

# Dry Eye Overview and Management Guide

Exploring dry eye: its causes, symptoms and management options

a Novartis company

Every day, millions of people experience uncomfortable burning, foreign object sensation and blurred vision due to dry eye syndrome. It is often defined as a group of different conditions that result from inadequate wetting and lubrication of the eye. It is not always easy to diagnose and can easily be mistaken for other conditions such as infections or allergies.

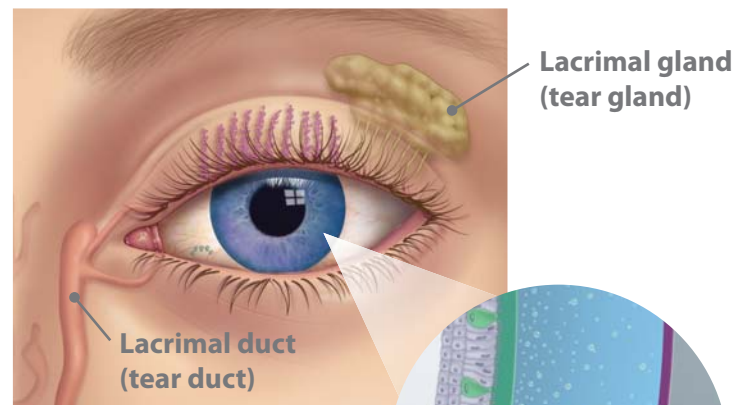
To provide comfort and maintain healthy eyesight, the eyes are naturally lubricated and covered with a tear film composed of water, oil and mucus.<sup>1</sup> Tears are the body's natural mechanism for protecting the surface of the eye from infection and the corrosive effects of dirt, dust and other airborne particles.<sup>1</sup> Tears need to be constantly replenished to help maintain the health, comfort and infection-fighting capabilities of the eye.<sup>1</sup> Dry eye can occur when the tear glands stop making enough of the watery component of tears and the eye surface becomes dry, produce poor quality tears due to the glands that produce the lipid (oily) part of tears become inflamed, or the tears evaporate too quickly.<sup>1,2</sup> As a result, the tear film becomes dry and causes eye irritation.<sup>1</sup>

## Causes and Risk Factors

The tear film protects the eye from infection and rids it of harmful debris.<sup>2</sup> When tear production slows or tears become imbalanced (poor quality), dry eye symptoms arise.<sup>3</sup>

Causes of dry eye may include:

- Eyelid issues, such as an out or in-turning of the eyelids<sup>1</sup>
- Medications with dry eye side effects<sup>1</sup>
- High altitude<sup>1</sup>
- Wind in the eyes<sup>1</sup>



### TEAR FILM:

#### Outer Lipid Layer

The most important function is to prevent the evaporation of tears.

#### Middle Aqueous Layer

Contains vital nutrients and carries oxygen to sensitive ocular tissues.

#### Inner Mucous Layer

Helps to spread the tears and stabilize the tear film.

- Dry air<sup>1</sup>
- Concentration-centric tasks, such as reading or driving<sup>1</sup>
- Diseases that cause tear film instability, causing tears to evaporate, such as Meibomian Gland Dysfunction (MGD)<sup>1</sup>
- Inflammation of the eye's surface<sup>2</sup>
- Diseases that alter tear composition<sup>2</sup>
- An increase in the surface of the eye or a forward, protruding eye<sup>2</sup>
- Eyelids that are opened too widely from cosmetic surgery<sup>2</sup>

## Risk factors of dry eye:

- Certain diseases including diabetes, rheumatoid arthritis, lupus, scleroderma, Sjogren's syndrome and thyroid disorders<sup>1</sup>
- Hormonal effects, such as menopause, pregnancy and the use of birth control pills<sup>3</sup>
- Radiation therapy aimed at the eye<sup>1</sup>
- Refractive eye surgery, usually a temporary side effect<sup>1</sup>
- Severe allergies<sup>4</sup>
- Vitamin A deficiency<sup>1</sup>
- Wearing contact lenses<sup>2</sup>

## Symptoms

Dry eye feels uncomfortable and can disrupt everyday activities.<sup>2</sup> Most dry eye sufferers experience at least one of the following symptoms:

- Blurred vision, especially at the end of the day or after focusing on a task<sup>1</sup>
- Contact lens discomfort<sup>1</sup>
- Excessive tearing<sup>1</sup>
- Eye redness, irritation, burning or itching<sup>1</sup>
- Fatigued eyes after short stints of reading<sup>1</sup>
- Feeling like something is in the eye, such as dirt or sand<sup>5</sup>
- Increased irritation from wind or smoke<sup>1</sup>
- Light sensitivity<sup>1</sup>
- Stringy mucus in or around the eye<sup>1</sup>

## Diagnosis

An eye care professional (ECP) can diagnose dry eye by assessing the quantity and quality of tears using the following tests:

- Volume of tears test (Schirmer tear test): measures tear production by placing a standardized strip of filter paper under the lower eyelid and evaluating the strip after five minutes<sup>1</sup>
- Quality of tears test: special eye drops temporarily stain the eye, which creates patterns the doctor examines to measure the rate of tear evaporation<sup>1</sup>

## Management

For occasional or mild dry eye symptoms, typical management includes eye drops (artificial tears) and simple lifestyle choices.<sup>1</sup> Lubricating artificial tears provide comfort and effectively relieve and manage dry eye.<sup>1</sup>

## Prevention

Many lifestyle and environmental changes can help prevent and relieve acute cases of dry eye, including:

- Reduce the amount of air that blows into the eyes (e.g., hair dryers and car heaters)<sup>1</sup>
- Wear spectacles on windy days and goggles while swimming<sup>1</sup>
- Monitor indoor humidity and add a humidifier, as needed<sup>1</sup>
- Eat a healthy diet that includes omega-3 fatty acids<sup>1</sup>
- Take breaks from extended activities to rest the eyes<sup>1</sup>
- Quit smoking and/or avoid smokers<sup>1</sup>
- Drink eight to ten glasses of water every day to stay hydrated<sup>3</sup>

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2. National Eye Institute, Facts about Dry Eye, <http://www.nei.nih.gov/health/dryeye/dryeye.asp> (Updated August 2009) [Accessed January 10, 2013]  
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4. Prevent Blindness, Understanding Dry Eye, [http://preventblindness.org/sites/default/files/national/documents/fact\\_sheets/FS38\\_DryEye.pdf](http://preventblindness.org/sites/default/files/national/documents/fact_sheets/FS38_DryEye.pdf) (Updated Not Available) [January 10, 2013]  
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