



DYSLEXIA - AN AYURVEDIC REVIEW

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Abstract: Children suffering from dyslexia have struggled to remember numbers and colors and with understanding rhyming sounds and delaying in speech development. They see the word differently with letters flipped around. Dyslexia may be different from person-to-person. Some have a mild form of dyslexia and some may have severe. This problem is not associated with intelligence of a child, often there is neuro-developmental dysfunction. It affects child equally both male as well as female. It is uncommon but 7% to 15% of children worldwide suffer from dyslexia. It is most commonly seen in 5 to 13 years old children. In *Ayurvedic* literature dyslexia is a "*Manodaurbalayajanya Vakvikarah*". Over the years, child with dyslexia may develop increasing frustration if there adding skills of their age group children begin to surpass their own. Patient with dyslexia can create stress in relationships between siblings, friends, and relatives often without the parent's knowledge. *Vata* is mainly responsible for the normal activities of the mind. *Rajas* and *Tamas Manas Doshas* are mainly responsible for any mental disability. Equilibrium of *Manas Dosha* is most important factor to cure dyslexia. In *Ayurveda* dyslexia is treated by *Daivayapashrya-Chikitsa*, *Yuktivyapashrya-Chikitsa* and *Satvavajaya-Chikitsa*.

Index Terms - *Ayurvedic* literature, *Rajas Dosha*, *Tamas Dosha*, *Daivayapashrya-Chikitsa*, *Yuktivyapashrya-Chikitsa* and *Satvavajaya-Chikitsa* etc.

INTRODUCTION

Children, who have difficulty in learning sound symbols relationship identified as dyslexic child. There are various forms of dyslexia in different kids. Some dyslexic children have difficulty in pronouncing words while others difficulty to write words. Dyslexia is a learning disorder characterized by difficulty in reading and writing letters or slowly learning, reading and writing or mixing up letters. Children with normal intelligence and normal vision may have dyslexia. Children with dyslexia may be smart as another kid but there is language difference in brains. It is very common disorder found in children. This order is also found in adults. Kids with dyslexia may have confusion in similar letters like b and d, p and q, D and O, M and W, 6 and 9 and also problems to express right words. Children suffering from dyslexia have struggled to remember numbers and colors and with understanding rhyming sounds. Usually, there is a delay in speech development. They see the word differently with letters flipped around. Kids with dyslexia read words "bat" as "tab" because of mixing of words. The process of reading may be difficult

and slow. Dyslexia may be differing from person to person. Some people have a mild form of dyslexia and some may have severe. Dyslexia is not a problem with intelligence, but it is a problem to pronunciation of right words and writing of correct words. Left hemisphere of brain is responsible for speech, languages, processing and reading. So, we depend at our left side of brain for our language, reading, figures etc. In Dyslexia the temporoparieto-occipital regions of the left cerebral hemisphere do not function properly during learning and reading as a normal child. Left hemisphere thinks in past and future while right in present. Dyslexic patient depend more on right hemisphere of brain for language procedure. There is neuro-developmental dysfunction in dyslexia^{1,2}.

PREVALENCE

Dyslexia is uncommon but 7% to 15% of children worldwide suffer from dyslexia. It is most common seen in 5 to 13 years old children. It affects people equally both male and female. The occurrence of dyslexia is very high in case of father is affected. About 1 of 10 people has dyslexia. As per the Times of India dated Jan 22, 2013 about 228,994,454 students enrolled in recognized schools, which make the dyslexic Indian children to nearly 35 million. Dyslexia is learning disability affecting at least 80% of children identified as manifesting learning disability. Difficulties of dyslexic patient (such as pronouncing words, write correct words and understand rhyming sounds etc) can be improved by proper training and continuous practice. Although the complete cure of dyslexic patient is difficult but not impossible. Dyslexia is a lifelong condition, but with the right supports it can be managed well. People with dyslexia, who receive the help, whose dyslexia is identified early, who have supportive family and friends and a strong self-image and who are involved in a proper remediation program, they need can thrive. The prognosis is generally good³.

ETIOLOGY OF DYSLEXIA IN AYURVEDA

According to *Ayurveda*, our body has three main *Doshas* i.e. *Vata*, *Pitta* and *Kapha*. Perfect balance of three *Doshas* leads to health and imbalance in *Tridoshas* leads to diseases. The imbalance of *Tridosha* aggravate *Raj* and *Tamo Mansa Doshas*, which causes *Buddhi*, *Dhriti*, *Smriti Vibhramsa* (impairment of intellect, patience, and memory). Thus *Ayurveda* describe three stages of mental ability: *Dhee* (the power of acquirement or learning), *Dhriti* (the power of holding), and *Smriti* (the ability to memorized). When the three mental factors (mental ability) are not in balance, either individually or in their coordination with one another, then learning problems can pick up^{4,5,6}.

In *Ayurveda* concept brain (*Manas*) works according to *Tri Manas Guna* "*Satva, Raja, Tama*". Equilibrium of this *Tri Manas Guna* appreciates brain for functioning proper and maintains the mind in a well balanced and harmonious state. In this *Tri Manas Guna*, *Raja* and *Tamas* are *Manas Doshas*. Two *Manas Doshas* can potently cause *Mano Vyadhi* (mental disorders-due to *Dhee*, *Dhriti*, and *Smriti Vibhramsa*). Thus *Raja* and *Tama* are only two humors of mind which are responsible for different psychic manifestations. Any disturbance in these *Tridosha* and *Triguna* will cause disordered functioning of *Indriya*, *Mana* and *Buddhi* leading to impaired learning or dyslexia. So these *Doshas* also causes *Avarodha* of *Manovaha Srotas* and these causes *Manas Roga* like dyslexia. More precisely *Prana Vayu*, *Udana Vayu*, and *Vyana Vayu*, *Sadhaka Pitta* and *Alochaka Pitta* and *Bodhaka Kapha* are more related with the normal mental functions and whole nervous system function properly. Non-Equilibrium of these *Dosha* causes *Manas Vikara*. In *Ayurveda* literature dyslexia is a "*Manodaurbalayajanya Vakvikarah*". *Vata Dosha* in *Prakrita Awastha* is act as a controller and stimulator of mind. Hence, *Vata Dosha* is broadly acting on brain and nervous system. All activities in body and brain is regulated by *Vata* in normal state^{7,8,9,10}.

BRAIN FUNCTION DISORDERS (*Vayoh Niuyanta Praneta Cha Manasah*)¹¹

Due to blockage of *Pranvaha Srotas* by *Kapha* and *Pitta Dosha*, *Vayana* and *Prana Vayu* impaired and correlation between *Manas* and *Indriyan* slow down causing dyslexia. Dyslexia can develop due to a traumatic brain injury as during delivery or any other cause, stroke or dementia may occur due to *Pragyapradha*. *Asatmendriyarth-samyoga* refers to improper contact of the senses with their objects and results in an over stimulation or deficiency of sensory activity as deficiency in dyslexia^{12,13,14}.

CAUSES OF DYSLEXIA IN MODERN SCIENCE

The specific causes of dyslexia in modern literature are not clear still. It is believed that dyslexia occurs due to^{15,16} -

1. Genetic - some cases run in families as Down syndrome and turner syndrome.
2. Inheritance.
3. Environmental factors. (Traumatic dyslexia - due to an accident or injury to the particular part of the brain that processes the reading and learning abilities of an individual).
4. Premature birth.
5. Alcohol consumption or having an addiction to certain drugs, nicotine, that might hamper brain development in the foetus during pregnancy.
6. Injury during early childhood affecting brain development.
7. Illness during pregnancy and nutritional deficiency during pregnancy.
8. Low birth weight babies.

SYMPTOMS

There are many different signs and symptoms from person to person -

- Difficulty in learning the names and sounds of the letters.
- Confusion with the left/right, before/after and the like difficulty in pronouncing words. (for example, saying "hecolopter" instead of "helicopter" or "beddy tear" instead of "teddy bear")
- Difficulty in differentiating the sounds of p & b, t & d, m & n, n & u, m & w.
- Writing 93 as 63 or difficulty to understand rhyming words bat as dat, cat as tac.
- Transpositions such as 'felt' and 'left'
- Slow, laborious oral reading, poor pencil grip.
- The child may suffer from speech delayed or unclear speech.
- Child feels difficulty to remember names and shapes of letters.
- Answering questions well orally, but having difficulty writing the answer down (difficulty in expressing ideas on paper)
- Abundant spelling mistakes. They read a word correctly but at same time they read it wrong at different page.
- Difficulty in using grammar or grasping vocabulary.
- Dyslexic children have delayed speech development with comparison to other normal children of same age.
- Poor hand writing, poor concentration and forgetting words.

IS DYSLEXIA A LIFELONG CONDITION?

It is important to note and remember that dyslexics are not "lazy", they just have information processing differences and difficulties. Since dyslexia is a neurological disorder, it is life long disease but difficulties caused by dyslexia can be controlled with the use of specialized strategies and specific techniques. Although many children and adults with dyslexia are very bright. They are facing problems at different social levels. Many children suffering from dyslexia have sharp intelligence. It is a neurological condition that reflects a different kind of mind at times gifted and productive, a mind that learns differently to other children in the pool. Due to developmental phase of brain, the certain things are difficult to do them, which is easy to us. Dyslexia is a condition rather than a disease. The signs and symptoms of dyslexia are different from one person to another person with normal or average intelligence. Some children have problems with speech and poor vocabulary and some have problems in decoding symbols and sounds that are not registered properly in the brain^{17,18}.

DIAGNOSIS OF DYSLEXIA¹⁹

- The developmental history of the child
- Vision tests
- Hearing tests
- Neurological examinations
- Testing reading and other academic skills

MANAGEMENT OF DYSLEXIA IN AYURVEDA

The *Samanya Chikitsa* of *Manas Roga* is *Daivayapashrya Chikitsa*, *Yuktivyapashrya Chikitsa* and *Satvavajaya Chikitsa*.

DAIVYAPASHRAYA CHIKITSA

Daivayapashrya Chikitsa alerts family and friends to support the suffering person not only physically but also with emotions, good wishes, prayers and moral support. It establishes a great support system from all supreme cosmic energy that are pervading. It unveils the inner abundant energy.

YUKTIVYAPASHRAYA CHIKITSA

Since dyslexia is a condition rather than a disease. But it is manageable throughout life with certain strategies. If a child with dyslexia, *Ayurvedic* can play a major role in managing their condition by herbal medicine. *Ayurveda* can help a child with dyslexia, when they are outside of school²⁰.

Herbs Works on Memory

Various clinical and experimental studies with the *Ayurvedic Medhya* drugs are mentioned, which directly or indirectly provide evidences regarding improvement in cognitive functions and intellect promoting, which may be helpful in improving the disability in a dyslexic child. These *Medhya* drugs are *Brahmi*, *Mandookparni*, *Shankhapushpi*, *Jyotismati*, *Ashwagandha*, *Jatamansi*, *Madhuyashti* and *Guduchi* can help to improve the cognitive functioning of the brain especially attention and memory. Learning potentials in dyslexic child can be improved by *Ayurvedic* drugs.

According to *Ayurveda*, these *Medhya Rasayana Dravyas* works on three aspects of our nervous system i.e., intelligence (*Dhee*), retention (*Dhriti*) and recall (*Smriti*) actions having an influence on mental health. They not only enhance the *Dhee* (Power of acquisition), *Dhriti* (power of retention) and *Smriti* (power of recollection) but also rejuvenate the whole nervous system and their pathways. The *Charakokta Medhya Rasayana* helps to maintain intelligence (*Dhee*), retention (*Dhriti*) and recall (*Smriti*). These are nervine tonics, which strengthen the mind and nourish the nervous system. These *Rasayana* drugs in the form of *Medhya Rasayana* increases the *Satva Guna* of *Manas* and promotes the *Dhee-Dhriti-Smriti* of *Manas*.

These *Ayurvedic* remedies are very beneficial in combating all types of learning diseases. These medicines are made of nature's finest herbs and are processed without adding chemicals. The calmness of mind can be maintained with these *Medhya* herbs and further they maintain the homeostasis of mind by regulating the balance of nervous system. The calmness of the nerves and neurological balance can be maintained by these herbs. For example *Withania somnifera* (*Ashwagandha*) is very revered herb of the Indian system of medicine (*Ayurvedic*) as a *Rasayana* (tonic). It is used for as a best nervine tonic in children. It improves the memory by enhancing the function of the brain and nervous system.

Brahmi, known for improving impaired mental functions in the body. *Mandookparni*, known for increasing learning capabilities. It is filled with stress relieving properties and boosts brain development in children. *Jyotismati*, known for increasing memory power. *Giloy* is natural anti-depressant. *Shankhapushpi* improves memory function, concentration, creativity, alertness. *Yashtimadhu* (*Mulethi*) is a potent anti-oxidant and brain tonic. Due to its *Vata-Pittahar* quality it pacifies the aggravated or morbid *Vata-Pitta*. It is a potent stress-reliever and memory-booster that also normalises a number of *Pitta* aggravating illnesses in addition to boosting brain circulation. *Jatamansi* is more of a memory restorative medicine that acts positively on dyslexics and helping them recall better than before.

The *Medhya Rasayana* helps to increase blood flow to the brain, alter neuro-transmitter levels, boost memory, and stimulate the growth of new brain cells and save the brain from oxidative damage.

Ayurvedic Medhya Rasayana can make the much difference in balancing between *Tridosha* and *Triguna* to achieve its goal into boosting intellectual capacity. *Medhya Rasayana* stimulates and enhances the function of *Agni* to boost the mental performance at the level of *Rasa*. Additionally they improve the circulation of *Rasa* by opening and purifying the micro channel (*Srotas*). Because, these medicinal plants have little negative side effects and enhance cognitive function and mental performance.

Also various compound preparations like *Brahmi Ghrita*^{21,22,23}, *Kalyanaka Ghrita*^{24,25}, *Mahapachchik Ghrita*^{26,27}, *Vachadi Ghrita*^{28,29}, *Ashtanga Ghrita*³⁰, *Saraswat Ghrita*³¹ and *Vaksuddhikara Yoga*³² can be used for improvement in children with dyslexia. Thus the *Rasayana* therapy in the form of *Medhya Rasayana* increases the *Satva Guna* and decreases the *Raja* and *Tama Doshas* by acting on the *Hridaya* and *Manas*. Even mineral formulations like *Swarna Bhasma*, *Rajata Bhasma* and *Mukta Pishti* have memory-enhancing properties³³.

Swarnaprashana

It consists of gold particles mixed with honey, *Ghee* and other *Medhya* herbs to form a fine paste or syrup administered to children. *Swarnaprashana* stimulates the nervous system. It is especially beneficial for children with low immunity, Intelligence, memory power and dyslexia (learning disorder)³⁴.

Panchakarma Therapy³⁵

The following treatments from Panchakarma in Ayurveda are proved to be effective for learning disorders:

- I. *Shiro Dhara*: It is relaxing and rejuvenating therapy in which medicated oil or other liquids are gently poured in a slow and steady stream on the forehead. It soothes the nervous system and promotes mental health and clears the voice tone. It acts as a controller of the brain and spinal cord. It controls and acts on marmas or vital points.
- II. *Shiro Basti*: In this treatment, warm medicinal oil poured onto the head, and then allowed to remain there for a certain period of time in a sealed manner, to enhancement and nourishment to the brain cells.
- III. *Nasya*: It is explained in *Ashtanga Samgraha* that *Nasa* is the door way to *Shira* (head). The drug administered through nose reaches the brain and then either it eliminates the aggravated *Dosha* responsible for producing the disease or nourishes the area. Thus it is has proved to be an effective treatment related to brain.

SATVAVAJAYA CHIKITSA³⁶

Closely monitor your child's activities every day and have a close bounding, it will support your child's ability to learn the things. Focus on sight words, sight words are words that are frequently used in writing and books. Repeat again and again words.

YOGA FOR DYSLEXIA³⁷

Light *Yoga* postures and exercises will promote relaxation, flexibility, strength, coordination and body awareness. Meditation can help to improve this disability. *Anulom-Vilom*, *Bhramari Yoga* are most beneficial to intelligence.

Thus *Ayurveda* treatment is proving to be very useful in the treatment of learning disability.

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