

Dry eye disease, ocular surface health and being a woman

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'Through her eyes: A women's eye health discussion'
on the **28th of May at 19:00h BST.**

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May 28th marks International Day of Action for Women's Health. In Bausch and Lomb, we are celebrating our commitment to eyecare and women's health with a fascinating panel discussion about how lifestyle factors, chronic medications, beauty and cosmetic procedures can impact eye and ocular surface health. Check out the link above for more information about the event and continue reading to find out why you should care about ocular surface health.

DED is a very common condition, reportedly affecting 20 and up to 50% of the adult population globally, with higher prevalence in older adults.⁽⁴⁾ Consequently, the socioeconomic burden is considerable.⁽³⁾ The high costs associated with DED include both direct costs to patients and healthcare providers, and even greater indirect costs due to missed work and reduced productivity.⁽²⁾ In England in 2014, DED prescription medicines alone cost the NHS £27 million.⁽⁵⁾

- Lipid layer - oils from the meibomian glands sited along both lid margins. The lipid layer lies on the surface of the aqueous layer where it reduces the rate of evaporation and provides lubrication during blinks.

Dry eye disease results from alterations in either layer, and is primarily classed in three broad categories⁽⁷⁾:

- Aqueous deficient dry eye (ADDE) in which the lacrimal gland fails to produce sufficient tear fluid.
- Evaporative dry eye (EDE) in which the meibomian glands fail to produce enough oil to cover the aqueous layer and slow evaporation.
- Mixed dry eye (MDE), with elements of both aqueous deficient and evaporative dry eye, is the category in which most patients will fall. Specifically, literature indicates that 85% of patients have some degree of Meibomian Gland Dysfunction.^(7,8)

In all cases, the loss of tear film stability or homeostasis is central to the pathogenesis of DED, because reduced tear fluid volume and/or increased evaporation will result in hyperosmolarity, which triggers osmotic stress in the epithelial cells and the glandular system in the ocular surface⁽²⁾. This is combined with mechanical stress, as, without the normal cushioning of the intact tear film, blinking results in increased friction between the lids and the ocular surface⁽⁹⁾. These conditions trigger an inflammatory response, which, if



Dry eye disease (DED) is one of many medical conditions that affect women disproportionately to men.^(1,2) It is a multifactorial disease of the ocular surface characterised by a loss of homeostasis of the tear film, which can cause sufferers considerable pain and discomfort.⁽²⁾ This may seriously impact their quality of life – a recent study found that 19% of dry eye patients found the condition to be 'disabling'.⁽³⁾

Why is the tear film so important? The tear film lubricates, nourishes, and protects the ocular surface⁽⁶⁾, and is essentially composed of two distinct layers, built from the secretions of glandular systems⁽⁷⁾:

- Aqueous layer - aqueous tear fluid produced from the lacrimal gland, and mucins produced by corneal goblet cells.

unresolved, will damage the epithelium and the glands, therefore further compromising the quality of the tear film, perpetuating a 'vicious circle' of increased osmolarity, inflammation and ocular surface damage. ^(9,10)

The symptoms of DED can be many and varied and range from mild to severe. Commonly reported symptoms are redness, a burning or stinging sensation, foreign body sensation, blurry vision, ocular pruritus and photophobia ^(11,12) Sharp or dull pain may also be felt, which is thought to be caused by nerve damage primarily and also inflammation. ⁽²⁾ Some of these symptoms may not be recognised as related to DED by some patients and healthcare professionals, which can make the diagnosis of DED challenging. ⁽¹³⁾ Additionally, symptoms do not always correlate with clinical signs on examination, so the level of discomfort experienced by a patient does not always correlate with the severity of the disease. ⁽¹²⁾ Severe or late-stage disease can result in corneal scarring or corneal complications. ⁽¹²⁾ Effective treatment is therefore vital to improve symptoms, prevent tissue damage, and improve patients' quality of life.



DED is more likely to affect women for a number of reasons. Hormonal changes that can occur throughout a woman's life underlie some of these such as pregnancy, menopause, and the use of oral contraceptives or hormone replacement therapy (HRT). ⁽¹⁾ Variable levels of oestrogen and low levels of testosterone and other androgens can lower the production and quality of tear fluid and also lead to meibomian gland dysfunction. ⁽²⁾ Other autoimmune conditions such as rheumatoid arthritis and Sjogren's syndrome are also more prevalent in women and can cause dry eye via detrimental effects on the lacrimal and meibomian glands. ^(1,11)

The aetiology can be complex because there are many other factors that can increase the odds of developing dry eye disease which encompass systemic conditions, sociodemographic factors, environmental conditions, and various medications and surgeries. ⁽¹¹⁾



For example, diabetes and multiple sclerosis may be linked to DED, along with ocular allergies or eczema around the eyes, increasing age, prolonged digital screen usage, smoking, long-term contact lens wear, and the use of antihistamines, antidepressants, or ophthalmic surgery, to name but a few. ⁽¹¹⁾ Taking a comprehensive clinical history of a patient is therefore essential in order to not overlook a possible dry eye diagnosis.

The aim of treatment for DED is to restore tear film and ocular surface homeostasis. ⁽²⁾ Different treatments can be used for different stages of the disease. For mild disease, lid hygiene regimens and warm compresses are recommended. ⁽²⁾ If these are inadequate, a patient may be given punctal plugs, topical antibiotics or corticosteroids, or a topical immunomodulatory drug such as cyclosporine. The next stage of treatment may include soft bandage contact lenses and then surgery if necessary. ⁽²⁾

However, the first treatment that the patient will typically access will be artificial tears. There is a huge range of artificial tear products available, containing one or more ingredients that perform different functions.

- As a basic starting point, a wetting agent is needed to supplement the aqueous layer and restore lubrication, viscosity and electrolyte balance. This may be carboxymethylcellulose (CMC), hyaluronic acid amongst others. ⁽¹⁴⁾
- More specialised ingredients can be added to protect the ocular surface from hyperosmolarity, such as levocarnitine or trehalose. ⁽¹⁴⁾ Hyaluronic acid also has additional properties: high molecular weight molecules in high concentration promote wound healing and reduce inflammation. ⁽¹⁴⁾
- Importantly, lipid-containing tear supplements should also be used in patients with some degree of evaporative dry eye to supplement the tear film lipid layer, thereby stabilising the tear film and slowing evaporation. ⁽¹⁴⁾

There are, no doubt, many women – and men – who suffer the symptoms of dry eye without realising that it is a recognised medical condition that can be managed. Addressing this challenge is the first step to helping these patients regain their eye comfort and quality of life.



Join us virtually on the 28th of May to watch our panel of inspirational women discussing some fascinating topics in eye health. From the impact of lifestyle, long-term medication and refractive errors, to cosmetic use and beauty procedures, this broadcast promises to be a fascinating event which, as a healthcare professional, you will not want to miss! To catch the webinar, 'Through her eyes: A women's eye health discussion', on the 28th of May at 19:00h BST, register now at: <https://shorturl.at/hq3Hu>

References:

1. Matossian C, McDonald M, Donaldson KE, Nichols KK, Maciver S, Gupta PK. Dry eye disease: Consideration for women's health. Vol. 28, Journal of Women's Health. Mary Ann Liebert Inc.; 2019. p. 502–14.
2. Craig JP, Nelson JD, Azar DT, Belmonte C, Bron AJ, Chauhan SK, et al. TFOS DEWS II Report Executive Summary. Vol. 15, Ocular Surface. Elsevier Inc.; 2017. p. 802–12.
3. Aragona P, Barabino S, Rolando M. Utilising Narrative Medicine to Identify Key Factors Affecting Quality of Life in Dry Eye Disease: An Italian Multicentre Study. Ophthalmol Ther [Internet]. 2024 Sep [cited 2025 Mar 17];2965–84. Available from: <https://link.springer.com/article/10.1007/s40123-024-01033-7>
4. Stapleton F, Alves M, Bunya VY, Jalbert I, Lekhanont K, Malet F, et al. TFOS DEWS II Epidemiology Report. Vol. 15, Ocular Surface. Elsevier Inc.; 2017. p. 334–65.
5. Hossain P, Siffel C, Joseph C, Meunier J, Markowitz JT, Dana R. Patient-reported burden of dry eye disease in the UK: A cross-sectional web-based survey. BMJ Open. 2021 Mar 4;11(3).
6. Yazdani M, Elgstøen KBP, Rootwelt H, Shahdadfar A, Utheim OA, Utheim TP. Tear metabolomics in dry eye disease: A review. Vol. 20, International Journal of Molecular Sciences. MDPI AG; 2019.
7. REF-Vis-0145-Goodhew & Nguyen 2020. What are the different types of dry eye.
8. Lemp MA, Crews LA, Bron AJ, Foulks GN, Sullivan BD. Distribution of Aqueous-Deficient and Evaporative Dry Eye in a Clinic-Based Patient Cohort: A Retrospective Study [Internet]. Vol. 31, | www.corneajrnl.com Cornea. 2012. Available from: www.corneajrnl.com
9. van Setten GB. Cellular Stress in Dry Eye Disease—Key Hub of the Vicious Circle. Biology (Basel). 2024 Aug 28;13(9):669.
10. Baudouin C, Messmer EM, Aragona P, Geerling G, Akova YA, Benítez-Del-Castillo J, et al. Revisiting the vicious circle of dry eye disease: A focus on the pathophysiology of meibomian gland dysfunction. Vol. 100, British Journal of Ophthalmology. BMJ Publishing Group; 2016. p. 300–6.
11. Golden MI, Meyer JJ, Zeppieri M, Patel BC. Dry Eye Syndrome [Internet]. Available from: <https://www.statpearls.com/point-of-care/20738>
12. Messmer EM. The Pathophysiology, Diagnosis, and Treatment of Dry Eye Disease. Dtsch Arztebl Int [Internet]. 2015 Jan 30; Available from: <https://www.aerzteblatt.de/10.3238/arztebl.2015.0071>
13. Wolffsohn JS, Arita R, Chalmers R, Djalilian A, Dogru M, Dumbleton K, et al. TFOS DEWS II Diagnostic Methodology report. Vol. 15, Ocular Surface. Elsevier Inc.; 2017. p. 539–74.
14. Labetoulle M, Benítez-Del-castillo JM, Barabino S, Vanrell RH, Daull P, Garrigue JS, et al. Artificial Tears: Biological Role of Their Ingredients in the Management of Dry Eye Disease. Vol. 23, International Journal of Molecular Sciences. MDPI; 2022.

the DRY EYE diaries

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Ophthalmic Surgeon,
Cataract, Cornea &
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DR LAURA CRAWLEY
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Consultant
Ophthalmic Plastic,
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Cosmetic Surgeon

MRS SARAH MORGAN
Optometrist &
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