

## NEUROPSYCHOLOGICAL BASIS OF DYSLEXIA

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### ABSTRACT:

This paper briefly provides the structure and function of various regions of normal brain. In most of individuals the left hemisphere of the brain is essential structure for language related tasks. Right hemisphere is superior in respect of visual and tactile recognition of unfamiliar forms or objects. There are cortical areas including angular gyrus, frontal lobes, Broca's area, Wernicke area, and plenum temporale which seem particularly well differentiated in human nervous system and perform language related tasks. Damage or dysfunction due to congenital factors in various areas of brain may result in very discrete observable neurological signs. For example, damage to motor cortex in a cerebral hemisphere will result in paralysis in contra lateral side of body, and damage to Broca's area will result in expressive language disorder. It has also been considered how the dyslexic brain differs from the normal brain in terms of morphology, structure, and function. For this purpose evidence from autopsy, MRI, CAT, PET, BEAM and rCBF studies has been considered. Evidence from autopsy studies indicates that temporal plane a wedge-shaped region of superior temporal lobe is symmetric on two sides in dyslexic subjects. The dyslexic subjects also show focal cortical dysgenesis and fibromyelin plaques predominantly on left cerebral cortices of their brains. These findings suggest that some characteristics of symmetric brain and abnormalities in the brain at cellular level are related to dyslexic performance. The findings from CT/MRI studies suggest that there may be several morphological or neuroanatomical correlates of developmental dyslexia. The majority of right handed dyslexics may have normal asymmetry. Other dyslexics like left handed and severely language delayed may have normal asymmetry, symmetrical posterior cortices or reversed occipital asymmetries. In addition to it all these studies provide no evidence of brain injury or damage which means dyslexia is not related to brain damage. Research studies with dyslexics using BEAM produced some interesting findings.

