

# Nutrition and Inflammatory Diseases

Answers to your questions about inflammatory bowel diseases



## Inflammatory bowel diseases



## What role does diet play in the occurrence of the disease?

Although there have been many attempts to suggest diet as a causal factor of IBD, experts agree that diet plays no role in the occurrence of the disease.

### I feel that certain foods increase the symptoms of my illness. Should I eliminate them from my diet?

The term inflammatory bowel disease (IBD) covers **Crohn's disease, ulcerative colitis and indeterminate colitis**, three chronic inflammatory diseases of the gastrointestinal tract characterized by remission and relapse phases.

These diseases are characterized primarily by bouts of abdominal pain and diarrhea, which can last for weeks or even months. If left untreated, they can cause fatigue, weight loss and even malnutrition.

In children, IBD can result in growth retardation. This is particularly apparent with Crohn's disease, which can also lead to a delay in puberty.

The causes of IBD are numerous. It may be due to genetic, autoimmune and/or environmental factors. The incidence of the disease has tended to increase since the 1950s, and there is a higher incidence in the industrialized countries, which suggests that environmental factors, probably related to the Western way of life, might have a significant influence on the development of the disease.

Some people with IBD feel that certain foods exacerbate the symptoms of their disease. For example, in some people, spicy foods may be triggers, while in others, such foods have no effect. Among other known triggers are caffeine and fatty foods. One should be careful when excluding nutritious foods from one's diet because of the risk of vitamin and other nutrient deficiencies.

Depending on the area affected and the extent of the disease, dairy products may be poorly tolerated at times. Since the symptoms of IBD and lactose intolerance can be very similar (abdominal pain, bloating and diarrhea), it is sometimes difficult to recognize intolerance to lactose (a natural sugar found in dairy products, such as milk, cheese, yogurt and ice cream).

If you feel that you do not tolerate dairy products well, you can try eliminating all dairy products from your diet for a week to see if you are lactose-intolerant. After this period, reintroduce them gradually, one at a time, and be attentive to your symptoms. If your bloating, abdominal pain or diarrhea

disappear or gradually diminish while you are on the dairy-free diet but reappear when they are reintroduced, you may be lactose-intolerant. This intolerance can vary from one person to the next. Some are intolerant to all dairy products, while others are only intolerant to milk. Before permanently excluding these foods, which are an important source of calcium and vitamin D, talk to your doctor or pharmacist. There are a number of lactose-free products on the market as well as lactase tablets, which enable one to consume dairy products and can help reduce the symptoms of intolerance to them!

## I frequently find certain particles of food in my stool. Should I be concerned about this?

Particles of food that one might find intact in stool do not necessarily indicate that IBD is active or that the food is poorly tolerated. Rather, they could simply be a reflection of accelerated intestinal transit. In other words,

the time that ingested food takes to go from the mouth to the colon is shorter. If you experience this regularly, talk to your doctor.



## When my disease is active, should I avoid eating certain foods?

To reduce discomfort during flare-ups of the disease, it is generally advised to reduce one's intake of insoluble dietary fibre. There are two types of fibre: insoluble fibre and soluble fibre. Insoluble fibre (which does not dissolve in water) can worsen diarrhea, while soluble fibre (which does dissolve in water)

tends to absorb water and generally does not contribute to diarrhea. This is why it is usually recommended that you should limit your insoluble fibre intake during a flare of the disease.

## Examples of soluble and insoluble fibre

INSOLUBLE FIBRE	SOLUBLE FIBRE
<b>Whole wheat:</b> Bran, wheat germ, whole wheat or multigrain bread or pasta, All Bran® or Bran Flakes® cereal, bulgur wheat, fresh corn and popcorn, spelt, kamut	<b>Psyllium</b> Metamucil®
<b>Legumes</b>	<b>Oats</b> Porridge, oat bran, Cheerios®- type oat cereals, oatmeal
<b>Fruits (unpeeled)</b> Apples, pears, papayas, dried fruits, dates, prunes, figs	<b>Fruits (peeled)</b> Grapefruit, strawberries, nectarines, oranges, peaches, apples and other peeled fruit, mangos, bananas
<b>Vegetables (unpeeled)</b> Green peas, broccoli, Brussels sprouts, unpeeled potatoes, cabbage	<b>Vegetables (peeled)</b> Peeled carrots, potatoes and cucumbers, squash, beans, eggplant, tomatoes, lettuce, zucchini, asparagus, sweet potatoes
<b>Nuts and grains</b>	<b>Rye, pumpernickel, buckwheat</b>

Don't forget that when the flare-up subsides, it is generally no longer necessary to limit – and it is even inadvisable to continue to restrict – your insoluble fibre intake, as you could deprive yourself of foods that are good, in addition to being good sources of nutrients and essential vitamins. Therefore, as soon as your stools are back to normal or nearly so, ask your doctor, nurse or nutritionist if you can gradually resume a diet that is as normal as possible and that is well balanced.

The only exception to this rule is if your doctor has told you that there is a narrowing of your bowel (stenosis) due to Crohn's disease. In this case, certain foods can partially block and sometimes completely obstruct your intestine and prevent the evacuation of gas and stool. You should therefore avoid swallowing fruit pits or

seeds, and limit your intake of insoluble fibres, such as those in dried fruit, nuts (e.g., almonds, hazelnuts and peanuts), corn, etc.

When your IBD is active, it is also recommended that you eat small portions of food several times a day and drink plenty of water. However, it is recommended that you avoid drinking large amounts of fluids while eating and wait until after your meals instead. Limiting your intake of food that is greasy, fried or in a sauce can also help lessen the symptoms of IBD. Foods known to cause gas, such as beans, should also be avoided.

In all other cases, don't limit yourself – savour every mouthful and enjoy these little pleasures of life!

## Do I have to follow a special diet if I am on a drug that affects the immune system?

The immune system helps protect you against infections. When it is weakened, it is not as effective in fighting the microorganisms present in certain foods. It is recommended that you observe the following food safety precautions:

- Avoid unpasteurized milk and cheese
- Wash fruits and vegetables before eating them
- Refrigerate meat and poultry properly
- Avoid uncooked meat or fish, such as tartars, sushi or ceviches
- Thoroughly cook meat, poultry and seafood
- Thoroughly cook eggs until the yolk is firm
- Carefully wash work surfaces (knives and cutting boards) after contact with raw meat or poultry
- Thoroughly wash your hands after changing diapers, going to the bathroom, blowing your nose, touching animals or taking out the garbage



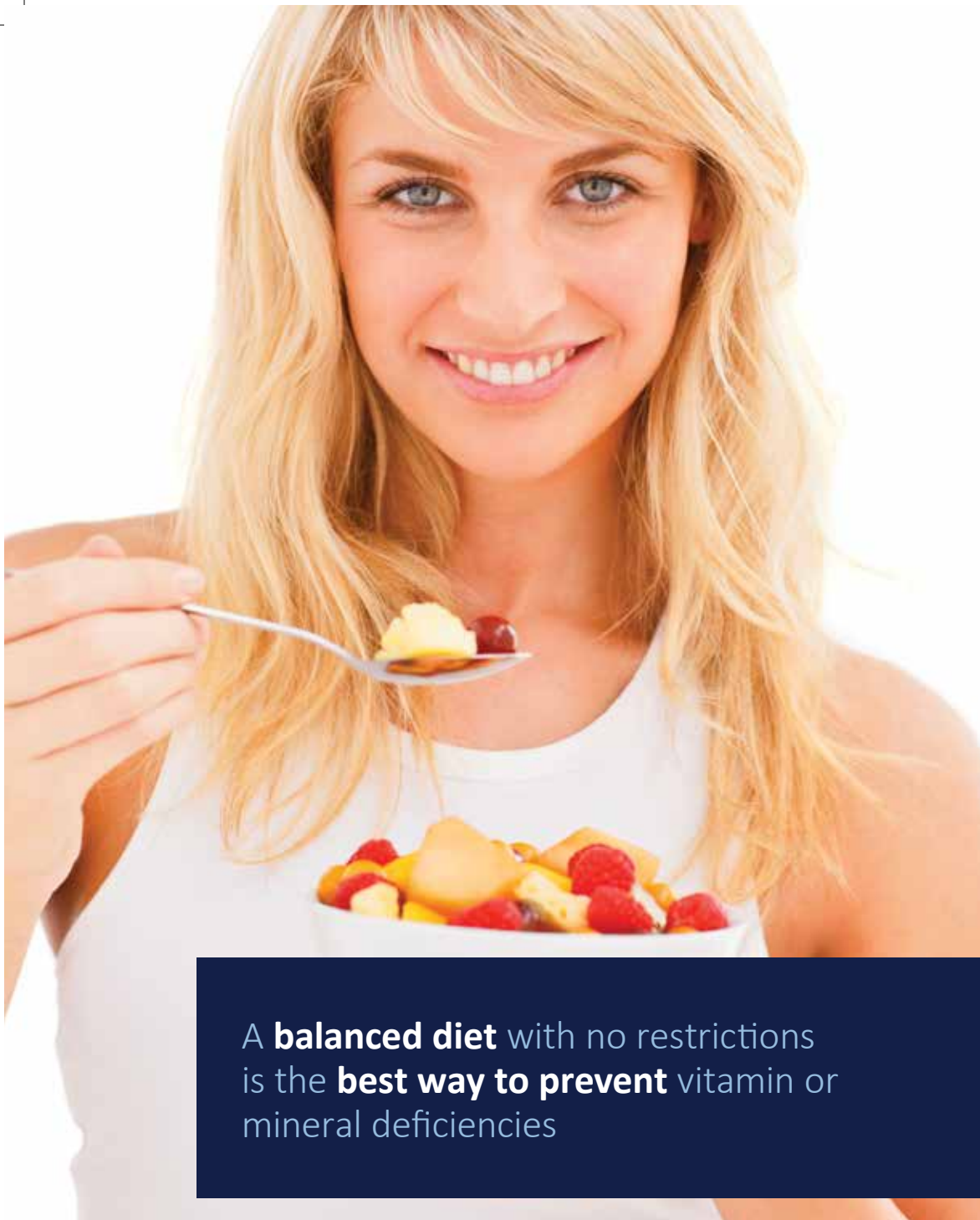
## Should I take vitamin and mineral supplements?

It is not usually necessary to take vitamin and mineral supplements, especially if your diet is well balanced. Depending on your condition, your doctor might nonetheless suggest that you take calcium and/or vitamin D supplements, especially if you are taking cortisone (prednisone) to control your disease, since this drug decreases the absorption of these nutrients.

If you have iron-deficiency anemia, your doctor may also advise you to take an iron supplement.

Other vitamin and/or mineral supplements may also be prescribed by your doctor if your intestine is unable to properly absorb certain nutrients or if part of your bowel has been resected. People with Crohn's disease who have had a small-bowel resection may be prescribed monthly injections of vitamin B<sub>12</sub> to prevent a deficiency.





A **balanced diet** with no restrictions is the **best way to prevent** vitamin or mineral deficiencies

### Are probiotics useful for my illness?

Probiotics sold as tablets or added to certain foods, such as yogurt, are bacteria that can be useful for restoring the natural bacterial flora of the digestive tract. Based on current research, probiotics do not seem to be effective in preventing a relapse or maintaining a remission of IBD. If you still

want to take them, it is important to seek advice from your doctor to ensure that there are no contraindications with the use of certain medications.

### Are omega-3s useful for my illness?

Omega-3s are found naturally in certain foods, such as canola and flaxseed oils, and fatty fish, such as salmon, cod and herring. They are also available in pharmacies in tablet form. Although they are credited with antiinflammatory properties, current data

do not seem to suggest that they are useful in decreasing inflammation of the bowel or in maintaining IBD remission. Be that as it may, it is suggested that omega-3s could be beneficial to heart health and one's mood, and they are not generally contraindicated.

### What should I eat to avoid vitamin deficiencies?

Dietary intake, if it is balanced, is usually sufficient. It may be useful, in the case of decreased iron reserves, to consume foods that are high in iron, such as liver and red meat. Your calcium intake should be sufficient to avoid bone demineralization, which can occur with the use of cortisone derivatives (prednisone). For children aged 2 to 8 years and for adults, the *Canada's Food Guide* recommends the daily consumption of 2 servings of dairy products in the form of milk, cheese or yogurt, if they are well tolerated. For children 9 years of age and older and for adolescents, 3 or 4 servings of dairy products per day are recommended. Vitamin D is necessary to ensure proper calcium and magnesium absorption. It is found in food (especially milk), and it is also produced by our skin under the influence of the sun's rays.



If you have difficulty meeting your calorie, vitamin and mineral needs during a flare-up of the disease, an oral nutritional supplement

in liquid or pudding form that serves as a meal replacement or an addition to your diet could be recommended to you so that you have all the necessary nutrients to optimize your treatment and bring about a possible remission of your disease.

### I'm afraid to reintroduce foods after a flare-up of the disease. What should I do?

Go ahead and reintroduce foods gradually. If the symptoms of your illness disappear during treatment, you should not be afraid

to eat normally again the foods that you tolerated well before your flare-up!



## I have IBD and would like to consider a pregnancy. Is there a particular diet that I should follow?

If you want to become pregnant, it is very important that your illness be in remission **before** and **throughout** your pregnancy. If you are taking medications, talk to your doctor about your desire to have children.

A folic acid supplement is usually recommended during the months prior to conception and during pregnancy to reduce the risk of spinal cord malformation in the baby (spina bifida). Seek your doctor's advice. It is important to continue to eat a well-balanced diet and limit your intake of

overly sweet and overly fatty foods. During pregnancy, it is likely that you will be advised to take a multivitamin supplement. If you are pregnant or plan to become pregnant, consult a health professional so that he or she can recommend the supplement that is best for you.

Don't hesitate to consult your doctor if you have any symptoms of the illness during your pregnancy so that you can start an appropriate treatment as quickly as possible to control the disease and ensure a normal pregnancy.

## Can I breast-feed my baby?

If you plan to breast-feed, discuss this with your doctor so that he or she can ensure that there is no problem for you to continue to take your medications.

## Should children with IBD modify their diets?

Since children and adolescents are growing, they need enough nutrient intake to ensure proper development. This is particularly important during puberty growth spurts. Some children, especially those with Crohn's disease, may experience delayed puberty or be smaller than their classmates. It is therefore crucial that they eat enough.

A liquid nutritional supplement (enteral feeding) may be indicated for some children.

This nutritional therapy contains all the necessary nutrients and generally serves as a supplement or a full replacement of the child's dietary needs. This regimen can promote growth in young people by providing easily digestible nutrients.

As is the case with adults, vitamin and mineral supplements, such as vitamin D and calcium, may be recommended. These are important for ensuring healthy bone growth.

## I have a stoma. Should I follow a special diet?

A stoma does not require a special diet. As with anyone else, your diet should simply be balanced and, above all, be a pleasure!

If you have a colostomy, there are no restrictions. If you have an ileostomy, your stool may be somewhat more liquid and abundant. If you have just had surgery for an ileostomy, a low-fibre diet will be proposed to you initially. However, in a few weeks, your small intestine will learn how to reabsorb more water. Little by little, the low-fibre diet will become unnecessary, and you will gradually be able to reintroduce cooked fruits and vegetables, then raw fruits and vegetables as well as other fibre-rich foods. Remember especially to drink a lot of fluids, unless your doctor advises you not to if a very large part of your small intestine was resected. In such case, your doctor and your nutritionist will be able to advise you on the ideal diet.

Certain foods, such as mushrooms, turnips, artichokes and legumes, can promote the

production of gas and should be eaten in moderation. Eat slowly and limit your use of chewing gum and your intake of soft drinks and sparkling water. And don't forget, drinking liquids with a straw makes you swallow more air and therefore promotes the production of intestinal gas!

You may notice that certain foods produce stronger odours when you empty your ostomy bag. Onions, garlic, broccoli, asparagus, cabbage, Brussels sprouts, cauliflower, fish, certain cheeses, eggs, legumes, cucumbers, turnips, coffee, radishes and alcohol are examples. Conversely, some foods, such as yogurt and parsley, may reduce odours.

Eating at regular times and chewing slowly are good habits to adopt. Certain foods, such as tomato juice, fruit juices containing cherry or cranberry, and red jellies can colour stool red. Don't worry about this.

Lastly, remember that **food is one of life's pleasures** and that **adopting healthy eating habits** will help you maintain your health and better prepare you to deal with the disease.

# Are there recipes specially designed for people with IBD?

Yes! All four recipes presented on the following pages were developed, tested and approved by a dietitian member of the *Ordre professionnel des diététistes du Québec*. Besides being healthy and easy to prepare, these recipes reflect the special needs of people with IBD. Try them!

## Tropical Smoothie

### Ingredients

- 30 mL (2 tablespoons) unsweetened shredded coconut
- 250 mL (1 cup) frozen pineapple, cubed
- 80 mL (½ cup) frozen banana, sliced (about ½ medium banana)
- 60 mL (¼ cup) coconut milk
- 180 mL (¾ cup) unsweetened almond milk
- 3 mL (½ teaspoon) honey (optional)

*Note: If using fresh fruit, add one cup of ice*

### Preparation

1. Place coconut flakes in blender and blend on high for a few seconds or until ground into a powder.
2. Add remaining ingredients to blender (containing the ground coconut) and blend until smooth.



## Asian Salmon Cakes (Makes 6 cakes)

### Ingredients

- 2 cans of salmon (213 g [7.5 oz] each), drained (or about 450 g [1 pound] cooked, flaked salmon)
- 5 mL (1 teaspoon) minced fresh garlic
- 5 mL (1 teaspoon) grated fresh ginger
- 2 eggs, lightly beaten
- 60 mL (¼ cup) fresh, chopped cilantro
- 60 mL (¼ cup) chopped green onions (green parts only)
- 250 mL (1 cup) Japanese breadcrumbs (panko)
- 15 mL (1 tablespoon) hoisin sauce
- 15 mL (1 tablespoon) low-sodium soy sauce
- 15 mL (1 tablespoon) plain Greek yogurt
- 10 mL (2 teaspoons) sesame oil (divided)



### Preparation

1. Preheat the oven to 220°C (425°F). Line a baking sheet with parchment paper.
2. In a large bowl, put the salmon and the next 6 ingredients (through Japanese breadcrumbs). Mix gently.
3. Add the hoisin sauce, soy sauce and Greek yogurt and mix until everything is homogeneous.
4. Form mixture into 6 equal-sized, well-compacted patties.
5. Place patties on prepared baking sheet and brush the top of each patty using one of the teaspoons of sesame oil. Bake on the top rack of the oven for 10 minutes; carefully flip each patty using a spatula, brushing the top of each patty using the remaining teaspoon of sesame oil, and continue to bake for 5 more minutes.

## Friendly suggestion if flare-up:

- If you are experiencing a flare-up, use ½ mL (½ teaspoon) each of garlic powder and ground ginger instead of fresh
- Consider omitting the cilantro and green onions

## Crispy Tofu Fingers (Makes 9 fingers)

### Ingredients

- 1 block of tofu (350 g [16 oz]), extra firm, cut into 9 strips, and drained of excess liquid
- 3 mL (½ teaspoon) Dijon mustard
- 2 eggs, lightly beaten
- 60 mL (¼ cup) cornstarch
- 250 mL (1 cup) Japanese breadcrumbs (panko)
- 5 mL (1 teaspoon) garlic powder
- 10 mL (2 teaspoons) dried oregano
- 60 mL (¼ cup) freshly grated Parmesan cheese
- 1 mL (¼ teaspoon) salt
- ½ mL (¼ teaspoon) pepper



### Preparation

1. Preheat the oven to 220°C (425°F). Line a baking sheet with parchment paper.
2. Set up a breading station: Mix Dijon mustard and eggs in a bowl. Place cornstarch in another bowl and the breadcrumbs and the remaining 5 ingredients (through pepper) in a third bowl.
3. To bread the tofu fingers, lightly coat in cornstarch, dip in egg and then roll in the breadcrumb mixture, turning to coat all sides. Repeat this for all the tofu fingers.
4. Place tofu fingers on prepared baking sheet and spray the tops with cooking spray (or lightly brush with olive oil). Bake on the top rack of the oven for 10 minutes. Flip fingers, spraying the other side with cooking spray, and return to oven for 10 more minutes or until golden and crisp.
5. Serve with marinara sauce, if desired.



## Zucchini Bread

### Ingredients

- 250 mL (1 cup) whole-wheat flour
- 160 mL (⅔ cup) all-purpose flour
- 180 mL (¾ cup) sugar
- 5 mL (1 teaspoon) ground cinnamon
- 6 mL (1 ¼ teaspoons) baking powder
- 3 mL (½ teaspoon) baking soda
- 1 mL (¼ teaspoon) salt
- 250 mL (1 cup) grated zucchini, packed and squeezed of excess liquid
- 125 mL (½ cup) plain Greek yogurt
- 60 mL (¼ cup) canola oil
- 1 egg, lightly beaten
- 5 mL (1 teaspoon) vanilla



### Preparation

1. Preheat the oven to 180°C (350°F). Spray a 23-by-13-cm (9-by-5-inch) loaf pan with cooking spray and set aside.
2. In a large bowl, place the whole-wheat flour and the next 6 ingredients (through salt) and stir with a whisk.
3. In a small bowl, combine zucchini and the next 4 ingredients (through vanilla) and stir until homogeneous.
4. Make a well in the centre of the flour mixture, add zucchini mixture and stir just until moist.
5. Pour batter into prepared loaf pan and bake for 45 minutes or until the top is golden and a toothpick placed in the centre of the loaf comes out clean.







