



**GASTROENTEROLOGY**

Department of the  
CIUSSS de l'Estrie – CHUS

# Nutritional Advice Following a Whipple Procedure

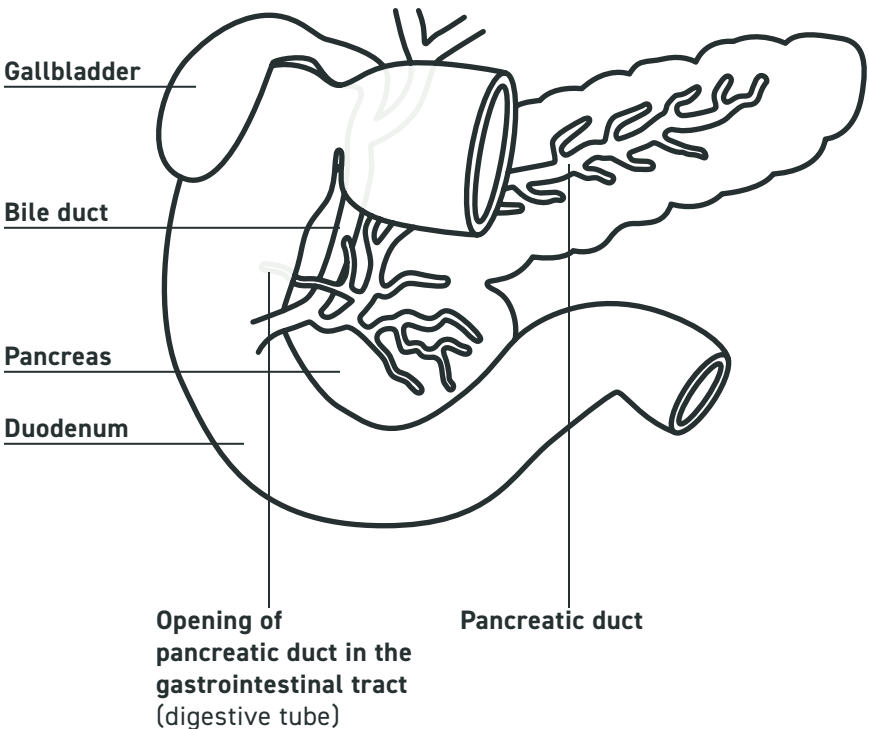
*(Cephalic  
Pancreaticoduodenectomy)*

## WHAT IS THE ROLE OF THE PANCREAS?

The pancreas is an organ in the digestive system that is essential for regulating blood-sugar levels (glycemia) as well as for digesting certain foods.

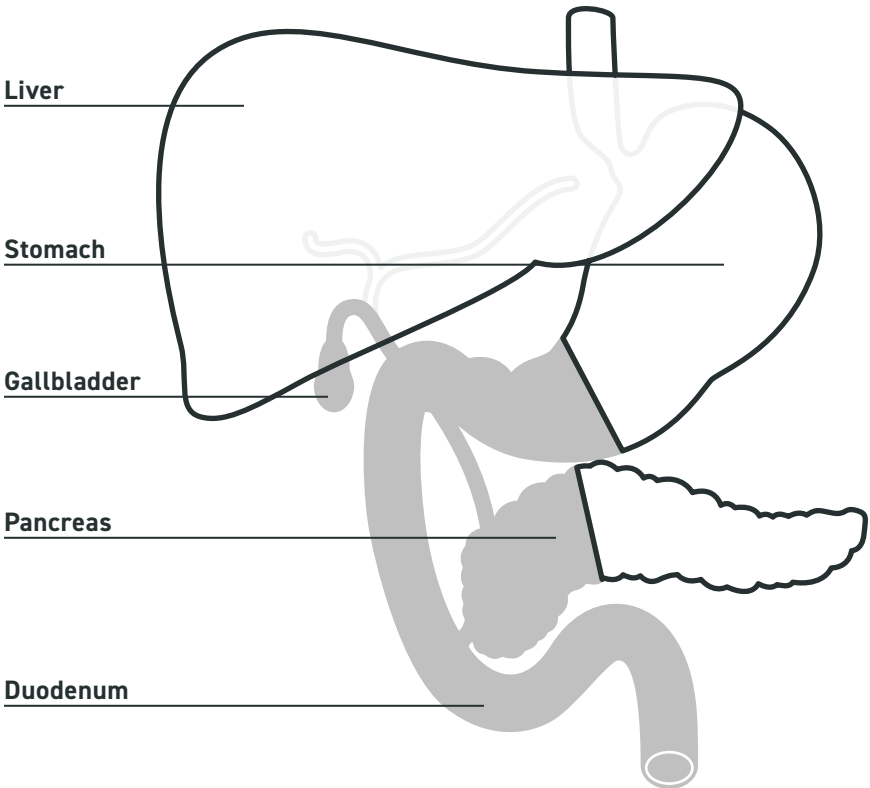
The pancreas secretes insulin and glucagon in response to changes in blood-sugar levels. It helps to prevent both drops in blood-sugar levels (hypoglycemia) and rises in blood-sugar levels (hyperglycemia).

In addition, the pancreas secretes enzymes into the small intestine (small bowel) in response to food intake. Those enzymes help to break down food and to improve its digestion and absorption.



## WHAT IS A WHIPPLE PROCEDURE?

The Whipple procedure, also known as a cephalic pancreaticoduodenectomy, is performed primarily for the treatment of pancreatic tumours. The surgical procedure involves the removal of a part of the pancreas (head) and a portion of the bile ducts, followed by a reconnection with the small intestine. There are variants of this procedure which your physician can explain to you.



**Grey : section removed**

## WHAT ARE THE NUTRITIONAL CONSEQUENCES OF THIS PROCEDURE?

Surgery will result in the removal of the lower section of your stomach. Some consequences may arise.

You might experience gastroparesis (delayed gastric emptying). Symptoms of gastroparesis include: bloating, nausea, vomiting, feeling of fullness after eating only a small amount of food, and weight loss. Gastroparesis resolves a few months after the surgery. It is unusual for it to persist for more than six months post-surgery. To learn more, read the gastroparesis folder.

Your stomach may empty more rapidly, leading to dumping syndrome. Symptoms of dumping syndrome can include: nausea, vomiting, abdominal pain, cramps, diarrhea, and feeling too full after meals. To learn more, read the dumping syndrome folder.

Finally, the connection between the pancreas and the small intestine is modified during the procedure. This can lead to a delay in combining pancreatic enzymes with food in the small intestine, and even to a reduction in the secretion of certain enzymes or hormones (insulin). The following might ensue: diarrhea, malabsorption of certain foods (including fat), and even diabetes. Your physician will give you advice on this subject.

## NUTRITION IMMEDIATELY FOLLOWING SURGERY

Post-surgery, you can consult a nutritionist who will give you dietary advice and recommendations. The objective is to eat regularly and to have a sufficient intake of calories (energy) and proteins to facilitate your recovery.

The recommendations will be adapted to your symptoms. If you have nausea, vomiting or a feeling of fullness too soon after eating, you will be advised to have smaller, more frequent meals throughout the day (4 to 6). You might be given advice on nutritional supplements such as Ensure® or Boost®, as well

as on tube feeding or enteral nutrition, which involve connecting a tube to your stomach or small intestine in order to meet the body's nutritional requirements. Everything will depend on the factors evaluated by your physician and your nutritionist.

## HOW DO YOU MANAGE NUTRITIONAL COMPLICATIONS AFTER SURGERY?

The following table provides a summary of the complications explained above and their potential treatments. Always speak to your physician or nutritionist about your complications.

### Stomach

Complication	Symptoms	Treatment and advice
Gastroparesis (delayed gastric emptying)	Nausea, vomiting, weight loss, feeling too full after eating	<b>Consult the gastroparesis folder.</b> <ul style="list-style-type: none"><li>• Have smaller, more frequent meals.</li><li>• Avoid fibre.</li><li>• Avoid fatty meals.</li></ul>

## Stomach (cont.)

Complication	Symptoms	Treatment and advice
Dumping syndrome	Diarrhea after eating, nausea, cramps, and abdominal pain after eating	<p><b>Consult the dumping syndrome folder.</b></p> <ul style="list-style-type: none"> <li>• Have smaller, more frequent meals.</li> <li>• Eat and drink slowly, and chew well.</li> <li>• Avoid drinking liquids 30 to 60 minutes before and after meals.</li> <li>• Avoid coffee, tea, and alcohol.</li> <li>• Avoid monosaccharides (simple sugars) (e.g., candy, soft drinks, fruit juice, etc.).</li> </ul>

## Small intestine

Complication	Symptoms	Treatment and advice
Food and pancreatic enzymes combine poorly (poor digestion)	Vitamin deficiencies; bulky, sticky, foul-smelling stools; malabsorption of fat; weight loss	<ul style="list-style-type: none"> <li>• Take vitamin and mineral supplements.</li> <li>• Take pancreatic enzyme supplements as prescribed by your physician.</li> </ul> <p>It is not necessary to eliminate fat from your diet.</p>

## Pancreas

### Complication

### Symptoms

### Treatment and advice

Malabsorption of fat

Bulky, sticky and foul-smelling stools, weight loss, certain vitamin deficits

**Consult the chronic pancreatitis folder.**

- Take pancreatic enzyme supplements and likely of certain vitamins prescribed by your physician.
- Choose high-calorie foods (energy).
- Have smaller, more frequent meals.
- Avoid alcohol, fried foods, and products rich in simple sugars/ monosaccharides (candy, soft drinks, fruit, pastries).

It is not necessary to eliminate fat from your diet unless your physician or nutritionist recommends you do otherwise.

Diabetes

Elevated blood-sugar level (hyperglycemia).

Consult a nutritionist.

**If you have any questions or concerns, speak to your nurse or physician.**

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