

## **Position Statement**

### **Weight Loss Surgery (Bariatric Surgery) and its Use in Treating Obesity or Treating and Preventing Diabetes**

#### **People with diabetes**

- Losing excess weight will assist in the management of diabetes. Healthy eating and physical activity should be the initial approach to weight loss and is a priority in the ongoing management of diabetes.
- Bariatric surgery is a treatment option for people with type 2 diabetes with a Body Mass Index (BMI) over 35, where lifestyle interventions and medical treatments for obesity or diabetes have not been successful.
- Most people with type 2 diabetes experience improved blood glucose levels after bariatric surgery, which for some will return to normal without the need for medication. Medication may be reduced or ceased. Blood glucose should continue to be monitored.
- The success of bariatric surgery varies. All surgery carries some risk of complications. Access to an experienced, multidisciplinary care team and ongoing follow-up is vital for success and to minimise complications.

#### **People at high risk of developing type 2 diabetes**

- An estimated 2 million Australians are currently at high risk of developing type 2 diabetes. People can assess their risk by using the national AUSDRISK test or with a blood glucose test.
- Lifestyle interventions that achieve sustained weight loss can prevent or delay the onset of type 2 diabetes and should be the initial approach for all people at high risk.
- Bariatric surgery should only be considered for adults who are very obese (BMI over 40 or over 35 with an obesity-related medical condition) and who have been unable to successfully maintain weight loss with lifestyle interventions and medical treatments.

#### **Overweight and obesity**

- Sixty-one percent of Australian adults are overweight or obese, including 25 per cent (one in four) who are obese (BMI over 30). Obesity is the major, modifiable risk factor for type 2 diabetes.
- Comprehensive population approaches are required to prevent overweight and obesity in children and adults, including public policy, regulation, marketing, and community based programs to promote a healthy lifestyle.
- Safe and effective options for treating obesity should be available for individuals.
- Funding to prevent and treat overweight and obesity should include population approaches, as well as individual lifestyle, medical and surgical interventions.

## Introduction

Approximately twenty five per cent (25%) of Australian adults are obese. Based on current population trends, this will continue to increase in the future. Bariatric surgery is increasingly recommended as a treatment for obesity and for people with obesity-related medical conditions. This position statement is for people with type 2 diabetes and those at risk of developing diabetes to help them make decisions about bariatric surgery.

Obesity is a complex, chronic medical problem. There is a genetic basis to obesity, however, reduced physical activity and changes to the way food is prepared and consumed are largely responsible for the increase in body weight that has occurred in adults and children over the past 20 years.

In adults, weight is classified by body mass index (BMI), a measure based on weight in kilograms divided by height in metres squared (kg/m<sup>2</sup>). A BMI of 18.5 to 25 kg/m<sup>2</sup> indicates a healthy weight for height. An adult with a BMI over 25 is classified as overweight and with a BMI over 30 is classified as obese.

Obesity is linked to a number of serious health conditions, including type 2 diabetes, cardiovascular disease, sleep apnoea and certain cancers. People who are obese are four times more likely to develop type 2 diabetes than those who are in the healthy weight range. Diabetes is associated with serious complications and reduced life expectancy. The personal and economic costs of diabetes and obesity are substantial, taking into account health and wellbeing, medical expenses and indirect costs from disability, reduced work and life expectancy. Prevention and management of obesity, type 2 diabetes and diabetes-related complications is an important goal to improve individual and population health.

Weight loss reduces the risk of developing type 2 diabetes, improves cholesterol, blood glucose, and blood pressure. Weight loss by lifestyle change (dietary change and increased physical activity) is an effective, safe and economical means to prevent type 2 diabetes and improve control in established diabetes. In those who are very obese, weight loss is not easily achieved or maintained by dietary changes and exercise alone and bariatric surgery has been shown to be a more successful intervention for long term weight loss.

## What is bariatric surgery?

Bariatric surgery includes a variety of surgical procedures to reduce weight and maintain weight loss. These procedures may result in weight loss by either:

- reducing the size of the stomach to restrict the amount of food that can be eaten;
- delaying digestion and absorption of food in the intestines;
- causing a feeling of fullness and satisfaction due to either stimulation of nerves in the stomach or changes in hormones that control hunger.

Procedure	Description	Mechanism for weight loss		
		Restricts food intake	Stimulates nerves or changes hormones that suppress hunger	Delays digestion of food & reduces absorption of nutrients
<b>Adjustable gastric band</b>	Adjustable band placed around the upper part of the stomach to create a small pouch	✓		
<b>Partial (sleeve) gastrectomy</b>	2/3 of the stomach is removed	✓	✓	
<b>Gastric bypass (Roux-en-Y) &amp; Biliopancreatic diversion</b>	Part of the stomach is removed and parts of the small intestine are repositioned	✓	✓	✓

Most bariatric surgery is performed through small holes in the abdomen (known as 'key hole surgery' or laparoscopic surgery). Adjustable gastric banding is currently the most commonly performed procedure in Australia while in the USA, gastric bypass (Roux-en-Y bypass) is more common.

A number of factors are considered when deciding on the most appropriate type of procedure for an individual. These include:

- the amount of weight loss required
- current state of health and other medical conditions
- potential to reverse the procedure
- risks of the specific procedure and level of experience of the surgeon
- frequency of follow-up treatment required
- financial costs
- sufficient understanding of surgery and consequences of surgery
- current eating habits and commitment to change life style

## What is the effect of bariatric surgery on diabetes?

Weight loss improves blood glucose control through enhanced insulin sensitivity (the action of insulin in the body). Cholesterol and blood pressure also improve.

Studies have shown that after bariatric surgery, blood glucose may return to normal without medication in up to three out of four people with type 2 diabetes. Others are able to reduce their diabetes medication. Improvement in blood glucose is likely to be greatest in people who have only had type 2 diabetes for a short time, before insulin production is significantly reduced.

With combination procedures which operate on the small intestine, such as gastric bypass, there appear to be hormonal effects apart from weight loss that result in a rapid decrease in blood glucose levels and improved diabetes control within days of surgery.

A return to normal blood glucose levels is more likely with these procedures than with gastric banding, however, they also have a higher risk of complications and nutritional deficiencies.

Healthy eating and physical activity are still important and will assist weight loss and help to prevent cardiovascular disease and other diabetes related complications.

## Can surgery 'cure' diabetes?

There is no known cure for diabetes. It is often reported that diabetes can be reversed or go 'into remission' following bariatric surgery. Remission is a term used in cancer treatment to describe the absence of active disease and symptoms. However, a consistent meaning and criteria for 'remission' of diabetes have not been established. It is also not known how long normal blood glucose levels can be maintained without medication. For these reasons we have avoided using the terms remission or cure.

## Can surgery prevent type 2 diabetes in those at high risk?

Lifestyle interventions that achieve sustained weight loss can prevent or delay the onset of type 2 diabetes and should be the initial approach for all people at high risk of developing type 2 diabetes.

Several studies have shown that weight loss through bariatric surgery can reduce the progression to type 2 diabetes in obese people with pre-diabetes (impaired glucose tolerance).

## Who is bariatric surgery appropriate for?

For people with type 2 diabetes bariatric surgery may be an appropriate treatment if they are:

- obese (BMI of 35 or over) and
- have tried lifestyle interventions and medical treatments without success and
- aged over 18 years and
- fit enough to undergo surgery and
- willing to commit to ongoing follow-up care and
- able to maintain lifestyle changes after surgery.

Bariatric surgery may be appropriate for very obese adults at high risk of developing type 2 diabetes who have a BMI greater than 40 or BMI greater than 35 plus another obesity related medical condition.

The safety and effectiveness of bariatric surgery in people with type 1 diabetes has not been evaluated and potential risks and benefits should be assessed on an individual basis.

## Should everyone who is obese have bariatric surgery?

No. Bariatric surgery is not recommended for children and adolescents or those who are not physically or developmentally mature. There is insufficient evidence as to the long-term safety and effectiveness of these procedures in young people.

The risks, benefits and appropriateness of surgery and type of procedure must be assessed for each individual. Considerations include a person's weight and medical history, social environment and lifestyle, expectations and readiness to change their eating and exercise habits.

Access to regular follow-up care is vital and a comprehensive service with a team of health professionals including dietitian, surgeon, physician and psychologist should be available.

## What is a realistic weight loss after surgery?

A weight loss of one kilogram a week during the first year is possible, but half a kilogram a week is more realistic. A steady weight loss is reached around 12-24 months after surgery, depending on the type of procedure. Overall, the average weight loss is around 50 to 65 per cent of excess weight.

Regular, lifelong follow-up with the health care team to assess and adjust treatment is essential to ensure sustained weight loss and to prevent complications. People who undertake regular follow up generally experience more weight loss and better results than those who don't. Consultation with a dietitian experienced in bariatric surgery is an important part of preparation and long term care.

## What are the potential risks of bariatric surgery?

Complication rates vary according to the type of procedure. They range from less than one per cent (1%) for gastric banding to between two and 10 per cent (2-10%) for more complex procedures. Risks of surgery increase with a person's age, weight and medical conditions.

Adverse events related to the operation depend on the type of operation but may include stomach perforation or staple line leakage, bleeding, pneumonia, infection and blood clots in the lung. Length of hospital stay is usually shorter and there are fewer re-admissions and wound complications with laparoscopic (keyhole) procedures than operations that open the abdomen.

## What complications can occur after surgery?

Problems related to surgery may also occur after some time. Gastric banding may occasionally be complicated by slippage of the band or less commonly by erosion of the band into the stomach wall. Ongoing surgical follow up is important.

Vitamin and mineral deficiencies and osteoporosis can occur due to inadequate nutritional intake or reduced absorption of nutrients, so regular review with a dietitian is essential.

## Access and funding for bariatric surgery

Gastric banding and bypass surgery are cost effective treatments for obesity and diabetes, with the potential to reduce future health expenditure by preventing disease, disability and death. Obesity and associated medical disorders, including type 2 diabetes, affect people from disadvantaged and low socio-economic backgrounds more frequently than those who are affluent. However, access to bariatric surgery is limited in public health services and the majority of procedures are performed in private hospitals.

People should have access to safe, effective options for weight management. Population-based approaches to prevent obesity should be a priority and funding to treat severe obesity with medical and surgical interventions should be made available more widely.

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## Key references

International Diabetes Federation. *Bariatric Surgical and Procedural Interventions in the Treatment of Obese Patients with Type 2 Diabetes*. A position statement from the International Diabetes Federation Taskforce on Epidemiology and Prevention. March 2010, Belgium.

Zimmet P, Campbell LV, Toomath R, Twigg S, Wittert G, Proietto J. Bariatric Surgery to treat severely obese patients with type 2 diabetes: a consensus statement. *Obesity Research & Clinical Practice* 2011; (in press).

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