

## Case Study 1: 9 year old with ASD and CVI

*Report included:*

Mark attended AAA Hospital, Optometry clinic today for a visual assessment review. He is a nine-year-old boy born with autism who attends a school for children with special educational needs. He does not have glasses although there is a strong family history of long-sightedness and lazy eye. His younger brother is currently receiving patching for a lazy eye (amblyopia). His mother's main concern is that Mark sits very close to the television and gets very close to the computer screen. For this reason she is worried that he doesn't see well and she also reports that he often doesn't see objects pointed out to him in the distance. She is also aware of the importance of family history in eye health and is concerned that Mark may have the same problems his father and brother have.

Mark's mum completed a 'visual skills inventory' of questions developed by the visual assessment team at the Royal Hospital for Sick Children, Glasgow to elicit information about strengths and weaknesses in cognitive visual processing. The answers she gave to these questions revealed that Mark has some difficulties 'seeing' objects in a crowded visual scene and also has some difficulties processing visual information when he is moving around.

Mark was very cooperative with testing today. My results are summarised below;

### **Summary of results:**

Mark does not need glasses, he sees well at distance and near, focuses well on near objects, has good contrast sensitivity and normal colour perception. There was no evidence of gross restriction to Mark's visual field. Mark has a moderate right divergent squint and because of this he does not have normal 3D vision and depth perception.

Although Mark has good vision, he shows evidence of problems with cognitive visual processing. Cognitive visual difficulties make a 'crowded' visual scene difficult to interpret. For example, when trying to find a toy or item of clothing Mark may struggle if the item he is looking for is surrounded by other items, or is on a patterned surface. Children with such difficulties often perform better when work (toys, food etc) is placed on a plain surface and when distracting 'extra' items are removed. Plain duvet covers, carpets and tablecloths may all help in reducing visual distraction. Concentration on schoolwork may be improved by ensuring that non-essential items are removed from the desktop and visual information is presented in as simple, uncrowded a format as possible. Too much information on a sheet is likely to reduce Mark's ability to access what is being presented. Although Mark has good vision, enlarging his educational material may be a straightforward way to achieve this. He may find books with large print more accessible and enjoyable than those where the print is small and crowded.

This is a useful paragraph explaining strategies to help overcome crowding or complexity issues

When out and about, visual scenes tend to become more 'crowded' the further away a person is from the object they are trying to see because so many other objects are also in the view. For example, a person across the road may be big enough to be easily seen and identified if the road is otherwise empty, but the same person may 'disappear' or be very difficult to see in the confusion of a busy street scene where other people, cars, shops, trees, road signs etc are also present in the same view. The same applies to many other situations where there is a lot of visual information present and this may explain why Mark likes to get very close to the TV and computer screen. This will not harm his eyes.

Because Mark does not have 3D vision he is likely to have some difficulty with movement over kerbs and uneven ground and judging the distance of objects he is moving towards, or that are moving towards him (eg a ball). This may explain some of his difficulties with tripping over kerbs.

Some strategies that have been developed by the Glasgow team to try and address the difficulties that Mark's mum has highlighted in the visual skills inventory have been included with this report. I hope they are of interest.

I will not recall Mark to this clinic, but he should continue to attend his local optometric practice for ongoing routine optometric care.

Copy to: Parent, General practitioner, Paediatrician, School teacher

### Technical details:

Refractive error (Dist static ret):	R +0.50DS L +0.50DS
Ocular posture: strabismus	moderate right divergent
Pupillary responses:	normal, no RAPD
Eye movements:	No abnormal head posture, No nystagmus in primary position
Dist visual acuity (logMAR crowded):	R 0.1 logMAR (6/7.5), L 0.1 logMAR (6/7.5)
Near vision acuity (logMAR crowded):	6/7.5 binocularly
Contrast sensitivity (Cardiff contrast test):	66.66 (1.5%)
Accommodation (dynamic retinoscopy):	accurate Visual field (gross confrontation): grossly full
Colour vision (CVTME):	no deficit

Seen by: AN Other Senior Optometrist

Its important to indicate who assessed  
the patient in the clinic