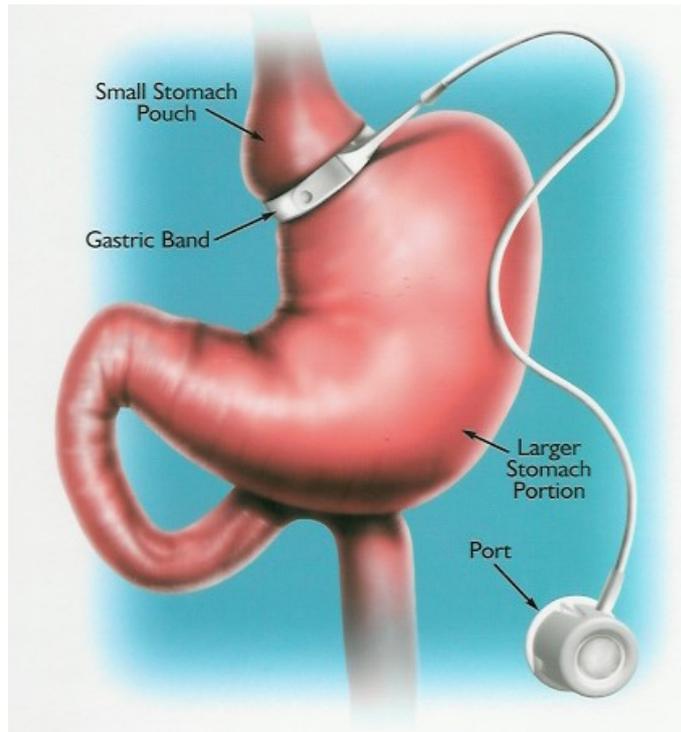




**Dokter Luc Lemmens**

**Algemene Heelkunde & Obesitaschirurgie**

## **GASTRIC BANDING**



### **Introduction**

You are interested in gastric banding: an operation that will help you shed some of your excess weight. This form of surgery falls under the group of restrictive operations or operations designed to drastically reduce your daily intake of food.

At the present time, there is a variety of gastric bands on the market. At the moment we tend to use the **SAGB** [Swedish Adjustable Gastric Band] made by Ethicon. Some of the information you will find in this brochure can also be found in Ethicon's gastric band brochure.

The surgery will have a significant effect on your life. In the months and years to come this brochure will assist you with guidelines on how to achieve your desired weight loss, and how to avoid possible complications. To guarantee the success of the treatment it is extremely important that you give it your full commitment.

The technique of the SAGB [Swedish Adjustable Gastric Band] consists of placing a band around the top part of the stomach. This band narrows the stomach and divides it into two parts, giving it the shape of an hourglass. The top part of the stomach [the stomach pouch] has a content of only about 15 ml. When you eat a small quantity of food that is just enough to fill the newly formed stomach pouch, you quickly get the feeling that your stomach is full. This means you will eat less, be less hungry, and

gradually lose your excess weight. This results in a healthier lifestyle with a lower risk of secondary disorders [co-morbidities] as the result of obesity, but you will also have to change your eating habits. Although the SAGB helps you achieve sustainable weight loss, it is not a method of slimming that works by itself. It is extremely important that you follow your postoperative diet and that you alter your behaviour to achieve successful weight loss and avoid complications. It is also important that you have your weight and general state of health checked on a regular basis [blood pressure and heart rate]. In the first 4 to 8 weeks after the operation, you will lose only a little weight because the gastric band needs to adjust gradually. You should consider this phase as the run-up to real weight loss, and plan this loss over a longer period [about 2 years].

## **1. The operation**

### **a. A restrictive procedure**

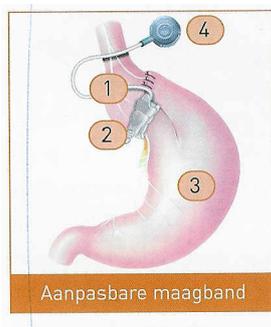
The theory is simple. When a person feels full they no longer feel hungry. The probable result of this is that they will eat less. Restrictive bariatric surgery is designed to stimulate this feeling fullness. The surgeon makes a small stomach pouch in the top half of the stomach. This stomach pouch, which can hold about 15 to 20 ml, is linked to the rest of the stomach via a narrow opening. The stomach pouch clearly reduces the quantity of food that can be ingested and the feeling of fullness comes earlier. The food is digested (absorbed) in the intestinal tract as normal. With a cooperating patient, reduced stomach capacity and behavioural changes can lead to a systematically lower calorie intake, which in turn leads to weight loss.

During recovery, patients must adhere to strict and specific dietary guidelines and the restrictions prescribed by their surgeon. Although these guidelines can vary from one surgeon to another, each patient is required to follow his surgeon's instructions.

The patient must learn to adjust to a new way of eating.

A half to a full cup of food will be enough to bring about a feeling of fullness. Patients who eat slowly, learn to eat less, and avoid drinking too much (particularly carbonated drinks) during meals will obtain the best results from a restrictive procedure. If the patient does not follow these guidelines, the stomach pouch and the small opening can expand, so that the surgery is not effective. The efficiency of a restrictive procedure is reduced if patients constantly eat between meals or if they drink fat or calorie rich drinks. If the desired weight loss is not achieved, this is purely down to the fact that the patient has not adhered to the recommended dietary and behavioural changes (physical exercise).

### **b. How is the SAGB fitted?**



1. Small stomach pouch
2. Gastric band
3. Larger part of the stomach
4. Injection port

Most SAGB's (Swedish Adjustable Gastric Band) are fitted by the laparoscopic or minimal invasive method.

Fitting the SAGB is a purely restrictive surgical procedure. The band is applied around the top part of the stomach. The band narrows the stomach and divides it into a small part and a larger part, in the shape of an hourglass. The diameter of the stomach opening is that of a little finger and the size of the small stomach pouch is 15 ml.

### **c. How does the GASTRIC BAND work?**

With the gastric band, food passes through the digestive system in the normal manner, so that it can be fully absorbed by the body.

The gastric band brings on an early feeling of fullness. You will feel that eating only a little bit of food is enough fill the stomach pouch. As a result, you will no longer feel hungry. However, this does not necessarily mean that you will feel satisfied. In the beginning you will probably want to carry on eating. However, you should not do so. It is extremely important that you learn to recognise the feeling of fullness quickly and stop eating immediately. When you recognise the feeling of fullness the SAGB will help you avoid “over-eating” and this will help restrict your overall daily food (calorie) intake. It is inherent in the nature of the SAGB procedure that you will eat less, feel less hungry, and gradually lose your excess weight.

You will find it difficult to eat certain types of food. You will need to chew most foods better than you did prior to the operation. This will lead to a healthier lifestyle with a reduced risk of disorders (comorbidities) related to obesity.

However, simply reducing the stomach is not enough in itself. You will need to change your eating habits. Although the SAGB method will help you achieve sustainable weight loss, it is not a slimming method that works all by itself. To be efficient you must adhere to a low fat diet, rich in vitamins and fibre. Sugar-rich drinks and foods are out of the question. You must realise that there is no quick solution to your excess weight problem, even after the operation. The weight reduction process takes place gradually and requires patience. The results of every slimming programme can vary depending on your motivation to stick to the diet and exercise guidelines. It is of the utmost importance that you follow the postoperative diet and behavioural rules if you are to lose weight successfully and avoid complications. Listen to the advice given by our Obesity Team and follow the guidelines strictly. On average, patients lose about 30% (one third) of their excess weight in the first 12 to 18 months after the operation. Scientific studies have shown that 50% of the excess weight stays off after 15 years. Diet and exercise programmes result in only 8 to 10% weight loss over the same period. Other studies have shown that 96% of some health problems resulting from obesity (diabetes, high blood pressure, sleep apnea, depression and back pain) improved or disappeared after surgery.

### **d. The GASTRIC BAND is adjustable**

The soft inflatable balloon on the inside of the band can be inflated or deflated. This means that the diameter of the band [narrowing of your stomach] can be adjusted after the operation in line with the requirements particular to your optimal weight loss and well being. This is done by injecting or eliminating fluid from the band via an injection port, which lies under the skin and is connected to the band.

The difficulty you find in eating certain foods will depend on how tight or loose the opening between the two parts of the stomach is, and is therefore directly linked to the amount of weight you will lose. Depending on how your weight loss progresses, your doctor and his team will tell you when your gastric band needs to be inflated.

The doctor will probably make the adjustment using radiography. In this case you will have to swallow a product [barium] to check that passage through the band is problem-free. This can be done as an outpatient without painkillers or anaesthetic.

It is extremely important that you contact your doctor in good time if you experience pain or difficulty in eating. The fine and individual adjustment possible with the SAGB means that this problem can be resolved quickly, thereby avoiding the risk of side effects or complications.

## **2. Advantages and disadvantages of the gastric band**

### **a. Advantages of the gastric band procedure**

- It is not necessary to make incisions, to suture or to remove part of the stomach or intestine in order to fit the SAGB. This carries two significant advantages:
  - First of all, in general the gastric band procedure is the operation that causes the least trauma to the digestive tract. This can help avoid many undesired side effects that go hand in hand with a few other surgical treatments for obesity.
  - Secondly, the SAGB is easily removed and the original shape and structure of the stomach can be restored. This is not the case with many other surgical techniques for obesity, in which a return to the original anatomy of the stomach or intestines is particularly difficult or even impossible.
- Should you need to undergo another operation at a later date, the gastric band is not a contra-indication for another procedure. However, you must inform the surgeon about your gastric band before he operates.
- As we have already said above, the SAGB can be very accurately adjusted so that the opening allowing food to pass from the smaller to the larger part of the stomach can be made smaller or larger. In this way, the progress of your weight loss can be highly individualised without risk of complications.
- Thanks to minimal invasive surgery [keyhole operation] the patient recovers quickly after the procedure and only a short period of hospitalisation is needed, usually 48 hours.

### **b. Possible complications with the gastric band**

In addition to the complications associated with every surgical intervention, a few specific problems can crop up after the gastric band procedure:

- Eating too much or ingesting food too quickly increases the risk of the band slipping out of position and/or the new top stomach pouch from expanding. This can result in reduced weight loss and in some cases it can be necessary to operate again.
- Since the opening of the gastric band is very narrow, larger pieces of food can get stuck in the stomach pouch above the band. This will result in a complete blockage of the opening and lead to vomiting. In this case your surgeon or treating doctor will have to empty the gastric band via the injection port. The piece of food may even have to be removed by endoscopy.
- The band can grow into the stomach [erosion/migration]. Erosion usually occurs when too much fluid is injected into the band. This causes excess pressure and irritation of the stomach wall and leads to erosion. It is therefore recommended not to inject more than 9 ml into the SAGB. An infection around the injection port can also cause erosion.
- Problems can arise with the injection port and tube:
  - loosening of the tube connecting the port to the band
  - infection of the injection port [consult your doctor if you experience pain or reddening around the injection port].
  - when injecting into the band the tube can be pricked leading to leakage of the tube. These problems are usually solved under local anaesthetic
- Although extremely rare, the band can start to leak. In this case, the SAGB can be very easily replaced with a new one.

### **3 Practical information**

#### **a. Before the operation**

The doctor will ask you not to eat after midnight on the night before the operation.

If you take medicines on a daily basis you must inform your surgeon or one of the people on our team. If you take aspirin, anti-coagulants or anti-inflammatory medicines (for arthritis, arthrosis, etc.) you must inform your surgeon. This is an important point which enables us to set the date on which to stop taking the medicines prior to surgery.

Before surgery, a member of the medical team will fit a fine needle or catheter into one of your blood vessels in order to administer the medicines required during the operation.

In some cases the laparoscopic technique is not possible. If it turns out to be impossible to get a good sight of the organs or to manipulate them, your doctor may opt for open surgery. This procedure is performed under general anaesthesia.

#### **b. After the operation**

When you awake after laparoscopic surgery you may feel pain in the shoulders. This pain is due to the fact that the abdomen is inflated with carbon dioxide to create an area to work in. It may be the case that not all of this gas was evacuated at the end of the operation. However, the remaining gas will be quickly absorbed without harming your body.

The pain is temporary and goes away quickly within a few days of the operation.

It is possible that you will have a catheter in your stomach for a day to prevent vomiting.

The pain felt after the operation is often limited, but some patients do require medication to take away the pain. No other specific medicines are required after the operation.

As we have described above, you will need to follow a strict diet after surgery. Make sure you follow the advice of the obesity team.

On average patients stay in hospital for 48 hours but this will depend on your surgeon.

You will be encouraged to resume your normal activities extremely carefully as soon as you leave the hospital. Your doctor and his team will tell you when you can resume your normal daily activities and which activities you can best avoid.

#### **c. A few useful tips**

##### *Regular check-ups:*

It is very important that you are examined regularly as an outpatient after the operation! Your doctor and his team will discuss a personal schedule of appointments with you. In the first phase there is normally an examination every four weeks, while later the appointments will be further apart. During the first 18 months after surgery, your SAGB can be gradually filled with a fluid. Normally, once your weight has stabilised, examinations are made on an annual basis.

##### **However, always contact your doctor in good time in the case of:**

- Prolonged fever
- Shivers
- Bleeding
- Increased swelling of the abdomen or increased pain
- Prolonged nausea or prolonged vomiting
- Prolonged coughing or difficulty breathing
- Seepage of fluid from any wound

*Vomiting:*

Sometimes patients have to vomit or experience pain when eating. This can be the result of incorrect eating habits, but it can also happen if the quantity of fluid injected has made the gastric band too tight around the stomach. You can prevent these symptoms by eating calmly and slowly, chewing well, and stopping in good time.

If you find yourself having to vomit regularly, take this as a warning. Food can stick in the narrow stomach opening. In this case it may be necessary to reduce the amount of fluid in the gastric band.

*Vitamins:*

It is recommended during a period of rapid weight loss to take a liquid multi-vitamin preparation, and to do so for at least 6 months after the operation.

*Pregnancy:*

The period between the operation and the point at which your weight stabilises [12 to 18 months after the operation] must be viewed as a period of deprivation. It is not a good idea to become pregnant during this period. However, if you do become pregnant, it is recommendable to have your doctor remove all the liquid from the gastric band.

*Medicine:*

Tablets must be broken into smaller pieces or ground up before ingestion.

*Constipation:*

After the operation, many patients have a feeling of constipation. The main reason for this is that the reduced intake of food implies a reduced amount of faeces. This in turn implies fewer bowel movements. It is important to drink plenty of fluids between meals. Should it appear necessary to use laxatives, we recommend that you use liquid medicines and that you consult your doctor first.

*Physical exercise:*

It is important that you change more than just your eating habits. You will have to do more exercise. In general it is best to start exercising slowly. The more weight you lose, the easier exercising will become.

## **4 General recommendations**

Your well being and the successful outcome of the operation in the long term are dependent on proper monitoring. Your motivation and cooperation play an important role in this.

### **a. Change your eating habits**

#### **1) Introduction diet**

The first two to three weeks after your operation are a very important phase, during which you must follow your prescribed diet very strictly. The gastric band is now fitted loosely around your stomach and the two must grow together to keep the band in the correct position. In this phase, for example, if you were to eat a whole sandwich, it would get stuck above the gastric band, stretch the stomach pouch and pull the stomach wall from the bottom part through the band. This is known as “slipping”, and if this happens you may have to go through the operation again.

It is therefore extremely important that in the first 2 to 3 weeks you eat nothing but soft and purified food. The pots of baby food you can buy in the supermarket are ideal for this, because they have just the right consistency.

Since the contents of the stomach are so severely restricted you will get an early feeling of fullness. This feeling of fullness is not the same as a feeling of satisfaction. In the beginning you will probably want to carry on eating. However, you should not do this. It is therefore extremely important that you learn to recognise the feeling of fullness quickly and stop eating immediately. When you recognise the feeling of fullness, the SAGB will help you to avoid “over-eating” and this will help you restrict your overall daily food (calorie) intake. This will only happen if you eat calmly and slowly. Chew your food very well and wait a few minutes between each mouthful. Your mealtime could last from 30 to 45 minutes. You will easily need 30 minutes to drink a glass of water. It is only by learning this new way of eating that you will get over the problem of volume without pain, nausea and/or vomiting.

*Typical daily menu during the introduction period:*

#### **Breakfast + evening**

- Rusks, crackers, toasted white or light brown bread; leave cornflakes to soak in (Soya) milk.
- Sandwich filling: low-fat cheese spread, low-fat white cheese with low-calorie sweetener, Chester cheese or reduced-sugar jam without pips or skins.  
OR
- Pudding of (Soya) milk or low-fat yoghurt or low-fat white cheese, always with low-calorie sweetener.  
OR
- Fruit puree without lumps, or very soft, peeled fruit.

#### **Midday**

- Low-fat mixed soup  
OR
- Puree
- Softly cooked, best mixed vegetables: such as carrots, cauliflower, broccoli, mixed spinach or endive, white of the leak, boiled endive, ... No raw or fibrous greens such as asparagus, celery, peas, beans, corn, ...
- Softly cooked and preferably low-fat meat: such as chicken, turkey, ... OR boiled fish OR mashed boiled egg or scrambled egg (maximum 2 eggs per week)  
OR
- A midday meal without lumps from the baby food range.

#### **Between meals**

- Non-carbonated water, tea or coffee with low-calorie sweetener

- Avoid alcohol, soft drinks, fruit juices, sugared milk drinks, sport and energy drinks.

**2) Diet after the introduction period [after +/- 3 weeks]**

- The special introduction diet is followed by a gradual return to normal eating, but not the food volumes prior to the operation. You will have to keep following the advice given further in this brochure and the recommendations given by your doctor and nutritionalist.

**3) Important tips to help in your eating habits:**

- At the table, sit calmly and enjoy your meal.
- Take plenty of time for your meals. Do not watch television when eating and do not walk around.
- Eat calmly, avoid stress and unpleasant conversations at the table.
- Chew very well (tackle any dental problems)
- Take very small mouthfuls.
- Do not drink during or just before the meal because this will give you the feeling of fullness too quickly. Drink between meals, drink slowly and take small sips. Do not drink in the half hour before eating your meal.
- Do not drink carbonated drinks.
- Stop eating as soon as you feel the first sensation of fullness.
- Eating or drinking more will cause nausea and vomiting.

**4) Eating and drinking after fluid has been added to the band**

After about 4 weeks, the band will have become sufficiently established to fill the system for the first time.

Please do not go straight home after the band has been filled. First of all, try to eat and drink a little. Make sure you do not have a problem swallowing when you eat and drink.

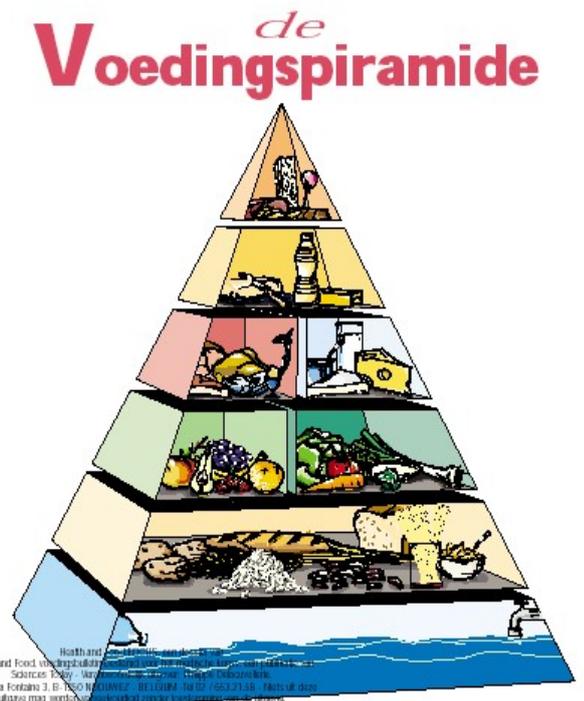
In the beginning, you can have problems after eating as a result of the smaller quantity of food you can manage. It is therefore extremely important that you eat slowly, chew well, and take in enough fluids.

If you have difficulty you can return to the introduction diet for a while. However, on the longer term you must try to eat as normally as possible, only in smaller quantities.

**b. Follow a varied and healthy diet**

Since the volumes of food you eat are extremely small, it is important that you consume food with a high nutritional value. To compose a healthy diet, you can use the food pyramid. This model is made up of layers of different sizes. With every meal, try to choose foods from every layer. At the bottom you will see the foods you need most on a daily basis. For more details it is best to consult the dietician or nutritionalist in our Obesity Centre.

It is best that you have three protein-rich meals every day: breakfast, lunch and dinner. The main meals consist of small quantities of food. You can eat a healthy snack in the morning or afternoon provided it is sugar-free and has a low fat content. It is important that you drink sufficiently, about one and a half litres of fluids a day.



## c. Tips relating to choice of food

### Drinks

- Every day drink about one and a half litres of fluid, spread over the day in small drinks.
- Between meals, consume sufficient quantities of low-energy drinks such as water, non-carbonated mineral water, coffee or tea without sugar, low-fat bouillon, fresh mixed vegetable soup, non-carbonated “light” soft drinks, ...
- If ordinary cows’ milk is harder to digest, you can switch over to Soya milk and Soya milk puddings.
- Avoid sweet drinks such as fruit juices, soft drinks, chocolate milk, yoghurt drinks, etc.
- Keep alcoholic drinks to a minimum, at most one or two units a day.

### Bread

- Once the band has been fitted, you will no longer be able to eat fresh bread because fresh bread has tendency to form small balls. These small balls **cannot** pass through the narrow opening and can give rise to pain and vomiting. Freshly baked bread is also more difficult to digest. If needs be, stale bread can be eaten.
- It is best not to eat multigrain bread because it contains too many fibres and grains.
- Sandwiches and bread rolls are harder to digest.
- Toasted bread, toasties and rusks are easier to digest.

### Pasta, rice and potatoes

- It is better to have type rich in fibre, such as brown rice, wholemeal pasta, etc. They do not constitute a problem if well cooked.
- Make sure that potatoes and rice are well cooked.
- You can eat croquettes occasionally but we urge caution with French Fries due to the hard pieces.

### Vegetables

- Make sure that vegetables are well cooked.
- Avoid extremely high-fibre vegetables such as asparagus, celery, onion, pumpkin, pulses, courgettes, aubergines and types of cabbage (except cauliflower and broccoli) unless they are well cooked and well chewed. If you experience difficulties after eating these types of vegetable, they are best avoided.
- Raw vegetables can be gradually introduced.

### Fruit

- Start with preserved fruit in its own juice, peeled and deseeded, stewed or mixed.
- Fruit puree can also provide much-needed vitamins.
- If the above fruit preparations are easy to digest, go for soft and very ripe fruit. Start with a mealy apple, a mealy pear, slices of melon, slices of peach, etc.
- Avoid fruits with rough fibrous parts, pips or grains such as nuts, pulses and citrus fruits.

## **Meat**

- Cuts of meat such as roast beef, chops, beefsteak, etc. are stringy and contain a lot of connective tissue, making it difficult to chew into fine pieces. It forms a ball, which is difficult to swallow. It is best avoided.
- Very finely cut soft meat such as chicken and turkey etc. or now and again lightly fried mince can be introduced.
- Finely cut meats can be tested individually.
- Steak tartar (pure), minced beef or paté are normally easy to digest.
- Always prepare meat in such a way as to produce juices. Avoid brown crusts when roasting meat and use a maximum of one tablespoon of fat.
- Avoid sinews, rind and gristle.

## **Fish**

- Fish is always easier to digest than meat.
- It is better to eat poached, steamed or boiled fish, than fried fish.
- Bread-crumbed and ready-made types are not recommended due to their high energy value.

## **Eggs**

- Use a soft method of preparation, such as scrambled egg, poached egg, lightly boiled egg, etc.
- Hard-boiled egg can be mashed with a fork.
- Eat no more than two eggs a week.

## **Sandwich fillings**

- Opt for low-fat meat products such as lean ham, chicken breast, turkey ham and so on.
- Low fat cheese spread, low fat white cheese or low sugar jam.
- Low fat solid cheeses (“light” variations) if well chewed.

## **Cheese**

- Eat mainly spreading cheese, white cheese, melted cheese, but also slices of solid cheese (if well chewed).

## **Sauces**

- Ketchup, pickles, mustard and dressings can be eaten in a “light” form.
- Milk sauce with semi-skimmed milk, creamy sauce with low-fat cream and bouillon sauce can also be eaten, but in moderation.

## **Spreading fats and cooking fats**

- Fats provide twice as much energy as proteins and carbohydrates (sugars). Since fats are “concealed” in most foods, the fats in spreads and cooking oils must be restricted as much as possible. It is recommended that fats be spread thinly on bread and restricted as much as possible with warm meals.
- It is better to use a soft vegetable-based margarine or margarine.

## **Medication**

- Please take prescribed medicines in accordance with the guidelines given by your doctor. Try to avoid capsules; they might be too big (discuss this with your GP if necessary).
- Do not take laxatives made from grains, seeds or volume enlargers. If you need a laxative, ask your doctor which is best for you now that the band has been fitted.
- If you have difficulty getting your medicine down, here is a good tip: drink two teaspoons of baking powder dissolved in water and drink it. The baking powder will make the medicine dissolve faster.

### **d. Physical exercise**

It is important that you change more than your eating habits. You must also do more physical exercise. The calories you eat and do not use are stored in your body as fat. To lose weight your body must burn off more calories than it consumes through eating food. This can only be done through exercise. In general you should start with exercise slowly. The more weight you lose, the easier it becomes to exercise. Make sure you do a minimum of 30 minutes' exercise a day. Choose activities you enjoy (swimming, light aerobics, walking and gradually jogging, etc.).