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Reader and Industry Forum

## Evaluating the Upper Lid With a Digital Microscope Camera



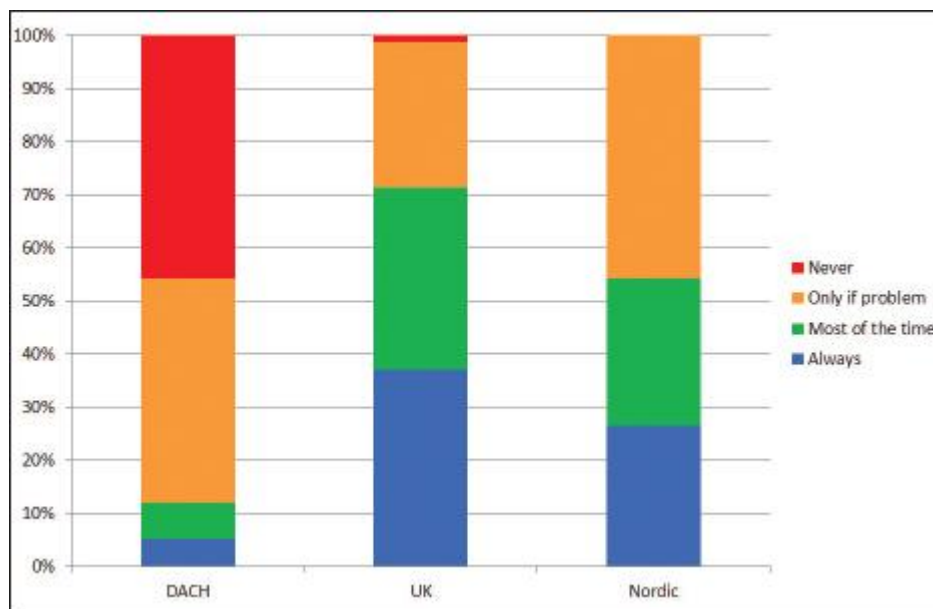
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Even though it is recommended to inspect the upper lids' lid-wiper area (Pult et al, 2008 and 2009; Korb et al, 2002) and tarsal conjunctiva (Donshik, 2003; Sindt and Longmuir, 2007) as part of the daily routine in contact lens practice, it is not done on a considerable number of patients for many reasons, e.g., no reported acute symptoms, patient discomfort when everting the eyelids, or lack of practitioners' time (Figure 1) (Meyler, 2008).

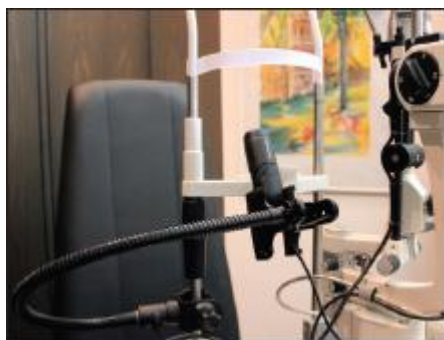
### A New Method to Consider

However, during research that we recently conducted investigating the upper lid margin and upper lid tear meniscus, we found that even the tarsal conjunctiva of the upper lid could be observed without lid eversion by using a small handheld digital microscope camera (DMC) that can be attached to the slit lamp (Figure 2).

Four experienced optometrists tested this commercially available DMC (enlargement: 35x /150x, dimensions: 34mm x 99mm, resolution: 1.3 mega-pixel; Conrad Electronic SE, Hirschau, Germany) during routine, standard eye exams (n=30). The upper lid of the closed eye was gently lifted off of the ocular surface—without eversion—and photographed with the DMC. The lid-wiper area was examined after instilling lissamine green dye.



**Figure 1.** Frequency of lid eversion in Germany-Austria-Switzerland (DACH), in the United Kingdom (UK), and in the Nordic region based on the response of eyecare practitioners attending The Vision Care Institute Courses, October 2006 to March 2008 (N=1,210) (Meyler, 2008).



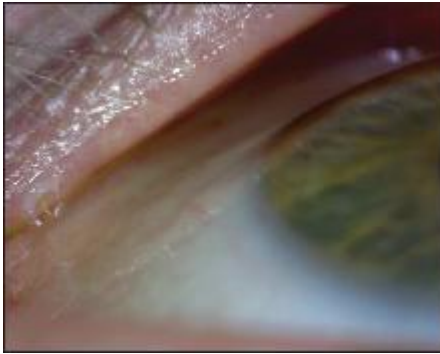
**Figure 2.** The digital microscope camera is attached to the biomicroscope chin rest by a flexible stand.



**Figure 3.** Increased roughness of the upper lid's tarsal conjunctiva is easily visible by gently lifting the eye lid and observing from below.



**Figure 4.** The upper lid's tear meniscus in blink.



**Figure 5.** Tear punctum of the slightly lifted upper lid. Note the ability to observe the corneal-scleral profile.



**Figure 6.** Photo showing that the meibomian glands are obstructed and are posterior to the line of Marx, indicating cicatricial obstructive meibomian gland dysfunction.

Upper lid tarsal conjunctival hyperemia, roughness (Figure 3), papillary conjunctivitis, and lid wiper epitheliopathy could be easily and comfortably observed using the DMC. The figures included here show that the image quality was impressively high.

Furthermore, the DMC turned out to also be useful for estimating the upper lid tear meniscus (Figure 4) as well as for evaluating the upper lid tear punctum (Figure 5), the upper lid meibomian gland orifices (Figure 6), the corneo-scleral profile of all four quadrants, and in locating ruptured soft contact lenses under the upper lid.

## Picture the Possibilities

In conclusion, handheld DMCs may be useful in observing and evaluating the upper lid, especially on sensitive patients. CLS

*For references, please visit [www.clspectrum.com/references.asp](http://www.clspectrum.com/references.asp) and click on document #209.*

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