

Eosinophilic Oesophagitis (EoE)

Understanding your diagnosis and your treatment options

WHAT IS EOSINOPHILIC OESOPHAGITIS?

Eosinophilic oesophagitis (EoE) is a chronic inflammatory condition in which a type of white blood cell called an eosinophil accumulates in large numbers in the oesophagus (the tube that carries food and liquid from the mouth to the stomach). This accumulation causes the oesophageal lining to become inflamed, thickened, and scarred over time, leading to difficulty swallowing and food getting stuck.^[1,2]

EoE is an immune-mediated condition, meaning it is driven by an abnormal immune reaction, typically to food triggers or environmental allergens. It is a distinct condition from gastro-oesophageal reflux disease (GORD), though the two can coexist. EoE is not contagious.^[1,3]

EoE affects people of all ages, including children and adults. It is increasingly recognised in Australia and worldwide, with diagnoses rising significantly in recent decades. It is more common in males than females and often occurs alongside other allergic conditions such as asthma, eczema, allergic rhinitis, and food allergy.^[2,3]

WHAT CAUSES EOE?

EoE is caused by an immune response to specific food antigens (usually food proteins) or, in some cases, environmental allergens (such as pollen). When a triggering food is eaten, the immune system generates an abnormal response that causes eosinophils to accumulate in the oesophageal lining.^[1,2]

The most common food triggers are:

- Cow's milk (most common in both children and adults)
- Wheat and gluten-containing grains
- Eggs
- Soy
- Nuts (peanuts and tree nuts)
- Fish and shellfish

Unlike immediate food allergies (such as anaphylaxis), EoE is a delayed immune response, meaning symptoms develop gradually over time rather than immediately after eating. Standard allergy skin prick tests and blood tests (IgE) do not reliably identify EoE food triggers, which is why dietary elimination strategies are used.^[1,8]

WHAT ARE THE SYMPTOMS?

Symptoms of EoE vary by age and duration of disease:^[1,2]

In adults and older adolescents:

- Dysphagia: difficulty swallowing, particularly with solid foods (meat, bread, raw vegetables)
- Food bolus obstruction: food becoming lodged in the oesophagus, requiring endoscopic removal (a medical emergency)
- Odynophagia: pain with swallowing
- Chest pain or discomfort not related to the heart
- Heartburn or acid reflux symptoms that do not fully respond to acid-suppressing medications
- Regurgitation of undigested food

In younger children:

- Feeding difficulties and food refusal
- Failure to thrive or poor weight gain
- Vomiting and regurgitation
- Abdominal pain
- Behavioural changes around mealtimes

ADAPTIVE EATING BEHAVIOURS

People with EoE often unconsciously develop "adaptive behaviours" to manage their symptoms, such as: eating very slowly and chewing excessively, cutting food into tiny pieces, avoiding solid foods or certain textures, always having a drink with meals, or avoiding eating in social situations. These behaviours can mask the severity of symptoms. Tell your doctor about any changes to how you eat.

DIAGNOSIS

EoE is diagnosed by upper GI endoscopy and biopsy. Because the appearance of the oesophagus and symptoms can overlap with other conditions (particularly GORD), a formal histological diagnosis is essential.^[1,2,3]

- **Upper GI endoscopy (gastroscopy):** a thin, flexible camera is passed through the mouth into the oesophagus. The doctor looks for characteristic features of EoE, which may include:
 - Rings or ridges in the oesophagus (trachealization)
 - Longitudinal furrows (vertical lines running the length of the oesophagus)
 - White plaques or exudates (white spots on the lining)
 - Narrowing (stricture) of the oesophagus
 - Fragility of the oesophageal lining ("crêpe paper" appearance)
- **Biopsies:** small tissue samples are taken from the oesophagus (typically multiple samples from different areas of the oesophagus). A diagnosis of EoE is confirmed when a pathologist finds **15 or more eosinophils per high-power field** in the oesophageal lining. Biopsies from the stomach and duodenum are also taken to rule out other causes of eosinophilia.^[1]
- **Response to proton pump inhibitor (PPI) trial:** a course of high-dose PPI medication is often trialled before or at the time of endoscopy to distinguish EoE from PPI-responsive oesophageal eosinophilia (PPI-REE), a related condition. In current guidelines, EoE can be diagnosed even if symptoms partially respond to PPIs.
- **Allergy testing:** skin prick tests, patch tests, or blood (IgE) tests for food and environmental allergens may be performed by an allergist to guide dietary elimination, though these tests are not reliable for identifying EoE triggers on their own.^[8]

TREATMENT

Treatment of EoE aims to reduce eosinophilic inflammation, relieve symptoms, prevent food bolus obstruction, and prevent long-term fibrosis and stricture formation. The three main pillars of treatment are dietary therapy, medications, and endoscopic dilation. Most people require long-term maintenance therapy to prevent relapse.^[1,2,3]

Dietary therapy

Dietary elimination removes the food or foods triggering the immune response. Because EoE triggers are not reliably identified by standard allergy tests, empiric elimination diets are used. Multiple dietary strategies have been studied:^[1,7]

DIET APPROACH	FOODS REMOVED	REMISSION RATE	NOTES
Six-food elimination diet (SFED)	Milk, wheat, eggs, soy, nuts, fish and shellfish	~70-75%	Foods are reintroduced one at a time every 6-8 weeks, each reintroduction guided by a repeat endoscopy and biopsy
Four-food elimination diet	Milk, wheat, eggs, soy	~55-60%	Less restrictive than SFED; reasonable first-line dietary approach for many patients
Two-food elimination diet	Milk and wheat (gluten)	~40-50%	Least restrictive; suitable as an initial trial, particularly for people who cannot manage broader elimination
Single-food elimination	Cow's milk only	~30-40%	Simple starting point, particularly in children where milk is the most common trigger
Elemental formula diet	All food proteins replaced by an amino acid-based formula	~90-95%	Most effective dietary therapy. Nutritionally complete but highly restrictive and often difficult to tolerate long-term

Dietary elimination should be supervised by an Accredited Practising Dietitian experienced in EoE to ensure nutritional adequacy and to guide the structured reintroduction phase. The goal of reintroduction is to identify the minimum number of foods that need to be avoided.

Medications

Proton pump inhibitors (PPIs)

High-dose PPIs (such as omeprazole, pantoprazole, or esomeprazole) are used as first-line medical therapy. PPIs reduce acid-related oesophageal irritation and have an anti-inflammatory effect that can directly reduce eosinophil counts in many patients with EoE. PPIs are safe for long-term use and are the most widely used medication for EoE in Australia.^[1,2]

Swallowed topical corticosteroids

Swallowed (not inhaled) corticosteroids coat the oesophageal lining and directly reduce local inflammation without significant systemic side effects. Options include:^[1,2]

- **Fluticasone propionate MDI (inhaler):** the contents of a metered-dose inhaler are sprayed into the mouth and swallowed (not inhaled). Usually taken twice daily. Not swallowed with water for 30 minutes afterwards.
- **Budesonide oral suspension or orodispersible tablet:** a liquid or dissolvable tablet formulation that coats the oesophagus evenly. Specially formulated for EoE and available in Australia on the PBS as of 2023 (Jorveza orodispersible tablet, approved for adults).^[9]

Swallowed corticosteroids achieve histological remission (normalisation of eosinophil counts on biopsy) in approximately 65-80% of patients. Side effects include a small risk of oesophageal candidiasis (thrush), which is managed by rinsing the mouth with water after each dose.

Dupilumab (Dupixent) - Biologic therapy

Dupilumab is a biologic medicine that blocks the signalling pathways (interleukin-4 and interleukin-13) that drive type 2 immune inflammation in EoE, as well as in asthma, eczema, and allergic rhinitis. It was the first biologic therapy approved specifically for EoE and represents a major advance for patients who do not respond adequately to dietary therapy or swallowed corticosteroids.^[5,6]

Key features of dupilumab for EoE:^[5,6,9]

- Administered as a subcutaneous injection every 2 weeks

- Achieves histological remission in approximately 60% of adults in clinical trials
- Also improves dysphagia symptom scores and quality of life significantly
- Can treat co-existing type 2 allergic conditions (asthma, eczema, allergic rhinitis) simultaneously
- Not available on the PBS in Australia yet.

Endoscopic dilation

In people with a narrowed oesophagus (stricture) caused by long-term scarring from EoE, endoscopic dilation stretches the oesophagus to improve swallowing. It is performed during gastroscopy using a balloon or dilator. Dilation relieves symptoms but does not treat the underlying inflammation, so anti-inflammatory therapy should be used alongside it. It is generally safe, with a small risk of mucosal tears (most of which heal without intervention).^[1,2]

MONITORING AND FOLLOW-UP

EoE is a chronic condition that typically requires long-term management and monitoring. After starting treatment:^[1,3]

- A repeat endoscopy and biopsy is performed after 8-12 weeks of treatment to assess histological response (eosinophil counts)
- If remission is achieved, the treatment (diet or medication) is continued as maintenance therapy
- Symptom surveys and quality-of-life assessments are used alongside biopsies to evaluate overall response
- During dietary reintroduction, a repeat biopsy is performed after each new food is added to determine whether that food is a trigger
- Regular follow-up with both a gastroenterologist and a dietitian is recommended for optimal management

EOE AND LONG-TERM OUTLOOK

EoE is a lifelong condition in most people and cannot currently be cured. However, with appropriate treatment, the large majority of people achieve good control of symptoms and prevent progression to serious fibrosis and stricture.^[1,2]

Early and consistent treatment is important. Untreated EoE over many years can lead to progressive narrowing (stricturing) of the oesophagus, making dilation procedures necessary. The goal of modern management is to achieve both symptom remission and histological remission (normal eosinophil counts on biopsy).

EOE IN CHILDREN

EoE is increasingly diagnosed in children and adolescents. Management principles are similar to adults, but dietary therapy (particularly the six-food or four-food elimination diet) is often prioritised in children, as medications may have different considerations in younger patients. A paediatric gastroenterologist and paediatric dietitian should be involved in the care of children with EoE.^[1,4]

AUSTRALIAN RESOURCES AND SUPPORT

- **Australasian Society of Clinical Immunology and Allergy (ASCI):** www.allergy.org.au - Information on EoE, food allergy, and finding an allergist in Australia
- **Allergy and Anaphylaxis Australia:** 1300 728 000 | www.allergyfacts.org.au - Patient information on food allergy and eosinophilic conditions

- **Dietitians Australia:** www.dietitiansaustralia.org.au - Find an Accredited Practising Dietitian experienced in food elimination diets and EoE management
 - **Eosinophilic Disease Australia (EDA):** www.eosinophilaaustralia.com.au - Australian patient support organisation for people living with eosinophilic diseases including EoE
 - **Kids with Food Allergies (KFA) - for families:** www.kidswithfoodallergies.org - Resources for families managing food-related eosinophilic conditions in children
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