

# Subspecialty – Ocular Imaging



## Prof Michael Scott Kook (Korea)

- **How can macular imaging improve glaucoma management in the age of SD-OCT?**

Prof Kook is Professor of Ophthalmology University of Ulsan, Asan Medical Centre Department of Ophthalmology, Seoul, Korea.

“Structural glaucoma assessment has been primarily focused on the optic nerve and retinal nerve fibre layer (RNFL) during clinical examination. The changes in the macular structure in the glaucomatous eyes have been quite difficult to detect with red-free photography, as well as during routine clinical examination.”

“Previously, computerised macular imaging techniques have demonstrated positive glaucoma diagnostic efficacy of macular structures, using time-domain optical coherence tomography (TD-OCT) – although the discrimination power was not as good as that of traditional circumpapillary RNFL (cRNFL) thickness.”

“As the current spectral-domain OCT (SD-OCT) allows much higher sampling rates with axial resolution compared to TD-OCT, one naturally wonders whether SD-OCT might improve diagnostic assessment of glaucoma, particularly in the macular structure. We have recently demonstrated that macular imaging using SD-OCT showed glaucoma discrimination ability comparable to that of cRNFL thickness in early glaucomatous subjects.”

“Certainly, there are a number of explanations for this finding. In the upcoming APAO Imaging Symposium in Sydney, I will discuss whether the changes in the macular structure can be detected at the very early stage of glaucoma before functional manifestation (i.e., preperimetric glaucoma) using SD-OCT, and how macular changes can be used to improve our clinical management of glaucoma patients.”



## Prof Nathan Efron (Australia)

- **Corneal markers of diabetic neuropathy**

Prof Efron is Research Professor, Director LANDMark Study, Anterior Eye Laboratory, Institute of Health and Biomedical Innovation and School of Optometry, Queensland University of Technology.

“Diabetic peripheral neuropathy is a debilitating condition that affects about 50 per cent of diabetic patients. The symptoms of neuropathy include numbness, tingling or pain in the arms and legs. If left untreated, patients with numbness may develop foot ulcers which may ultimately require foot amputation.”

“Currently the only method of directly examining peripheral nerves is to conduct skin-punch biopsies, which are uncomfortable and invasive. Indirect methods include quantitative sensory testing (assessing responses to heat, cold and vibration) and nerve electrophysiology. Recent research has investigated the possibility of using novel corneal markers to assess diabetic neuropathy. Corneal nerve structure and function can be assessed using corneal confocal microscopy and non-contact corneal aesthesiometry.”

“Using these techniques, we have demonstrated that diabetic neuropathy – assessed using conventional techniques – is associated with altered morphology of corneal nerves and reduced corneal sensitivity.

Our findings establish these ophthalmic markers as rapid, painless, non-invasive, sensitive, reiterative and cost-effective means of screening for early detection and diagnosis of diabetic peripheral neuropathy, and for monitoring the progression and quantifying the severity of this debilitating condition. Looking to the future, this research may pave the way for an expanded role of ophthalmology in diabetes management.”

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**Note:** All effort has been made to check facts with each presenter. The writer accepts responsibility for any inadvertent errors in transcript.