

EDUCATIONAL MOMENTS[®]



How to assess and manage patients' Tear Film Quantity

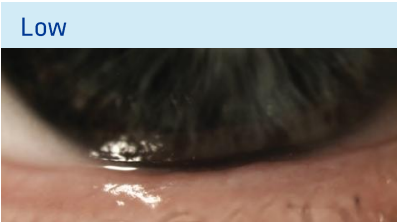
WHAT YOU NEED TO KNOW

Slit Lamp Viewing:

1. Narrow slit beam with low intensity to measure (with eye-piece graticule) or grade inferior tear meniscus height in primary gaze and with normal blinking.
2. High magnification (40x).
3. Direct focal illumination.

Grading:

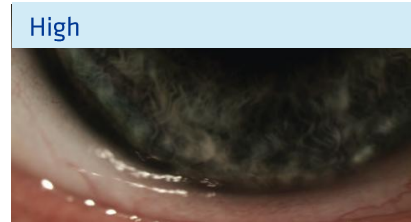
Tear meniscus height



Low: $\leq 0.1\text{mm}$ or a difference of at least 0.06mm between the eyes.



Medium: 0.1mm to 0.25mm .

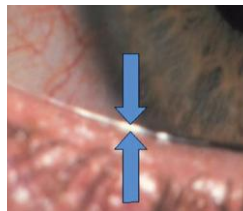


High: $\geq 0.25\text{mm}$ (indicates reflex tearing and/or deficiency in naso-lacrimal drainage).

Incidence:

Questionnaires – such as Ocular Surface Disease Index (OSDI), Contact Lens Dry Eye Questionnaire (CLDEQ), CLDEQ-8, McMonnies Dry Eye Index, Dry Eye Questionnaire (DEQ).

Combination of questionnaires and other tests/signs/ symptoms.



Non-invasive tests – tear meniscus height (lower lid margin to top of specular reflex, left) and regularity.



Invasive tests – Schirmer, Phenol red thread (left). Invasive and non-invasive break-up time, lipid layer presence.

Aetiology:

Multifactorial, including age, medication, systemic or ocular conditions, environment.

Contact lens wear interferes with normal tear film structure and function.

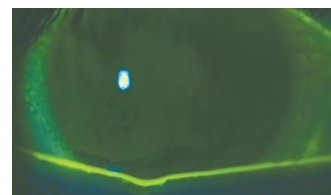
Increased tear film evaporation leads to thinning of pre- and post-lens tear layers.

Symptoms:

- Dryness, discomfort, grittiness, irritation, sensitivity to adverse environments.

Signs:

- Reduced tear meniscus height, irregular tear meniscus (notching, right, or scalloped edge), concave tear profile
- Low Schirmer test scores (at 5 mins, normal $>10\text{mm}$, borderline $5\text{-}10\text{mm}$, severe dry $<5\text{mm}$) or low Phenol red thread test scores (at 15 secs, dry eye $<10\text{mm}$).



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WHAT YOU NEED TO RECOMMEND TO YOUR PATIENTS

Recommendations :

- Address associated systemic or ocular conditions
- Artificial tear supplements
- Change lens type (RGP to silicone hydrogel or hydrogel, hydrogel to silicone hydrogel), material or wearing schedule (monthly replacement to two weekly)
- Maintain good lens cleaning including rub and rinse step
- Manage all grades if signs or symptoms exist – improve tear film quality
- Change lens care solution to latest generation of products
- Manage any tear quality issues
- Rewetting drops or liposomal sprays
- Attention to nutrition or nutritional supplements (essential fatty acids)
- Tear retention measures (to reduce drainage and increase tear contact time) such as punctal plugs or surgery

Prognosis:

Generally good resolution of symptoms with appropriate management unless intractable underlying systemic or ocular condition

This series is adapted from A Handbook of Contact Lens Management (3rd Edition) published by THE VISION CARE INSTITUTE®

HOW TO FIND OUT MORE

- ❖ Click [here](#) for our guide to assessing the tear film
- ❖ Click [here](#) for a general refresher on slit lamp techniques
- ❖ Click [here](#) for short videos on slit lamp techniques
- ❖ Click [here](#) for a further reading list and references

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PATIENT CASE STUDY



Patient ME is a 55-year-old teacher who has worn monthly replacement hydrogel contact lenses for more than 30 years.

Over the past few months she has needed to remove her lenses after 8 hours' wear due to dry and irritated eyes, especially in heated and air-conditioned environments

Quiz:

1. What methods would you use to examine this patient's tear film quantity?

- A. Phenol red thread test
- B. Schirmer test
- C. Measuring tear meniscus
- D. Any of these methods

2. The tear film meniscus height is measured at 0.05mm using the eye-piece graticule. What grade would you record?

- A. Low
- B. Medium
- C. High

3. What factors could be affecting this patient's tear quantity?

- A. Age
- B. Environment
- C. Medication
- D. All these factors

4. Which of the following management options could you consider?

- A. Discontinue lens wear
- B. Modify lens fit
- C. Refit with two-weekly replacement silicone hydrogel lenses that are known to perform well in challenging environments
- D. Refit with RGP lenses

Correct answers:

- 1: D. These methods all assess tear quantity but measuring tear meniscus height is a non-invasive test and the recommended technique.
- 2: A. A tear meniscus height of less than 0.1mm is considered low and indicates reduced tear quantity.
- 3: D. Dry eye is multifactorial and any or all of these factors could be involved, as could systemic / other ocular conditions.
- 4: C. Changing to a silicone hydrogel lens material and replacing lenses more frequently are among the options to consider.

