

## Expert Interview

# The past, present, and future of microperimetry - thoughts from our senior product specialist



Mauro Campigotto, Senior Product Specialist

talks about NIDEK Microperimetry and its inside story from an expert point of view.

### Explain to us the importance of functional vision assessment.

Functional analysis remains a controversial term that is rooted in the long history of vision assessment that includes multiple tests. We all know the importance of the initial VA measurements. However, even computerized perimetry doesn't generally determine treatment plans to the same level as morphological assessments such as OCT, fundus photography, fluorescein angiography, etc. due to the lack of repeatability and accuracy.

There is a large body of scientific and clinical (peer-reviewed) literature that proves the NIDEK Microperimeter is accurate, reliable, and repeatable for measuring retinal sensitivity (a functional assessment), especially in the macular region for a wide range of pathologies such as age-related macular degeneration,

geographic atrophy, glaucoma, diabetic retinopathy, maculopathies, diabetic macular edema, macular holes, optic disk-related abnormalities, etc. Given the increasingly aging population in many countries, functional assessment of these pathologies is becoming part of the clinical evaluation.

A state-of-the-art assessment of chorioretinal disease involves morphological accuracy coupled with accurate and repeatable sensitivity measurement in the macula and peripheral retina with reliable follow-up. The current drug development trials tell us that the structure-function relationship is a crucial addition to understanding clinical pathologies, and surgical and pharmacological treatments. I think this will also be the case for gene-therapy studies moving forward as some phase II and post-approval studies are assessing functional vision changes in addition to visual acuity.

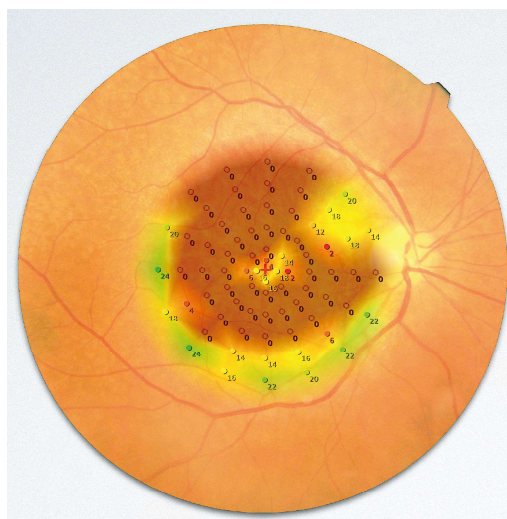


Figure 1. Interpolated map on color fundus image

### What is the history and role of NIDEK in developing Microperimetry?

NIDEK has always believed in the crucial role of functional assessment and we understood that improvement was warranted for it to become part of the clinical workup. We introduced this technique into the market many years ago through the introduction of the MP-1 which started to change clinicians' modus operandi.

In fact, our efforts to introduce and develop the Microperimetry technique are well recognized by the industry, clinicians, and the research community, and Microperimetry is now a common term in

Ophthalmology. Somewhat like Google became a verb for 'search', microperimetry is synonymous with retinal sensitivity testing. From the initial introduction of the MP-1 to the development of the MP-3, NIDEK continues with the goal of providing clinicians with the most advanced solutions for functional assessment. Over the years, NIDEK continuously consults with expert clinicians, researchers, and generalists to incorporate a wide range of feedback to improve the clinical utility of the device. This is most easily seen if you compare the specifications of the MP-1 to the MP-3.

### Tell us about some of the unique features of the MP-3 Microperimeter.

Well, let's start with the wide range of analysis permitted by the photopic, mesopic, and scotopic ranges, which is further enhanced by the fastest eye tracker in the market.\*<sup>1</sup> For fixation analysis, we developed a new approach that hopefully increases the quality of life for low-vision patients. We found that clinician feedback proves the advantage of the revolutionary Active Visual Rehabilitation using Biofeedback that incorporates our unique flickering checkerboard stimulation.

I have to point out that NIDEK is the only company in the market that offers a portfolio that includes OCTs and Microperimetry.\*<sup>1</sup> The combination of OCT data and retinal sensitivity mapping, along with our overlapping software, allows a complete overview of retinal structure and function.\*<sup>2</sup> This fosters easier interrogation of disease, a better appreciation of prognosis, formulation of a treatment plan, and comprehensive follow-up.

### What feedback have you received about the MP-3 Microperimeter?

The feedback from clinicians, clinician-scientists, and technicians has been very encouraging. Let me give you some examples; the combination of reliable functional analysis with high-resolution color fundus images is considered a crucial feature of the MP-3. Operator feedback indicates that they appreciate the user-friendly interface and the improved automated approach to examination.

Our fast and accurate strategies and patterns increase clinic efficiency. Clinical utility is maximized by initially using the default configurations that can be customized over time based on clinical needs and experience. So, our users appreciate the faster examinations and like the ability to personalize the tests to suit their patient base.

Over time we incorporated feedback from clinicians and scientists and developed Active Visual Rehabilitation using Biofeedback exams and the optional Scotopic analysis module which further expands the wide range of applications of this device.

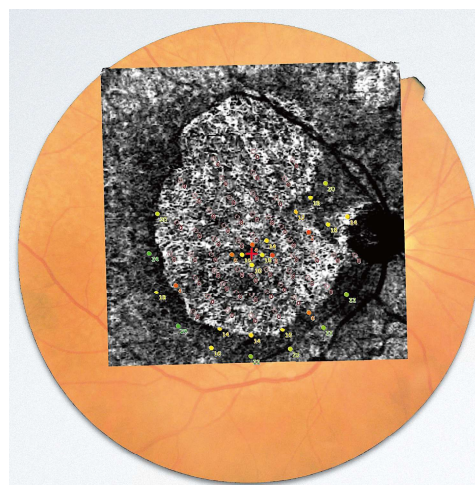


Figure 2. MP-3 + AngioScan (Choroid)

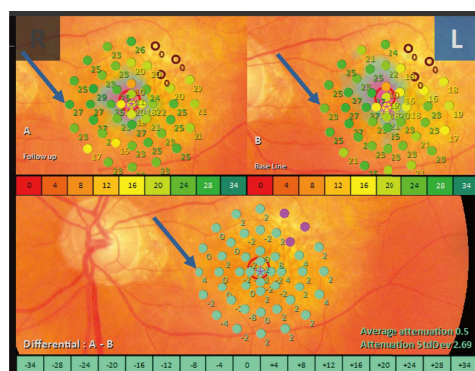


Figure 3. Differential map

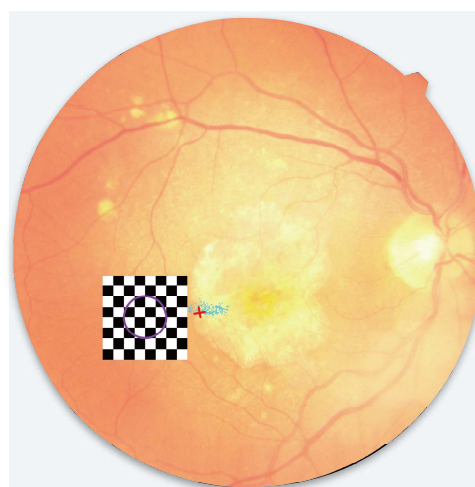


Figure 4. Biofeedback exam



## What is the future of Microperimetry?

NIDEK has a long and rich history of innovation in Microperimetry and we are actively working to further enhance the clinical utility of the MP-3.

If OCT is considered state-of-the-art for morphological analysis then Microperimetry is at the forefront of functional assessment. I believe that the emerging need that is now addressed with multi-modal imaging is going to evolve into a more comprehensive multi-modal morpho-functional analysis not only for clinical trials and gene-therapy studies but also in routine clinical practice.

NIDEK's loyalty toward its customers and our confidence in the role of Microperimetry will continue to drive the market forward to help clinicians maximize patient outcomes and patient-related quality of life.

\*1 As of December 2022.

\*2 The overlay function of the OCT-Angiography on the microperimetry is not available in the United States.

Images Courtesy of

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