

Principles and Protocol for the Adjustment of the Laparoscopic Adjustable Gastric Band

There are three gastric bands currently on the market. LAP-BAND[®] is manufactured by INAMED Health, a subsidiary of Allergan, USA. Endo-Surgery, Inc. (a subsidiary of Johnson & Johnson) markets the REALIZE™ Adjustable Gastric Band. The REALIZE™ Band, has been marketed under the name Swedish Adjustable Gastric Band (SAGB) outside the U.S. Heliogast gastric ring is marketed by Helioscopie of France. Bands come in a variety of sizes, holding from 4cc to 10cc of normal saline.

Adjustable gastric bands are semipermeable, leading to a small reduction in saline volume with time. Patients should be informed of this effect, attend for regular follow-up visits and seek help if the band's effectiveness appears reduced. We recommend that the volume present should be checked and readjusted at least every 6 months (Dixon & O'Brien, Permeability of the Silicone Membrane in Laparoscopic Adjustable Gastric Bands has Important Clinical Implications *Obesity Surgery*, 2005).

The timing and specific details of each lap-band adjustment are determined on an individual basis after discussion and consultation with each client.

Principles of Gastric Band Adjustments

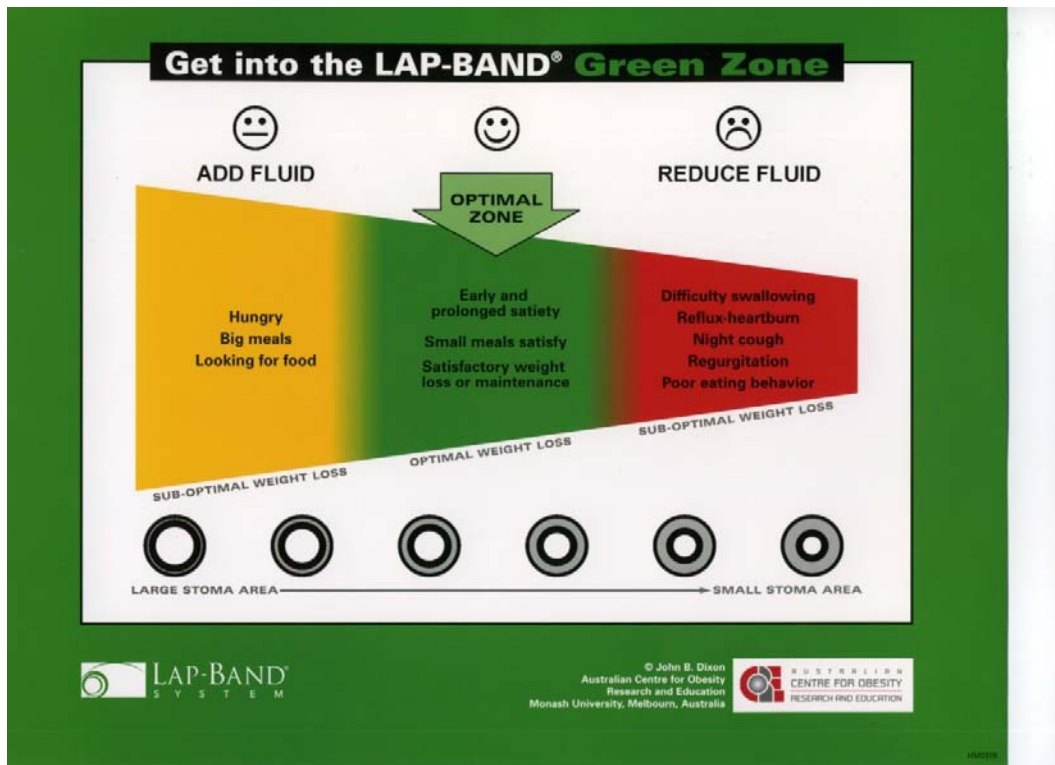
The gastric band journey is different for each client, with no set number of adjustments or fill volume. However, each client is striving to achieve common goals: a point of prolonged satiety and satisfactory weight loss or maintenance. The key to good clinical results with the gastric band is to find the ideal fill volume that helps the client achieve these goals. This only comes through client consultation and ongoing adjustments to help get the client into an optimal zone.

The following are examples of questions that we ask in determining how much (or how little) to adjust the client's gastric band:

- How much are you eating?
- What are you eating?
- How are you eating?
- How is your appetite?
- How many times a day are you hungry?
- Have you learned when to stop eating with the gastric band?
- How fast are you eating?
- How long do you spend eating?

The initial adjustment may occur 6 to 8 weeks after the operation, after the client has progressed to a solid diet. The client will be reviewed regularly (every 4 to 6 weeks) depending on client need, weight, and clinical status. Acceptable or desired weight loss for most clients averages between 1 to 2 pounds per week.

Prior to recommending an adjustment, we review the client's chart for brand of gastric band, total band volume and recent adjustments. One of the most useful guides to assist with the timing and principles of gastric band adjustments is the "Green Zone" chart developed by Drs. John Dixon and Paul O'Brien from Monash University in Melbourne, Australia.



The Yellow Zone: If the lap-band is too loose, the patient is hungry, meals are bigger, and small meals do not satisfy. Fluid needs to be added to the band to increase the restriction.

The Red Zone: If the gastric band is too tight, the client will have difficulty eating, swallowing may be difficult and painful, and food regurgitates into the esophagus and into the mouth. It may cause obstruction so that even saliva or fluid cannot pass the band. Food may sit in the small gastric pouch or lower esophagus. At night when the client is lying flat, food may regurgitate or reflux into the mouth and respiratory tract causing disturbed sleep, wheezing and night cough. In an attempt to remedy these difficulties and allow food to pass, the client will seek foods that “slip past” the band. These foods include chocolates, ice cream, milk drinks, pureed foods, yogurt, and snack foods that crumble (such as potato chips). This eating pattern is referred to as maladaptive eating. If any of these problems occur, some fluid will need to be removed from the band to reduce restriction. If symptoms do not resolve, a barium upper GI series is necessary to rule out a complication such as slippage.

• **The Green Zone** is achieved by successive incremental adjustments and by:

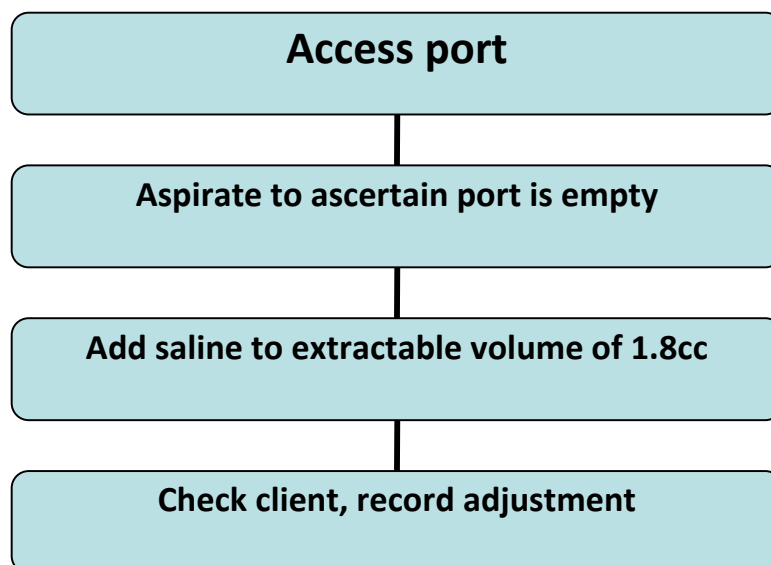
- Monitoring the client’s weight loss
- Listening to the client’s hunger symptoms

- Observing any signs of overfilling of the lap-band

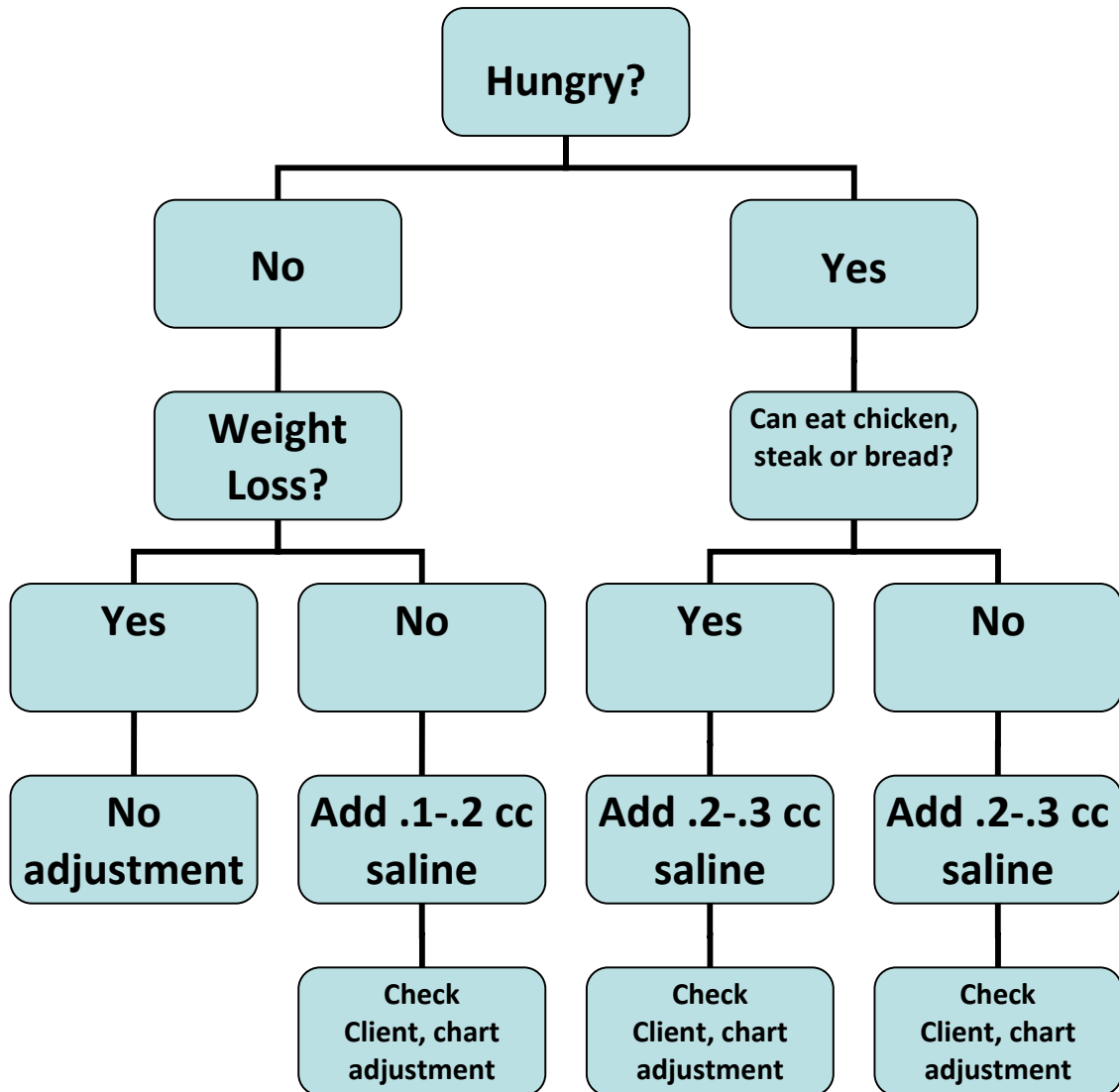
At the optimal adjustment point, the gastric band is adjusted so that small meals provide early satisfaction (satiety) and a prolonged reduction in hunger (satiety) so that energy intake can be substantially reduced. When optimized, episodes of blockage or regurgitation of food should be unusual and occur only when food is taken quickly, not chewed properly, or is an inappropriate choice. The client needs to work with the lap-band to reduce overall food intake. We try not to let the client talk us into adding too much fluid because that will not necessarily mean more weight loss.

By using the “zone” framework, we have learned to think less about the volume of saline in the gastric band and more about how the client feels. The goal is to create the right physiological response so that client is generally not hungry and is satisfied by small meals. The Green Zone, or optimal adjustment range, is best achieved by small incremental adjustments and by listening carefully to the client.

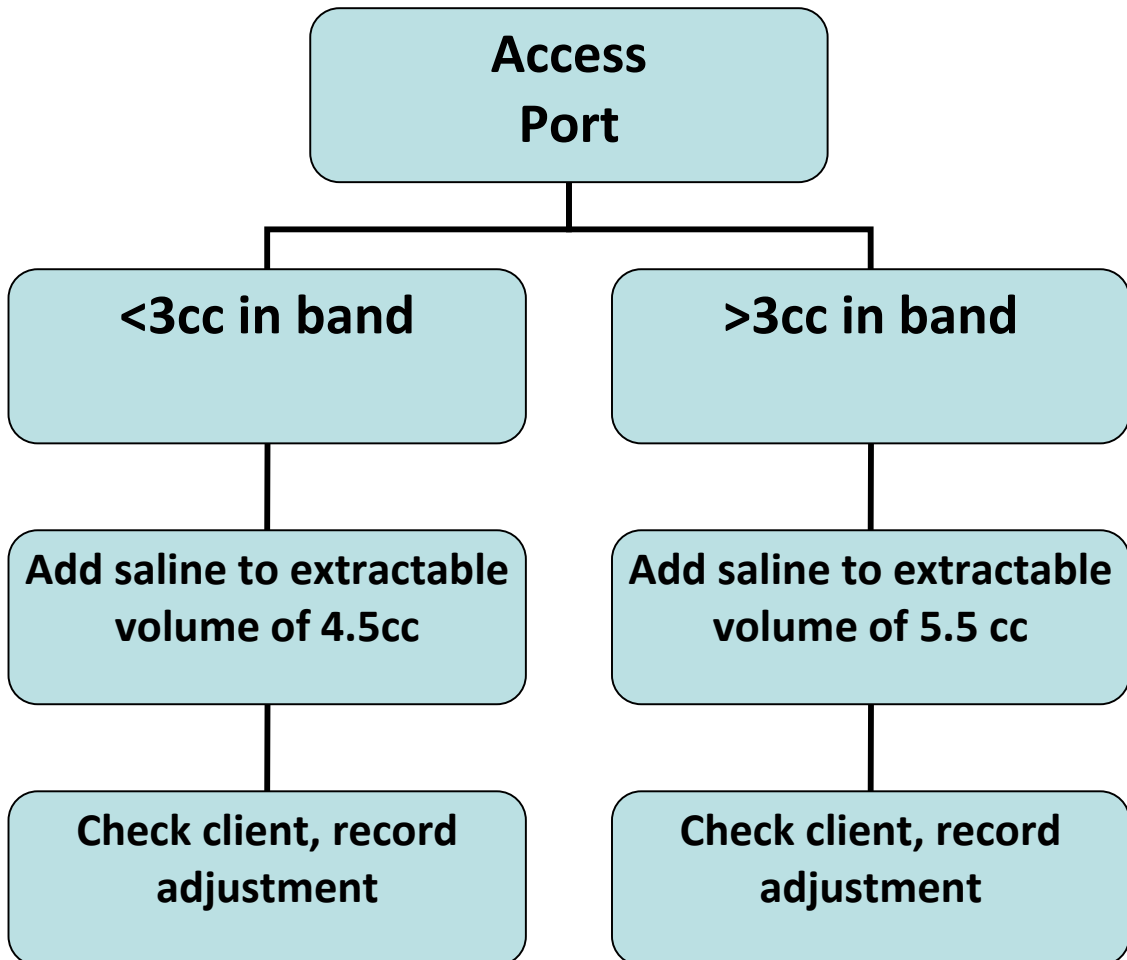
First Adjustment Algorithm for 4cc band



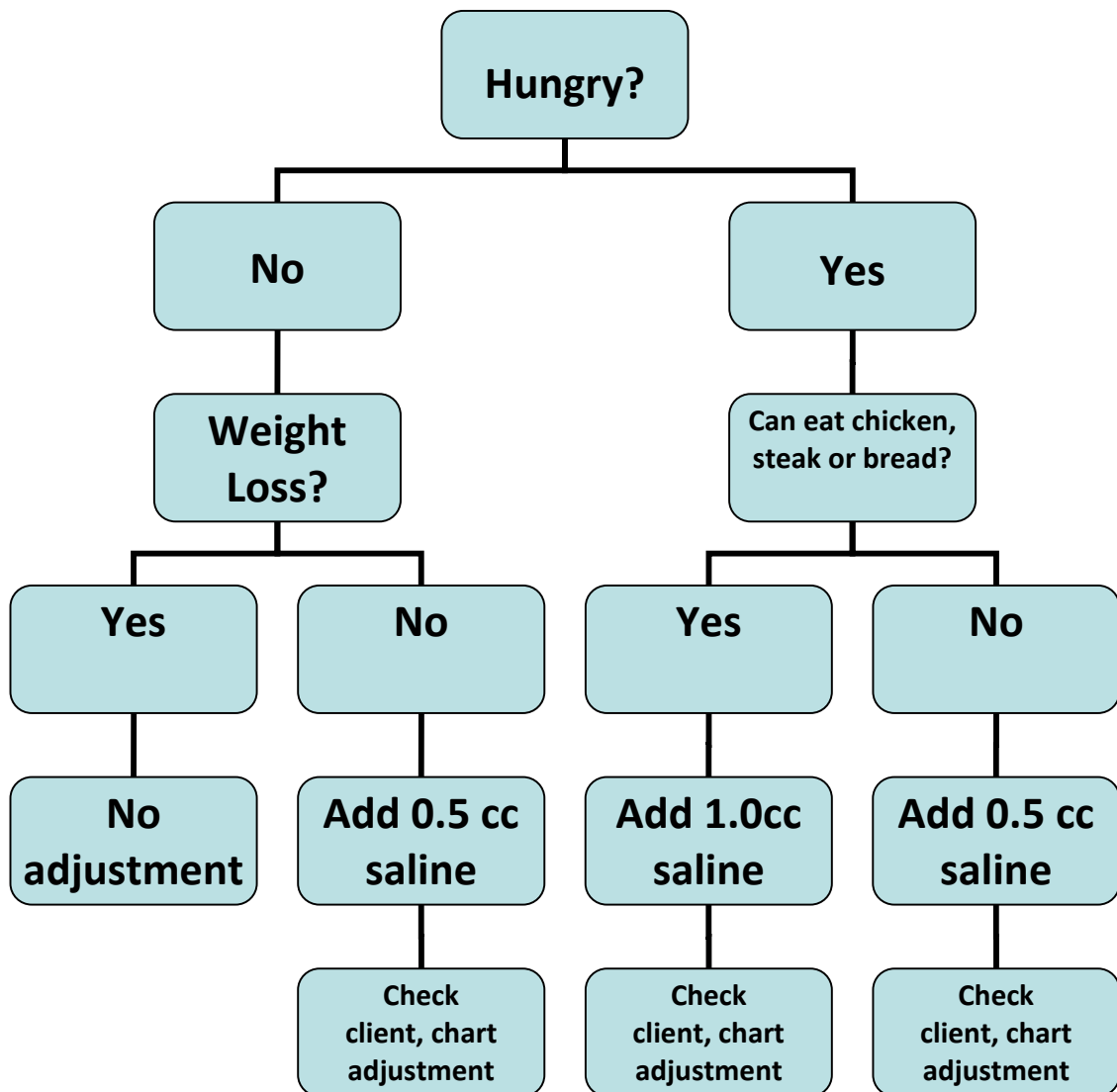
Subsequent Adjustment Algorithm for 4cc band



Initial Adjustment Algorithm for 10 cc band



Subsequent Adjustment Algorithm for 10 cc band





STEPS TO EFFECTIVE ADJUSTMENTS

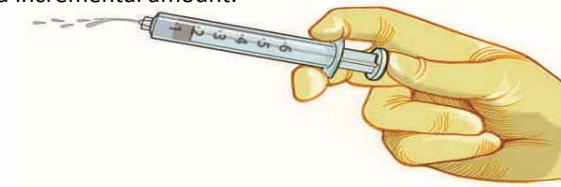
This section will take you through 8 basic steps to effectively perform adjustments with the gastric band

STEP1: Determine the Fill Amount

The amount of saline to be added to (or removed from) the lap-band is determined using the “Green Zone” principles above and after review of the client’s progress and current eating patterns and habits.

STEP2: Prepare the Syringe

Fill the syringe with enough saline to fill the lap-band as per protocol. Expel any unnecessary saline from the syringe. Doing so will allow you to withdraw into the syringe all saline from the client’s band before adding this desired incremental amount.



REMOVE UNNECESSARY SALINE FROM THE SYRINGE.

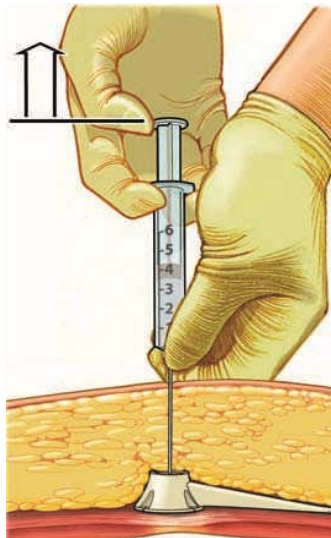
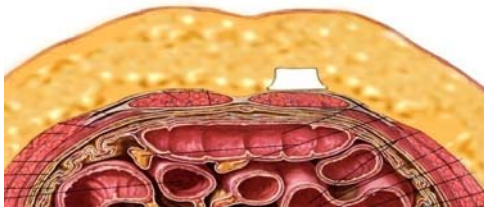
STEP 3: Prepare the Client

Prepare the client’s skin using standard aseptic skin preparation technique. Place the client supine with his or her hands behind the head (or crossed over the chest) to facilitate tightening of the abdominal muscles. This will assist you in locating the Access Port. Placing a small pillow under the client’s lower back can also assist in making the Access Port more accessible. Locate the Access Port by manual palpation.

Attach a syringe to the needle before penetrating the Port. Never enter the Access Port with a needle unattached to a syringe. The fluid in the device is under pressure and could be released through the needle.

STEP 4: Place the needle with the Syringe in the Access Port

Position the needle perpendicular to the septum of the Access Port. The Port must be penetrated until the needle is stopped by the bottom of the portal chamber. Withdraw some saline to confirm that the bevel of the needle is within the Port. If, after penetration, the saline solution cannot be withdrawn or injected, the bevel of the needle may be occluded by the port septum. Try to advance the needle further into the port to the bottom of the portal chamber. If you cannot advance, then re-enter the port with another sterile needle. Once the septum is punctured, do not tilt or rock the needle, as this may cause fluid leakage or damage to the septum



STEP5: Remove all Saline from the gastric band

Withdraw all saline into the syringe from the client's gastric band and record the amount withdrawn. With some gastric bands you will have to manually remove all saline from the band, with other devices you may notice that the saline spontaneously fills the syringe. Be sure to hold on to the needle hub and not the syringe when removing saline. Holding on to just the syringe could dislodge the needle from the syringe



STEP6: Add Saline to the gastric band

Inject the amount of saline that you have determined to add to the client's gastric band along with all saline that was removed from the band. Record this amount in the client's chart.



STEP 7: Check the Adjustment

It is important to establish that the band is not too tight. Check the adjustment by having the client drink water. If the client is unable to swallow, remove some fluid from the Port, and then recheck.



STEP8: Client Instructions

Explain to the client what he or she will experience immediately after a gastric band adjustment. For example, if he or she should eat soft foods for a day or so, as well as to remember to eat slowly or to anticipate that his or her satiation point will come quickly. Provide client with appropriate handouts.