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Review Article

Supervising Learning Disability in Children through Ayurveda Therapy

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ABSTRACT

Learning Disability (LD) is an invisible disability predictable by a few, afflicting many and causing high degree of impact. Since it has an important bearing on academic function, it carries high degree of distress in the Indian society where failure is offensive. A childhood disorder is written off by difficulty in certain skills such as reading or writing in child with normal intelligence. It can be lifetime conditions that, in some cases, affect many parts of a children's life: school or work, daily routines, family life, and sometimes even friendships and play. In some people, many overlying learning disabilities may be apparent. Other people may have a single, remote learning problem that has little impact on other areas of their lives. This paper illustrates the various types of learning disability, symptoms and the root cause. Various effective Ayurveda treatments for learning disability are proposed here. Aim of this paper is to elaborate the role and benefits of Ayurveda in the society. Now days, Ayurveda is playing an important role both in physical and mental health.

Keywords: Dyslexia, Dyscalculia, Dysgraphia, Auditory Processing Disorders, Visual Processing Disorders, Ayurveda Treatment.

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INTRODUCTION

A learning disability is not an intellectual disability. A learning disability is a disorder that affects a person's ability to process information. People with learning disabilities hold an average to above-average IQ. Learning disability (LD) is an unseen disability predictable by a few, afflicting many and causing high degree of impact. Since it has an important compartment on academic function, it carries high degree of distress in the Indian society where failure is supposed to be offensive. In India, the occurrence of dyslexia varies between 3% and 10%. It is categorized by difficulties in reading, listening, writing, mathematical, and reasoning skills. The most common sample, occurring in 80% of children, is dyslexia wherein there is a core deficit of phonological processing and is associated with difficulties in work memory. Phonological cognizance is an important pointer of reading skill in both consistent and not so consistent orthographies. The other syndromes include dysgraphia, difficulties in written expression and dyscalculia i.e. difficulties in mathematical skills. These disorders occur across all cultures and have a preponderance in males⁴. They have a high degree of comorbidity. Results of population-based surveys suggest that about 30% of learning disabled children have behavioral and emotional problems. Indian studies report 25% to 84% comorbidity⁵.

Learning disability (LD) is a common and undistinguishable yet highly impactful disability. There have been many variations in the field of LD. These range from changing ideas, introduction of original diagnostic systems, presentation of the Rights of Persons with Disability Act, of 2016, an increasing awareness in parents, teachers, and public, filing of legal case, and the Honorable High Court issuing orders regarding the disability⁸. Over the last few years, very few centers have been given the mandate to certify and recommend provisions for children in state institutions and boards. These centers are in metros. The Indian Certificate of Secondary Education (ICSE) and the Central Board of Secondary Education (CBSE) boards accept certification from professionals accredited by the Rehabilitation Council of India. Although laws existed, implementation was poor.

At present, in India, LDs are considered only exclusive of a few especially in urban areas. Most of the research works on LDs are done by private organizations and NGOs¹¹. LDs are both a medical and an educational issue. Unfortunately, in India there is a large divide between the roles played by health and education departments in the recognition and treatment of LDs. India is a diverse country with multiple languages and varied cultural and social aspects. So, in India, students often learn through a medium or a language that is

different than their mother tongue. This makes the estimation and diagnosis of the disorders very difficult. The Indian educational system places high emphasis on theory learning rather than application oriented learning¹⁴. This system is very ill-suited for students with LD. Lack of an alternative system of education with vocational training are also other major hurdles for the education of a student with LD.

A National Policy for LDs should be framed by MHRD. This policy should define LDs and should contain uniform measures for recognition, certification, diagnosis and assessment for LDs. A psychologist certified by the Central Government, especially for LDs should be appointed in all Central Government hospitals like AIIMS and in all State run public hospitals¹⁸. A certification and assessment from these psychologists must be accepted by various institutions. The assessment and the test patterns followed should also be uniform. Only this will ensure the efforts of all states

The paper is organized as follows. First, the following section provides an overview of type of learning disability. Section 2, describe the causes of learning disability and the symptoms of learning disability. Section 3, explain the stages of monitoring and evaluation. Section 4, Final remark are provided along with the conclusions drawn in last section.

TYPES OF LEARNING DISABILITY:

1. **Dyslexia:** "Dys" means difficulty with and "lexia" means words – thus "difficulty with words". Originally the term "Dyslexia" referred to a specific deficit that hindered a person's ability to read. Recently, however, it has been used as an overall term referring to the broad category of language shortfalls that often includes the ability to hear and manipulate sounds in words as well as the ability to read and spell words correctly and fluently. When halts occur in these foundational reading skills, dyslexic students often struggle to understand what they read as well as develop vocabulary at a slower rate¹⁹.
2. **Dysgraphia:** "Dys" means difficulty with and "graphia" means writing – thus "difficulty with writing". The term dysgraphia refers to more than simply having poor writing. This term refers to those who scrap with the motor skills necessary to write thoughts on paper, spelling, and the thinking skills needed for vocabulary retrieval, clearness of thought, grammar, and memory²¹.
3. **Dyscalculia:** "Dys" means difficulty with and "calculia" means calculations and mathematics – thus "difficulty

with calculations and mathematics". This term refers to those who struggle with basic number sense and early number theories as well as have difficulties with math calculations and math reasoning¹⁸.

4. **Audio Processing Disorder:** This is a problem with the way the brain processes the sounds a person takes in. It is not caused by hearing impairment.
5. **Video Processing Disorder:** Someone with a visual processing disorder has trouble interpreting visual information. The child may have a tough time with reading or telling the difference between two objects that look similar. People with a visual processing disability often have suffering with hand-eye coordination²⁰.

CAUSE OF LEARNING DISABILITY:

Learning disabilities are caused by something affecting the growth of the brain. This may occur in prenatally stage, during birth, or in early childhood [13]. The cause of Learning disability depends on caused a variety of factors, or by a combination. Sometimes the specific cause is not known. Possible causes include the following:

- An inherited condition, meaning that certain genes delivered from the parents affected the brain development.
- Chromosome abnormalities such as Down's syndrome or Turner syndrome.
- Complications through birth resulting in a lack of oxygen to the brain.
- A very premature birth.
- Mother's illness during pregnancy.
- The mother drinking during pregnancy, for example Fetal Alcohol Syndrome.
- An enervating illness or injury in early childhood affecting brain development, for example a road traffic accident or child abuse.
- Contact with damaging material (like radiation).
- Neglect, and/or a lack of mental stimulation early in life.
- Some people with learning disability have additional physical disability and/or sensory weakening.

SYMPTOMS OF LEARNING DISABILITY:

Dyslexia	Dyscalculia	Dysgraphia	Audio Processing Disorder	Video Processing Disorder
<ul style="list-style-type: none"> • Reading well below the predictable level for age • Problems processing and understanding whatever the child hears <p>Trouble in discovering the right word or forming answers to</p>	<ul style="list-style-type: none"> • Difficulty in accepting the concepts of place value, quantity, number lines, positive and negative value, carrying and borrowing • Difficulty in understanding and doing word 	<ul style="list-style-type: none"> • Tight, difficulty in pencil grip and body position • Unreadable handwriting • Escaping writing or drawing tasks • Exhausting quickly while 	<ul style="list-style-type: none"> • Difficulty localizing sound • Difficulty understanding spoken language in competing messages, in noisy backgrounds, in reverberant environments, or when presented rapidly • Taking longer to respond in oral communication situations 	<ul style="list-style-type: none"> • Has trouble paying attention to and remembering information presented orally. • Has problems carrying out multi-step

<p>questions</p> <ul style="list-style-type: none"> • Difficulty in memorizing the sequence of things • Difficulty sight (and sometimes hearing) similarities and differences in letters and words • Lack of ability to sound out the pronunciation of an unfamiliar word • Difficulty spelling • Spending an ordinarily long time completing tasks that involve reading or writing <p>Avoiding activities that involve reading.</p>	<p>problems</p> <ul style="list-style-type: none"> • Difficulty in sequencing information or events • Difficulty in math operations and fractions • Difficulty in handling money • Difficulty in recognizing patterns when adding, subtracting, multiplying, or dividing • Difficulty in understanding concepts of time such as days, weeks, months, seasons, quarters, etc. 	<p>writing</p> <ul style="list-style-type: none"> • Proverb words out loud while writing • Incomplete or misplaced words in sentences • Difficulty shaping thoughts on paper • Difficulty with grammar • Extensive gap between written ideas and understanding demonstrated through speech 	<ul style="list-style-type: none"> • Frequent requests for repetitions, saying "what" and "huh" frequently • Inconsistent or inappropriate responding • Difficulty comprehending and following rapid speech • Difficulty following complex auditory directions or commands • Difficulty learning songs or nursery rhymes and new language • Misunderstanding messages, such as detecting prosody changes that help to interpret sarcasm or jokes • Poor musical and singing skills • Difficulty paying attention. • Difficulty learning a new language 	<p>directions</p> <ul style="list-style-type: none"> • Has poor listening skills • Needs more time to process information • Has behavior problems • Has difficulty with reading, comprehension, spelling, and vocabulary.
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OBSERVING AND EVALUATION:

➤ Observing:

Stage 1: Child-Find/Case Finding:

The initial stage, called "Child-Find", refers to procedures planned to locate those children who might need early intervention services and programs. This stage is required because many parents do not aware about services are available for children, some parents may not realize that their child has a learning problem, or the family may not accept the because of strong cultural beliefs and traditions ¹⁶.

Among the strategies that are used for locating children in the community who may need special services are:

- Building community awareness through public events and organizations.
- Setting up a system for referrals.
- Campaigning the community for children who need screening.
- Continuing local publicity and contacts with sources of referral.

Stage 2: Development screening:

Developmental screening is a superficial method for finding general information about a child's development and detecting any possible problems. The screening is not planned to be a complete diagnosis, but rather provides a first quick look at a child. Screening procedures are normally used with large groups of children. Screening tests should be short-term, inexpensive, have objective recording systems that are valid and reliable ¹².

It is important that families comprehend the purpose of screening procedures and be informed about the results.

When the screening indicates that a child has possible problems, it is acute that the child receives a more comprehensive diagnosis.

Stage 3: Diagnosis

Diagnosis is a more intensive evaluation than screening. Information is obtained through observation, discussions, case history, and casual and standardized tests. The examiners struggle to decide the nature of the child's difficulties, the severity of the problem, and the child's strengths and weaknesses. This information becomes the basis for formative eligibility for special education services. The diagnosis is conducted by members of an integrative team. For example, if the screening specifies that the child has language problems, members of the multidisciplinary team could include a speech/language pathologist; an expert in hearing, such as an audiologist or otologist, to assess hearing loss; and a psychologist to decide how the child's growth related to language acquisition. Data collected through the diagnosis leads to decisions about the nature and severity of the problem and assists in planning intercession ¹⁹.

After the child is placed in a participation program, it is important that the child's progress in monitored regularly. Multiple checks include explanations, developing checklists, and rating scales. Collect information on a regular basis and analyze to determine mastery of targeted skills. Note development in meeting goals and objects on the child's Individualized Education Plan (IEP) or Individualized Family Service Plan (IFSP). Determine the efficiency of the invention and changes that are needed in the intervention plan.

➤ Evaluation:

It is also important to evaluate the intercession program itself. Program assessment is objective, systematic process for determining progress of children and the efficiency of the

total intervention program. It may be necessary to make required changes and alterations in the intervention program.

As from, there are many ways to predict the learning disability. The school may use a process called "response to involvement" help to identify children. After observing him/her the results may be unacceptable and indefinite. Disability recognition is done by analyzing human emotions and brain signals in different states of mind. This paper proposed the prediction of learning disability in children using machine learning.

Ayurveda medicines are most effective in treating all types of learning and mental disabilities. These medicines are made of nature's finest herbs and are processed without adding chemise (which is the common case with allopathic medicines). These herbs are known to calm the nerves and result in a neurological balance in the body. As modern medicine has failed to provide a cure for a variety of health problems, more and more people are turning to the alternative and complementary medical sciences, especially Ayurveda, in search of relief. Among the issues that modern medicine has did not find an answer is the behavioral or psychiatric disorders of childhood ¹.

Majority of kids suffer from Low memory or Low IQ or lack grasping abilities in their childhood which in turn affects them in their future life for future. Not much has been discussed in modern medicine for these quite disabilities or disorders but Ayurveda Medicines and therapies are showing enough satisfactory effects for overcoming this problem. Life can be better and easier after Ayurveda treatment ².

Ayurveda medicines are most effective in treating all types of learning disabilities. These medicines are made of nature's finest herbs and are processed without adding chemicals. These herbs are known to calm the nerves and result in a neurological balance in the body. Ayurveda describe three aspects of mental ability: Dhi (the power of acquirement or learning), Dhriti (the power of holding), and Smriti (the ability to memorized). When the three mental functions are not in balance, either individually or in their coordination with one another, then learning problems can pick up

Ayurveda Sanhita mentions herbs for addressing imbalances in memory and attention as mentioned below:

- **Medhya Rasayanas:**

- It provides powerful nourishment for the mind.
- It enhances main three factors individually, and also enhances the coordination between these three mental factors.
- It have also come to the attention of modern researchers

- **Mandook Purni:**

- It is also called Centella Asiatica or Gotu Kola for instance.
- It is medhya, giving awareness and Rasayana value.

- **Brahmi:**

- It supports the mind and the heart.
- It is also called herb of grace. It is essential plant in traditional Ayurvedic medicine.

- It contains active compounds called backsides, which have been shown to have antioxidant effects, especially in the brain.

- It significantly improves the speed of processing visual information, learning rate, and memory, compared with the placebo treatment.

- **Shankapushpi:**

- It is also called as Aloeweed / Dwarf Morning Glory.
- It is also being researched as a memory-enhancing herb.
- It is a traditional remedy for increasing the functioning of the brain.
- The powerful antioxidants and flavonoids present in it grow the memory capacity, focus, concentration, calmness, alertness of an individual.
- Being a brain tonic and stimulator, people taking shankpushpi have improved memory, reasoning, problem-solving, and other cognitive abilities.
- The neuroprotective elements in the plant prevent loss of memory and relieve tension from the brain.

- **Ashwagandha:**

- It is the much revered 'rock star' of adaptogens, a class of herbs that help the body to handle with stress.
- It is an herb that has gained popularity as a potential dietary supplement for countering the stresses we experience in modern life.
- This may help serve as a natural tranquilizer to reduce excessive activity in the brain when stimulated.

- **Shatavari:**

- The anti-stress properties of shatavari are due to the presence of flavonoids, polyphenols and saponins.
- It reduces the production of stress hormones and increase the production of hormones or chemicals that makes one feel calm and happy.
- Shatavari can be used for the management of mental depression and stress.

- **Suvarnaprashan:**

- The process in which Swarna bhasma (powder of gold) with other herbal abstracts taken in the form of semi liquid and given to the children through their mouth is called as Suvarnaprashan.
- It's a unique method of immunization which helps the children to boost up the intellectual power and produces non-specific immunity in body to fight against general disorders.
- It helps to nurture early developmental milestones.

- **Saraswatarishta:**

- The health benefits of Saraswatarishta include prevention of mental disorders.
- It is the most common Ayurveda medicine used for the treatment of neurological and psychological disorders.
- It is also used as a brain tonic, which helps to lower the risk of suffering from memory loss, dysfunction of the immune system.

- It increases memory, attention span, concentration, intelligence

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

- **ShiroDhara:** *Shirodhara* is a classical and a well-established ayurvedic procedure of slowly and steadily dripping medicated oil or other liquids on the forehead. This procedure induces a relaxed state of awareness that results in a dynamic psycho-somatic balance. This treatment increases memory and clears the voice tone. It controls the function of the brain and spinal cord. It controls and acts on marmas or vital points.
- **ShiroBasti:** The Shiro Basti treatment is warm medicinal oil poured onto the head, and then allowed to remain there for a certain period of time in a sealed manner. A suitable cap is using for retaining the medicinal oil over the head. This is followed by shiro abhyanga (head massage). It enhances and nourishes the brain cells. It's a very effective treatment and it cures insomnia, stress, tension and different kind of mental conditions. It has everything to prevent mental abnormalities. This process provides nourishment to the brain and it prevents brain damaging. In the past and many years back the Basti treatment was meant only for mental patients and almost illness and mental disorders were treated successfully.
- **Nasya:** According to Charaka, nasa is the gateway of shira. 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. A disease may also be pacified, if appropriate drug for a particular disease reaches the site by means of nasya". It may be used as a potential drug route for treating systemic diseases also." It is explained in Ashtanga Samgraha that nasa is the door way to shira (head), and it communicates with eyes, ears, throat, etc. by minute channels. The drug administered through nostrils, reaches shringataka (a shira marma) and spreads into the murdha (brain), netra (eye), shrota (ear), kantha (throat), siramukhas (opening of the vessels), etc. and seizes the morbid dosha from these areas and expels them from the uttamanga.²³ Thus it is has proved to be an effective treatment related to brain.

CONCLUSION

There are a large number of children with LDs, particularly in India and most of them go undetected. India is a diverse country with varied socio-cultural backgrounds. The medium of instruction in schools varies from state to state. Hence, the recognition and identification of the students with LDs become very difficult and awareness about LDs is also very low in India. Since it has an important bearing on academic function, it carries high degree of suffering in the Indian society where failure is offensive. There are lots many ways available to diagnose learning disability among children. The above comparison helps to find out the type of LD and symptoms of it. It can be helpful to parents and doctors. The prognosis depends on the cause and the severity of neurologic deficit. The symptoms table helps to identify the type of learning disability by examining the symptoms.

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

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