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Seeing the whole problem

Romana Hashim considers the importance of a specialist visual assessment to a child showing signs of dyslexia

Recent research by the Eye Care Trust, based on the DCSF 2009 School Census of birth to 12-year-olds, suggests that around one million children in the UK have undetected problems with their vision.

An underlying eye condition will usually present itself in the classroom. In addition to blurred vision, a child may have subtle problems associated with reading, spelling, writing and numeracy or report any number of dyslexia like symptoms. It is easy to mistake a child who is experiencing difficulties as having behavioural problems. Parents can also be frustrated at their offspring's apparent dislike for reading and may assume that the child lacks interest rather than being uncomfortable when reading.

Younger children, in particular, find it hard to articulate their vision problems. They feel that what they are experiencing is the norm; after all, they do not know any different. Often, it is only when an underlying problem has been corrected that an individual can understand what was wrong before.

Common symptoms of dyslexia

A child with dyslexia may experience any combination of the following symptoms:

- skipping words or lines
- reading slowly or hesitantly
- jumping around of words and letters (see figure 1, right)

- difficulty keeping track and frequently losing place
- dark, light or coloured patches appear
- letters changing shape or reversing (for example, "d" appears as "b")
- blurring and doubling of letters or words
- sore eyes or head
- difficulty remembering what has just been read
- sloping of the page or paragraph.

Having to contend with these symptoms on a daily basis may have a serious impact on a child's reading ability.

Undiagnosed eye problems can have a profound effect on the apparent severity of dyslexia, and can both directly and indirectly affect the underlying condition. For example, some conditions cause

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eye strain and headaches, and this in itself becomes a barrier to reading. The child doesn't want to read because it makes his/her eyes sore. Alternatively, some conditions have a direct impact on visual processing which compounds the ability to read.

The correction of an underlying visual problem can often dramatically reduce symptoms in many individuals who are struggling with reading and writing, as in the following case studies.



Figure 1. A dyslexic child may experience jumping around of words and letters.

Case study 1

PS: female, aged 12 years. History of epilepsy

Presenting symptoms: PS was identified at school as a slow reader and lacked confidence when reading aloud. She complained of words moving and jumping when reading.

Treatment: the assessment revealed an accommodative problem and glasses were issued to use for all reading. At the six week review, PS had noticed reading was much easier and reading speed had improved by 30 per cent.

A coloured overlay assessment was performed and a blue overlay issued. Six weeks later her reading speed had improved by a further 20 per cent.

PS now has tinted glasses to use for all reading. Reading speed continues to improve and was last measured at 60 per cent greater than on initial presentation. Teachers report that her confidence in reading aloud has improved dramatically along with an improvement in her school work.

Case study 2

DC: male, aged ten years

Presenting symptoms: sore eyes when reading, plus a general dislike of reading.

Treatment: targeted questioning and assessment revealed DC was seeing moving words and had a reading speed well below his age group. He was identified as having a misalignment of the two eyes when reading, termed "convergence insufficiency". DC was managed with a program of eye exercises and his symptoms have fully resolved.

Case study 3

AM: female, aged 15 years

Presenting symptoms: eyes hurt when reading, but less so when print is on a coloured background. Her reading is restricted to school work only.

Treatment: vision assessment confirmed normal vision and eye muscle coordination. AM had a preference for a rose filter which was eventually incorporated into glasses. AM now is an avid reader and for the first time reads for enjoyment.

I estimate that up to 80 per cent of the children I see who are referred as possible dyslexics have eye related issues that are contributing significantly to the display of dyslexia and, in some cases, have been the sole cause of the dyslexic like symptoms. Once this condition has been successfully treated with a combination of eye exercises, prescription glasses and coloured overlays then a further assessment for dyslexia is not necessary.

I therefore recommend that a full specialist visual assessment is undertaken by a suitably qualified optometrist as a matter of course before a formal referral for a dyslexia appraisal is made to an educational psychologist.

Who performs specialist vision assessments?

A specialist visual assessment is not part of a normal eye test and for that reason it should only be undertaken by a qualified optometrist who has an interest in specific learning disorders. Such optometrists have the additional skills and equipment that is required to undertake this in-depth appraisal.

It is worth noting that the level of expertise required to carry out such an assessment is not usually on offer via high street optical chains. This is a niche service which is usually only available from an independent optometrist. In the interests of best practice, it is therefore useful for SENCOs, teachers and educational psychologists to seek out and to build relationships with trusted local specialists to whom children can be referred.

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Some parents can be misled when a standard eye test gives an “all clear” result. However, a routine eye test is not designed to pick up eye conditions in the dyslexia spectrum.

A joined up approach

Where a query has been raised about a child who is experiencing some difficulty in the classroom, it is vital for the parent, SENCO, teacher, educational psychologist and the optometrist to work together for optimum results.

The first step is usually a personal history questionnaire which is completed by the health and educational professionals for the optometrist. This provides specific details of the problems the child is experiencing in and out of school.

It would then be usual for the optometrist to develop a tailor made examination which assesses the issues identified in the questionnaire. Typically, this would look at all aspects of visual function and eye muscle coordination as well as providing a thorough health check of the eye itself. An evaluation

of reading skills, including speed and fluency, is also part of the process.

Some of the common eye conditions which are identified through the assessment include:

Uncorrected long-sightedness (latent hyperopia)

This is a refractive condition where prescription glasses are required for reading and concentrated tasks.

Moderate and large degrees of long sightedness can often be missed during a normal eye test, particularly in young children, as they are able to mask the problem due to very active muscle activity.

Accommodative problems

This is a group of conditions which affect the ability of the crystalline lens to establish and maintain focus.

Binocular vision anomalies

These conditions arise from an inability of the two eyes to work together. Each eye has six eye muscles and any weakness can cause problems such

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as headaches, moving words, skipping words and general poor concentration.

A detailed muscle balance assessment investigates the function of each muscle and how well the muscles work together.

Undiagnosed lazy eyes

In the absence of rigorous school eye screening, lazy eyes are often missed unless a child has had an eye examination. Providing the “good eye” has normal visual function, it will not become apparent that the other eye is lazy unless the good eye is covered or symptoms such as those shown in figure 1 become apparent.

Both lazy eye and squint can be successfully treated, especially if they are picked up early on during the school years, when the eye and visual system





are still developing. The earlier an issue is identified, the more likely normal vision can be restored.

What does vision therapy entail?

Once the root cause of the problem has been identified, a personalised vision therapy programme can be developed. This will usually consist of one or all of the following treatments: prescription glasses, eye exercises to build extra strength in weak muscles and the use of coloured filters to improve “readability”. When it has been determined that there is no clinical reason why the child should be experiencing problems in the classroom, the optometrist will make a recommendation for a referral to an educational psychologist for further evaluation.

The use of coloured filters: fact or fallacy

There is considerable credible research which shows that the use of a coloured filter, known as colorimetry, can be extremely helpful in individuals who suffer with reading problems including visual stress, which can slow progress in the classroom. This is essentially hyperactivity of the brain, resulting in

visual disturbances and headaches which may cause problems with reading. The colour tints help the brain relax.

Research by Arnold Wilkins, Professor of Psychology at the University of Essex, showed that approximately 20 per cent of children who suffer from visual stress

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are helped by placing coloured sheets of plastic film over the reading material.

Research by Helen Irlens, an educational psychologist from California, in the 1980s led to her identifying a condition and naming it Meares-Irlen syndrome. She describes it as a condition in which reading is hampered by distortions of print. The distortions are minimised when the text has a particular colour. The required colour is different for each individual.

A colorimetry assessment begins with using Wilkins’ rate of reading test to measure the child’s baseline reading speed. Coloured overlay sheets are then

introduced in a precise order and the reading speed is re-measured with the preferred overlay.

If there is a significant benefit, the preferred route is to issue the overlay to use for a period of six weeks. If the overlay is found to be beneficial, the patient can then proceed and have glasses fitted with a coloured filter.

I have no doubt that colorimetry can bring about a dramatic improvement in reading ability. However, one point to note is that coloured overlays can mask an underlying eye condition, so it is absolutely essential that an individual undergoes a specialist vision assessment before reverting to colorimetry.

Conclusion

Many children may be struggling at school simply because their eyes are not working properly. When a child is under achieving, the priority is to determine whether specific learning difficulties are present or whether it is an underlying eye condition which is causing the problem. Given the comparative ease with which eye problems can be identified versus diagnosing a learning difficulty, it would be sensible to eliminate this as a cause first. If an eye problem is found to be present, the goal then is to work with a specialist optometrist who has the necessary paediatric expertise to determine the correct diagnosis and therapy programme. **SEN**

Further information

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