

Minimal long chain fat (LCT) diet - for the management of chyle leak

Information for patients
& carers



Who is this booklet for?

This booklet is for adults who require short term advice for the nutritional treatment of a chyle leak.

What is a chyle leak?

Chyle is a milky coloured fluid that contains protein, long chain triglyceride fats (LCT), fat-soluble vitamins and minerals. It is transported around the body by the lymphatic system.

A chyle leak occurs when there is a damage to the lymphatic duct, which may happen as a result of surgery, injury or through a disease condition. Chyle then builds up and may cause swelling in the chest or abdominal cavity.

The aim of dietary treatment

The aim of dietary treatment is to reduce the flow of chyle through the lymphatic duct to allow the damaged duct to repair itself.

Chyle production (and flow) can be reduced by severely restricting long chain triglyceride fats (LCT) in the diet. Almost all of the fat in our diet is LCT (long chain triglycerides).

Low LCT fat diet = Less chyle production

Medium chain triglyceride fats (MCT) can be eaten and used instead, to add energy and flavour to your diet. MCT fats go directly into your bloodstream and do not pass through the lymphatic system. MCT cooking oil is recommended and can be prescribed by your GP.

The aim is to keep your LCT fat intake as low as possible whilst ensuring you eat enough to maintain your weight.

Foods that are low LCT that you can eat:

The following are all foods that can be included freely as part of a minimal long chain fat (LCT) diet:

- All fruits, fresh, tinned, dried or frozen (except olives, avocado pear and ackee)
- All vegetables, fresh, tinned or frozen
- Vegetables pickled in vinegar e.g beetroot or gherkins
- Sugar, honey, golden syrup, treacle, jam & marmalade
- Jelly & jellied sweets such as Jelly Tots, Jelly Babies, wine gums or fruit pastilles
- Boiled sweets or mints (not butter mints)
- Fruit sorbets, water ices or ice lollies
- Meringue or egg white
- Spices or essences
- Salt, pepper, vinegar, herbs, tomato ketchup, most chutneys
- Marmite, Oxo or Bovril
- Fruit juices, fruit squashes, milkshake syrups
- Bottled fruit sauces
- Fizzy drinks, lemonade, cola, Lucozade.

If you are a diabetic, please discuss this with your dietitian as you will need to continue to follow the dietary advice for diabetes. Your dietitian will be able to advise on suitable low sugar/sugar free options

	Foods Allowed	Foods to Avoid
Bread	<ul style="list-style-type: none"> • White bread • Matzo's • Crumpets 	<ul style="list-style-type: none"> • Seeded or nut bread • Wholemeal bread
Confectionery	<ul style="list-style-type: none"> • Boiled sweets, jelly sweets, fruit gums, pastilles, marshmallow, chewing gum, water-ices, mints, Turkish delight (not chocolate coated) 	<ul style="list-style-type: none"> • Chocolate, toffee, fudge, butter mints, Scottish tablet
Dairy Products	<ul style="list-style-type: none"> • Skimmed milk, condensed skimmed milk • Meritene Chocolate or Strawberry Shake made with skimmed milk • Very low fat yoghurt or fromage frais (<0.2g / 100g) • Low fat cottage cheese • Quark (skimmed milk soft cheese) <p>*If you use a dairy free alternative, please discuss this with your Dietitian who can check the most appropriate version*</p>	<ul style="list-style-type: none"> • Whole milk, dried whole milk • Semi skimmed milk • Cream - double, single or clotted • Full fat and low fat yoghurt • Ice-cream • Cheese
Desserts	<ul style="list-style-type: none"> • Jelly • Sorbet • Custard, sago, tapioca made with skimmed milk • Ice-cream wafers 	<ul style="list-style-type: none"> • Milk puddings made with whole milk instant pudding mixes • Trifle • Cakes and cheesecake • Gateaux, mousse, pie, crumble, brownies, pastries

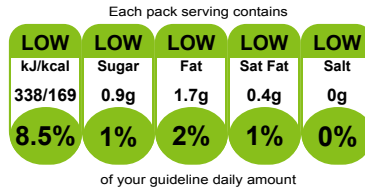
	Foods Allowed	Foods to Avoid
Drinks	<ul style="list-style-type: none"> • Fizzy drinks, squash, fruit juice • Skimmed milk (1 pint/day) • Milk shake flavourings • Tea and coffee made with skimmed milk • Beer, lager, cider, wine, spirits (if allowed by your Doctor) 	<ul style="list-style-type: none"> • Instant chocolate drinks, cocoa, Horlicks, Ovaltine/ malt drinks • Irish cream, cream liqueurs
Egg	<ul style="list-style-type: none"> • Egg white, egg replacer 	<ul style="list-style-type: none"> • Egg yolks
Fats & Oils	<ul style="list-style-type: none"> • Medium chain triglyceride oil (prescribed by GP) 	<ul style="list-style-type: none"> • All other fats and oils e.g. olive oil, rapeseed oil, vegetable oil, coconut oil, palm oil
Fish (fresh & tinned)	<ul style="list-style-type: none"> • White fish (no skin) e.g. haddock (fresh or smoked), sole, plaice, cod, whiting • Crab, lobster, prawns, shrimps, crabsticks • Tuna in brine/spring water, crab, prawns, shrimps 	<ul style="list-style-type: none"> • Oily fish, e.g. sardines, kippers, mackerel, salmon • Fish in breadcrumbs or batter e.g. fish fingers
Flours + Cereals	<ul style="list-style-type: none"> • Wheatflour (white), rice, rye, cornflour • Cornflakes, Frosties, Sugar Puffs, Special K, Cocopops, Rice Krispies, Ricicles, Weetabix (x1) 	<ul style="list-style-type: none"> • Wholemeal flour, soya flour, oats, bran, semolina • All Bran, muesli, Readybrek, granola • Cereals with nuts and seeds

	Foods Allowed	Foods to Avoid
Fruit	<ul style="list-style-type: none"> • Most varieties - fresh, frozen, tinned, dried 	<ul style="list-style-type: none"> • Ackee • Avocado • Olives
Meats	<ul style="list-style-type: none"> • Cooked thinly sliced roast beef or ham (maximum of 2 slices per day) 	<ul style="list-style-type: none"> • Fatty meat, sausages (including low fat), salami, burgers, meat paste, paté, meat pies
Meat Alternatives	<ul style="list-style-type: none"> • Quorn • Seitan 	<ul style="list-style-type: none"> • Tofu • Tempeh
Miscellaneous	<ul style="list-style-type: none"> • Sugar, honey, jam, golden syrup, treacle, marmalade • Herbs, spices, salt, pepper, vinegar, essences, baking powder • Rice cakes (not chocolate or yoghurt coated) 	<ul style="list-style-type: none"> • Lemon curd, chocolate spread and chocolate nut spread • Nuts, peanut butter, seeds (e.g. sunflower, sesame) • Guacamole and hummus • Creamy soup • Tofu
Pasta + Rice	<ul style="list-style-type: none"> • Spaghetti, macaroni, other pasta • Tinned spaghetti. • Rice • Rice noodles 	<ul style="list-style-type: none"> • Pasta in cream, white or cheese sauce e.g. macaroni cheese, spaghetti carbonara, or mascarpone sauce • Egg noodles
Potatoes	<ul style="list-style-type: none"> • Boiled • Jacket • Mash with no butter and skimmed milk 	<ul style="list-style-type: none"> • Chips, crisps, low-fat crisps, roast potato, potato salad

	Foods Allowed	Foods to Avoid
Poultry	<ul style="list-style-type: none"> • Roast chicken or turkey without skin and trimmed of any fat (maximum of 2 slices per day) 	<ul style="list-style-type: none"> • Chicken and turkey dark meat, basted poultry, chicken nuggets, chicken in breadcrumbs or batter, chicken pie
Pulses	<ul style="list-style-type: none"> • Peas (e.g. chick peas, split peas) • Beans (e.g. red/white kidney beans, black eye, borlotti), lentils 	
Sauces	<ul style="list-style-type: none"> • Tomato ketchup, brown sauce, soy, oyster sauce, barbecue sauce • Marmite, Oxo, Bovril • Fat free dressing, fat free mayonnaise, stock cubes • Minimal fat sauces e.g. sweet chilli dipping sauce 	<ul style="list-style-type: none"> • Salad cream, mayonnaise, pesto sauce, oil and vinegar dressing, gravy granules
Vegetables	<ul style="list-style-type: none"> • Most fresh, frozen or canned vegetables, salad • Pickles • Most chutney 	<ul style="list-style-type: none"> • Fried vegetables • Vegetables canned in oil

Food labels

Read all food labels to check their level of fat. As most of the fat in the food is LCT, this will be indicated as the ‘total fat’ column on the nutrition label. Aim to choose foods which are less than 0.5g of fat per serving where possible.



Meal Ideas

Meal	Examples
Breakfast	Low fat cereal from the table or Toast (2 slices white bread) and jam or honey
Snack	Piece of fruit or crumpet with jam or honey
Lunch	Sandwich made with 2 slices of white bread, sliced tomatoes and cucumber and 20g turkey. Very low fat fromage frais. A piece of fruit
Snack	Low fat cereal bar
Evening Meal	White pasta with 40g roast chicken with tomato sauce (onions, garlic, chopped tomatoes, herbs) or Tuna salad with cous cous or Stir fry with rice (using MCT cooking oil and soy sauce)

Meal	Examples
Dessert	Sorbet with ice cream wafers or fruit and reduced fat fromage frais
Snack	Matzo's crackers with reduced fat cottage cheese Rice cakes (not chocolate or yoghurt coating)

Nutritional supplements

You may have been advised by your Dietitian to take nutritional supplements in order to help meet your nutritional requirements. These supplements will be either low in fat or may contain MCT fat.

Cooking tips

- Add herbs and spices to increase the flavour of meals
- Use tinned tomatoes to make sauces
- Very low fat yoghurt can be used to make creamy sauces
- Try cooking onions and spices in small amount of water before making curry sauces
- Use salad leaves, tomatoes, cucumber, ketchup, pickle or chutney to moisten sandwiches instead of butter, margarine or mayonnaise
- Try using fat free yoghurt and low fat cottage cheese, baked beans, lentils and kidney beans as low fat sources of protein
- Use yeast extract, cornflour and stock to make gravy

Instructions for using MCT oil:

- When using MCT oil for frying foods, such as meats and potatoes, allow a longer time than usual as browning occurs more slowly with this oil. **MCT Oil smokes at a lower temperature than other oils** – be careful when cooking with it. Do not use a high heat. The temperature should be kept as low as possible, since the oil gives a bitter taste if overheated.
- MCT oil should always be stored in a cool place with the cap tightly screwed on after each use.

Monitoring your weight

As this is a very restrictive diet, it is important that you monitor your weight. If you are losing weight, speak to your Dietitian for further advice.

Vitamins, mineral and essential fatty acids

This diet is intended for short term use, however if it is required for a longer duration, your dietitian may recommend a vitamin, mineral and essential fatty acid supplementation.

If you have been advised to follow any other diets or you have a specific condition for example diabetes, you need to continue with the recommended advice also.



If you have any queries please contact:

Dietitian

Contact number

If we are unavailable, please leave an answer phone message with your name and contact details and we will return your call.

If you have any suggestions or comments regarding this leaflet please let your dietitian know.

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