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Two optometrists discuss how the NIDEK CEM-530 specular microscope helps them provide better care to patients



The NIDEK CEM-530
SPECULAR MICROSCOPE

Abnormalities in the corneal endothelium can be an early indication of sight-threatening corneal dystrophies, and its specialized cells can be adversely affected by injury, intraocular surgery, or improper contact lens wear. As such, imaging and analysis of the corneal endothelium with spectral microscopy is an important capability in an eyecare practice, applicable to patients of all ages and a range of clinical situations.

The full-featured NIDEK CEM-530 specular microscope enables thorough evaluation of the corneal endothelium via an easy-to-use, efficient instrument with a small footprint. Nathan Lighthizer, OD, associate professor and assistant dean for Clinical Care Services at the Northeastern State University Oklahoma College of Optometry, and Emile Fadel, OD, owner of multiple optometric practices in central Texas, consider the CEM-530 to be an integral component of providing high-quality care for their patients.

1. Can you describe a case in which the NIDEK CEM-530 specular microscope helped you to diagnose a patient?

Dr. Lighthizer: The NIDEK CEM-530 specular microscope is crucial to arriving at a diagnosis in many cases. An example that comes immediately to mind is a patient I saw recently who was experiencing vision loss. Corneal edema was evident at the slit lamp, but the cause of the edema was not apparent. With the NIDEK CEM-530 specular microscope, I was able to quickly evaluate the integrity of the corneal endothelium. Images revealed enlarged, abnormally shaped cells and reduced cell density, leading me to the diagnosis of Fuchs' dystrophy as the cause of the corneal edema and vision loss.

2. Has the NIDEK CEM-530 specular microscope changed the way you diagnose and treat patients?

Dr. Lighthizer: It has changed the way I diagnose and treat

several different types of patients, including contact lens wearers and cataract surgery candidates. In contact lens patients, abnormal specular microscopy findings can signal the need to switch to a lens with higher oxygen transmissibility. Patients who become intolerant of their contact lenses or complain of unsatisfactory vision often exhibit changes in the corneal endothelium. Switching to a lens that "breathes better" makes a significant difference in vision, comfort, and corneal health.

As part of my preoperative evaluation of candidates for cataract surgery, the NIDEK CEM-530 specular microscope allows me to identify patients who have a reduced endothelial cell count, which could indicate the presence of a corneal disease that could interfere with achieving an optimal outcome. It alerts the surgeon to this, allowing him or her to consider altering the surgical approach or aspects of the surgical technique to better protect the corneal endothelium.

3. How has the NIDEK CEM-530 specular microscope affected your office efficiency?

Dr. Lighthizer: The NIDEK CEM-530 specular microscope has improved efficiency in my office. This one instrument provides multiple measurements. For example, it measures central corneal thickness, which is important in evaluating and

monitoring glaucoma patients, as well as patients with other conditions. In addition, the instrument captures 16 images of the corneal endothelial cell layer and automatically indicates the optimal image for analysis.

“In contrast with other instruments in its category, [the NIDEK CEM-530] images and analyzes not only the central and paracentral endothelium, but also the peripheral region. Although all of this information is valuable in a variety of patient scenarios, it has a marked impact in my busy contact lens practice.”

— Emile Fadel, OD

Once I choose the image of interest, a complete analysis is generated in 2 seconds. The analysis includes two histograms depicting variation in cell shape and size and allows visualization of the cells in four different modes. Image acquisition is efficient, too, because it is enhanced by the instrument’s 3-D auto-tracking, auto-focus, auto-shot, and tilttable touch screen features.

Dr. Fadel: I have had other specular microscopes in my office in the past, and they required their own instrument table. That meant patients had to be moved to another station to complete their testing with the technician. The NIDEK CEM-530 is small enough to fit on the same desk with other instruments, which helps to smooth patient flow within the practice. The CEM-530 also has a built-in printer that provides an instant printout of images and data from the analysis. As such, I never have to worry about whether the office Wi-Fi is functioning properly at that moment, and I don’t have to walk to a printer in another room to retrieve the printout.

4. Is the NIDEK CEM-530 specular microscope easy to use? Does your staff like it?

Dr. Fadel: I started with one CEM-530 a few years ago, and

now I have several. Our staff likes the speed and ease of use. They also like its small stature, in particular, because it fits nicely within the established patient flow. Technicians have a limited amount of time with patients for preliminary testing, and they appreciate being able to take patients through a series of instruments efficiently — one, two, three, and so on.

5. How has the NIDEK CEM-530 specular microscope changed your approach to patient care?

Dr. Fadel: The NIDEK CEM-530 specular microscope furnishes information about parameters of the corneal endothelial cell layer that are relevant to corneal health and patient care, including cell density, coefficient of variation in cell area (CV), and percentage of hexagonality. In contrast with other instruments in its category, it images and analyzes not only the central and paracentral endothelium, but also the peripheral region. Although all of this information is valuable in a variety of patient scenarios, it has a marked impact in my busy contact lens practice.

The CEM-530 helps me to determine whether patients are compliant with proper contact lens wear, which can otherwise be tricky to ascertain. For example, if the percent hexagonality is reduced, or if the CV is elevated, it indicates overwear, perhaps ill-advised overnight wear. This prompts me to provide additional education about contact lens safety or recommend reduced wear time or a different type of lens. I show patients their microscopy findings on the computer screen so they can see for themselves the problems — at the cellular level — that are caused by improper contact lens wear.

Rarely has any other doctor spoken with them about this, or showed them images of their cells. The fact that I do definitely helps to differentiate my practice from others. The more differentiators I can create, the more my practice is positioned as the contact lens center — a center to which patients are eager to come.



Nathan Lighthizer, OD, is an associate professor and assistant dean for Clinical Care Services at the Northeastern State University Oklahoma College of Optometry in Tahlequah, OK.



Emile Fadel, OD, is the owner of multiple optometric practices throughout central Texas.