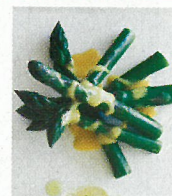


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## Health

BY MARGO WHITE

# Eyes right

The windows to the soul can give crucial pointers to how healthy you are, too.

**E**yewear and eye-care chain OPSM recently drew attention to its rollout of the latest Digital Retinal Scanners. For an extra \$20-30 clients can, as part of their eye examination, get a high-resolution snapshot of the back of their eyeball.

Calling the new technology a digital retinal scanner is probably something of an exaggeration, as it's a fancy name for a high-resolution digital camera; many optometrists have been using such technology for years.

Still, that OPSM is taking the technology nationwide is perhaps a sign of how much the average eye examination has been changed by technology in recent years, and how much the focus of optometry has shifted as a result. Those in the eye business are no longer just prescribing glasses, but increasingly focusing on the early detection of diseases that can wreck a person's eyesight: diabetes, hypertension, macular degeneration, glaucoma and possibly even brain tumours can all be manifested in the nerves and cells at the back of the eye.

A picture paints a thousand words, and even those snapshots that don't reveal any pathology at the time might be worth consulting in the future. "I always say that I wish that

people would, for their 21st birthday, get a photo of the back of their eye as it's a great baseline for anything that crops up later on," says Helen Danesh-Meyer, professor of ophthalmology at the University of Auckland and a glaucoma specialist. "The optic nerve has so many subtle variations on what is normal. I see several people

every day who are borderline glaucoma and if I had a photo taken some years ago, I could possibly dismiss half of them and say, 'You haven't changed - it's normal for you', or, 'You have changed, so we need to start treatment'."

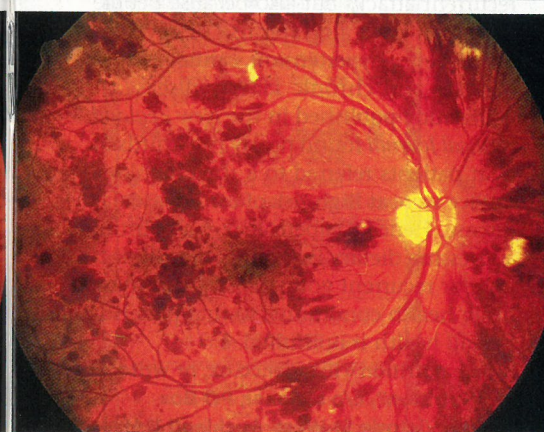
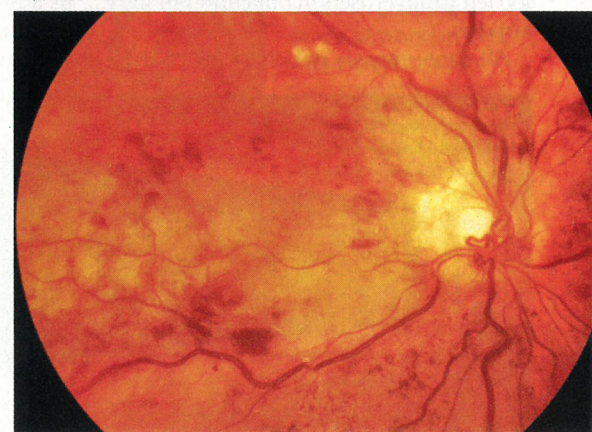
**In the near future specialists might be able to look into our eyes and detect early stages of all sorts of neurological conditions.**

**W**e now have technology that can reveal the early signs of illness in the eye as well as telling us about our general health. The most cutting-edge ophthalmological tool transforming the landscape is optical coherence tomography (OCT). Used more by ophthalmologists than optometrists, it is like an optical version of ultrasound, using light instead of sound waves to bounce off the tissues. It allows eye specialists to detect abnormalities in the different layers of tissue at an increasingly microscopic level of detail.

Danesh-Meyer, a neuro-ophthalmologist, has used OCT to show how thinning in the optic nerve correlates



The eyes have it: the retina of a healthy eye, and of eyes of patients with diabetes (below left) and leukaemia (below right).



with Alzheimer's disease and multiple sclerosis. She has also used it to measure and predict the effect of brain tumours on the optic nerve.

It's not unlikely that in the near future specialists will be able to use such technologies to look into our eyes and detect early stages of all sorts of neurological conditions. "What we're realising is that the changes you can see so easily in the optic nerve often reflect what is happening in deeper brain tissue," Danesh-Meyer says. "Rather than putting someone through an MRI scan for an hour, we can get the information from a two-minute scan ... so it's an area of increasing interest and research."

As she says, the eye is the only organ of the body that can be examined without having to cut the body open.

**T**hese days eye specialists recommend everyone has a general eye examination around the age of 45, whether or not they have worrying symptoms or need a prescription or vision check.

"The first thing about eye disease is that it's best caught early. And secondly, it is generally silent," says Danesh-Meyer, pointing out that people often don't notice any symptoms until it's too late. It is easy, for instance, to fail to notice the slow disappearance of the peripheral vision that accompanies glaucoma, until we are declined a driver's licence.

We have the technology, but it seems we still have all the excuses. Says Dr Lesley Frederikson, national director of the New Zealand Association of Optometrists: "One of the sad things about New Zealanders is that when they think of eyes, they think glasses, and if they don't need new glasses they're not going to the optometrist and having that regular health check.

"They'll say it's too expensive, so they don't spend what might be \$100 ... or maybe \$150 for the whole suite of tests. But it's only every two to three years, so you have to think, why don't New Zealanders take the health of their eyes seriously? Why don't they think about what it might be like to be blind?" ■

## MODERN DANGERS

Auckland ophthalmologist Dr Dianne Sharp recently treated an 11-year-old boy who came to her with blue-green spots interfering with his vision. Having taken an optical coherence tomography scan of the back of his eye, Sharp was able to find signs of a burn in the light-sensitive cells in his retina.

It transpired the boy had been playing with a laser in front of a mirror, a laser he'd bought for \$15 in Thailand; similar lasers can be easily bought online. Deciphering the laser's warning sticker (which required a magnifying glass to read), Sharp discovered the laser power was far stronger than would normally be considered safe for a toy.

As she saw the boy some weeks after the damage was done, Sharp could only treat him with anti-inflammatory drops. "He has recovered, but there always will be a scar, which makes the eye susceptible to other risks down the track."

Even more recently, Sharp saw a young woman who'd been taking snapshots of herself with a digital camera at close range, and afterward became aware of yellow spots in her vision. Again, Sharp found evidence of several small burns on the patient's retina. The camera had been designed so that when the lens was pointing beyond the subject, the automatic intensity of the flash increased six times. The damage to the woman's eye was similar to that caused by unprotected gazing at the sun.

In other words, modern technology that allows ophthalmologists to detect minuscule abnormalities in the eye appears to be revealing some of the dangers of, well, modern technology.

