

Dated 9th June 2017

Re: NSW Parliamentary Inquiry into the Education of Students with a Disability or Special needs in NSW Schools.

To Whom it May Concern,

The Australian Dyslexia Association (ADA) can say that in Australia it is fair to say that dyslexia affects 1 in 10 children in Australian Schools however this figure may be conservative since many children go unidentified under the current system due to the lack of teacher and school training in dyslexia and the structured literacy approaches.

Australia is the third largest English speaking country yet our teachers and schools are failing to know how to identify children at risk of dyslexia early and how to teach them using evidence based effective instruction in the classroom early.

Some schools are taking charge and accessing training however many other schools are floundering and letting our future generation of students down.

Out of interest the other two largest speaking countries, namely England and the United States of America dyslexia is estimated that dyslexia affects 1 in 5. This may be due to more effective identification processes and school training.

The ADA was involved with the international networking campaign with the USA a few years ago and the Campaign was called '1 in 5'.

ADA sincerely hope that this meeting brings positive change for children with or at risk of dyslexia in NSW Schools.

Sincerely,

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DYSLEXIA BASICS

What is dyslexia?

Dyslexia is a language-based learning disability. Dyslexia refers to a cluster of symptoms, which result in people having difficulties with specific language skills, particularly reading. Students with dyslexia usually experience difficulties with other language skills such as spelling, writing, and pronouncing words. Dyslexia affects individuals throughout their lives; however, its impact can change at different stages in a person's life. It is referred to as a learning disability because dyslexia can make it very difficult for a student to succeed academically in the typical instructional environment, and in its more severe forms, will qualify a student for special education, special accommodations, or extra support services.

What causes dyslexia?

The exact causes of dyslexia are still not completely clear, but anatomical and brain imagery studies show differences in the way the brain of a person with dyslexia develops and functions. Moreover, most people with dyslexia have been found to have problems with identifying the separate speech sounds within a word and/or learning how letters represent those sounds, a key factor in their reading difficulties. Dyslexia is not due to either lack of intelligence or desire to learn; with appropriate teaching methods, students with dyslexia can learn successfully.

How widespread is dyslexia?

About 13–14% of the school population nationwide has a handicapping condition that qualifies them for special education. Current studies indicate that one half of all the students who qualify for special education are classified as having a learning disability (LD) (6–7%). About 85% of those students have a primary

learning disability in reading and language processing. Nevertheless, many more people—perhaps as many as 15–20% of the population as a whole—have some of the symptoms of dyslexia, including slow or inaccurate reading, poor spelling, poor writing, or mixing up similar words. Not all of these will qualify for special education, but they are likely to struggle with many aspects of academic learning and are likely to benefit from systematic, explicit, instruction in reading, writing, and language.

Dyslexia occurs in people of all backgrounds and intellectual levels. People with dyslexia can be very bright. They are often capable or even gifted in areas such as art, computer science, design, drama, electronics, math, mechanics, music, physics, sales, and sports.

In addition, dyslexia runs in families; parents with dyslexia are very likely to have children with dyslexia. For some people, their dyslexia is identified early in their lives, but for others, their dyslexia goes unidentified until they get older.

What are the effects of dyslexia?

The impact that dyslexia has is different for each person and depends on the severity of the condition and the effectiveness of instruction or remediation. The core difficulty is with word recognition and reading fluency, spelling, and writing. Some individuals with dyslexia manage to learn early reading and spelling tasks, especially with excellent instruction, but later experience their most debilitating problems when more complex language skills are required, such as grammar, understanding textbook material, and writing essays.

People with dyslexia can also have problems with spoken language, even after they have been exposed to good language models in their homes

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and good language instruction in school. They may find it difficult to express themselves clearly, or to fully comprehend what others mean when they speak. Such language problems are often difficult to recognize, but they can lead to major problems in school, in the workplace, and in relating to other people. The effects of dyslexia reach well beyond the classroom.

Dyslexia can also affect a person's self-image. Students with dyslexia often end up feeling "dumb" and less capable than they actually are. After experiencing a great deal of stress due to academic problems, a student may become discouraged about continuing in school.

How is dyslexia diagnosed?

Before referring a student for a comprehensive evaluation, a school or district may choose to track a student's progress with a brief screening test and identify whether the student is progressing at a "benchmark" level that predicts success in reading. If a student is below that benchmark (which is equivalent to about the 40th percentile nationally), the school may immediately deliver intensive and individualized supplemental reading instruction before determining whether the student needs a comprehensive evaluation that would lead to a designation of special education eligibility. Some students simply need more structured and systematic instruction to get back on track; they do not have learning disabilities. For those students and even for those with dyslexia, putting the emphasis on preventive or early intervention makes sense. There is no benefit to the child if special instruction is delayed for months while waiting for an involved testing process to occur. These practices of teaching first, and then determining who needs diagnostic testing based on response to instruction, are encouraged by federal policies known as Response to Intervention (RTI). Parents should know, however, that at any point they have the right to request a comprehensive evaluation under the

IDEA law, whether or not the student is receiving instruction under an RTI model.

A comprehensive evaluation typically includes intellectual and academic achievement testing, as well as an assessment of the critical underlying language skills that are closely linked to dyslexia. These include receptive (listening) and expressive language skills, phonological skills including phonemic awareness, and also a student's ability to rapidly name letters and numbers. A student's ability to read lists of words in isolation, as well as words in context, should also be assessed. If a profile emerges that is characteristic of readers with dyslexia, an individualized intervention plan should be developed, which should include appropriate accommodations, such as extended time. The testing can be conducted by trained school or outside specialists. (See the [Testing and Evaluation Fact Sheet](#) for more information.)

What are the signs of dyslexia?

The problems displayed by individuals with dyslexia involve difficulties in acquiring and using written language. It is a myth that individuals with dyslexia "read backwards," although spelling can look quite jumbled at times because students have trouble remembering letter symbols for sounds and forming memories for words. Other problems experienced by people with dyslexia include the following:

- Learning to speak
- Learning letters and their sounds
- Organizing written and spoken language
- Memorizing number facts
- Reading quickly enough to comprehend
- Persisting with and comprehending longer reading assignments
- Spelling
- Learning a foreign language
- Correctly doing math operations

Not all students who have difficulties with these skills have dyslexia. Formal testing of reading,

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language, and writing skills is the only way to confirm a diagnosis of suspected dyslexia.

How is dyslexia treated?

Dyslexia is a lifelong condition. With proper help, many people with dyslexia can learn to read and write well. Early identification and treatment is the key to helping individuals with dyslexia achieve in school and in life. Most people with dyslexia need help from a teacher, tutor, or therapist specially trained in using a multisensory, structured language approach. It is important for these individuals to be taught by a systematic and explicit method that involves several senses (hearing, seeing, touching) at the same time. Many individuals with dyslexia need one-on-one help so that they can move forward at their own pace. In addition, students with dyslexia often need a great deal of structured practice and immediate, corrective feedback to develop automatic word recognition skills. For students with dyslexia, it is helpful if their outside academic therapists work closely with classroom teachers.

Schools can implement academic accommodations and modifications to help students with dyslexia succeed. For example, a student with dyslexia can be given extra time to complete tasks, help with taking notes, and work assignments that are modified appropriately. Teachers can give taped tests or allow students with dyslexia to use alternative means of assessment. Students can benefit from listening to books on tape and using text reading and word processing computer programs.

Students may also need help with emotional issues that sometimes arise as a consequence of difficulties in school. Mental health specialists can help students cope with their struggles.

What are the rights of a person with dyslexia?

The Individuals with Disabilities Education Act 2004 (IDEA), Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) define the rights of students with dyslexia and other specific learning disabilities. These individuals are legally entitled to special services to help them overcome and accommodate their learning problems. Such services include education programs designed to meet the needs of these students. The Acts also protect people with dyslexia against unfair and illegal discrimination.

Suggested Readings

Moats, L. C., & Dakin, K. E. (2008). *Basic facts about dyslexia and other reading problems*. Baltimore: The International Dyslexia Association.

Shaywitz, S. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level*. New York: Knopf.

The International Dyslexia Association (IDA) thanks Louisa C. Moats, Ed.D., and Karen E. Dakin, M.Ed., for their assistance in the preparation of this fact sheet.

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Role of the **ophthalmologist** in the management of

DysLexia

(Specific Learning Difficulties)

Synopsis

- Dyslexia is a brain dysfunction.
- Management must be based on science. Remedial reading intervention is currently the best management.
- There is no credible evidence to support claims for treatments such as vision training/therapy with or without combined neurodevelopmental training, Irlen tinted lenses and the Lawson anti-suppression device.
- The ophthalmologist has a role in the diagnosis and correction of vision deficits. They should help guide the parents towards appropriate remedial assistance for their child.



The role of the ophthalmologist in the management of children with dyslexia is above and beyond a full eye examination. The ophthalmologist needs to understand the process of learning to read, the theories of dyslexia, and controversial and non-controversial therapies. This understanding will in turn allow the ophthalmologist to guide parents towards appropriate science-based remedial intervention for their child.

Reading difficulty/specific learning difficulty/developmental dyslexia is defined as being unable to read at the level that would be expected taking into account the home background, the educational opportunities and the child's intelligence. It is a common

problem, with mild to moderate dyslexia occurring in 10–16% of children and severe in 2–4%. Males and females are equally affected and difficulties with reading fluency are similar across languages. There are also a number of comorbidities associated with dyslexia, approximately 15% of children with reading disability have attention deficit hyperactivity disorder (ADHD) and of children diagnosed with ADHD, 35% have a reading disability.

Learning to read

The process of reading involves extracting meaning from print. The phonological model of reading is the most widely accepted. Reading is a decoding skill while spelling and writing are encoding skills. In alphabet-based languages (such as English) there is a sequence that allows reading to proceed: symbol (letter or grapheme) > sound (phonemes) > words and meanings (semantics). To understand the process of reading,

we need to be aware that this involves phonemes which are the smallest meaningful segment of language. A different combination of 44 phonemes produce every word in the English language. As an example, the word 'cat' is broken up into three phonemes — kuh/aah/tuh. The phonological module automatically assembles phonemes into words. These are known as letter sound rules. The process of reading is not a single skill; it requires many sub-skills, including letter recognition, word recognition, letter-sound rules and word comprehension.

Children go through several stages as they learn to read. There is good evidence that the brain is 'rewired' as a child learns to read. In immature readers, the reading process is bi-hemispheric and has significant involvement of frontal, temporal, parietal and occipital lobes while in more mature and skilled readers the left hemisphere is predominate, with mainly frontal and

occipital lobe involvement with relative bypassing of the temporal and parietal lobes. Early language exposure by being read to influences subsequent learning to read; it appears this early experience helps the child understand many basic language rules before the more formal process of learning to read commences. In the initial stages of learning to read the child learns a small sight vocabulary, they then learn how to sound out, then use sounding out to build up a bigger sight vocabulary, they eventually give up sounding out as they become a fast and fluent reader.

When a child reads aloud, they can either recognise the word in their mental dictionary or apply the letter-sound rules. The English language is amongst the most difficult language to learn to read as there are so many irregular words where sounding out does not give meaning or sense to the word. An example of an irregular word is 'yacht'; no amount of sounding out will correctly allow the reader to read this word aloud. Irregular words need to be identified by prior exposure. However, regular words such as 'trout' can be read by applying the letter-sound rules.

Dyslexia

Reading difficulties can be divided into a primary form (dyslexia) and secondary forms that may be the result of visual or hearing disorders, intellectual disability, life experience and/or educational deficits. Lyon et al have defined dyslexia as "... a receptive language-based learning disability that is characterized by difficulties with decoding, fluent word recognition, and/or reading-comprehension skills. These difficulties typically result from a deficit in the phonologic component of language that makes it difficult to use the alphabetic code to decode the written word. Secondary consequences may include reduced reading experience that can impede growth of vocabulary, written expression, and background knowledge." (Lyon GR, Shaywitz S, Shaywitz B. A definition of dyslexia. *Ann of Dyslexia*. 2003;53(1):1-14.)

The most compelling theory for dyslexia is that it is due to an abnormality of brain function. In the brain the

inferior frontal gyrus is the phoneme producer, word analysis occurs in the parietal-temporal region and word form and automatic detection of words occurs in the occipital-temporal area of the brain. Neuroanatomical changes with an absence of normal asymmetry between the left and right hemisphere of the brain in dyslexic children have been documented in a number of studies. Functional neuroimaging (fMRI) for normal readers as compared to dyslexic children have also been performed and show a difference in brain function between the two groups. After successful remedial treatment this difference is no longer present. The review of evidence strongly supports the view that dyslexia is due to brain dysfunction.

This is further supported by the neuropsychological studies that have shown that dyslexia is a language based disorder with a primary underlying deficit involving problems in phonological processing. Phonological difficulties probably interact with other neurocognitive risk factors.

The neurobiological nature of dyslexia has been supported by the finding that 23%–65% of children with dyslexia have a dyslexic parent and 40% a dyslexic sibling. Six candidate genes have been identified for dyslexia.

A number of alternative theories have been proposed to explain dyslexia. These include abnormalities of visual function and eye movements. Although the ability to read involves vision, the process itself fundamentally includes parts of the brain beyond the visual pathways; vision is only one of the initial steps. Children with severe visual impairment and nystagmus may have some difficulty learning to read but this is a secondary form of dyslexia. Most visual impairment, refractive errors and abnormalities of binocular vision and accommodation/convergence have been shown to have no significant effect on the ability to learn to read. There is a lack of good evidence in the literature to support that visual dysfunction is the cause of reading difficulties such as dyslexia.

It has been suggested that abnormalities of saccadic (rapid) eye movements underlie dyslexia. In normal reading, as

the child reads there are forward saccades of the eyes with fixation pauses. There are also regression or backward saccades as the child tries to extract meaning from print. The eyes also undergo small vergence adjustments. In the child learning to read and the child with reading difficulties, there are shorter saccades, longer fixation pauses and an increased number of regressions as the reader has increased difficulty in understanding the text. As reading develops, the saccades lengthen, the fixation pauses are shorter and the number of regressions is decreased. The eye movements in the child with dyslexia are similar to that of the child learning to read. The so-called abnormal eye movements observed in dyslexic children are the result, not the cause, of the reading difficulty.

Effects of the magnocellular (transient) visual system have also been blamed for dyslexia. The magnocellular visual system responds to rapid changes in visual stimulation whilst the parvocellular mediates colour vision and perception of fine spatial details. The magnocellular system in dyslexia is thought to not be able to suppress the parvocellular system. The evidence for this theory is based on contrast sensitivity studies and is equivocal.

Controversial therapies

There have been a number of controversial treatments proposed for dyslexia. These include vision training, combined with neurodevelopmental training, Irlen tinted lenses and fringe therapies such as the Lawson anti-suppression device.

Vision training is based on the premise that reading is primarily a visual task. Vision training involves muscle exercises, ocular pursuits, tracking exercises, training glasses (with or without bifocals or prism) and these are often combined with neurodevelopmental training. Eye exercises have been shown to improve convergence insufficiency, help develop fine stereoscopic skills and improve visual field recordings after brain damage. There is no clear scientific evidence published in mainstream literature to support the use of eye exercises in other conditions including learning disabilities and dyslexia. The American

Optometric Association has stated that vision training does not directly treat learning disabilities but improves visual efficacy to make the student more responsive to educational instruction. There is, however, no evidence that children participating in vision therapy are more responsive to education instruction than children who do not participate. Claims of reading improvement have not been subjected to well-controlled prospective clinical trials.

Irlen clinics dispensing the Irlen tinted lenses claim instantaneous improvement in reading performance, comprehension and distance judgment. The efficacy of Irlen tinted lenses is based on anecdotal evidence. Controlled trials have shown no difference in outcomes in children given tinted lenses.

Therapies including the Lawson anti-suppression device, syntonics, applied kinesiology, megavitamins and mega oils, the use of trace elements and psychostimulants have all been claimed to improve the reading of dyslexics. The Lawson anti-suppression device, as used in the Alison Lawson clinics, offers a quick fix with 10 one-hour treatments aimed at stimulating the visual cortex. This treatment is based on a false premise that the visual cortex is responsible for reading. There are no controlled trials to support the claims of efficacy of any of the fringe therapies. Their claim to success is based on anecdotal evidence.

Rational management of dyslexia

Non-controversial, well researched management involves early diagnosis based on comprehensive evaluation by an education psychologist, the exclusion of any sensory deficit and correction of the deficit with appropriate glasses, appropriate orthoptic eye exercises and hearing aids, if indicated, followed by appropriate remedial educational input.

There is good evidence that appropriate educational interventions make a major difference to dyslexia. Regardless of the severity of the dyslexia, education interventions make some difference.

The role of the ophthalmologist

Ophthalmologists are often consulted by parents of children who have been experiencing difficulty with reading. Visual problems can interfere with the physical aspects of reading, therefore the visual system should be assessed to rule out any ocular disorder before specific treatment is initiated for learning difficulties. Reading discomfort can be related to uncorrected refractive errors and to disorders of ocular motility, binocular function (especially convergence), or accommodation. If eye conditions are diagnosed at the time of the visit, they should be treated appropriately. Treatment may include glasses for refractive error or convergence exercises for convergence insufficiency. However, if the eye examination does not reveal any major pathology, the parents should be counselled about their child's learning deficiency and reassured that subtle ocular deficits are not the cause of reading difficulties.

Eye professionals should not be considered the expert in reading education. A variety of trained specialists are available for children in need of help and there is an enormous body of literature regarding reading and learning from the educational perspective. Effective intervention remediates the underlying problem in phonemic awareness.

The role of the ophthalmologist is to take an accurate history, including questions about development and the family history; perform or arrange for a full orthoptic workup; perform cycloplegic refraction and ophthalmoscopy to exclude eye disease; correct refractive error and treat ocular muscle imbalance (convergence insufficiency etc.) The ophthalmologist should explain to the parents of the child the process of reading, the theories of dyslexia and the controversial and non-controversial therapies whilst working with a multidisciplinary team to ensure that the child receives appropriate remedial treatment.

In conclusion, reading is a complex process requiring a number of

sub-skills. Parents of dyslexic children are looking for a quick fix but understand common sense.

- Dyslexia is best explained by the theory of brain dysfunction.
- Management must be based on science, not on arbitrary and capricious dogma.
- There is no credible evidence to support claims for treatment not based on appropriate remedial reading intervention.
- All children with dyslexia must have a thorough orthoptic and ophthalmic examination.
- The ophthalmologist has a role in diagnosis and correction of sensory deficits relating to vision, and must guide the parents towards appropriate remedial assistance for their child.
- As doctors, ophthalmologists have a responsibility to help families make the best use of limited resources. We should steer families away from unproven interventions that consume resources and thus interfere with the implementation of proven methodologies such as educational and language based therapy.

RANZCO has endorsed the joint statement from the American Association of Paediatrics, American Association of Paediatric Ophthalmologists and Strabismus, the American Association of Certified Orthoptists and the American Academy of Ophthalmologists on 'Learning Disabilities, Dyslexia and Vision'. This statement was reaffirmed by the groups in 2014 and has appended to it a references and resource list for professionals and parents of children with dyslexia.

Prof Frank Martin, Lindley Leonard, Dr Craig Donaldson, Dr James Elder, Prof Glen Gole and Prof Geoffrey Lam

References:

A detailed reference list is available on request from eye2eye@ranzco.edu.

This article was published in the 2016 spring issue (</ArticleDocuments/226/Eye2EyeSpring2016.pdf.aspx?Embed=Y>) of RANZCO's magazine *Eye2Eye* (</media-and-advocacy/publications/eye2eye>).

Comments

No comments at this time



Learning Disabilities, Dyslexia and Vision

Primary dyslexia and learning disabilities are complex neurocognitive conditions and are not caused by vision problems. There is no evidence to suggest that eye exercises, behavioural vision therapy, or special tinted filters or lenses improve the long-term educational performance of people affected by dyslexia or other learning disabilities.

With this in mind, the Royal Australian and New Zealand College of Ophthalmologists (RANZCO) supports and concurs with the comprehensive policy document *Joint Statement: Learning Disabilities, Dyslexia, and Vision* which was reaffirmed in 2014 by the AAO, American Academy of Pediatrics (AAP), and American Association for Pediatric Ophthalmology and Strabismus (AAPOS).

This *Joint Statement* states that *“It is important that any therapy for learning disabilities be scientifically established to be valid before it can be recommended for treatment.”* and goes on to say that *“...the evidence does not support the concept that vision therapy or tinted lenses or filters are effective, directly or indirectly, in the treatment of learning disabilities.”*

The full *Joint Statement* can be viewed [here](#).