

## **Learning Difficulties and Convergence Insufficiency.**

The description of learning difficulties varies from being a late developer to lagging behind the class through to dyslexia and attention deficit hyperactivity disorder (ADHD). As a result the degree of common signs and symptoms can be quite varied between individuals. One of these descriptions is Vision Based Learning Difficulties – these are the learning difficulties that can be associated with the eyes, and not necessarily the higher order neural processing that can be seen in other descriptions. Many persons have a combination of the signs and symptoms seen in the different descriptions of learning difficulties, and often one is overlooked after a diagnosis of another has been made.

Reading is a complex task that requires the eyes to make multiple movements simultaneously. Firstly, the eyes must move in opposite directions to one another by turning inwards (convergence), whilst also focussing to keep words clear. Then the eyes must move in the same direction across the page from one word to the next.

Convergence is not a natural process to everyone. Some people find it difficult to cope when this is required to be sustained for long periods, or when they are required to process information at the same time.

Vision Based Learning Difficulties are generally due to poor coordination of the eye muscles which can result in unstable binocular fixation. This unstable fixation makes it difficult for the individual to keep both eyes on the page together at one time. The most common of these conditions is **convergence insufficiency** (depending on which study you read, this condition occurs in up to 70% of the population) and it has been linked with reading difficulties since 1925.

Convergence insufficiency can be either an inability to turn the eyes inwards to look at material close to oneself, or it represents an inability to keep the eyes on the near object once they have fixated on it.

**The most common symptoms of convergence insufficiency include: blurred vision, headaches, poor concentration, poor comprehension, frustration with doing near tasks, tiredness with near tasks, appearance of words “running together”, or the page is swimming.** All of these symptoms are also reported by those who are “diagnosed with dyslexia”, but may in fact have reading, comprehension, or attention difficulties based purely on poor eye muscle control, and do not have a true neurological problem that is found in dyslexic people. Thus the term “Vision Based Learning Difficulties”.

Signs that a child has convergence insufficiency may include: being slow to copy from the board, having to reread material, closing or covering one eye to read, head tilting, holding reading very close to face, poor eye-hand coordination (ie small ball sports).

More importantly, if a parent has a history of findings reading difficult or tiring, or has poor concentration, chances are a child will have similar problems, and this is often caused by poor convergence of the eyes. This physical attribute of poor convergence is more likely to be passed on as an hereditary trait, rather than the neurological trait of dyslexia.

A study by John Stein and co-workers in 1999, found that when unstable binocular fixation was corrected in a group of dyslexic children between the ages of 7 and 11 years, these children doubled their rate of reading progress in nine months, compared to those who did not achieve stable binocular fixation.

A more recent publication, by Marie Stachy-Billy, in the United States found that almost 10% of ADHD patients had convergence insufficiency, and in another group of patients diagnosed with convergence insufficiency, 16% had also been diagnosed with ADHD. The important question raised from these studies was, *“If the patients had their convergence insufficiency corrected, would they still be diagnosed as ADHD?”*