

Obesity

Severe obesity is defined as BMI > 40, or BMI > 35 if you have obesity-related sequelae. These can be manifest as type 2 diabetes, high blood pressure, high cholesterol, fatty liver, sleep apnoea (nocturnal respiratory arrest) and significant pain in weight-bearing joints. In severe type 2 diabetes, the BMI limit may be lower, down to 30.

Severe obesity is not just a number and a weight, but a chronic progressive disease. Severe obesity results in reduced quality of life and shortened life expectancy. There is thus good reason to offer public treatment for severe obesity.

Non-surgical treatment with dietary change and physical activity is an important basic treatment for obesity, but weight loss is moderate and usually also temporary (so-called yo-yo dieting). A moderate permanent weight loss can be achieved in some patients using new medications (Mysimba and Saxenda).

In severe obesity, large and lasting weight loss is needed. As of today, only obesity surgery can provide this.

Obesity surgery can reduce body weight by about 30% and provide full or partial regression of the comorbidities, and extend life expectancy.

Obesity surgery can achieve great weight reduction for morbid obesity. To maintain this weight reduction over time, it is also important to change one's living habits, which means such as changing one's diet and increasing physical activity.

Obesity surgery

People with morbid obesity who want to lose weight, but who have not succeeded after repeated attempts, can be offered obesity surgery.

There are three main types of obesity surgery:

- Gastric sleeve (sleeve gastrectomy)
- One anastomosis gastric bypass (mini-gastric bypass, OAGB)
- Gastric bypass (gastric bypass, RYGB)

All these procedures are performed as a laparoscopic operation. This means that you get a few, small incisions in the abdominal wall where we insert the surgical instruments and a camera.

Gastric sleeve

A gastric sleeve is a type of obesity operation in which approximately 80% of the stomach is removed. This gives the stomach much less volume, and you therefore get the feeling of being full faster. Gastric sleeve differs from bypass surgery in that the intestines are not reconnected. Since part of the stomach is removed, the procedure cannot be reversed.



Mini-gastric bypass.

Mini-gastric bypass surgery (= one-anastomosis gastric bypass) involves making the stomach smaller. The surgeon makes a pocket (approx. 100 ml) using your original stomach and connects it to a loop in the small intestine.

Gastric bypass.

A gastric bypass (= Roux-en-Y gastric bypass) is a type of obesity surgery in which the stomach is reduced by about 95 % and the intestines are reconnected. Gastric bypass surgery involves making the stomach smaller. The surgeon makes a pocket (approximately 20-30 ml) using your original stomach and connects it to the small intestine. The small stomach means you have to eat small and frequent meals, and that you will tolerate less fat and sugar than before.



Outpatient conversations before surgery

You will be scheduled for a conversation with a surgeon before the operation. Most patients also have to undergo additional examinations such as gastroscopy, and for some X-rays or cardiac/lung examinations are needed. Gastroscopy is usually done on the same day as the surgery conversation. You will also have an appointment with a pharmacist. This is a telephone consultation to get an overview of which medications and vitamins/minerals you will use. Make an updated list of medicines and dietary supplements you use regularly or as needed before your appointment with the pharmacist. You will have an outpatient consultation (video) with an anaesthetist before the operation. You must inform him if there have been incidents during previous operations and tell him if you have any allergies.

Good advice in preparing for surgery:

Plan how to implement the changes

- Eat regularly and slowly, chew your food well and practice eating small portions

- Use the *Crispbread Cure* to lose 5 kg or more before the operation, and plan to continue living after this for the rest of your life
- Increase your activity level to get in better shape
- Do NOT smoke for the last 4-6 weeks before and 4 weeks after the operation. The wound on the stomach needs oxygen-rich blood flow to heal. We recommend that you take the opportunity to quit smoking for good. This also applies to snuff, e-cigarettes and the like.

Diet before surgery

We recommend reducing your weight before surgery by 5-10 kg. A low-calorie diet of approx. 1000 kcal for 2-4 weeks to strive for this weight loss (see appendix).

Preparations at home

Take a shower in the evening before the operation. Do not apply cream, deodorant, make-up, perfume, nail polish or the like after the shower. Nails must be cut short. Bring slippers, wear loose clothing that is not too tight over the stomach and bring your belongings in a wheeled bag.

You must not have had a fever or respiratory infection the last week before surgery. You must fast 24 hours before surgery, but you can drink water / clear liquids up to 1 hour before arrival. Patients using CPAP should take this to the hospital.

After the operation

You must get out of bed and move around, even on the day of the operation. You can try to drink a little two hours after the operation, but start with water.

You can arrange a journey home yourself (we do not pay for your taxi). We do not recommend driving yourself.

Taking tablets and capsules the first 14 days after surgery.

Tablets and capsules larger than a pea must be crushed or broken up/opened before ingestion.

Diet after surgery

A consistent diet is recommended the first 4 weeks after surgery. On the day of surgery, you can only consume water and clear liquids. But the 1st day after the operation you can consume protein-rich nutritional drinks, liquid dairy products and soups (gradual escalation according to tolerance).

Week 1: Liquid diet (consistency should pass through a straw; strain lumps/chunks).

Week 2: Viscous diet (teaspoon consistency, strain lumps/chunks).

Distribute your intake over 6-8 small portions daily, enriched with protein-rich foods (such as low-fat cheese, low-fat kesam, low-fat milk, no-fat protein-rich milk, eggs, skyr, yoghurt) and/or protein powder (*pharmacy*). A protein-rich nutrition drink (*pharmacy*) is recommended daily for the first 2 weeks to meet protein needs.

Week 3: Mashed diet (mashed/puree consistency, avoid whole/hard pieces such as nuts, avoid fibers such as from orange/broccoli and avoid foods with a doughy consistency like loaf/buns/waffles).

Week 4: Gradual transition to a *normal diet* (a gradual process, easily digestible diet is recommended, meat/fish/poultry that can be cut with a fork, cooked vegetables, crispbread/toast, and lean sauce).

A normal diet implies consistency and type of food; the amount of food will still be very limited. A

minimum of 4 protein-rich meals per day must be prioritised postoperatively to avoid unnecessary loss of muscle mass in the weight loss process. Protein-rich foods include pure meat, fish, poultry, eggs, skim milk, biola, yogurt, cottage cheese, low-fat cheese and legumes. Focus on small and frequent meals, chew your food well and slowly, and listen to your body. In addition, at least 1.5-2 liters of fluid daily is recommended, which is drunk between meals. Prioritise protein-rich drinks with a liquid diet, then water.

The following vitamin and mineral supplements are recommended after weight loss surgery:

- 1 tbl Nycoplus multi per day
- 1 tbl Caligran forte 1000 mg/800IE per day
- 1 tbl Ferromax per day
- 1 inj 1 mg B12 every 2 months.
- 2 capsules Omega 3 (such as Møllers dobbel) or 5 ml cod liver oil per day

These are taken between meals and for life. You can start with a supplement 3 weeks after the operation.

Physical activity

Physical activity can affect both your physical and mental health, and the health benefits are great by increasing the activity level. We recommend that you first focus on increasing everyday activity, which are all the little active things you do during the day. This can be housework, mowing the grass, chopping wood, etc. To increase daily activity, you can stand instead of sitting when you have the opportunity, start climbing stairs instead of taking the elevator, go to the store etc. At the same time, you can focus on being less at rest, less time to sit still.

Then you can start planning more workouts.

We recommend that you do two forms of exercise:

- training where one increases the capacity of the heart and lungs, cardio training
- training where one increases muscle strength, strength training

You must start slowly and increase activity as your body gets used to the increased activity level. This is to help you avoid load injuries.

Cardio training can be done by being in moderate-intensity activity. This means you train until your breathing increases and you sweat from your back. The recommendations are that you train this way 150 minutes a week. This can be walking, cycling, swimming, participating in organized training etc.

Strength training is especially recommended in conjunction with weight reduction surgery. Since you want to lose weight fast, you will most likely also lose some muscle mass. To counteract this, and eventually be able to increase muscle strength, we recommend that you do strength training 2-3 days a week.

See <https://helse-bergen.no/sekjon/voss/Documents/Fysioterapi%20etter%20fedmeoperasjon.pdf> for examples of strength training programmes.

Health checks

You will be summoned for a telephone consultation or outpatient check-ups after 2 months, 1 year, 2

years, 5 years and 10 years. The rest of the health monitoring will be done once a year by your GP. You need to fast before coming to your check-up because blood will be taken.

We recommend waiting at least 1-2 years before becoming pregnant after the surgery. If you become pregnant, you must contact your family doctor or us to monitor progress, usually under the auspices of the Women's Clinic at Haukeland University Hospital.

Crispbread Cure (1000 kcal)

Breakfast:

- 2 coarse crispbreads (Keyhole marked) with toppings
- 1.5 dl orange juice / 1 fruit (100 g)
- Water and vegetables (no avocados) as much as you like
- Also coffee/tea without sugar or milk

Lunch:

- 2 coarse crispbreads (Keyhole marked) with toppings
- 1.5 dl skimmed milk
- Water and vegetables (no avocados) as much as you like
- Also coffee/tea without sugar or milk

Snacks: 1 fruit (100 g)

Dinner:

Cooking method: boiled/baked/fried without frying fat

- 150 g cooked lean fish (such as cod, saithe, pike, perch, anglerfish), haddock)
70 g cooked oil-rich fish (such as salmon, mackerel, herring, trout, eel, halibut, sardines)
- 120 g cooked lean meat (such as chicken breast, turkey, pork, beef)
- 1 small potato or 2 tablespoons cooked rice or cooked pasta
- Water and vegetables (no avocados) as much as you like

Evening meal:

- 2 coarse crispbreads (Keyhole marked) with toppings
- 1.5 dl skimmed milk
- Water and vegetables (no avocados) as much as you like
- Also coffee/tea without sugar or milk. In addition:
- Minimum 2 liters of liquid in the form of water, mineral water (Farris, Olden etc.), sugar-free juice (Fun light, ZERoh etc.), coffee/tea or broth
- 1 multivitamin and mineral tablet (such as Nycoplus multi)
- Omega-3 supplement with 10 µg vitamin D (such as 2 Møllers Dobbelt/5 ml cod liver oil)
- 1 teaspoon of light margarine / 1 teaspoon oil – used for crispbread and/or frying

Crispbread toppings (look for "Keyhole marked"):

On one crispbread per day:

- 1 tablespoon mackerel in tomato, smoked salmon, pepper mackerel, sardine, herring or tuna

On one crispbread per day:

- Lean cottage cheese, lean cream cheese (6% fat) or lean white cheese (10%)

On one crispbread per day:

- Lean liver pate

On the other three crispbreads you can choose between:

- Boiled ham, chicken spread, pastrami ham, turkey spread, bologna sausage 3% fat, shrimp, crab, fish pudding, eggs and vegetable spread.