

# MANAGING THE MENOPAUSAL EYE

**Becky McCall** looks at the effects of menopause on the eye, and asks how optometrists can use their expertise to advise women.

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ost people associate menopause with hot flushes and mood swings, but few draw the connection between fluctuating hormones and eye health. Dry eye is typical, and glaucoma and cataracts can also be triggered by this mid-life physiological shift.

In fact, research shows that only 14% of women were aware of the connection between menopause and the eye, and 61% of menopausal women suffer from dry eye (National Eye Health Week, 2023; 2022).

Around two-thirds of optometry assessments are for women (Welsh Government, 2023), so greater understanding is needed, and more robust evidence around the effects of hormonal fluctuations on the eye, as well as if, and how, optometrists can help to manage it.

Sarah Farrant MCOptom, at Earlam and Christopher, Taunton, Somerset, has a special interest in dry eye disease (DED). “We encounter women with DED all the time, but it is often difficult to know whether changes in vision are menopause-related or not. However, we do see many more women coming in with dry eye than men, especially in their 40s and 50s.”

Unfortunately, eye symptoms associated with menopause are easily dismissed, says Dr Daniel Reisel, Specialist Registrar in Obstetrics and Gynaecology at University College Hospital London. “Often people say: ‘Oh, it’s just age.’ But because hormones go everywhere in the body, menopause can affect every organ system and every cell type, including mucous membranes, skin, hair and brain tissue. And, yes, glands in your eyes are also affected.”



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But he says that this is not well recognised, not even among GPs. “There’s this cliché that menopause is just hot flushes, but really it’s much more like a menopause industrial complex.”

### SENSITIVE TO CHANGE

Perimenopause and menopause, which can begin in a woman’s mid-40s, cause a drop in oestrogen, progesterone and androgen. This can affect the three layers of lubricating and antibacterial tear film comprised of oil, aqueous and mucin, leading to increased tear evaporation, and often a burning, gritty sensation, as well as increased sensitivity to light (Lurati, 2019). These symptoms may be the result of deficient oil production and atrophy of the meibomian glands that physiologically underpin DED. Sometimes, this can lead to neurosensory damage and less responsive tear reflex or even visual changes (Lurati, 2019).

Stuti Misra, Associate Professor in Ophthalmology at the New Zealand National Eye Centre at the University of Auckland, says the glands in the eye are sensitive to hormonal changes. “It’s not just with menopause either. It can happen when a woman is going through her regular cycle.”

Talking to *Acuity* after a webinar with the British Contact Lens Association (BCLA), she notes that women, especially menopausal women with comorbidities, are at greater risk of developing DED and subsequent negative effects on their overall eye health.

DED is also often a symptom of other underlying comorbidities – for example, diabetes or thyroid disorders – or sometimes just age, leading to a degeneration of the meibomian glands in addition to the effects of hormonal changes on the secretion-stimulating oestrogen and androgen receptor sites present in these glands.

Changes are often thought to be just part of the ageing eye, which complicates



assessment. “How do we differentiate the effects of ageing from menopause or hormonal changes?” Stuti asks, pointing out that there are very few prospective longitudinal studies on men and women looking at these changes.

She adds that many women also experience premature menopause, with some women’s hormone levels starting to fall in their 20s and 30s. “This is another curveball. Ideally, we need studies with these different categories of women to understand what happens before looking at treatment. There’s a huge gap there.”

### COMPLEX TREATMENTS

In addition to comorbidities, treatment side effects and menopause, DED can be caused by lifestyle factors, typically computer vision syndrome; as such, environmental modifications are good first advice. Staying hydrated, eating a diet rich in omega-3 fatty acids and vitamins A and E (from foods or supplements) as well as reducing alcohol and tobacco use can all encourage healthy tear production, while use of a heated compress can help to unblock the glands (National Eye Health Week, 2023).

The Tear Film and Ocular Surface (TFOS) society Dry Eye Workshop II report

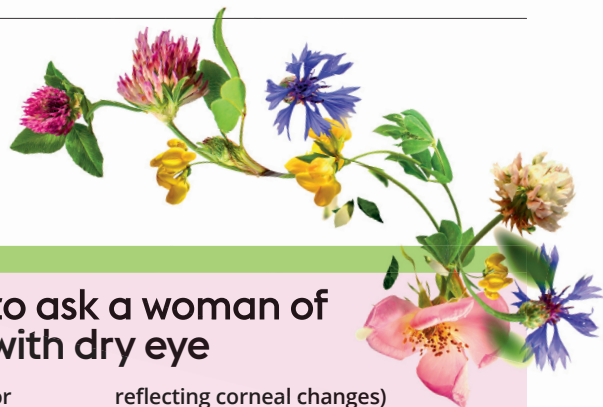
points out that treatment should aim for tear film homeostasis. Topical, lipid-based and osmolarity-lowering artificial tear replacement therapy may benefit dry eye through ingredients such as hyaluronic acid, polyethylene glycol and propylene glycol that help protect and recover the epithelial cells on the ocular surface (TFOS, 2017).

As well as over-the-counter dry eye drops, patients might use sprays to re-establish the tear film and prevent moisture loss, or punctum plugs can be inserted into the tear ducts to limit drainage in severe cases.

Dr Branka Marjanovic is Consultant Ophthalmic Surgeon specialising in oculoplastic surgery at Moorfields Eye Hospital, London, and regularly sees premenopausal and menopausal patients. She says: “Most patients present with common symptoms of sore, dry or watery eyes, visual disturbances or eyelid lumps. I would urge particular attention to fine details that may suggest serious pathology. In case of any concern or should some simple measures be failing to improve symptoms for a reasonable time, consider prompt referral to a specialist.”

In her ophthalmic and oculoplastic practice, where patients present with





dry eye symptoms, she initiates in-depth investigations and tests, including blood tests, magnetic resonance imaging (MRI) scans and functional studies. “Patients may have a range of various causes leading to common presenting complaints of dry and uncomfortable eyes, such as blocked tear ducts, meibomian gland dysfunction, autoimmune conditions including Sjögren’s syndrome or rheumatoid arthritis, subtle thyroid eye disease, rosacea and, rarely, malignancies,” she explains.

“With falling levels of oestrogen and testosterone, inflammatory processes start to dominate, leading to various eye pathologies, including a spike in dry eye syndromes and blepharitis. We should also remember that glaucoma and early cataract will be more common in this patient group.”

Patients receive individualised treatment plans which may include referral to a menopause specialist, endocrinologist, rheumatologist or other medical practitioner depending on the underlying diagnosis. Deep eyelid cleaning has also proved to be very successful.

Branka explains that, despite the possibility of the menopause significantly exacerbating various eye symptoms and conditions, “there is no hormonal test we employ directly but rather we address patients’ eye and general health concerns, lifestyle and diet, which is super-important in menopause, and we refer to menopause specialists where the hormone tests are undertaken. Should



**Glaucoma is linked to lifetime exposure to oestrogen**

## Starter questions to ask a woman of menopausal age with dry eye

- Do you experience discomfort or watery or dry eyes?
- Within one day, do you find your vision changes? (short-term)
- Have you noticed changes to your sight over the longer term, say, the last three to four months? (possibly reflecting corneal changes)
- Have you noticed any changes during the use of your contact lenses? (if appropriate)
- Have your eyes become more sensitive to light in recent months and years?

it be safe and appropriate, required HRT [hormone replacement therapy] may be recommended.”

Asked about the evidence base for HRT for the eye symptoms of menopause, Stuti says: “There are a lot of treatments, and potentially HRT could be a treatment modality.” However, the risks and benefits of HRT use for dry eye remain unclear. Some studies show that oestrogen has been associated with a reduction in the risk of DED, but other data suggest that patients who undergo hormone therapy are four to seven times more likely to develop dry eye symptoms (see *A look at the evidence – HRT and the eye*, overleaf).

### GLAUCOMA OR CATARACT RISK

Some data suggest that intraocular pressure (IOP) is associated with the effects of menopause on the eye. One paper identified studies showing significantly higher average IOP in postmenopausal versus premenopausal women, with rises to 18.5mmHg from 15.2mmHg (Panchami et al, 2013).

This can increase a woman’s risk of ocular hypertension and glaucoma, which can have serious consequences, including sight loss, if left untreated, says Stuti.

Research suggests that glaucoma is linked to a woman’s lifetime exposure to oestrogen (National Eye Health Week, 2023), with a 2.6-fold increased risk of primary open angle glaucoma in women

who experience premature menopause (under 45 years). It is thought that this is due to the fact that female endogenous sex hormones protect against open angle glaucoma (Hulsman et al, 2001).

“We’ve got oestrogen within the retinal ganglion cells and also within the optic nerve, so any long-term change is potentially going to affect these tissues,” says Stuti. “Right now, it is more of an association rather than a causal factor so menopause is considered a risk factor for glaucoma.” HRT has also been shown to reduce primary open angle glaucoma (see *A look at the evidence – HRT and the eye*, overleaf).

Other data indicate that the drop in oestrogen during perimenopause and menopause can be instrumental in cataract formation and progression, with a higher incidence in postmenopausal women (North American Menopause Society, 2024; Kanakamedala et al, 2019; Floud et al, 2016).

Being female is documented to increase risk for cortical and nuclear cataract, and studies have supported this increased incidence, leading to suggestions that oestrogen may play a role in cataract formation and progression (Lai et al, 2013).

Some studies have shown that HRT is associated with a decreased prevalence of lens opacities, but again, the evidence is mixed. A single-centre study that compared cataract in pre- (n=35) and postmenopausal women (n=24) in the US showed no

significant difference in incidence of cataracts in pre- and postmenopausal women ( $p > 0.05$ ), nor was there any significant difference in body mass index, glycated haemoglobin level, incidence of glaucoma or diabetic retinopathy between the groups (Aina et al, 2006).

“If a 45-year-old woman comes in with a cataract, you’d need to know about the history – that’s key,” says Stuti, who points out that again much more evidence is needed to reach any conclusions.

### EVERYDAY MENOPAUSE

Stuti says that obtaining the hormonal history of female patients, irrespective of age, as a part of routine eye assessment is a good starting point to help women recognise changes in the eyes during menopause.

“Optometrists can play a vital role in educating women about these changes and supporting them in their menopause journey,” she says. “We need a questionnaire that asks about familial history because the age at which a patient’s mother went into menopause is very telling. And we need to ask about other diseases like diabetes or if the patient is a long-term user of steroids, for example.”

Referring to managing DED, Sarah points out that even optometrists can underestimate how vital the tear film is for quality of vision. “DED can significantly affect refraction such that it can be a whole dioptre out, leading to non-tolerance on prescription because we’ve measured the patient on a day when their dry eye is bad.”

Sarah also advises carefully considering which questions to ask a woman of menopausal age. Typically, if a woman in her 40s or 50s presents, Sarah asks a series of questions including, for example, whether the patient’s vision fluctuates or if she experiences light sensitivity, as well as typical questions relating to dry eye.

## A look at the evidence – HRT and the eye

Studies show that the ocular tissues contain receptors for androgens, oestrogens and/or progestogens (Wickham et al, 2000). Production of all these decreases as women approach and cross the menopause. The following is a sample of studies relating to hormone replacement therapy (HRT) and the menopause. Overall, the data are mixed and inconclusive.

**Short-term hormonal eye drops help dry eyes:** A study by Sator et al (1998) examined 84 postmenopausal women with dry eyes who started HRT because of menopausal complaints. They found that at four months, the women who received oestrogen (17 $\beta$ -oestradiol) eye drops versus those

who received a tear substitute demonstrated a statistically significant difference in all observed ocular symptoms ( $p < 0.0001$ ). All women were on systemic HRT. The same study also showed that tear production both before and after use of oestrogen eye drops showed a significant change in favour of the oestradiol group. **Long-term hormonal eye drops worsen dry eyes:** In contrast, another study in 360 postmenopausal women found that prolonged HRT use seemed to increase the risk of dry eyes, with a significant variation in the severity levels of dry eye based on dosage levels of HRT ( $p < 0.0001$ ), as well as significant variation based on duration levels of 12, 36 and 48 months, worsening

with prolonged HRT use (Al-Awlaqi and Hammadeh, 2016). **Lowering IOP:** Some studies have suggested HRT can lower IOP in postmenopausal women. For example, a retrospective longitudinal cohort analysis of more than 152,000 women over 50 found that those taking either oestrogen alone or combined with progesterone had a significant reduction in primary open angle glaucoma compared with women not on HRT, at 18% and 26% respectively (Newman-Casey et al, 2014). **Lowering cataract risk:** A meta-analysis (Lai et al, 2013) concluded that use of HRT for menopause was associated with a decreased risk of diagnosed cataract for users (pooled odds ratio: 0.83).



If the patient has contact lenses, she adds, “we need to optimise the ocular surface before making alterations to contact lenses. If we treat superficially and just say ‘use eye drops’, then nothing will really improve. We need to take time over a proper work-up for the ocular surface disease and target the treatment with whatever is appropriate.”

While the evidence base for the management of women with potentially menopause-related eye problems grows,

so too must the role of optometry and optometrists. “As well as providing our expertise, optometrists need to give women the information to empower them to know when to seek professional help,” says Sarah.

“But importantly, we need to give optometrists, especially men, as well as women, advice on how to tactfully initiate a discussion around this issue, because despite much progress, the negative connotations related to telling a woman she’s menopausal remain. Knowing how to engage with what is an important discussion would be a very good place to start.”