Stanion C.E Primary School

Information for Parents: Dyslexia

What is dyslexia?

Dyslexia is a specific learning difficulty characterised principally by problems in certain aspects of language processing. Dyslexia is generally inherited and is independent of intelligence or social background. It is a constitutional condition in which various neurological systems work differently to the way they work in non-dyslexic individuals. The main neurological systems affected are those that deal with processing of phonological information and auditory working memory; in other words, those involved in storage, processing and recall of information about the sounds of language (phonemes) and how these relate to the symbols of written language (graphemes). This results in difficulties in acquiring the skills of reading, writing and spelling (and sometimes numeracy), as well as problems in activities that require rote learning and recall, e.g. examinations. One of the most common and pervasive difficulties in dyslexia is in acquiring what teachers usually refer to as 'phonics', i.e. in learning the relationships between letters and sounds and using this knowledge to decode unfamiliar words and write words that are spelled regularly. Some dyslexics show considerable talents in other areas, e.g. visual or practical thinking skills, creativity and imagination.

The principal theory of dyslexia, and the one that has the greatest weight of scientific evidence, is known as the 'phonological deficit theory' (Snowling, 2000). According to this theory, certain parts of the brain that are responsible for the storage, processing and recall of information about speech sounds do not function as efficiently as they should. Consequently, any activity that depends heavily on these systems (such as reading and writing) is particularly difficult. The phonological deficit theory is not the only theory about dyslexia. There are other theories which attribute dyslexia to malfunctioning in the visual system, or in the neurological systems concerned with balance, motor control and skilled learning generally. Although the possibility of some dyslexic individuals having neurological abnormalities other than those in the phonological processing system cannot be ruled out, the evidence to support these alternative theories is comparatively weak.

Graphical profile of results

The results from each of the three tests are shown on the reports screen on a graphical profile, using a scale of decreasing risk for each of the three tests in Lucid Rapid. This is a 7-point scale based on centile scores (see Table 1.)

Table 1: Scoring system for Lucid Rapid Dyslexia Screening. Scale of decreasing risk

	1	2	3	4	5	6	7
Centile range	<5	5–19	20–34	35–64	65–79	80–94	95+
Description	Very low	Low	Below average	Average	Above average	High	Very high
Colour zone	Red	Pink	Amber	Green			
Difficulties	Severe	Moderate	Borderline	Normal, no significant difficulties			

Probability of dyslexia

The results of the three tests are combined by the program to arrive at an overall probability of dyslexia, which is also shown on the reports screen. This is achieved by means of an algorithmic expert system derived from research data. The overall probability cannot be worked out until the child has completed all three tests.

The expert system gives an overall estimate of the probability of dyslexia in one of the following categories:

- Very high probability of dyslexia (greater than 95% chance)
- High probability of dyslexia (greater than 90% chance)
- Moderate probability of dyslexia (greater than 75% chance)
- Low probability of dyslexia (less than 10% chance).

The interpretation algorithm is sophisticated and too complicated to explain here. As a rule of thumb, however, when a child's results show a majority of red scores this usually points to a *very high probability* of dyslexia. A majority of pink scores or a combination of red and pink usually indicates a *high probability* of dyslexia. A majority of ambers scores or combinations of ambers and other colours generally denotes a *moderate probability* of dyslexia.

Using the centile scores

The centile score for each of the three tests in Lucid Rapid is shown in numerical form to the right of each bar on the graphical profile. Lucid Rapid has been designed so that parents do not have to concern themselves with centile scores if they do not want to. The program automatically provides clear classification and guidance for interpretation without the user needing to refer to centile scores. However, some users may wish to examine the results more closely, and this can help in decision-making in some cases. If a child has a centile score in the lower part of a particular band (e.g. a score of 22) then this will indicate rather greater risk than if a child has a centile score in the upper part of the same band (e.g. a score of 32), even though the graphical profile and the expert classification system will treat these two cases the same. Thus consideration of the centile scores will in some instances enable the user to refine a judgement about a child's difficulties.

Teaching strategies for dyslexia

1. General approaches

Multisensory methods of teaching for children with dyslexia are usually advocated. These integrate visual, aural, tactile and kinaesthetic modalities to consolidate the learning experience. Lessons must be very well structured, sequential and cumulative, and all skills and concepts must be thoroughly practised (overlearned) in order to counteract the memory problems of the dyslexic. Content generally needs to concentrate on phonic skills, as these are usually the weakest aspect in dyslexia. For a comprehensive overview of the range of approaches and materials the following book is strongly recommended: '**Dyslexia: a practitioner's handbook'** by Gavin Reid [Wiley, Second Edition, 1998 *Third Edition due March 2003*].

Writing often presents the hardest challenge to dyslexic students. By its very nature, writing makes heavy demands on cognitive processes, especially memory. Use of word processing enables the

dyslexic child to produce a greater amount of better quality written work because it reduces memory load and facilitates self-correction (e.g. by using a spelling checker). A *talking word processor* (which will speak back the text the child has entered) makes the dyslexic child much more independent when writing, because they can problem-solve their own mistakes. Examples of recommended talking word processors include *Inclusive Writer, Pages, Write:Outloud,* and *textHELP! Read and Write*.

Many dyslexic children have problems with maths, particularly basic numeracy and calculation procedures. For excellent practical suggestions on addressing such difficulties see **'Maths for the Dyslexic: a practical guide'** by Anne Henderson [David Fulton, 1998]. See also: **'Count on your Computer'** by Di Hillage [SEN Marketing, 2001).

2. Study skills

Children with dyslexia need help to develop good study skills. Their weak memory, general disorganisation, poor literacy skills and difficulties with learning makes studying hard for them and they typically under-perform in tests and exams. Memory weaknesses can be addressed with various activities, but computer programs such as *Mastering Memory* are a good way of developing memory skills. When learning for tests or revising for exams, all students (but especially those with dyslexia) need a structured approach that optimises their recall of information. The programs *Time to Revise* and *Timely Reminders* provide an excellent basis for this, and enable the dyslexic student to adopt a well-organised and more effective approach to learning and revision. When it comes to researching topics for assignments, multimedia sources of information (such as websites or CD ROMs) are more accessible and much easier to use than conventional printed sources such as encyclopaedias. A useful book to help dyslexic children develop study skills is: **Study Skills: A pupil's survival guide** by Christine Ostler [Ammonite Books, 1996; available from SEN Marketing]. See also the BDA web link: http://www.bdadyslexia.org.uk/about-dyslexia/it-information/study-skills.html.

3. Developing phonological processing skills

Phonological processing can be developed by a variety of methods. For example:

- **Rhyming** and **alliteration**—suitable techniques range from simple rhyming songs and games to more structured activities involving making books with rhyming or alliterative themes, playing rhyming snap or 'odd-one-out' games with pictures and objects; using plastic letters to discover and create rhyming word families
- **Deletion** of the first sound (e.g. '*near–ear'*) or of the last sound (e.g. *'party–part'*), or of whole syllables (e.g. saying '*alligator'* without the '*all'*)
- **Elision** of the middle sound (e.g. snail–sail) or syllable ('*alligator'* without the '*ga'*).
- **Correspondence**— e.g. tapping out the number of syllables in a word.

Recommended computer-based activities for practising phonological skills include ***Rhymes and Analogy, Tizzy's Toybox Talking Animated Alphabet***, and ***Letterland***.

In general, children respond well to phonological training activities and skills swiftly improve. However, some dyslexic children may have more persistent difficulties that will require particularly careful literacy teaching. In such cases, a well-structured multisensory approach incorporating plenty of practice in phonic skills (over-learning) is recommended. Without phonological training, many children with such weaknesses are liable to develop an over-reliance on visual (whole word) and

contextual strategies in reading (especially if they are bright). They can easily 'slip through the net', only to re-appear as a child who is failing in reading and spelling later in the primary school.

4. Developing auditory memory

Memory limitations are more difficult to improve by direct training, especially with younger children, than are weaknesses in phonological processing. Older children can respond well to *metacognitive* approaches to memory improvement, i.e. techniques designed to promote understanding of their own memory limitations and to develop appropriate compensatory strategies (see Reid, 1998). However, that does not mean that memory training is not worthwhile with young children. Indeed, it may well be the case that with improved training techniques, remediation of memory weaknesses could turn out to be a much more promising approach in the future. The emphasis should be on variety and on stretching the child steadily with each training session. The tasks should not be too easy for the child (which would be boring) nor much too difficult (which would be discouraging), but just give the right amount of *challenge* to motivate the child to maximum effort. Use of prizes, star charts for improvement, etc., should all be used if these will help motivation. Activities can usually be carried out at home as well as in school. Competition between children can be motivating for some children, but it can also be discouraging for the child with severe difficulties, because they will easily perceive and be embarrassed by the discrepancy between their performance and that of other children.

Auditory sequential memory training activities include:

- **I went to the supermarket** — teacher says to the child sentences of increasing length and complexity and the child has to repeat these back verbatim (e.g. *"I went to the supermarket and bought three tins of beans, one loaf of bread, a carton of milk, a packet of sweets, two bars of chocolate...."* etc.)
- **Find the changed (or missing) word**—teacher says sequence of words to the child (e.g. *dog, cat, fish, monkey, spider*) and then repeats it changing one (or missing one out altogether), either slightly or more obviously (e.g. *dog, cat, fox, monkey, spider*) and the child has to identify the change.
- **What's their job?**—Teacher says to the child a list of name-occupation associations (e.g. *"Mr Pearce the painter, Mrs Jolly the grocer, Miss Fish the hairdresser, Mr Brown the electrician"*) and then asks for recall of one (e.g. *"Who was the grocer?"* or *"What is Mr Brown's job?"*). Occupational stereotypes can be avoided if desired.
- **Word repetition**—teacher says sequences of unrelated words to the child (e.g. *hat, mouse, box, cup, ladder, tree, biscuit, car, fork, carpet*) and the child has to repeat them in the correct order. The length of the list can be gradually extended. If the words are semantically related it is more difficult, and if they are phonologically related (e.g. *fish, film, fog, fun, phone, finger*) it is more difficult still.
- **Phoneme repetition**— as word repetition, but with phonemes (*"oo, v, s, er, d"*). Note that phonologically similar lists will be much more difficult (e.g. *"p, b, k, d, t"*)
- **Letter name repetition** —as word repetition, but with letter names.
- **Digit repetition**—as word repetition, but with digits. About one per second is maximum difficult for short sequences. Slightly faster or slower rates are both easier for ordinary individuals to

remember, but dyslexics tend to find a slower sequence harder (because their rehearsal processes in working memory are deficient).

Good computer software for developing auditory sequential memory include ***Mastering Memory***.

5. Developing visual memory

It is widely acknowledged that the *predominant* problems found in dyslexic children are phonological rather than visual. Indeed, dyslexic individuals often have excellent visual skills. Nevertheless, teachers and educational psychologists are not infrequently confronted by cases of young children who appear to have inordinate difficulties in remembering various types of information presented visually. With children under eight years, this will tend to show up on **Lucid Rapid** in the results of the Visual-verbal integration memory test. Such cases are less common than those of children with phonological difficulties. However, they do form a very important group because these are the children who are likely to fall at the very first hurdle with which they are confronted in literacy — i.e. whole-word, 'look and say' reading activities, often presented on flash cards. Of course, some teachers would presume that the child who cannot remember flash cards (however bright, orally fluent and well-motivated) is simply not *ready* for reading. On the other hand, if the child cannot begin reading in the most conventional way the most obvious solution is not to ignore the child's problems, but to find the way which is most appropriate for the child to learn.

In cases where the child is experiencing difficulty with visual whole word ('look and say') methods because of visual memory problems this can lead to early discouragement and frustration which can easily affect the whole of the child's educational activities. The child can swiftly become a reluctant learner. Spelling and writing are also likely to be a struggle. Visual memory training would be beneficial, but the main solution would be to make a much earlier start to structured phonics work, with ample practice (over-learning) to compensate for memory weaknesses. A multisensory approach is strongly recommended, building on any auditory and kinaesthetic strengths.

The following are suggested training activities for children with poor visual memory or poor visualverbal integration memory:

- **Find the missing part** —create pictures of everyday things with parts of the pictures missing (e.g. doll with one arm, table with only three legs) and ask the child to identify what is missing. To do this the child has to recall visual images of the relevant objects.
- **What's wrong here**— use pictures of everyday things with parts of the pictures wrong (e.g. house with the door halfway up the wall; person with feet pointing backwards instead of forwards) and ask the child to identify what is wrong. To do this the child has to recall visual images of the relevant objects.
- **Kim's game** —an array of familiar objects on a tray (or picture of an array of objects). The child scans this for two minutes (or whatever period of time is appropriate) and then has to remember as many as possible.
- **Symbols** —show child a sequence of symbols, letters or shapes of increasing length, and then jumble them up and the child has to rearrange them in the correct order.
- **Who lives here?** —Make a set of pictures of people (these may be cut from magazines) and a set of houses of different colours, or different appearance in some way. The people are matched with

the houses, and then jumbled up. The child has to rearrange them in the correct relationship. If the people are given names then the task relies more on visual-verbal integration.

- **Pelmanism**— remembering matching pairs of cards from a set, when cards are individually turned over and then turned back. The child has to remember where the other one of the pair is, and if both are located these are removed from the set, and so on.
- **Card games** —e.g. Snap, Happy Families.

Good computer software for developing visual memory skills includes: ***Memory Booster*** (Lucid Research Limited) and ***Mastering Memory (***http://www.masteringmemory.co.uk ***)***.

6. Developing phonic decoding skills

For the reasons explained above, the child who displays major difficulties in *auditory/verbal* memory is likely to have problems in acquiring effective phonic skills. Nevertheless, this type of child may make satisfactory progress in the *early* stages of reading—where the emphasis tends to be on building up simple visual word recognition skills—if visual memory skills are quite good.

Because of this, it is very easy to overlook this child's problems and assume that because an apparently satisfactory early start has been made, everything else will follow automatically. In fact, this child would probably learn to rely almost exclusively on visual strategies in reading. It could be as late as nine or ten years of age before the underlying problems become noticeable, by which time so much learning opportunity has been wasted. Many dyslexics have a pattern of development like this. The recommendations here would be for an early introduction of a highlystructured *multisensory phonic approach* to literacy learning. This should not only provide ample practice to compensate for memory weakness, but should in this case also make use of the child's strong visual skills in order to reinforce learning and help to maintain confidence.

Good computer software for practising phonic skills includes: ***Wordshark 4***; ***Talking Animated Alphabet***; ***Rhyme and Analogy***; ***All My Words***; and ***Fuzzbuzz***.