HBIO training in virtual reality

Bill Harvey comes face to face with a system that uses the relief cast of a face and a computer generating a digitised simulation to teach headset binocular indirect ophthalmoscopy

The headset binocular indirect ophthalmoscopy (HBIO) unit, discussed in detail recently (*Optician* 30.07.10), requires the user to be able to position the lens before the patient, angle it appropriately, adjust the rheostat and then interpret the wide inverted field of view. This takes practice as more experienced readers will remember of their first use of the technique. I was keen to try out a system, which claims to help here, that had impressed colleagues at this year's College Conference.

Eyesi

The Eyesi ophthalmoscope (from VRMagic and distributed in the UK by StatOne) comprises a black panel with a relief of a face cast into it and under it two magnetic discs. A headset like the one used in HBIO is linked via a computer and, when all is switched on, the magnetic discs may be looked through to examine the eyes of the subject that now appears upon the cast in front (Figure 1).

The computer is able to run a variety of training programs aimed at helping the user orientate the lens properly and then to improve their diagnostic and decision-making skills.

Virtual patient

The three-dimensional face is disconcertingly lifelike and moves its eyes to follow your lens. It is possible to control the patient eyes using the computer screen (where one may also agree on the rheostat setting for the ophthalmology and get the 'patient' to look in certain positions).

Even more impressive, if initially startling, is the face changing according to condition. The macular degeneration face is old and world-weary, as opposed to the much more fresh-faced congenital lesion simulation.

To get started there is a basic training routine where one has to scan the retina of the 'android' and recognise a variety of coloured shapes which then need to be marked on the touchscreen computer next to the model. This is able to check both your ability to invert the image and locate lesions correctly, and also to remember them from the viewing stage to the noting-down stage.

Figure 1 The three-dimensional face is disconcertingly lifelike and moves its eyes to follow your lens

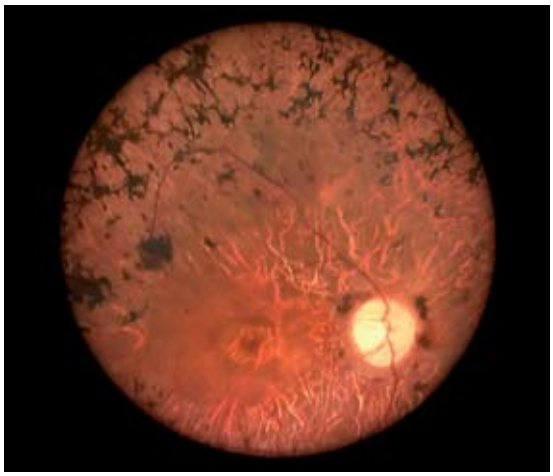

Figure 2 Retinitis pigmentosa

Figure 3 Central retinal artery occlusion

Rigorous range

There is a sequence of medical conditions one has to work through covering a range of difficulties.

I looked at a range that included a retinitis pigmentosa patient (Figure 2), central retinal vein occlusion (Figure 3), central retinal artery occlusion and macular degeneration. The more difficult modules included some rarer systemic conditions.

I found the simulation incredibly lifelike and actually felt more adept at the technique after just an hour or so of use. The various lesion tests would be perfect for training anyone from the pre-reg to the more specialist optometrist and those starting out in ophthalmology. Indeed, some of the questions relating to laboratory tests were beyond what most optometrists would be comfortable with.

I suspect this system may be currently only within the reach of the better funded teaching establishments, but I would love to see one of these in all our optometry schools. Even more importantly, how long until they bring out one to simulate slit-lamp BIO? Everyone would want one of those.

● Thanks to **StatOne** for loan of the instrument. For further information visit www.statone.co.uk or tel: 0121 354 8829