



# Dyslexia



## *What is dyslexia?*

Dyslexia is a specific learning disability that is neurobiological in origin, caused by inherent differences in the structure and function of the brain. For children with dyslexia, accurate and fluent word recognition, as well as spelling become overwhelming tasks. These difficulties are typically caused by their inability to distinguish subtle differences in sounds and shapes in spoken and written language respectively. As a consequence, these children will have problems in reading comprehension and tend to read less. The reduced reading experience will hinder the growth of a reasonable vocabulary and overall knowledge.

As individuals with dyslexia are not suffering from mental retardation, sensory impairments or lack of education, there is unexpected discrepancy between their intelligence and their motivation for learning and academic achievement.



## *How does dyslexia affect children?*

Clinical features of dyslexia evolve with the children's age:

**Preschool:** Preschoolers may start speaking at a later age than children of the same age, and they may show articulation errors. They may find it excessively difficult, or take a longer time to learn how to read letters, simple words and characters.

**Early primary school:** In this early phase of schooling, students with dyslexia have difficulties in learning the association of sounds of words and their symbols, as well as in blending sounds of letters to form the sounds of words (phonics). Moreover, the

child may confuse words and characters that sound or look alike, and make specific errors in dictation, such as reversing the order of alphabets or the internal components of Chinese characters. Errors in the stroke sequence of written language are also common.

**Late primary school:** Students show increasing difficulties in reading and writing as these become more complex. These problems with reading comprehension and writing will result in general academic failure.

**Secondary school:** For students at this stage of education, successful performance in school requires substantial organization skills. Students with dyslexia often show weakness in this area. Furthermore, difficulties in reading comprehension, note taking and written expression will limit their learning experience. Social and psychological problems may arise because of low self-esteem and peer status. All these factors may lead to academic failure and adverse effects on social development.



### ***Does my child really have dyslexia?***

Symptoms of many other conditions may be confused with those of dyslexia. These include developmental delay, specific language impairment, attention deficit disorder, or academic underachievement due to ineffective teaching.



### ***What causes dyslexia?***

Dyslexia is associated with specific anatomical and/or functional differences in the brain, including a lack of typical asymmetry of the temporal lobes, and abnormal micro-anatomical structures of the relevant cerebral cortices.

People with dyslexia have problems with discriminating sounds and shapes of words, and with fluency in word-reading. Research has shown that this is in part related to

genetic differences. The involvement of not one but a number of genes is believed to contribute to the condition. It is observed that there is a higher incidence of dyslexia among siblings and children of individuals with dyslexia.



### ***How common is dyslexia?***

Reported figures from different countries show that as many as one in ten school aged children has dyslexia. In Hong Kong, the prevalence of children with dyslexia was shown to be 9.7 to 12.6%. The condition in about 70% of these is considered to be mild, 20% to be moderate, while the remaining 10% to be severe.



### ***What is the mainstay of treatment for children with dyslexia?***

There is no documented medical treatment for dyslexia at this time. The mainstay of treatment lies in remediation that is theoretically sound and evidence based, tailored education and accommodations in the learning environment.

Remediation of reading difficulties in dyslexia for English involve the teaching of letter-sound correspondence through a multi-sensory approach, and provided in a systematic and cumulative manner. In the Chinese language, awareness of the internal structure and meaning of word parts and related implicit rules are essential. Individualized educational planning including accommodations in teaching and examinations is necessary.

Therapies for dyslexia have been offered but many were shown to have weak theoretical basis and limited replicable scientific evidence. These include medication, optometric vision therapy and lenses, auditory integration training, programmes on sensori-motor integration or vestibular-cerebellar mechanisms, special nutrients and

psychotherapy. As children with dyslexia may have other coexisting conditions such as attention deficit, coordination or vision problems, some of these approaches could have helped them in these other aspects, but not dyslexia per se.



## *Can children with dyslexia grow up normally?*

While underlying biological characteristics of the individuals will remain, the extent to which children are able to adapt and compensate effectively largely depends on the severity of the impairment. Other factors affecting the outcome include their general cognitive abilities, effectiveness of education and psychological support, and the presence of co-existing conditions.



### *References*

Cramer, S. C. and Ellis, W. (1996). Learning disabilities: Lifelong issues. Brookes Publishing Co., Maryland.

Shaywitz, S. (2003). Overcoming Dyslexia. Vintage Books New York.

### *Relevant websites*

Hong Kong Association for Specific Learning Disabilities 香港特殊學習障礙協會	<a href="http://www.asld.org.hk">http://www.asld.org.hk</a>
Hong Kong SLD Research Team 香港特殊學習困難研究小組	<a href="http://web.hku.hk/~hksld/text_c.html">http://web.hku.hk/~hksld/text_c.html</a>
Special Education Service, Education and Manpower Bureau, HK	<a href="http://www.emb.gov.hk/index.aspx?langno=1&amp;nodeid=238">http://www.emb.gov.hk/index.aspx?langno=1&amp;nodeid=238</a>
The British Dyslexia Association	<a href="http://www.bdadyslexia.org.uk">http://www.bdadyslexia.org.uk</a>
The International Dyslexia Association	<a href="http://www.interdys.org">http://www.interdys.org</a>
LD Online	<a href="http://www.ldonline.org">http://www.ldonline.org</a>



Child Assessment Service, Department of Health  
Hong Kong Special Administrative Region Government