



LOFFLEX DIET

Low Fat Fibre Limited Exclusion Diet
for Crohn's disease

Patient details

Name:

Date:

Dietitian:

Contact:

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LOFFLEX Diet for Crohn's Disease

What is Crohn's Disease?

Crohn's disease is a type of inflammatory bowel disease (IBD). It can affect any part of the gut but most commonly affects the small and large bowel. Crohn's disease tends to go through periods of remission with minimal symptoms, and active phases when symptoms flare. When the bowels become inflamed, common symptoms experienced are pain, wind, bloating and loose stools.

How can Crohn's Disease be treated with diet?

Dietary treatment of active Crohn's disease usually starts with a prescribed course of a liquid diet (enteral nutrition) to induce remission. Once remission has been achieved, foods can be reintroduced following the LOFFLEX diet.

What is the LOFFLEX diet?

There are two stages to the LOFFLEX diet:

1. Basic LOFFLEX diet
2. Reintroduction stage

1. Basic LOFFLEX diet

LOFFLEX stands for **Low Fat, Fibre Limited Exclusion**. It consists of foods that are least likely to cause symptoms of Crohn's disease, as identified through research.¹ It is low in fat and fibre and excludes specific foods that some people with Crohn's disease have identified to trigger symptoms. It is recommended that you follow the basic LOFFLEX diet for at least two weeks. You may need to continue this for longer, depending on your symptoms. Your Dietitian will monitor your progress on the diet and advise you when to proceed to the reintroduction stage

2. Reintroduction stage

During this stage, foods that may be more likely to trigger symptoms are reintroduced one at a time. It will take a few months to complete the reintroduction stage. The aim is to establish a 'safe diet' which consists only of those foods that have not caused symptoms on reintroduction.

What are the benefits of following a LOFFLEX diet?

The LOFFLEX diet helps in the transition from a liquid diet (enteral nutrition) to a 'safe diet'. Reintroducing foods gradually, makes it possible to identify any foods that might trigger symptoms. There is some evidence to suggest that a LOFFLEX diet may help to maintain remission of Crohn's disease.¹

References

1. Woolner, J.T., Parker, T.J, Kirby, G.A. & Hunter, J.O., 1998. The development and evaluation of a diet for maintaining remission in Crohn's disease. JHND., 11: 1-11.

Stage 1: Basic LOFFLEX Diet

When should I start the basic LOFFLEX diet?

You should start the basic LOFFLEX diet in consultation with your Dietitian when your symptoms have settled following a period of time on a liquid diet (enteral nutrition).

Which foods can I eat on the basic LOFFLEX diet?

The following tables detail which foods and cooking methods are suitable and unsuitable on the basic LOFFLEX diet.

For the first few days, it is advisable to eat only a few plain foods with minimal fat and fibre content e.g.:

- Rice, rice cakes, puffed rice cereal
- Rice milk or soya milk (with added calcium)
- Small amount of milk free margarine and/or suitable oil
- Plain chicken or turkey (baked, steamed, poached)
- White fish (baked, steamed, poached)
- Potato (baked, boiled without skins)
- Herbal or fruit teas

To begin with, it may be helpful to introduce food as four to five small meals or snacks spread over the day.

If, after a few days your symptoms remain settled you can start to introduce other foods listed as suitable on the basic diet. Gradually increase the size of your portions, aiming to eat three meals per day with snacks in between.

It is best not to rush your meals; take time to chew food well. This will help your gut to digest the food.

It is important to check the ingredients lists on the food labels of packaged food and drinks as they may contain other ingredients that are not suitable on the diet. As a general guide, choose fresh products where possible as packaged or processed products are more likely to contain unsuitable ingredients. For example pre-packaged cooked chicken often contains wheat or cow's milk derivatives, soya milk may contain apple juice.

Food group	Unsuitable foods	Suitable foods
Cooking methods	High fat cooking methods e.g. deep-fat frying, roasting, frying with large quantities of fat	Low fat cooking methods e.g. baking, steaming, grilling, poaching, stir-frying, dry-roasting, frying with low calorie spray oils
Cooking oils	Corn oil Nut oils	Sunflower, soya, olive, rapeseed oils
Meat and poultry	Pork and pork products e.g. ham, bacon, pigs liver Processed meat products e.g. sausages, beefburgers, meat pies, pâté, meat paste, ready meals 'Ready' meals	Chicken, turkey, game, duck, ostrich Beef, lamb Liver, kidney Remove visible fat and skin. Choose lean cuts Pre-packaged, cooked meats and poultry as above <i>(check ingredients)</i>
Meat alternatives	Soya products e.g. tofu, burger, sausage, mince Quorn and quorn products <i>If you follow a vegetarian diet, you may need to include these (discuss with your Dietitian)</i>	None
Fish	Tinned fish in oil or tomato Fish in batter or breadcrumbs Fish paste, taramasalata Scampi Processed fish products 'Ready' meals	Tinned fish in water or brine White fish Seafood & shellfish Smoked fish Oily fish e.g. mackerel, salmon, sardines, trout <i>(1 portion of oily fish per week is recommended for healthy eating - you may wish to discuss this further with your Dietitian)</i>
Milk & Dairy alternatives, Eggs	Cow's, sheep's & goat's milk including fresh, dried, tinned, evaporated, condensed Ready made milkshakes & yoghurt drinks Probiotic and prebiotic drinks & yoghurts	Milk alternatives <i>(choose calcium enriched types)</i> Soya milk <i>(not with apple juice)</i> Rice milk Hemp milk Coconut milk <i>(fresh milk substitute)</i> Low fat tinned coconut milk <i>(small quantities - discuss with your Dietitian)</i>

Food group	Unsuitable foods	Suitable foods
Milk & Dairy alternatives, Eggs	Oat milk Nut milks e.g. almond, hazelnut Tinned coconut milk (<i>full fat</i>) Cow's, sheep's & goat's milk products e.g. butter, margarine, spreads, cheese, cream, yoghurt, ice cream, custard, mousses, foos Soya cheese containing yeast, corn/maize Eggs, egg custard	Milk or dairy free spread Soya milk products (<i>check ingredients e.g. not containing corn, cocoa</i>) Soya spreads, yoghurts, desserts, custard <i>Small quantities of the following – discuss with your Dietitian:</i> Soya cream, ice cream & cheese (<i>check ingredients for corn/maize & yeast</i>)
Breads, flours, cereals & grains	Wheat, rye, barley, corn/maize, oats All products made from these grains including flours, breads, biscuits, cakes, crackers, savoury snacks, breakfast cereals, porridge, cereal bars, pasta, noodles, pizza bases, semolina, custard powder 'Free from' & gluten free/ wheat free products e.g. bread, flour, cakes, biscuits, pasta, pizza bases, crackers, breakfast cereals Buckwheat flakes, flour, pasta Gram flour Millet flour, flakes Quinoa Soya flour Spelt flour Carob flour Processed noodles e.g. pot noodles, super noodles Savoury rice packets Rice cakes or snacks with flavouring or corn/maize	<u>Rice and rice products</u> (<i>choose white products preferably</i>) White rice Rice pasta (<i>corn-free</i>) Rice noodles (<i>plain</i>) Rice cakes (<i>plain or salted</i>) Ground rice Rice flour Puffed rice cereal (<i>barley malt extract is suitable as an ingredient – discuss with your Dietitian</i>) Arrowroot Tapioca / cassava Sago Xanthan gum
Potato and Potato products	Potato skins Chips (<i>'full fat'</i>) Potato crisps (<i>'full fat'</i>) Vegetable or sweet potato crisps	Potato – baked, boiled, dry roasted without skins Low fat oven chips and potato crisps (<i>check ingredients</i>) Mashed potato with suitable milk (see above) and small amount of milk or dairy free spread and/or soya cream Sweet potato (<i>without skins</i>)

Food group	Unsuitable foods	Suitable foods
Vegetables & Pulses	Peas – garden peas, chickpeas, marrowfat peas Pulse beans e.g. kidney beans, baked beans Lentils Onion Parsnips Sweetcorn Tomato	All other vegetables including salad Remove skins, seeds and stalks Aim to eat a combined total of five portions of fruits and vegetables per day (<i>see portion guide</i>)
Fruit	Apple Banana Citrus fruit e.g. orange, satsuma, tangerine, clementines, mandarins, grapefruit, lemon, lime Dried fruit Berries & currants (<i>juices suitable</i>)	All other fresh, tinned or cooked fruits and their juices. Remove skins, seeds and pips Smoothies of suitable fruits (<i>check ingredients</i>) Aim to eat a combined total of five portions of fruits and vegetables per day (<i>see portion guide</i>) <i>Stewed, cooked or tinned fruit may be better tolerated</i>
Drinks	Black tea and coffee (<i>caffeinated</i>) Green tea Citrus (<i>lemon, lime, orange, grapefruit</i>), apple, banana and tomato juices, squashes, cordials, fruit teas & fizzy drinks Cola Barley fruit squashes Wine, cider, beer, lager, ale, Alcoholic spirits/ drinks (<i>discuss with your Dietitian</i>)	Decaffeinated tea & coffee Herbal teas e.g. rooibos, peppermint, rosehip, camomile Fruit teas of suitable fruits (<i>check ingredients for apple, citrus</i>) Still water – tap, bottled Fizzy/carbonated water, tonic water, soda water (<i>discuss with your Dietitian</i>) Fruits cordials, squashes, coconut waters and, flavoured waters of suitable fruits (<i>check ingredients & discuss with your Dietitian</i>) Fruit juices of suitable fruits (<i>one glass of fruit juice can be counted as one portion of your five fruits & vegetables per day</i>)
Miscellaneous	Marmalade, citrus jams Lemon curd Yeast & yeast extract Meat extracts Nuts (<i>all types</i>) Peanut butter Seeds	Jams of suitable fruits, honey, syrup, treacle Trace ingredients of citrus & citric acid Sugar Jelly (<i>without apple or citrus pieces</i>) Sorbets (<i>check ingredients</i>)

Food group	Unsuitable foods	Suitable foods
Miscellaneous	Mustard Salad cream and dressings Soy sauce Tomato products e.g. ketchup, puree, sauce, passata, pasta sauces Ready mixed jar & packet sauces e.g. pasta sauces, curry sauces, sauces for meat/ fish/ poultry Gravy mixes Worcester sauce Chilli sauce Chocolate, cocoa powder Most confectionary (<i>check ingredients</i>) Carob confectionary Sugar free sweets, mints (<i>discuss with your Dietitian</i>) Chewing/bubblegum (<i>discuss with your Dietitian</i>)	Salt, black pepper Herbs Spices in moderation Vinegar (<i>all types</i>) Home made gravy (<i>see recipe booklet</i>) The following sauces are likely to be suitable (<i>check ingredients</i>): Miso (<i>fermented rice or soya bean, avoid fermented barley</i>) Mirin (<i>Japanese flavouring</i>) Fish sauce Tabasco sauce Mango chutney Tamari (<i>wheat free soy sauce</i>) Carob flour in small quantities (<i>discuss with your Dietitian</i>) Kendal mint cake Clear boiled sweets & mints (<i>check ingredients</i>)

How much is one portion of fruit or vegetables?

Suitable portion sizes of fruits and vegetables are shown below.

Please refer to the fruit and vegetable sections in the table above to check which types are suitable on the basic diet. Note that unsuitable fruits and vegetables are included here also for the purpose of the reintroduction stage.

Fruits	Vegetables
1 medium sized fruit e.g. apple, banana, orange, pear, peach	3 heaped tablespoons raw, cooked, frozen or tinned vegetables
½ grapefruit	1 dessert bowl mixed salad (<i>lettuce, tomato, cucumber</i>)
1 slice large fruit e.g. melon, pineapple	3 heaped tablespoons of pulse beans (<i>can be counted ONCE a day as one portion</i>)
2 plums, kiwis, clementines or similar sized fruit	
1 medium tomato or handful of cherry tomatoes	
Handful of grapes, cherries, berries	
3 heaped tablespoons fruit salad, stewed fruit, tinned fruit	
1 heaped tablespoon (25g) dried fruit e.g. raisins, figs, apricot	
One small glass (150mls) of fruit juice (<i>can be counted ONCE a day as one portion of fruit</i>)	

What might a typical daily menu look like?

Food
<p>Breakfast Choose from a selection of:</p> <ul style="list-style-type: none"> - Puffed rice cereal with milk alternative and sugar/honey - Rice cakes, milk-free margarine and jam/honey - Lean meat/ poultry/ fish cooked using low fat cooking methods - Potato cakes (<i>see recipe booklet</i>) - Soya yogurt/dessert with fruit - Fruit juice - Herbal/ fruit tea
<p>Mid morning snack Choose from the list of snacks below</p>
<p>Lunch Lean meat/ poultry/ fish cooked using low fat cooking methods Boiled white rice/ rice pasta/ potato/ rice cakes with milk free spread Vegetables / salad (<i>see recipe booklet for meal ideas</i>) Soya yoghurt/dessert or sorbet</p>
<p>Mid afternoon snack Choose from the list of snacks below</p>
<p>Evening meal Lean meat/ poultry/ fish cooked using low fat cooking methods Boiled white rice/ rice pasta/ potato/ rice cakes with milk free spread Vegetables / salad (<i>see recipe booklet for meal ideas</i>) Soya yoghurt/dessert or sorbet with fruit</p>
<p>Evening snack Choose from the list of snacks below</p>
<p>Snacks Rice cakes with milk-free spread margarine and jam/ syrup/ honey Homemade cakes or biscuits (<i>see recipe booklet</i>) Soya yoghurt or dessert Low fat crisps (<i>check ingredients</i>) Fruit Homemade soya milk shake (<i>see recipe booklet</i>)</p>

Please refer to the LOFFLEX recipe booklet for recipe ideas.

Do I need to keep a food and symptom diary?

Yes. For the duration of the LOFFLEX diet it is helpful to record the types and quantities of everything you eat and drink and the symptoms you experience, including times of the day. An example food and symptom diary is shown below. It is helpful to include brand names of food products and approximate portion sizes.

Please bring your diary with you to appointments with your Dietitian. Your Dietitian will be able to use this to help determine which foods might be triggering your symptoms and to assess your nutrient intake.

Food	Symptoms
<p>Breakfast 8.00 am Medium bowl puffed rice cereal + 2 tsp sugar + ¼ pint rice milk 2 rice cakes + thin spread milk-free marg + 1 tsp jam on each Small glass cranberry juice</p>	
<p>Mid morning 10.30 am 1 medium pear (<i>no skin</i>) 125mls soya yoghurt (<i>added calcium</i>) Small mug herbal tea</p>	<p>11.00 am Loose bowel motion</p>
<p>Lunch 1.00 pm Grilled chicken breast, 3 tbsps boiled rice, handful green beans Large glass blackcurrant cordial</p>	
<p>Mid afternoon 3.00 pm Homemade peach soya milkshake (200mls soya milk + ½ tin peaches in syrup) Small bag low fat crisps</p>	<p>4.00 pm Stomach pain & bloating</p>
<p>Evening meal 6.00 pm 1 average piece grilled haddock + 4 boiled potatoes + carrots (3 tablespoons) 1 vanilla soya dessert pot (125g)</p>	
<p>Bedtime snack 8.30 pm 2 homemade crispy rice cakes (<i>made using recipe booklet</i>) 200ml glass of rice milk</p>	

What if my symptoms return on the basic LOFFLEX diet?

If your symptoms return on the basic diet, it is possible that one or more foods you are eating may be triggering your symptoms. Using your food and symptom diary, your Dietitian will help you to identify these foods, which should then be excluded.

When should I stop taking the liquid diet?

If you followed a liquid diet (enteral nutrition) before starting the LOFFLEX diet, your Dietitian may recommend that you continue taking some of these drinks during the early stages of the LOFFLEX diet. These will help to ensure you get all the nutrients you need for health and help to maintain your weight. It is likely that you will only need to continue these for a temporary period of time until you have reintroduced enough foods in to your diet. Your Dietitian will advise you when to stop taking these.

How much fluid should I drink?

It is advisable to drink plenty of fluids while following the LOFFLEX diet to maintain good hydration. Aim to drink 8-10 glasses (approx. 2 litres) of suitable drinks daily.

What should I do if I find I am losing weight?

It can be difficult to maintain your weight while following the LOFFLEX diet as the food choices are more limited and because it is low in fat. If you find that you are losing weight, it is important that you contact your Dietitian. Your Dietitian will advise you on suitable changes to your diet or nutritional supplements to help maintain your weight.

What should I do if I eat an unsuitable food?

Do not panic. Return to eating only suitable foods as soon as possible. It may take a few days for your symptoms to settle if they have flared up.

Food & Symptom Diary

It is recommended that you keep a record of foods consumed and symptoms experienced to help you know which foods may be an issue and which will need retesting. An example is set out for you here. These diary pages can be found online for printing.

If you are a healthcare professional please visit www.elemental028.com to access the pages.

If you are a patient/carer, please visit www.crohns.org.uk

Date:.....

Food	Symptoms
Breakfast:	Time:
Mid morning:	Time:
Lunch:	Time:
Mid afternoon:	Time:
Evening meal:	Time:
Bedtime snack:	Time:

Local health food shops / additional information

Dotted lines for writing notes.

Stage 2: Reintroduction Stage

When can I start the reintroduction stage?

You can start the reintroduction stage in discussion with your Dietitian. This will be when you are symptom free or if you have minimal symptoms after following the basic LOFFLEX diet for at least 2 weeks. If you have also been prescribed medications for the treatment, or maintenance of remission, of Crohn's disease, these should be at a stable dose when starting food reintroductions; discuss this with your Dietitian.

How do I reintroduce foods?

Foods must be reintroduced one by one back in to your diet. Each food should be reintroduced or 'tested' twice a day for four days in your normal portion size of that food (unless otherwise stated in the table below).

If your symptoms DO NOT return when testing a food, you can assume that the food is 'safe' or 'tolerated' and subsequently include it in your diet. You can then go on to test the next new food.

If your symptoms DO return when testing a food, this food was probably responsible and should be left out of your diet. You do not need to continue testing this food for the full testing period. It is important to wait until your symptoms have settled before testing a new food as it is impossible to assess your reaction to other foods accurately during this time. Symptoms may last for two days or longer. Contact your Dietitian if they do not settle after four days.

If you are unsure about your tolerance to any food, leave this food out of your diet while you complete the reintroduction stage and re-test this food at the end.

Foods identified to trigger your symptoms can be re-tested at the end of the food reintroduction stage to confirm this.

At the end of the reintroduction stage, you will have identified your 'safe' diet which will include all the foods that have not triggered symptoms on testing.

Which foods do I reintroduce and in what order?

The table below shows which foods to 'test' during the reintroduction stage and gives information on how to test these. It is advised that you test foods in the order shown.

Speak to your Dietitian if:

- you wish to change the order of reintroduction
• you never eat one or more foods listed below
• you would like to reintroduce other foods not listed

Food group	Reintroduction details
Caffeinated tea or coffee	If both desired, test tea for two days, then coffee for two days. Add soya milk or rice milk if desired.
Eggs	Test whole eggs (<i>white & yolk</i>) either boiled, poached, scrambled or omelette made with soya milk/rice milk & dairy free spread.
Oats	Test oats and oat products e.g. porridge, oatcakes, homemade flapjacks (<i>made from suitable ingredients</i>). Choose wheat / gluten-free varieties.
Onions	Test red or white or spring onions, cooked and/or raw. Cooked onions may be better tolerated.
Dairy butter	Spread on rice cakes, add to potatoes or use in baking. If symptom free after 4 days, milk-containing margarines can also be included. If not tolerated, discuss further dairy reintroductions with your Dietitian.
Cheese (cows')	Test Cheddar cheese. If symptom free after 4 days, other cheese such as french cheeses, goats' cheese and sheeps' cheese are likely to be tolerated. Do not introduce processed cheese at this stage. If not tolerated, discuss further dairy reintroductions with your Dietitian.
Yoghurt (cows')	Test preferred variety. Check yoghurt does not contain ingredients that have not yet been tested. If not tolerated, discuss further dairy reintroductions with your Dietitian.
Cows' milk	Test ½ to 1 pint spread throughout the day, of preferred variety (<i>full fat/ semi skimmed/ skimmed</i>). If symptom free after completing all of the above dairy reintroductions, it is likely that all dairy products (<i>with 'safe' other ingredients</i>) will be tolerated. If not tolerated, discuss further dairy reintroductions with your Dietitian.
Banana	Test one twice a day. (<i>riper/yellower bananas may be better tolerated than less ripe/greener bananas</i>).
Pork	Test unprocessed, lean cuts of pork with visible fat removed e.g. roast, chops, loins for 2 days. If tolerated then test bacon (<i>not streaky</i>)/ gammon/ ham for 2 days (<i>check other ingredients are suitable</i>).

Food group	Reintroduction details
White wheat	Test as white flour, white pasta, wheat & rice breakfast cereal flakes e.g. Special K, special flakes. If white wheat is not tolerated, see 'wheat free flours and bread' section below.
Wholegrain wheat	Test only if white wheat is tolerated. Test as wholemeal pasta, wholemeal flour, wholegrain breakfast cereals e.g. Weetabix, Shredded wheat, Shreddies.
Bread	Test only if wheat is tolerated. Test at least 2 slices twice a day. Test white bread for 2 days, then wholemeal or granary bread for 2 days (<i>if wholegrain wheat tolerated</i>). If bread is not tolerated, test soda bread (<i>yeast free</i>).
Wheat free flours and bread	Test if wheat flour is not tolerated. Test wheat free products in the following order: - low fibre wheat free types of flour - higher fibre wheat free types of flour - breads made from tolerated flours, low and/or high fibre, as preferred. (<i>Discuss suitable varieties and appropriate recipes with your Dietitian</i>)
Tomatoes	Test fresh and/or plain tinned tomatoes (<i>not with added herbs, garlic, onion</i>).
Garden peas	Test fresh, tinned and/or frozen garden peas.
Chocolate	Test milk chocolate only if cow's milk is tolerated. If cows' milk is not tolerated, test plain chocolate or cocoa powder in baking or mixed with soya milk as a drink.
Apple	Test whole fruit and/or juice. Stewed apple may be better tolerated.
Wine (white or red)	Test 1-2 small glasses (<i>125mls</i>) per day (<i>can be used in cooking</i>). Test white wine for 2 days, then red wine for 2 days if both desired.
Pulse beans, lentils	Test 3 heaped tablespoons twice a day. Those following a vegetarian diet may wish to introduce these sooner; (<i>discuss with your Dietitian</i>).
Corn (maize)	Test cornflakes, polenta or cornflour in baking.
Citrus fruits (orange, lemon, lime, grapefruit)	Test whole fruit and/or juice.
Sweetcorn	Test fresh, tinned or frozen. Test 3 heaped tablespoons twice a day.

Food group	Reintroduction details
Rye	Test as rye crispbread or as rye bread. If yeast is not tolerated, test only rye crispbread. If wheat is not tolerated, test wheat-free varieties.
Nuts	Test a handful of unflavoured mixed nuts. If not tolerated, test individual types of nuts later. Discuss with your Dietitian.
Barley	Test pearl barley in soup or in a casserole, or test barley flakes as breakfast cereal.
Beer/ lager/ale	Test ½ pint per day.

Do I need to continue a food and symptom diary during the reintroduction stage?

Yes, it is important to continue to keep a food and symptom diary during the reintroduction stage, clearly indicating the food you have introduced e.g. using capital letters.

These diary pages can be found online for printing.

If you are a healthcare professional please visit www.elemental028.com to access the pages.

If you are a patient/carer, please visit www.crohns.org.uk

Set out your diary in a notebook in the same way as for the basic stage of the diet. Summarise your food reintroduction results in the table on the page. Bring both this summary and your notebook to your appointments.

How do I know I am getting all the nutrients I need in my diet?

Your Dietitian will regularly assess your dietary intake as you follow the LOFFLEX diet and on completion of the reintroduction stage. Your Dietitian may recommend an additional vitamin and/or mineral supplement to ensure you are getting all the nutrients you need for health. Speak to your Dietitian if you have any concerns.

Who can I contact if I have any queries about the LOFFLEX diet?

Please contact your Dietitian if you have any queries about the diet or if you are finding it difficult to follow.

Dietitian:.....

Contact details:.....

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Food reintroduced	Symptoms
Date:	
Date:	
Date:	
Date:	

The LOFFLEX diet was originally developed at the Gastroenterology Research Unit, Addenbrookes NHS Trust, Cambridge UK and has been updated by Gastroenterology Specialist Dietitians who have worked with Professor John Hunter and at Addenbrookes Hospital.