

Dietary Guide - Four Food Elimination Diet (4FED) for Eosinophilic Oesophagitis (EoE)

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Eosinophilic oesophagitis (EoE) happens when white blood cells (called eosinophils) build up in the lining of the oesophagus, which is the tube that connects the mouth to the stomach. This can be the result of an allergic reaction to food or the environment. Most cases of EoE are seen in people with other allergies such as allergic rhinitis (hay fever) and asthma. It is estimated to affect around one in 1,000 people (children and adults), and the frequency of EoE appears to be increasing. The reasons are unclear, but it is known that allergies of all types have become more common.

More information about EoE can be found on the ASCIA website:

www.allergy.org.au/patients/food-other-adverse-reactions/eosinophilic-oesophagitis

The 4FED diet eliminates 4 common trigger foods for EoE - cow's milk (dairy), soy, egg and wheat

Diet Instructions

1. This diet plan outlines how to follow a diet free from **cow's milk (dairy), soy, egg and wheat**. The diet involves strictly avoiding all foods and drinks that contain cow's milk (dairy), soy, egg and wheat even in very small quantities.
2. This diet is to be used for **8 to 12 weeks** as a trial to see if avoiding certain foods will help reduce symptoms. You should regard this diet as a test to see if foods are making symptoms worse and not necessarily a long term treatment.
3. You will be asked to complete diaries recording foods eaten and details of any symptoms whilst following this diet.
4. The effect of the diet will be assessed by symptoms and/or a repeat endoscopy (a procedure to look inside the body with a small tube with a camera and light attached), and biopsies (samples of cells) of the oesophagus are taken.
5. Each food will then be reintroduced one by one. Introduction of foods will be discussed in detail by the doctor and dietitian at follow up appointments.

What foods can be eaten?

If you have existing food allergies it is important to continue to avoid those foods whilst following this diet for EoE. Otherwise, all plain meat, fish, chicken, legumes, non-wheat grains, fruits, nuts, seeds and vegetables can be included. Your specialist may recommend excluding all gluten containing grains (wheat, barley, rye and oats).

What about packaged foods?

Many packaged food products will contain ingredients made from wheat, soy, egg or milk. In Australia and New Zealand, food manufacturers must declare the presence of any cow's (and other animal) milk (dairy), soy, egg, wheat and other gluten containing grains however small the amount. It is important to check package labels, including ingredients lists carefully, and avoid products with any of the ingredients in the following tables.

What are “may contain traces of” statements?

These statements are voluntary and used by manufacturers to indicate that the product may be contaminated with food allergen ingredients through processing and packaging. Products that do not directly contain cow’s milk (dairy), **soy, egg or wheat** as an ingredient but have a “may contain _____” style statement are safe to include on this diet.

The table below lists foods and ingredients that contain cow’s milk, soy, egg or wheat protein and should be avoided.

A2 milk	Ghee (milk)	Sour cream (soy)
Acidophilus milk (milk)	Globulin (egg)	Soy (flavoproteins)
Albumin (egg)	Gluten (wheat)	Soya beans (soy)
Apovitellin (egg)	Ice-cream (milk)	Soy bean paste (soy)
Atta flour (wheat)	Imitation egg product (egg)	Soy bean sprouts (soy)
Avidin (egg)	Infant formula (cow, soy, goat milk based, partially hydrolysed)	Soy desserts (soy)
Bean curd (soy)	Kamut (wheat)	Soy flour (soy)
Bulgar (wheat)	Kefir (milk)	Soy ice-cream (soy)
Burghul (wheat)	Malted milk (milk)	Soy mayonnaise (soy)
Butter (milk)	Margarine (milk)	Soy sauce (soy)
Buttermilk (milk)	Matzoh (wheat)	Soy yoghurt (soy)
Butter oil (milk)	Milk (A2, full cream, fat free, low fat, skim, lactose free)	Spelt (wheat)
Butter fat (milk)	Lactalbumin (milk)	Tabouleh (wheat)
Casein / caseinates (milk)	Lactose free milk (milk)	Tamari (soy)
Cheese / cheese powder (including cow’s, goat, sheep and other animal milks) (milk)	Lactoglobulin (milk)	Tempeh (soy)
Condensed milk (milk)	Livetin (egg)	Teriyaki (soy)
Cottage cheese (milk)	Low fat milk (milk)	Tofu (soy)
Cous cous (wheat)	Lysozyme (egg)	Textured/hydrolysed Vegetable Protein (TVP) (HVP)
Cracker meal (wheat)	Malted milk (milk)	Triticale (wheat)
Cream (milk)	Milk derivative (milk)	Wheat
Cultured milk (milk)	Milk powder (milk)	Wheat bran, flour, germ, meal, starch (wheat)
Curds (milk)	Milk protein (milk)	Wheat berries (Wheat)
Custard (milk)	Milk solids (regular, non-fat and skim milk)	Whey (milk)
Dairy solids (milk)	Miso (soy)	Yoghurt (milk)
Dried milk/Dried milk solids (milk)	Ovalbumin (egg)	
Dried egg (egg)	Ovomucoid (egg)	
Durum (wheat)	Ovovitelin (egg)	
Edamame (soy)	Seitan (wheat)	
Evaporated milk	Semolina (wheat)	
Farina (wheat)		
Fat free milk (milk)		

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The table below lists ingredients that **do not contain** milk, egg, soy or wheat proteins and are safe to include whilst following this diet.

Wheat	<ul style="list-style-type: none"> • Glucose, glucose syrup, glucose powder • Dextrose • Caramel colour • Monosodium glutamate
Soy	<ul style="list-style-type: none"> • Soy lecithin (Additive No 322) • Fully refined soy oil (not cold pressed) • Soy derivatives (tocopherols and phytosterols) <p>Other legumes such as chickpeas or kidney beans and lentils are tolerated by most individuals allergic to soy. If you are unsure, speak to your clinical immunology/allergy specialist or dietitian.</p>
Milk	<ul style="list-style-type: none"> • Cocoa butter • Cream of tartar • Lactic acid - some lactic acid starter cultures may however contain milk (check label) • Lactose in medication - lactose is the sugar contained in cow's milk and the pure sugar form is used in medications • Sodium or calcium lactate • Sodium or calcium stearoyl lactylate <p>Note: Lactose free products should not be consumed as part of the 4FED diet as they still contain normal amounts of cow's milk protein.</p>

What foods can be included instead?

Cow's milk substitutes

Cow's milk can be an important source of energy, protein and calcium in the diet, especially for developing infants and children. Appropriate substitution is essential to ensure adequate growth and development (in children) and sufficient intake of calcium.

Rice, oat, nut, pea or coconut-based drinks are NOT suitable as a drink for children under 1 year of age due to inadequate amounts of energy, fat and protein. For children over 1 year of age these drinks should only be used after consultation with a clinical immunology/allergy specialist and/or dietitian with experience in paediatric food allergy to ensure your child is getting adequate nutrition.

Summary of cow's milk and soy substitutes

Instead of:	Use:
Cow's milk or soy infant formula for a child less than 1 - 2 years of age	Breast milk or appropriate formula as advised by your child's medical specialist
Cow's milk or soy drink for children over 1 - 2 years of age and adults	Rice, oat, nut, coconut or pea based drinks - choose one with at least 120 mg calcium per 100 mL
Yoghurt and custard	Coconut or nut based yoghurts, custards and chia pudding – check labels carefully. Homemade desserts with milk substitute.
Cheese	Coconut or nut based cheese
Ice cream	Sorbet, milk and soy free icecream and gelato – check labels carefully

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Butter and margarine	Oil or milk and soy free margarine
Cream and mayonnaise	Rice cream, dairy and soy free mayonnaise
Chocolate	Milk and soy free chocolate. Many chocolates contain soy lecithin which is tolerated by most people with soy allergy. Note that most dark chocolate (unless labelled 'dairy free') will contain milk, even if it is not included on the ingredient list, due to the difficulty of cleaning equipment when producing both milk and dark chocolate.

A calcium supplement may need to be taken if inadequate volumes of milk replacement or specialised formula are taken. Your dietitian will assess this and discuss this with you if required.

Wheat substitutes

The biggest challenge when avoiding wheat as well as egg, soy and milk is finding alternative breads, cereals and pasta. Many wheat free/gluten free breads will contain egg, soy or milk as ingredients. Ask your dietitian about brands of bread or bread mixes that will be suitable.

The table below outlines some alternatives.

Instead of:	Use:																							
Breads, cereals, pastas made from wheat flours and grains.	Breads, flours, cereals, pastas made from:																							
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Amaranth</td> <td style="width: 33%;">Lentil</td> <td style="width: 33%;">Quinoa</td> </tr> <tr> <td>Arrowroot</td> <td>Lupin</td> <td>Rice</td> </tr> <tr> <td>Barley</td> <td>Millet</td> <td>Rye</td> </tr> <tr> <td>Buckwheat</td> <td>Oat</td> <td>Sago</td> </tr> <tr> <td>Chickpea (besan)</td> <td>Pea</td> <td>Soy</td> </tr> <tr> <td>Coconut</td> <td>Polenta</td> <td>Sorghum</td> </tr> <tr> <td>Corn (maize)</td> <td>Potato</td> <td>Tapioca</td> </tr> <tr> <td>Gluten-free flours</td> <td>Psyllium</td> <td></td> </tr> </table>	Amaranth	Lentil	Quinoa	Arrowroot	Lupin	Rice	Barley	Millet	Rye	Buckwheat	Oat	Sago	Chickpea (besan)	Pea	Soy	Coconut	Polenta	Sorghum	Corn (maize)	Potato	Tapioca	Gluten-free flours	Psyllium
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Snacks such as muesli bars and muffins	Rice and corn crackers/cakes, gluten free savoury biscuits and crackers, gluten free muesli and snack bars																							
Treats such as biscuits and chocolate	Plain salted potato chips, corn chips, rice chips, and gluten free sweet biscuits																							
Beer (alcoholic and non-alcoholic)	Brands made from hops or barley. Gluten free beer.																							

Specialty food allergy products

There are many specialised food products that are wheat, soy, milk and egg free. These products can be found in the health food section of the supermarket, health food stores or specialised online allergy stores.

Online Specialty Allergy Stores

Sunnybrook Health store

www.sunnybrookonline.com.au

Happy Tummies

www.happytummies.com.au

Hopper HQ Foodstore, Cafe and Online

www.Hopperhq.com.au

The Cruelty Free Shop

www.crueltyfreeshop.com.au

Vegan Perfection

www.veganperfection.com.au

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Many of your favourite recipes can be modified to be suitable for use whilst following this diet.

The table below outlines ingredients used in many recipes and the suitable substitute ingredient.

INGREDIENT	ALLERGY ALTERNATIVE
<p>Eggs</p> <p>It is possible to make cakes and muffins without egg by adapting recipes you use at home. The texture of the product may be a little different, but they will taste similar.</p>	<p>For baking (cakes and biscuits):</p> <p>1 tsp egg replacer + 2 tbsp water</p> <p>1 tsp baking soda + 1 tbsp water + 1 tbsp vinegar</p> <p>1½ tbsp water + 1½ tbsp oil + 1 tsp baking powder</p> <p>1½ tbsp ground flaxseed mixed with 3 tbsp warm water (let stand for a few minutes)</p> <p>1 tbsp chia seeds, grind then mix with 3 tbsp water (let stand for a few minutes)</p> <p>Binding:</p> <p>¼ cup mashed potato or pumpkin</p> <p>½ cup mashed banana or pureed apple</p> <p>1½ tbsp ground flaxseed mixed with 3 tbsp warm water (let stand for a few minutes)</p> <p>1 tbsp chia seeds, grind then mix with 3 tbsp water (let stand for a few minutes)</p> <p>1 tbsp chia seeds, grind then mix with 3 tbsp water (let stand a for few minutes)</p> <p>*Aquafaba is the viscous water in which legume seeds such as chickpeas have been cooked, which can be used as a replacement for egg whites.</p> <p>3 tbsp liquid from canned chick peas with ½ tsp cream of tartar mixed with hand mixer to make meringue</p>
<p>Cow's Milk</p>	<p>Other milk substitutes (rice, oat, nut, pea, coconut milk)</p>
<p>Plain Wheat Flour</p>	<p>Commercial gluten free plain flour</p>
<p>Self-Raising Wheat Flour</p>	<p>Commercial gluten free baking or self-raising flour</p>
<p>Margarine</p>	<p>Milk free margarine</p>
<p>Wheat Based Baking Powder</p>	<p>Wheat free baking powder</p>

Meal and snack ideas

Breakfast

Oat porridge (check label for wheat and or gluten traces) made with calcium added plant milk (such as rice, oat, almond, pea, coconut)

Gluten free cereal with calcium added milk substitutes

Gluten free packet mix or home-made pancakes with egg, wheat and milk substitute

Wheat free bread with toppings such as honey, jam, nut spreads

Cooked breakfast options such as wheat free baked beans, tomatoes, mushrooms, bacon, avocado with wheat free bread

Smoothie made with fruit, oats, seeds, calcium fortified alternative milk and yoghurt

Fruit or vegetable juice, calcium fortified alternative milk (in coffee or tea)

Lunch and dinner ideas

Plain grilled, BBQ or roast beef, chicken, lamb, fish with salad/vegetables and rice, quinoa, barley or millet based cous cous

Homemade crumbed chicken or fish using egg replacer and gluten free crumbs to coat Risotto/fried rice dish

Barley, quinoa and other alternative grain based salads and other meals

Wheat free pasta with homemade tomato-based sauce or bolognese sauce

Gluten free pizza base and toppings (use coconut cheese)

Meat or fish-based curry and vegetables with rice, rice noodles or Millet based cous cous

Rice cakes with hummus, avocado, nut spreads, sliced meats (check ingredients), salad vegetables

Gluten free wraps with chicken, lamb, beef or ham and salad

Rice paper rolls

Tacos or burritos with corn-based taco shells or gluten free wraps

Baked potato or sweet potato with various toppings

Baked beans, (or other cooked breakfast options) on wheat free toast

Snacks

Smoothies made with calcium fortified alternative milk or yoghurt

Ice blocks with calcium fortified alternative milk or yoghurt

Homemade cakes and biscuits

Protein or energy balls made with ingredients such as ground nuts, honey, cocoa, soy free plant based protein powder, dried fruit and coconut

Fresh and dried fruit

Calcium fortified alternative custard, ice-cream or yoghurt with fruit

Plain popcorn

Corn chips, rice crackers with tomato salsa, nut butters or avocado

Plain potato chips

Jelly

Salsa or hummus dip with rice crackers or vegetable sticks

Nuts and nut butters

Note: The food lists included in this document are not exhaustive. People with food allergy should check foods labels each time products are purchased.

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Content updated 2021

Format updated June 2023

For more information go to www.allergy.org.au/patients/food-allergy and

www.allergy.org.au/patients/food-other-adverse-reactions

To support allergy and immunology research go to www.allergyimmunology.org.au/donate