the airplane and the woman is talking to the man and she asks him, "What do you do?" And he answers her by saying, "I'm a bariatric surgeon." And then her understanding is that, "Oh, you make people thin?" And he counters by saying, "No, I make people well." And this is kind of where we are, because I think that what happens with bariatric surgery is that we give patients who might not have much of a future actually a future so they can grow up and play with their kids and do things with their kids and live life like, I think, like most people were meant to live. The follow-up of these patients is extremely important. People do much better if they have adequate follow-up. Compliance rates are fairly low, unfortunately. About the only way that we can get 100 percent follow-up is if we were to jail these patients, but obviously that is not anything that we're going to be doing. But again, for those of you that are patients out there, you need to have follow-up if you're going to be as successful as you should be with this operation.

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So, everything then seems to be nicely in order, but then when you look at it on the big picture, there's a lot more things that we need to see. And so what we're going to do now is to spend some time, again, hopefully taking your questions, but we're going to be talking about the Lap-Band and the Roux-Y gastric bypass, and for that I'm going to give the mic and things to Dr. Wengert.

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TIMOTHY WENGERT, MD: Thank you, Marvin. First off, I think we'll talk about the Lap-Band. And in order to give our audience an idea of what actually that entails, we have an animation that I think we'll show now and I can talk over that. Here we see this is going to be a laparoscopic placed band. They're placing what we call the trocars, or ports, through small stab incisions. There's a camera that's inserted, then the instruments are passed through the other ports to manipulate the internal organs and place the band. This is a schematic of the stomach, and the band is going to go around the upper portion of the stomach. This shows it being wrapped around the proximal part of the stomach where the

esophagus, the swallowing tube, comes in. There's then a tube that passes up to the port that allows us to instill fluid into the balloon, which will then constrict the band, make it tighter around the stomach. And that's adjustable. You don't want it too tight, you want it just right. The Goldilocks method. Now, when people eat, the food will come down into the upper part of the stomach and it will be held up there, so patients will feel full, and in theory, quit eating. And this shows a band that has been tightened down around the stomach. Again, we see the animation of food coming down into the upper pouch of the stomach. It will sit there and only slowly be released into the rest of the stomach. The advantage again is that patients feel full, they quit eating, and that's essentially how a restrictive operation works.

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MARVIN KUEHNER, MD: I've got a question here from John, and I think this is probably for you: "Are these procedures only performed on people of a certain age group?"

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TIMOTHY WENGERT, MD: No. Patients of all ages can benefit from weight loss. Obviously, your age will play some role in which operation is chosen. And patients who are older may have less benefit. For example, if someone who is 100 years old, they're probably not going to gain much benefit from going through an operation that's going to take several years to come to fruition.

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MARVIN KUEHNER, MD: I've got another question here from Levi: "What is NASH?" I don't know if you want me to answer that or not.

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TIMOTHY WENGERT, MD: I can answer that.

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MARVIN KUEHNER, MD: All right, go ahead.

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TIMOTHY WENGERT, MD: NASH is nonalcoholic steatohepatitis. Basically what it is, is fatty infiltration of the liver. And over time that can cause scarring to the liver similar to what alcohol does to the liver. You can develop cirrhosis and liver damage. Patients who are diabetic are more prone to that, and patients who are overweight are more prone to diabetes. So I hope that answers the question.

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Getting back to bands, I think what we'll do next is show some live operation footage. This was performed by my partner, Dr. Rahman. Could we show the footage now? And this will give you a little better idea of actually what live surgery is like. This is a trocar being inserted through the abdominal wall. These are the various layers in the abdominal wall as the camera is being passed through. Now we're inside the abdomen and we see the liver up here. The stomach is right over here. And we're passing an instrument behind the stomach, and it's going to come up, up over here. So this is the swallowing tube here, the esophagus. Now we're threading the band. This is the fill tubing. The band is going to be attached on the end that's out of camera sight right now. We're passing this around the stomach. Then you thread the catheter through the band. This part here is the band, and you can see the balloon there. And this actually has a latch on it, so it'll lock in place. Now, in order to keep this band from slipping up or down, we secure it by sewing the stomach over -- you have to be careful with the needle, though. You don't want to pop the balloon.

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So it usually takes three or four sutures to create a sort of tunnel to encompass that, and this is all sewn in place now. Next, we'll take the end of the fill tubing. He's taking the retractor off here. That holds the liver up. That's the instrument he used to initially insert the camera. And this shows that it's actually grabbing on the tubing. He's going to pull it out through that opening there. And now he's putting the excess tubing in after he's connected the port to the end of it. And this shows him testing the port here. That's going to be

sutured or sewn down to the muscle layers so it doesn't turn, because you have to be able to access that with the needle to fill that later on. It has to be a special needle, too. Now, as you can see, the advantage of that operation is it's fairly simple, it's easy to do laparoscopically, you're not dividing the bowel so there's less risk of injury to the bowel. The disadvantage of that operation is that the weight loss takes longer. It usually takes about twice as long to lose an equivalent amount of weight as one would do with the other operation we'll be talking about later, the Roux-Y. It hasn't been around, at least in the United States, for a long period of time, so the long-term weight loss, we don't know how long that's maintained. And the amount of weight, patients lose about half of their excess weight. So if you're 100 pounds overweight, you would lose about 50 pounds. If you're 200 pounds overweight, you'd lose about 100 pounds.

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MARVIN KUEHNER, MD: Now, this looks like a fairly simple, straightforward operation to me. Is this done inpatient, outpatient? What happens?

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TIMOTHY WENGERT, MD: We keep our patients overnight just to make sure they aren't going to have any problems. And some patients in central Wisconsin travel from a great distance, and so it's just easier to keep them overnight to make sure they don't have any problems. But there are some centers, especially in some cities, for example, that run these strictly as outpatient procedures.

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MARVIN KUEHNER, MD: Now, when you put the band in, is the patient done then, or do they have to come back, or what happens with this band after it's put in?

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TIMOTHY WENGERT, MD: One thing that I didn't touch on is he checked the balloon by filling the port, and then he empties it. And the port and the balloon remain empty so there's essentially no impediment to or restriction from the band initially after surgery. And we want to wait for that to scar in so it will have less change of slipping. If patients vomit early after surgery, there's a chance that the band could become dislodged and cause problems. So we keep the band empty, the balloon emptied, and then later on patients come back in a couple of weeks and then we'll start the fill process.

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MARVIN KUEHNER, MD: Okay, and a question here from Julie, I think, is on that same thing: "Can the Lap-Band be adjusted in the future, and if so, does it require another surgery?"

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TIMOTHY WENGERT, MD: The only reason you would need to reoperate on these is if the port flipped and they couldn't access it or if the port developed a leak or if the balloon or the band had developed a problem. But short of that, yes, that's the advantage of having that port is you can access that usually with a simple needle. It's a special needle but a needle in the office, so it's an office visit, takes five, ten minutes. You empty the balloon and you fill it with a set amount and then you have the patient test it by taking a drink of water.

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MARVIN KUEHNER, MD: Now, along that same line, now, can family members then learn how to do this? Can the patient learn how to do it themselves? Is that recommended?

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TIMOTHY WENGERT, MD: No. And the problem is, is that patients may overfill the balloon, in which case they might not be able to eat at all. They run the risk of developing an infection at the port site. We have seen patients who maybe have family members in the health industry who tried to adjust their bands, and it's not worked out.

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MARVIN KUEHNER, MD: So what about after I've lost all the weight I want to lose? Should I have this band removed? Can I have it removed? What's the story there?

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TIMOTHY WENGERT, MD: Certainly you can have it removed. The problem with removing it is that in invariably you'll regain your weight. These types of operations, when reversed, no matter what operation you have done, nearly universally patients will regain their weight. Even if it was 10 years ago and they've had great success and they say, "Yes, I've learned my lesson and I know how to eat now and I exercise," for some reason, they regain their weight.

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MARVIN KUEHNER, MD: David, this one's for you. How about holidays and special events? Can I have it filled, loosened in case I want to go out and have a nice big turkey dinner for Thanksgiving? Should I loosen my band and go do that?

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DAVID WINEMILLER, PhD: Well, that seems like a reasonable question at the outset, but part of the -- one of the most important things for people to realize when they're doing this is that this is truly a lifelong commitment, and that covers every meal, including holidays and special meals. So it's important to understand that this is for the long haul without exceptions.

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MARVIN KUEHNER, MD: And Chrisanne, what about the diet with the band? What do we put these people on or what are they going to have to live with, so to speak, for the rest of their life?

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CHRISANNE URBAN, MS, RD: This is a restricted procedure, so it's very important we educate patients prior to going through the procedure of what they're going to be doing differently with their diet. Two weeks prior to having the band placed, Dr. Rahman, his preference is to have the patients follow a full liquid diet. And a full liquid diet would be things such as yogurt, sugar-free, lowfat pudding, milk, that type of thing. So they would follow a full liquid diet two weeks prior. And the reason they have them follow that is because the liver is overlapping in the stomach, in the area where they're going to be working. And usually, when you're following a high-fat, high-calorie diet, it can enlarge the liver, and many times obese patients can have an enlarged liver. And by following the full liquid diet, kind of allowing that liver not to be enlarged. Postoperatively there is a feeding protocol that we follow through with the patients and work with them. And when they come in and have their fills, too, it's important that they follow specific diet, too.

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MARVIN KUEHNER, MD: Thank you. Well, this one's for Sheila, now. Again, this seems like a fairly simple thing for people to do. How long are they going to have to wait in general to get this done? Can they just come in and say, "I want a Lap-Band put in," and it's going to happen tomorrow or within a reasonable period of time? What's the story with that?

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SHEILA BLACKMUN, RN, BSN: Most patients will require about six months of dietary teaching and other evaluations in order to have bariatric surgery. And the time frame is generally set by your insurance company and what their requirements are. We have patients that have a six-month requirement, we have patients who have 12, and now we've even seen some 24-month requirements. And it seems that patients feel that because technically speaking the Lap-Band is an easier procedure, they think that the evaluation process and the preoperative process should also be easier, but that isn't the case. You go through the same evaluation in the same length of time as any other bariatric operation.

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MARVIN KUEHNER, MD: And another question here from Janice along the same line: "How do we get our insurance company to see that we need this surgery?" What do we do if they say no?

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SHEILA BLACKMUN, RN, BSN: Well, fortunately, most major insurance providers do cover bariatric surgery. When we have patients who don't have coverage, we just encourage them to talk with their employers. A lot of times employers negotiate contracts with their insurance providers and they can either add that on or choose not to add on. So a lot of times if you can help your employer to see that it will benefit your health and overall your productivity in your line of work, that sometimes helps. A lot of times, too, your physician is helpful in that he can get information on the recent studies as to the effectiveness of bariatric surgery, and we encourage people to send that to their insurance providers also.

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DAVID WINEMILLER, PhD: There's also an argument to be made in terms of reduced healthcare costs. Once you reduce the obesity, the comorbidities that were mentioned before certainly reduce and all of the costs for taking care of those problems reduce as well.

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MARVIN KUEHNER, MD: Here's one from Egypt actually, from I think it's [Taraq]. I expect I'll ask you this one, Tim. "What preoperative preparations do you do for the patient?" And what is an ideal patient for the Lap-Band?

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TIMOTHY WENGERT, MD: The patient ideally -- personally, I think patients who don't have as much weight to lose, so in the lower BMI -- body mass index -- range. A BMI of 35 is about 75 pounds overweight. So I think if you start with a lower target, you're more likely to be successful and patients are able to achieve a better outcome. They shouldn't have problems with their stomach, meaning they shouldn't have gastroparesis. Their stomach should be able to empty, they shouldn't have problems with gastro reflux or esophageal reflux or stricturing of their esophagus from acid reflux. And there are a host of other diseases, such as lupus, et cetera, that are contraindications to that procedure.

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MARVIN KUEHNER, MD: Okay. I think it's time for us to move along a little bit, so why don't we go on to the next segment here?

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TIMOTHY WENGERT, MD: All right. Next we're going to talk about the Roux-Y gastric bypass, and it's probably the most common operation done for bariatric surgery in the United States anyway. So first, again, we're going to have an animation to sort of show in a schematic form what actually the operation entails. And if you could roll that tape now. As we start here, the idea is we're going to do both the restrictive and the malabsorptive operation. We're first going to divide the stomach and make a small pouch. That's the part that's going to be used when you eat. We then move down to the small intestine and we divide it in half. The distal part of the small intestine, the part that runs on downstream to the colon, we're going to bring that up and connect it to that gastric pouch. So the food is going to come down that route. The digestive juices that come in this part of the intestine over here we're going to plug that in, or anastomose it, further downstream. And that length that we bypass is variable, or can be variable, and that also plays some role in how much weight patients have but it can also play a role in how much diarrhea they have. So when the patient eats, the food passes down the part of the intestine, and then when it gets to that junction downstream, the digestive juices will mix with it. That connection there is called the gastrojejunostomy, and that's probably the most critical connection point. The other part will show the digestive juices in the yellow here, and that again will come down and connect to the intestine further downstream. So in essence, you're dividing the upper part of your intestine into two streams.

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SHEILA BLACKMUN, RN, BSN: Could you explain what happens to the rest of the stomach?

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TIMOTHY WENGERT, MD: Well, the stomach that isn't being used just kind of sits there and wonders what happened. But it just stays there. It still makes acid and other things. The

advantage of this is that patients are able to lose more weight than they are with the Lap-Band. Statistically, they lose about two-thirds of their excess weight. And we know, given the long history of this operation, at least in the United States, that that weight loss is maintained. At about 10 years, approximately 60 percent of the excess weight is kept off. So it's a very effective operation.

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MARVIN KUEHNER, MD: One of the things, as far as the stomach staying there, does anything happen to that stomach or over time? Does it atrophy, does it do anything? Can this operation be reversed down the road?

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TIMOTHY WENGERT, MD: The operation can be reversed. That's why we leave the stomach there. It can contribute to ulcer formation. And so sometimes rarely, the stomach might have to be removed. Patients can also develop problems with stomach cancer, just like any other patient can develop stomach cancer. And so if patients are having unusual symptoms later on, it might be a sign that we need to investigate that. Now, we also have some live tape. This is from an operation that I did, and I'd like to roll that tape now so we can -- this is a fairly long tape. This operation typically takes me about three hours on a good day. This is a patient who's about -- I believe her BMI is less than 40, but close to it, so a little less than 100 pounds overweight. Now what I'm doing is finding the upper part of the small intestine. I measure down from that about 50 cm to divide the bowel. And that's -- what we're using here is what's called an ENDO GIA. It's a stapling device that has actually revolutionized minimally invasive surgery. Really, this would take an inordinate long time to have to sew these and divide the bowel by hand. Here we're dividing the mesentery. That's that yellowish tissue inside the -- I don't know if you can catch a little pulsation now and then of the blood vessels that feed the intestine. And you need to do that in order to have that limb on this side be long enough to reach up to the intestine. Now what I've done is I've measured from that point downstream about 150 centimeters. And I always measure it -- even though you can measure it 50 times and get 50 different point, but I try to be consistent. And I brought that upper part of the bowel where we had divided it, that's on the back side, and I've secured them or stabilized them by placing some sutures side to side. And now I'm going to try to staple this bowel together.

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MARVIN KUEHNER, MD: While we're watching this, there's a question here from Natasha. "Which surgery is recommended more, gastric bypass or Lap-Band?"

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TIMOTHY WENGERT, MD: It depends on the surgeon. But I think gastric bypass is the more common operation in the United States. A lot more of this operation is done than the band. And some surgeons who do bands believe in them and that's all they do. Some surgeons will do both, and we do both here. And I tend to have a preference for one over the other, and I think that preference is different for different surgeons.

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MARVIN KUEHNER, MD: And a similar question from Jennifer: "Does a Roux-Y patient lose more weight than a Lap-Band patient?"

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TIMOTHY WENGERT, MD: Yes. If you're 100 pounds overweight, after a Roux-Y, on average you lose about 65 pounds. If you have a -- and that's about a year and a half out. If you have a Lap-Band, you would lose on average about 50 pounds, and that's about three years out. At this point, I'm trying to insert the stapler into both limbs of the bowel to connect the bowel to itself. This is the hardest part of the operation for me, and it really depends on who's helping me.

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MARVIN KUEHNER, MD: Instead of using the staplers, can you hand sew this? Is that quicker or more accurate, or is this safer? Why do you use the stapler?

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TIMOTHY WENGERT, MD: This is easier. Even though, as I said, it's the harder part, but it is -- you can sew it, and there are some people who do.

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SHEILA BLACKMUN, RN, BSN: Are there things that a patient can do before they have a major operation like this to reduce the risk of complications?

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TIMOTHY WENGERT, MD: The main things are quit smoking. If you can lose a few pounds, and it doesn't have to be much, it will help shrink the liver, which will tend to make the operation a little easier. That's about it. I mean, there's not much that they're going to be able to do. Now, here I'm firing the stapler to connect the bowel. There's going to be one opening remaining after I remove this, and that's where the bowel goes in. But essentially what I'm doing is connecting this side to this side, so there's going to be a hole between those two and they're going to be stapled together.

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MARVIN KUEHNER, MD: This looks like, so far at least, a very complicated surgery. Are there things that tend to go wrong with these operations?

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TIMOTHY WENGERT, MD: Well, I also do other operations laparoscopically, and I think on a technical skill level, this is probably the most complicated operation. Because if you're doing a laparoscopic bowel resection, for example, what we've done so far, we'd basically be done after that type of operation, basically removing a piece of bowel and connecting the two ends back together. But we're only halfway done now. Now we have to go back and create a small stomach and connect that other end of the bowel to that stomach. So here it's divided. Now, there are some potential internal hernia locations, and I've placed some sutures to kind of close up that opening to prevent any bowel from getting by. And here are the jejunojejunostomy, or the connection of the small bowel to the small bowel has been completed. Next, what we'll do is we'll pass -- do you see that blue market up there on the right? That's actually on the end of the Roux limb, or the intestinal limb. Here I've dissected out the stomach. I'm going to insert a stapler across the stomach. We've moved up now. Here's the liver up here with the retractor. Here is the esophagus. Had a jerky camera holder that day. The esophagus, or swallowing tube, is coming down here. So this is the stomach. I'm going to make a small pouch just above here. It'll be a little clearer here once I get the stapler in place. I don't know what's holding me up there.

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SHEILA BLACKMUN, RN, BSN: And how much will that pouch hold once you create --

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TIMOTHY WENGERT, MD: Well, I try to make the pouch approximately 5 cm from where the esophagus, the swallowing tube, comes in down to the staple line, and then it's about 2 cm wide. So that would give you a volume of about 15 milliliters. A little more than that, but roughly. Now, here I'm completing the pouch. This is going to be the gastric remnant over here. This is going to be the gastric pouch that the food is actually going to be coming down when the patient eats later. So again, we see the liver being lifted up. And actually, I find when we do this part of the operation, you have a lot better exposure, you're able to see things a little better with the laparoscope than you are on the open procedures. Because in the open procedures, this is way down at the end of a deep hole. All right. Now what I'm going to do. That's the gastric pouch right there. I'm bringing up this piece of tubing that I had secured to the end of the intestine, so I was able to drag that up behind the stomach. I'd prefer to do what we term a retrocolic-retrogastric anastomosis, and the reason is that I think it's a straighter shot, it just seems to lie there better, and I don't have to make that limb as long. Some centers will bring that in front of the stomach.

00:39:02

SHEILA BLACKMUN, RN, BSN: So you're bringing that behind the stomach?

00:39:04

TIMOTHY WENGERT, MD: Yes.

SHEILA BLACKMUN, RN, BSN: Okay.

00:39:05

TIMOTHY WENGERT, MD: So this is the stomach here, and this is just right behind it coming up. And I'm going to connect that bit of bowel to this. Right there is the gastric remnant that I'm going to use, or the gastric pouch. So now I'm passing an anvil. It's a metal disk that has the -- basically it's the bottom of a stapler. If you ever look at a stapler, there's a little grooves in the bottom of it that form the staples when they fire, and this is a circle with the little grooves etched in it. And I bring it past that through the mouth on a tube, and we'll bring that tube out through the side and we'll deliver that little anvil that it's called to the end of the stomach. And this is probably the most critical part of the operation, because when patients have problems with this connection, that's a major problem. And so I tend to be a little fastidious about this.

00:40:33

MARVIN KUEHNER, MD: Now, talking about the complexity of the operation, I presume these operations are not yet done as an outpatient or overnight stay, or what's the situation there?

00:40:43

TIMOTHY WENGERT, MD: There are actually some centers that may do these as an overnight stay. I don't know anyone who does them strictly as an outpatient. But they'll do at most a 23-hour observation. We tend to keep our patients on average about two to three days after a laparoscopic, and they're probably in a day longer after a regular open operation. It's a far cry from the bygone days when patients would come in and stay a week regardless of what they had done.

00:41:22

MARVIN KUEHNER, MD: Yeah, I remember those days well. And it's amazing what you can learn from laparoscopy that you don't do yourself. You can move open patients out much quicker than you can -- or than we used to in the past.

00:41:36

TIMOTHY WENGERT, MD: I think the one thing we've learned from the laparoscopic era is that we probably babied our patients too much. Now I've inserted the stapler through another small incision. That's what this metal thing is. I've inserted it into the end of that bowel that I had opened there that I was just messing with. And now there's a small point that's going to come out through the side, and that anvil will attach. Now, if you can imagine the stapler, what it is -- I compare it to a donut hole cutter or a donut hole maker. It will make a complete circle of staples that will connect the two pieces of bowel together. And then it has a little knife that cuts a hole in the center of that -- sort of, again, like cutting out a donut hole. Now, this is a trocar coming through.

00:42:35

SHEILA BLACKMUN, RN, BSN: One of the questions I hear a lot from patients is can that new stomach stretch?

00:42:43

TIMOTHY WENGERT, MD: It can, but there's not much stomach there to stretch. I think when patients start to regain weight, it's not so much the stomach that stretches, it's this connection that stretches. This connection, the stapler, the hole, the anvil itself is 21 mm, so the outside diameter is a little less than an inch. The internal diameter that we're left with is 15 mm, which is a little more than half an inch. And we make it small on purpose because we don't want that pouch to empty too quickly. We want food to kind of get held up there a little bit. Patients feel full, they don't eat as much in one sitting. And over time that can stretch out. Sometimes patients can develop a stricture, or a narrowing there, and so some surgeons have shifted to using a larger diameter staple. The problem with that is then patients are able to eat more sooner, and there's a question in my mind, anyway, of how

much weight they're going to be ultimately able to keep off. Because that anvil part had been dragged down through the mouth, I'm encompassing that in a plastic bag to move it out, hopefully to prevent the skin at that site from getting infected. Now, all I have left to do is to close off that opening that I had made in the end of the bowel, and I'm doing that with another stapler. And then this is the stomach right here, this is the small intestine that's been brought up and connected. And next what I'm going to do is I like to reinforce that staple line and I place some sutures to oversee it. As you saw in the last procedure, Dr. Rahman, he used curved needles. I prefer to use this device. It's called an Endo Stitch. And it's just personal preference.

00:44:47

MARVIN KUEHNER, MD: Now, again, this anastomosis, this connection can be hand sewn completely; you don't have to use a stapler.

00:44:54

TIMOTHY WENGERT, MD: It can be hand sewn. You can use that blue stapler, what I call the GIA stapler that I've used, the linear stapler. You can use both; you can use a stapler and hand sew parts of it. There are all sorts of way described. I prefer this because I get a uniform anastomosis, or connection, every time. Again, I think the size of this connection is important to weight loss and ultimate success. When you hand sew it, it might be a little bigger this time, it might be a little smaller next time. So there's more variability.

00:45:36

MARVIN KUEHNER, MD: Now, just looking at that pouch, that looks pretty small. And I know that everybody's talked about how much it will hold, but how big is that if I look at my hands? Can I say how big it is?

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TIMOTHY WENGERT, MD: Well, you've got bigger hands than I do. I generally tell patients to look at their thumb, and it's usually about the size of their thumb, just to give them an idea. And if you go from a stomach that's bigger than your hand to a capacity the size of your thumb, you can see why you're not going to be able to eat as much in one sitting. Now, again, because of the possibility of internal hernias, there's defects behind the mesentery here, I'm closing them up. This defect is called Peterson's defect, and I guess you arrive when you have something named after you. But again, it's all to prevent any internal twist to the [bar].

00:46:31

MARVIN KUEHNER, MD: One of the questions that I hear from patients is how certain can they be that their sensation of being full will correspond to the smaller stomach pouch being full or will they continue to experience a sense of hunger?

00:48:45

TIMOTHY WENGERT, MD: Well, that feeling of satiety, that feeling of fullness, does tend to go away. Some patients won't have it at all, though that's unusual. Most patients will feel full with small volumes. But after about a year to a year and a half, they don't have that feeling anymore. And that seems to correspond to that little blip. And as I said, they usually lose most of their weight over the first year to a year and a half, and then they'll regain maybe 10 percent of the weight they lost, and then they tend to plateau. And it seems to be about the same time that that feeling of satiety goes away. Is that because it dilates up? Maybe there's some hormone changes that affect -- Dr. Kuehner has shown that slide with all the various different pathways that help us maintain or gain weight. And it seems that the ghrelin level, which is one of the hormones that the stomach makes, seems to correlate because it reverts to normal about that time, too.

00:47:50

SHEILA BLACKMUN, RN, BSN: Dr. Wengert, a lot of our younger female patients have problems conceiving, and so it's hard for them to understand why they need to be on birth control for a year or a year and a half after they have --

00:48:09

TIMOTHY WENGERT, MD: Well, we advise patients to try to avoid becoming pregnant until their weight has stabilized, and that's, again, about the first year to year and a half. And the reason being is when you're in this steady weight loss phase, your protein levels tend to be low and the developing baby needs protein. Secondly, there are specific vitamin deficiencies that can develop in this patient population. The one most critical for the developing baby is vitamin B12. So, not that you can't become pregnant and have a healthy baby. You need to be monitored very closely and it's usually easier just to avoid that until everything is stabilized.

00:48:54

MARVIN KUEHNER, MD: Well, let's get back to a few more questions. And for some other people on the panel, you've been doing an awful lot of talking. David, I see a psychiatrist all the time. Every week I go see my psychiatrist. Why do I have to come to see you for this particular procedure?

00:49:09

DAVID WINEMILLER, PhD: That's another excellent question. The types of information that we are gathering in our psychological evaluation is fairly specific to the issue of behavior associated with either diets or exercise, how people follow through with their health care, and that sort of thing. And that level of detail generally isn't covered in a standard psychiatric sort of interview, so we do a specialized type of assessment specifically to help us understand people and how they're going to interact with this procedure.

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MARVIN KUEHNER, MD: Do you need to see them postoperatively, then, at all? Is that part of the plan or do you selectively pick people or have them selectively decide they want to come, or what?

00:49:58

DAVID WINEMILLER, PhD: I think that everyone can benefit from support both before and after the procedure. The extent to which people need follow-up afterwards is somewhat of an individual issue. We try to play it on a case-by-case basis and see who needs what, make that available to them.

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MARVIN KUEHNER, MD: Of course, I heard the magic word there, support. What about support groups?

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CHRISANNE URBAN, MS, RD: Yeah. As Sheila indicated, part of the program here at the Marshfield Center, patient needs to attend two support group meetings. We have ongoing support groups.

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MARVIN KUEHNER, MD: That's preoperatively, though.

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CHRISANNE URBAN, MS, RD: Preoperatively, too. But they're also encouraged to come back afterwards, postoperatively, too, to get that support. So the support groups are for people who are thinking of having surgery or who have had the surgery. And throughout the Marshfield Clinic system, there's support groups in Eau Claire, Minocqua. We have a daytime and an evening group here in Marshfield. And they're really good to come and to listen. A patient will learn more at a support group than we can possibly teach you because you get to talk to the people who have had the surgery.

00:51:10

MARVIN KUEHNER, MD: But I'm very shy and timid. Am I going to do any good by coming to a group like this?

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CHRISANNE URBAN, MS, RD: We don't make anybody share anything or get up in front of the group and state their name or their weight or anything like that. So we understand

some people don't like to participate, so they can come in and just kind of have a seat and listen.

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MARVIN KUEHNER, MD: Okay. And what kind of diet now? This whole thing looked, like I say, a very, very tiny -- what is your diet instruction for these patients? What are they going to have to do?

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CHRISANNE URBAN, MS, RD: As I indicated even with we were talking about the Lap-Band, it's very important for the patients to come in and get education, and part of that is preoperatively to come in. Also, when they're in the hospital, they'll see a dietitian, she'll come and see them there. But they'll also be coming in for postoperative follow-ups. And the diet is very important. You can't just go home and leave the hospital and eat whatever you want. You've had surgery. You've got to allow the part of your digestive system to heal. So the diet is very important, and you can't go back to what you were doing before. You've made changes and you've got to remember your whole goal of having this surgery is what: to lose weight.

00:52:24

DAVID WINEMILLER, PhD: Making that dramatic a change is a very big undertaking, and it's one of the reasons that we work so closely with people to try and help them prepare for that change ahead of time and be able to change what oftentimes is several decades worth of eating habits.

00:52:43

CHRISANNE URBAN, MS, RD: And the one thing I'd have to say here, too, is we have a good team. I think we work really well together. And if I have a problem, we email David or I'm going to contact Sheila or they'll get in touch with Dr. Wengert or we have a concern. So the team here at the Marshfield Center, we work well together.

00:53:04

MARVIN KUEHNER, MD: I think -- this is for Dr. Wengert. I think you probably answered part of this, but precautions that you do to prevent leaking. And then what is the average recovery time for Roux-Y surgery?

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TIMOTHY WENGERT, MD: Well, the precautions I do is I check the anastomosis as best I can at the time of surgery. I leave a tube in, an NG tube, overnight. I oversee the anastomosis in addition to the staple line. And so far that's worked well for me. As far as recovery, usually for a laparoscopic, usually in the hospital two to three days, for an open procedure three to four days. After they go home from the hospital, depending on what they do, I try to discourage patients from wanting to rush back to their jobs. I think they need to give themselves the time to heal and adjust to the dietary changes that are going to happen. So it's usually about three to four weeks after a laparoscopic and probably four to six weeks after an open procedure until they're back to normal.

00:54:04

MARVIN KUEHNER, MD: And one other question here that I think comes from the same [Taraq] that was here a little bit ago is what is the minimal size that you have to leave this pouch?

00:54:16

TIMOTHY WENGERT, MD: I think the smaller you make it, the more likely you're going to lose weight. That said, I try to make it the dimensions I mentioned just because that's what's described. And I think if you make it too big, you're more prone to develop not only being able to eat and lose less weight but I think you're more prone to develop marginal ulcers, and that's a real big problem.

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MARVIN KUEHNER, MD: What about taking out the rest of the stomach when you do your primary operation? Is that overkill?

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TIMOTHY WENGERT, MD: You can do that. It's kind of hard to reverse the operation later on if the patient decided it wasn't for them.

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MARVIN KUEHNER, MD: So one other question for you, Tim, at least that I have here now, is we hear a lot about diabetes being cured by these operations. Would you say a few words about what happens to diabetes in most of these patients?

00:55:06

TIMOTHY WENGERT, MD: Well, most of these patients have associated illnesses from diabetes, high blood pressure, high cholesterol, sleep apnea very common. And it's amazing when they lose weight. You don't even have to lose much weight before your sleep apnea will be cured. Ninety-five percent of patients have their sleep apnea cured. As far as diabetes, anywhere from two-thirds to 80 percent of patients will have their diabetes cured to markedly reduced insulin or medication requirements. Again, about two-thirds of patients with hypertension, high blood pressure will have that cured or markedly reduced medication requirements. The same thing with high cholesterol. So all these metabolic diseases, and these are diseases associated with obesity, are helped by this. And that's why now the Bariatric Society is the Bariatric and Metabolic Surgical Society because we are curing metabolic disease, which is probably the best thing for these patients.

00:56:09

CHRISANNE URBAN, MS, RD: I have a question. You say it cures, but can they come back. If my diabetes goes away, can it come back?

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TIMOTHY WENGERT, MD: Well, type 2 diabetes as opposed to juvenile diabetes. It can come back, but usually it does when patients regain their weight. If they maintain their weight, they're usually good.

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CHRISANNE URBAN, MS, RD: So this isn't a guarantee that I could keep my weight off?

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TIMOTHY WENGERT, MD: If you want a guarantee, buy an appliance. No, there are no guarantees. Because the problem is, is that everything is in your control. This is a tool. This isn't you come in the hospital, you have the operation, and everything's done for you. It helps you by reminding you if you eat too much, if you eat too fast, you'll get sick. And so you have to adhere to the diet. And you have to make the lifestyle changes that breed success.

00:57:07

DAVID WINEMILLER, PhD: I think that's one of the most important points for people to realize, that this is in fact a very powerful tool, but it does not take the control or the responsibility out of the hands of the individual to monitor what they're doing, make sure they're getting appropriate dietary intake and appropriate activity level.

00:57:29

MARVIN KUEHNER, MD: Now, we've been talking about a powerful tool and how well this works and so forth. Are there any things that you as a surgeon -- maybe I'll ask you, too, and you also -- that would prevent you from operating on a patient, any medical conditions?

00:57:42

TIMOTHY WENGERT, MD: Well, yeah. If a patient was too ill to withstand the operation and I thought the operation would kill them, obviously I'm not going to recommend surgery.

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MARVIN KUEHNER, MD: How about weight? How about extra weight?

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TIMOTHY WENGERT, MD: Weight: they have to be a minimum of BMI of 35, which is about 75 pounds overweight, and have associated problems like diabetes, or 100 pounds

overweight, a BMI of 40 before they would qualify for the operation. As far as contraindications --

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MARVIN KUEHNER, MD: First of all, is there anyone too heavy? Maybe I wasn't listening.

00:58:16

TIMOTHY WENGERT, MD: Too heavy? Only if their problems are associated with it. You're better off, though, if you can lose weight, because if you're too heavy, you're probably not going to lose enough weight. If you're 700 pounds, even if you lost 300 pounds, you're still 400 pounds and probably 200 pounds overweight. You're probably not the best candidate at that point.

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MARVIN KUEHNER, MD: Any psych things that you look for, David?

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DAVID WINEMILLER, PhD: Yeah, there's basically two things that I'm looking at. One is whether or not the person has a specific disorder or behavior pattern that would go against a successful outcome, something like an active eating disorder, bulimia or that sort of thing. Or something like if they have a major depression that's not treated that would interfere with their inability to follow through. The second thing that we're looking for, Chrisanne had talked about the bariatric team. Really, we want patients to be a part of that team, and so their ability to interact and work with the members of the team in a collaborative fashion is another key thing that we're looking for as well.

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MARVIN KUEHNER, MD: Anything from the dietary history that you pick up that would say this is not a good candidate for one or another of the operations, or for either, for that matter?

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CHRISANNE URBAN, MS, RD: I think we're looking at a person's motivation, their commitment, their honesty when working with them. We don't expect them to come in and lose a large amount of weight, but we want to see them following through with our recommendations, whether it be keeping a food record for a week or whether it be switching from eating two meals a day to three meals a day. And so we're here to help them. We want to see their success. I love to see my patients come in postoperatively or at the support group and see how they're doing, because -- and that's another thing. If they're having a challenging time postoperatively, we want to see you come back in and work with us or work with David or something like that. That's what we're here for.

01:00:28

MARVIN KUEHNER, MD: Okay. Well, we're running out of time now. If there's anyone out there that has another question they'd like to send on the email, do it now before we sign off. Does anybody else have any comments that they want to make?

01:00:39

SHEILA BLACKMUN, RN, BSN: I would like Dr. Wengert to just address the activity issue. We do have a lot of patients who don't see that it's possible for them to increase their activity because their weight prohibits them because of joint problems and just limited mobility. So can you just address that?

01:00:58

TIMOTHY WENGERT, MD: Well, actually, we also work with our physical therapist, and if there is an exercise program that we can design for the patient, we use their guidance to help us. It is important to get moving. We don't ask patients to be successful prior to surgery, but we ask them to be faithful and at least try. And that's the key. If they're willing to put forth the effort and we see that, then that makes postoperative success that much more likely.

01:01:30

MARVIN KUEHNER, MD: Okay. Well, we're going to end here now. I want to thank everyone for watching, and I'd like to thank the patients who were kind enough to let us videotape their operations to show today. This has been a live webcast Lap-Band and laparoscopic Roux-Y surgery from Marshfield Clinic and Saint Joseph's Hospital in Marshfield, Wisconsin. And on behalf of all of the panel here, thank you again for watching and good night.

01:02:02

ANNOUNCER: Thank you for watching this panel discussion on Lap-Band and Roux-en-Y procedures live from Saint Joseph's Hospital and Marshfield Clinic in Marshfield, Wisconsin. OR-Live makes it easy for you to learn more. Just click on the "request information" button on your webcast screen and open the door to informed medical care..

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