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# Dyslexia: Etiological Profiling and review literature

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***Abstract*:** *Dyslexia is a disorder of children and adults which is identified by problems with single-word, reading and spelling. The word is dyslexia is derived from two Greek word dys (inadequate or lack of) and lexicon (word and or verbal language). Dyslexia is a difficulty in learning, reading that require problem due to identifying speech, sounds and learning how they concern to letters and words (decoding). Dyslexia have important theory which is mainly – The Phonological theory, Auditory Processing theory, Visual Processing theory, The cerebellum Theory and the Magnocellular Theory. Symptoms of Dyslexia is mainly depend upon the age like as in the Pre-school symptoms is- call the things by wrong name, Difficulty rhyming, In Early-school symptoms is- Difficulty in understanding, Difficulty in spelling and Teens and Adults symptoms have- Problem in reading, Difficulty Memorizing. The ratio of boys and girl was change from one country to another country, but dyslexia had a high frequency in boys, around 3.4:1. ). Many dyslexic genetic code research have name chromosome no.6 is the main chromosome which is responsible for the dyslexia. Six possible genes (DYX1C1, DCDC2, KlAA0319, C2Orf3, MRPL19 and ROBO1) which is recognize for pathophysiological of dyslexia. The major target for a good perception of dyslexia is prevention.*

***Key Words:*** *Dyslexia, Difficulty in reading, Difficulty in memorizing, Theory, and Genes.*

## 1. HISTORY and ORIGIN:

Dyslexia is a disorder of children and adults which is identified by problems with single-word, reading and spelling (1,2). In fact modified examination of various definition of dyslexia release that reading deficits is the only common symptom between all of them (3).In the course of conception of the study to the educational of dyslexia of this condition to discovered and it is origin feature started to be examined(4,5). Next is an evolution stage (6) in the branch of dyslexia opened to the variation of clinical, research, and talk too educationally. Dyslexia was first explained by a several physicians , who research in the study of individuals with evidently who cannot learn to read(7). This type of cases was called word blindness. One of the colonists in the field of dyslexia was Orton who believed that the problem was one of the optical realization and optical memory (8). A dyslexic student give a specific pose to the opposition of school reason there is problem of invisible (9).

## 1.1. INTRODUCTION:

The word is dyslexia is derived from two Greek word dys (inadequate or lack of) and lexicon (word and or verbal language (10). Dyslexia means problems in learning how to read words and how to explain that word. Dyslexia is a difficulty in learning, reading that require problem due to identifying speech, sounds and learning how they concern to letters and words (decoding) (11). Historically , dyslexia is describe problem in reading , learning, gross neurological deficiency , uncorrected optical or listening problem , Getting emotional or deficient in schooling and some brain part damaged(12). It is distinguish of dysfunction in normal left hemisphere language network and also connect abnormal white matter development (13). This is common problem in children it is affected around 5% of school aged children (14, 15, and 16). Significant research has been communicating how to upgrade the learning skills of children with dyslexic problem (17, 18). Dyslexia is noticeable when correct and communicative word reading or spelling progress very poorly or with big problem. This is the focused on learning at the ‘word level’ and understood the problem is acute and patient even with suitable learning chance. (19).

## 2. IMPORTANT THEORY OF DEVELOPMENTAL DYSLEXIA:

### 2.1. The Phonological Theory:

The phonological theory suggests that dyslexics have a particular disability in the description, storage of speech sounds. This is describe dyslexic ‘reading disability by attractive truth that is learning to read a alphabetic structure need study the grapheme + phoneme comparison, i.e. the comparison between letters and represent sounds of speech. If this sound is badly represent, stored the study of grapheme + phoneme comparison, the bottom of study for

alphabetic systems, will be affected properly (20, 21, 22, 23). Further we can say that phonology not decrease to perception, name and memory; many feature of dyslexics' phonology persist to be probe (24). In difference, in the patient of phonology, it has been amply defend this is pre-school phonological ability say future reading skills, and this is the already poor in would-be dyslexics (25, 26).

**2.2. Auditory Processing in Dyslexia:**

Numerous educations have confirmed the presence of auditory deficits in the dyslexia population. Many of the auditory education has been taken to supportive view of dyslexics' auditory clearing that is damage clearly on a little voice and fast change: it is called as "rapid "or "temporal" auditory clearing deficit(27). Theory claiming, it is believe that this is not an auditory clearing deficit, but a deficit in the phonotic description of language have very much support (28,29). The dyslexia people are show difficulty with short-term verbal memory and significant problem in auditory processing (this difficulty has not in all children). If children not able to seen spoken information this is important to get a hearing test to make sure there is no physical with able to hear (30).

**2.3. Visual Processing in dyslexia:**

The first patient of dyslexia was observed (31,32 and 33) by physicians and ophthalmologists, who used the term word blindness to explain the difficulty. visual processing in dyslexia, a type of children experiences disorder may be subject to back letters ,have problem locating words on the page, and it have a disposing to skip over them (34). A situation which cause visual twist and occasionally conduct to the reduce reading ease which can be improved by using coloured overlays (35, 36). Extra problems of visual are frequently introduce binocular complex fluidity and poor vengeance control (37). Difficulty of visual processing can cause problem with the way of brain processing of visual details. different types of processing disorder and different symptoms, which is included trouble, copying or drawing, inability ,shapes or letters reversals(38).

**2.4. The Cerebellar Theory:**

Even now is represented by the cerebellar theory of dyslexia (39, 40). Here biological claimed the dyslexic's cerebellum is dysfunction. First, the cerebellum plays a major role in the motor control system and after in speech expression. Second is the cerebellum play an important role in the automatization of overlearned function i.e. - drawing, reading, and typing. Study of brain imaging also have shown anatomical, metabolic and activation of differences in the cerebellum dyslexics(41,42,43 and 44). In the dyslexia of the individually studies of effective merge recognize the active of the back domain in children with dyslexia and occasionally wild in the frontal domain. Also, these dorsal differences mostly synthesize when mediation will be fortunate is successful (45,46 and 47).

**2.5. The Magnocellular theory of developmental dyslexia:**

The unique quality of the optical magnocellular and parvocellular systems feature can be famous psychophysically in entire humans (48). Lovegrove make the most of educational dyslexics have slightly decrease different reactivity at the small dimensional incidence and small brightness amount recommend by the magnocellular system particularly blink at the higher dimensional incidence over by the parvocellular, support organization their distinction care is normal if not superior to that the normal (49). A concept of the optical theory, the magnocellular theory (50). postulates that the magnocellular defected this is not cramped of optical way but is concept to the all technique. Further the cerebellum accept to the huge store from different magnocellular system in the brain, this is also see to be overdone through general magnocellular defect(51).

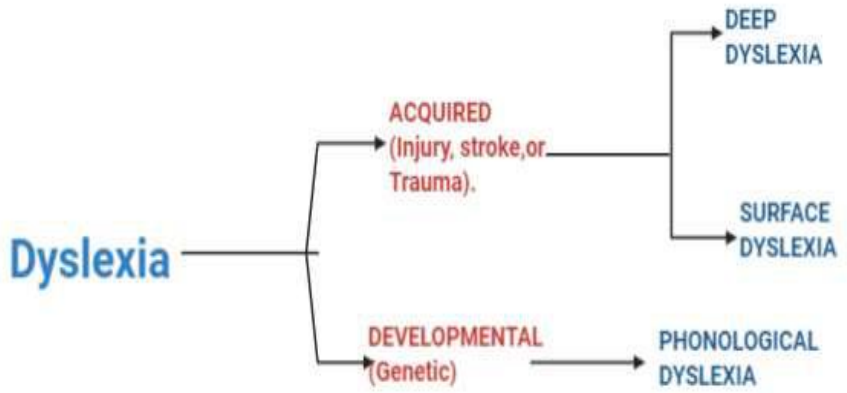


Figure-1

**2.6. Developmental stage of dyslexia:**

| Developmental stage | Symptoms of dyslexia |
|---|---|
| Preschool | -Speak like younger children.<br>-Call the things by wrong name.<br>-Difficulty rhyming.<br>-Not follow the directions.<br>-Difficulty in correct word, like change the word. |
| Early school | -Reading well under the age of level.<br>-Difficulty of understanding.<br>-Problem in right word for understanding question and answer.<br>-Difficulty in remember the sequences.<br>-Inability to sound of unfamiliar word.<br>-Difficulty spelling. |
| Teens and Adults | -Problem in reading, including reading audibly.<br>-Easy and time-consuming reading and writing.<br>-Difficulty in spelling.<br>-Difficulty memorizing. |

**2.7. Epidemiology of Dyslexia:**

The overall study of dyslexia, the primary school students is approximately 5-10% (52). Between 2-16% of all school age children's there was needed special education service (53). Especially it is evaluate to be as follows: England 14%, Canada 10-16%, and United States 10-15 %( 53). The ratio of boys and girl was change from one country to another country, but dyslexia had a high frequency in boys, around 3.4:1 (52).

**2.8. Aetiology of Dyslexia:**

The hereditary part play a important role in aetiology of dyslexia, and evaluate that the chance of a father with dyslexia have a son with dyslexia is as high 40 %( 54, 55). Many dyslexic genetic code research have name chromosome no.6 is the main chromosome responsible (56). This type of genes effect in reduces in the extrinsic neuron departure and contract activity in left hemispheric brain regions (57). Here 6 possible genes that are recognize for pathophysiological of dyslexia. DYX1C1 in the DYX1 locate on chromosome 15q21; DCDC2 and KIAA0319 in the DYX2 locate on chromosome 6p21; C2Orf3 and MRPL19 in DYX1C1 in the DYX1 locus on chromosome 15q21; DCDC2 and KIAA0319 in the DYX2 locate on chromosome 6p21; C2Orf3 and MRPL19 in the DYX3 locate on chromosome 2p16–p15; and ROBO1 in the DYX5 locus on chromosome 3p12–q12 (58). But the genetic examination of dyslexia has much advantage. First is it will help the examine of non-genetic, who is environmental part like as educational, familial, and social. And second is this is recognize of genes with direct or indirect effect In the reading and this gene is localized for the activity of brain who is helpful in the diagnosis of dyslexia and also it will help in the treatment (59,60,61 and 62).

**2.9. Screening test of dyslexia:**

Still now the screening test is not directly ahead because danger and safety part interact through learning to read. Using the data from a linear study,(Puolakanaho et al.). Follow the suggest of Rose (2006), Numerous Primary school in England perform a regular phonics talk to the teaching of reading. A big body of proof advise that such an talk to very helpful for teaching children to read (63). It follows that the children who are discover reading problem even with this quality hail are possible to be at danger of dyslexia. While dyslexia is more frequently analytic in the childhood, screening methods we can used different stages of childhood development. Many methods for screening and this can do in early time at birth or we can say it will be done in first year of life (64, 65, and 66).

**3. DIAGNOSIS:**

The diagnosis test is generally done by Doctors, Nurses, Specialists, Nurses, Psychologists and further who possible assume in the protection and improving of the overdone child. An accumulator of test should be conduct to the rule out of other causes: The physical test of child should done to make sure that there will be no visual , hearing or different physical problems; IQ(intelligence quotient) tests should be work to measure intellectual ability; insight test should be conducted the we will see if any problems happen when information is blink back and forth between ears, eyes, hands, brains , language and reading tests are require to the asses perception of language and affect and specified reading difficulty(67). Here, not only a single test which we can diagnose of dyslexia. A number of components are their like as (68)

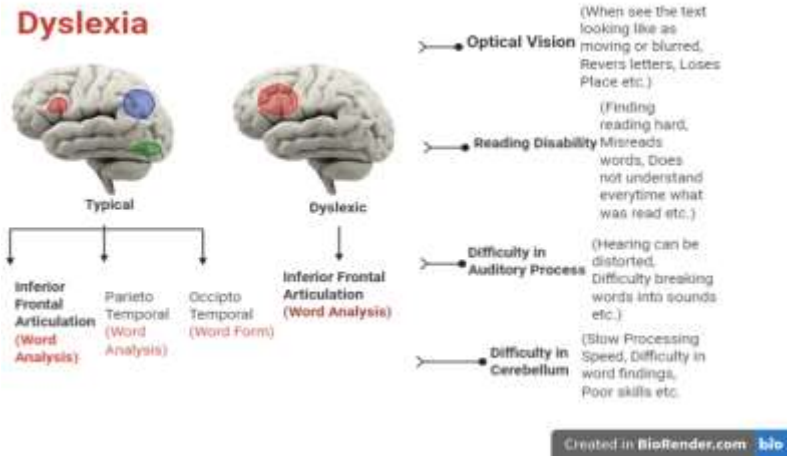


Figure-2

**A child development, educational, matter and medical history**

First when a child going to the doctor, doctor asks is any problem in the family who is suffering from dyslexia.

**About of house life**

Second is doctor asks represent about of family and house life it contains who lives at home and who lives outside.

**Examination**

Your child may be query to take the test to name reading and language ability.

**Test of brain, optical and hearing**

This test will be help to determine may be another problem which is causing child poor disability.

**Intellectual testing**

Doctor asking to child any mental problem which will help to found any another problem like as social problem, anxiety and depression which will do child poor disability.

**4. Treatment and how to prevent of developmental dyslexia:**

The major target for a good perception of dyslexia is prevention. This is the major consideration that is a children developing dyslexia are recognize before the school in the early stage of learning , there is a chance to the mediate therapeutically, and uniform remove the gap in learning , reading, and in the process of operate language (69). Dyslexia is not a disease that's why there is no medication for the treatment of dyslexia. Sooner, dyslexia is getting the individual style of thinking and best result between educational guides (70). A proper treatment plan is focused on nourish the children sickness. An approach through may be contain a regular study of phonics. Many techniques to be plan which is helping all the senses work together which we can used. Through a computer which is a strong technique for the dyslexic patient and we will utilize that as much as possible. The children should be redressed and coping the ability (71).

**5. CONCLUSION:**

Simplicity conveys anxiety, a feeling of actually loose, and one has the learning to basis on the negative edge of the story. More ever, if we are not understanding how a person concern, we cannot help him. Further than a neurophysiological part moderate in every one of speech process. A Single function can be loose without condition the extra portion. There is a principle neurophysiological plan that is individual in boy and girl and leading to a different impact on the speech functions, indirect differential. All of study disability for boys and girls.

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