**Ayurvedic Perspectives And Interventions In Specific Learning Disorders: A Focus On Dyslexia And Dyscalculia**

**ABSTRACT**

**Introduction:** Learning disabilities (LDs) are neurodevelopmental disorders that impair academic skill acquisition despite normal or above-average intelligence. In India, these are frequently misunderstood as behavioral issues, leading to stigma, emotional distress, and delayed support.

**Aim:** This review explores and evaluate Ayurvedic principles, diagnostic insights, and therapeutic interventions for Specific Learning Disorders (SLDs), with a particular focus on dyslexia and dyscalculia, and to propose a holistic, integrative approach to their understanding and management.

**Methods:** This narrative review integrates classical Ayurvedic literature with contemporary clinical perspectives to explore the diagnosis and management of specific learning disorders (SLDs) such as dyslexia and dyscalculia.

**Results:** Ayurvedic interventions like *Medhya Rasayana* (e.g., *Brahmi, Mandukaparni, Shankhpushpi*) and *Panchakarma* procedures (e.g., *Shirodhara, Nasya*) have shown potential in enhancing cognitive abilities, emotional regulation, and learning capacity in children with SLDs.

**Discussion:**  
Ayurveda approaches learning disabilities through a psychosomatic model that emphasizes balance of *Tridosha* and *Manas Gunas* to restore cognitive faculties—*Dhi* (learning), *Dhriti* (retention), and *Smriti* (recall). These therapies may complement conventional educational and psychological interventions.

**Conclusion:** *Ayurveda* offers a promising, holistic framework for the supportive management of learning disabilities. Integrating *Ayurvedic* strategies with modern approaches may enhance cognitive development, reduce emotional burden, and improve the quality of life for affected children.

**Keywords**: *Ayurveda*, *Ayurvedic* neurotherapeutics, Cognitive Disorders, Dyslexia, Dyscalculia, Learning Disabilities, *Medhya* *Rasayana.*

**INTRODUCTION**

**Learning disabilities (LDs)** are distinct from intellectual disabilities. They affect the brain’s ability to process information, despite the individual possessing average or above-average intelligence. These are often referred to as hidden disabilities and are frequently misunderstood—particularly in Indian society, where academic performance is heavily emphasized and failure is stigmatized. This lack of awareness leads to emotional distress and delays in timely identification and intervention.1

In India, the prevalence of dyslexia alone is estimated to range between **3% and 10%**. Learning disabilities are typically categorized based on impairments in reading, writing, reasoning, listening, or mathematical abilities. Among these, **dyslexia** is the most common, affecting nearly **80% of children** with learning disabilities. It is frequently associated with difficulties in **phonological processing** and **working memory deficits**. Other forms, such as **dyscalculia** and **dysgraphia**, also hinder academic achievement and often co-occur, particularly among boys.2 **Emotional and behavioral comorbidities** are also prevalent, with studies reporting rates between **25% and 84%**.3

Over the years, awareness and management of learning disabilities in India have gradually improved. The **Rights of Persons with Disabilities (RPWD) Act, 2016** provides a legal framework to safeguard the rights of children with LDs. However, implementation remains inconsistent. Certification processes and educational accommodations are primarily concentrated in urban areas and administered by professionals accredited by the **Rehabilitation Council of India (RCI)**. Much of the outreach and support continues to be led by **non-governmental organizations (NGOs)** and private institutions.4

India's **sociolinguistic diversity** adds another layer of complexity. Many students receive their education in a language different from their mother tongue, complicating both diagnosis and intervention [57,58]. Additionally, the Indian education system remains largely **theoretical** and examination-driven, often overlooking **skill-based** or **application-oriented** approaches—models that better serve students with LDs.5 There is also a significant lack of **vocational alternatives** and **inclusive education frameworks**, making holistic rehabilitation challenging.

This article seeks to address these gaps by exploring how **Ayurveda**, through its holistic lens of **mind-body balance**, can offer meaningful insights and interventions for children with learning disabilities. It proposes a complementary, integrative approach rooted in **Kaumarbhritya**, **Medhya Rasayana**, and traditional Ayurvedic neurocognitive paradigms. This review explores and evaluate Ayurvedic principles, diagnostic insights, and therapeutic interventions for Specific Learning Disorders (SLDs), with a particular focus on dyslexia and dyscalculia, and to propose a holistic, integrative approach to their understanding and management.

**Specific Objectives:**

1. To review the current understanding of Specific Learning Disorders (SLDs)—particularly dyslexia and dyscalculia—within the framework of modern psychology and neurodevelopmental sciences.
2. To analyze Ayurvedic conceptual correlates of learning disabilities, including the roles of *Dhi, Dhriti, Smriti, Manas Doshas (Rajas, Tamas), Triguna,* and *Tridosha*.
3. To identify *Ayurvedic* pathophysiological mechanisms contributing to SLDs, including *Manovaha Srotas Dushti, Pranavaha Srotas* obstruction, and *Manodaurbalya*, as described in classical texts.
4. To explore relevant Ayurvedic therapeutic strategies, such as:
   * Use of *Medhya Rasayana* (cognitive-enhancing herbs),
   * *Panchakarma* therapies (especially *Nasya, Abhyanga,* and *Shirodhara),*
   * Dietary and lifestyle interventions, and
   * Sattvavajaya Chikitsa (*Ayurvedic* psychotherapy).
5. To examine the scope of integrative management by aligning *Ayurvedic* interventions with contemporary educational and psychological frameworks.

**MATERIALS AND METHODS**

This study was designed as a qualitative, narrative review with the aim of exploring and integrating Ayurvedic perspectives with contemporary biomedical insights on Specific Learning Disorders (SLDs), with a particular focus on dyslexia and dyscalculia. The methodology followed a holistic, interdisciplinary approach to map traditional Ayurvedic concepts onto modern understandings of cognitive dysfunctions.

**1. Study Design:**

A narrative review approach was adopted, which involved collecting, analyzing, and synthesizing data from both classical Ayurvedic literature and modern scientific research. The review focused on theoretical constructs, diagnostic frameworks, and therapeutic strategies.

**2. Sources of Data:**

**a) Ayurvedic Literature:**

Primary data was drawn from authoritative classical Ayurvedic texts, including: *Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Kashyapa Samhita,* Commentaries by Chakrapani, Arundatta, and Hemadri, *Nighantus* and Ayurvedic compendiums such as *Bhavaprakasha* and *Yogaratnakara.* These sources were reviewed for references related to *Manas Roga, Dhi-Dhriti-Smriti, Tridosha and Triguna imbalances, Manovaha Srotas, Medhya Rasayana,* and child cognitive development *(Kaumarbhritya).*

**b) Contemporary Biomedical Literature:**

Modern research articles, diagnostic manuals, and review studies were included, using databases such as: PubMed, Google Scholar, ScienceDirect, Research Gate and Official diagnostic criteria from DSM-5 and ICD-11. Search terms included: “Specific Learning Disorder,” “Dyslexia,” “Dyscalculia,” “Cognitive Development,” “Ayurveda and Learning,” “Medhya Rasayana,” “Manovaha Srotas,” etc.

***AYURVEDIC* PERSPECTIVE ON LEARNING DISABILITIES**

According to Ayurveda, human physiology and psychology are governed by the three Doshas—Vata, Pitta, and Kapha. In a state of equilibrium, these Doshas sustain health; when imbalanced, they give rise to disease. In the context of learning disabilities, disturbances in the Tridosha, along with aggravation of the Manas Doshas—Rajas and Tamas—are believed to contribute to mental dysfunction.6

Ayurveda conceptualizes cognition through the coordinated function of three primary mental faculties:

1. Dhi (the power of acquisition or learning),
2. Dhriti (the ability to retain or concentrate), and
3. Smriti (the capacity to recall or remember)

An imbalance in these faculties results in cognitive impairments that hinder a child’s learning potential. In Ayurvedic psychology, the mind (Manas) is influenced by three Gunas: Sattva, Rajas, and Tamas. While Sattva supports clarity, wisdom, and mental harmony, Rajas and Tamas—considered the Doshas of the mind—lead to emotional disturbances such as hyperactivity, restlessness, confusion, inertia, and lack of focus.6

Disruption in the balance of Tridosha and Triguna impairs the function of the Indriyas (sensory organs), Manas (mind), and Buddhi (intellect), ultimately manifesting as learning disorders such as dyslexia. These dysfunctions are described in Ayurvedic texts under the broader category of Manas Roga (mental disorders), particularly as Manodaurbalya (mental debility) and Vak Vikara (speech-related disorders).7

In Ayurveda, various **subtypes of Doshas** are intricately involved in regulating cognitive and neurological functions:

* ***Vata Dosha****,* particularly ***Prana Vayu****,* ***Udana Vayu****, and* ***Vyana Vayu***, governs mental activity, speech, sensory integration, and nerve conduction.
* ***Pitta Dosha****,* especially ***Sadhaka Pitta*** and ***Alochaka Pitta****,* influences **intellect**, **emotional processing**, and **visual perception**.
* ***Kapha Dosha***, including ***Bodhaka Kapha***, contributes to **emotional stability**, **mental endurance**, and **memory retention**.8

Impairment or imbalance of these **sub-*Doshas*** leads to disturbances in the ***Manovaha Srotas*** (mental channels), manifesting as various forms of **learning disorders**. Obstruction of the ***Pranavaha Srotas*** by aggravated ***Kapha*** and ***Pitta*** can interfere with the coordination between the mind and sensory organs, thereby impairing **comprehension**, **information processing**, and **learning speed**.9

*Ayurvedic* texts also identify ***Asatmendriyartha Samyoga*** (improper interaction between senses and sense objects), **Prajnaparadha** (intellectual errors or misuse of intellect), and ***Kala* *Parinama*** (unfavorable time or environmental influences) as deeper **causative factors** for cognitive and learning impairments.10

Specifically, **dyslexia** may be understood as a result of ***Pranavaha Srotas Dushti*** (vitiation of vital pathways), along with dysfunction of ***Manas*** (mind) and ***Indriyas*** (sensory faculties). Classical *Ayurvedic* literature categorizes this under **"*Manodaurbalyajanya* *Vak Vikara"****—*a speech and learning disorder arising from **mental debility** and weakened **cognitive faculties**.10

*Ayurveda*, therefore, provides a comprehensive **psychosomatic model** for understanding learning disabilities, emphasizing the restoration of ***Doshic* balance** and **mental clarity (Sattva)** to promote optimal cognitive functioning.

**Types of Learning Disabilities**

Specific Learning Disabilities (SLDs) are neurodevelopmental disorders that affect the brain's ability to receive, process, store, and respond to information. These disorders are not due to intellectual disabilities, sensory impairments, or inadequate schooling but are intrinsic to the individual. The most recognized forms include dyslexia and dyscalculia, each with distinct characteristics and underlying cognitive deficits.11

**1. Dyslexia**

The term "Dyslexia" originates from the Greek words *"dys"* meaning difficulty, and *"lexia"* meaning language or words. Initially used to describe specific reading impairments, dyslexia is now recognized as a broader language-based learning disorder.

Children with dyslexia typically exhibit difficulties in:

* Reading fluency and accuracy
* Spelling and word recognition
* Phonological awareness (the ability to identify and manipulate sounds)
* Decoding written words into meaningful language
* Reading comprehension and vocabulary acquisition

Dyslexia is not related to low intelligence but to underlying deficits in phonological processing, working memory, and rapid naming ability, all of which contribute to challenges in learning to read and write effectively.12

**2. Dyscalculia**

The term "Dyscalculia" combines *"dys"* (difficulty) with *"calculia"* (calculation), and refers to a specific learning disability that affects a person's ability to understand and work with numbers.

Common features of dyscalculia include:

* Poor number sense and mathematical reasoning
* Difficulty with basic arithmetic operations (addition, subtraction, multiplication, division)
* Challenges in memorizing math facts
* Trouble understanding time, sequences, measurement, and spatial relationships
* Slowness in performing mental math or solving word problems

Dyscalculia is linked to deficits in visuospatial processing, working memory, and executive functions, rather than a lack of effort or exposure to mathematics.13

**Causes of Learning Disabilities**

Learning disabilities arise from disruptions in normal brain development and functioning, particularly in areas responsible for language, memory, attention, and executive functioning. These disruptions may occur during the prenatal, perinatal, or postnatal stages of development. While in some cases the cause remains idiopathic, current evidence suggests that learning disabilities are typically the result of a complex interplay between genetic predispositions and environmental factors.14

**1. Prenatal Causes:**

Factors affecting fetal brain development in utero include:

* Genetic inheritance (family history of learning disorders)
* Chromosomal abnormalities (e.g., *Down syndrome*, *Turner syndrome*)
* Maternal infections (e.g., rubella, toxoplasmosis)
* Exposure to harmful substances such as alcohol, nicotine, or drugs (e.g., *Fetal Alcohol Spectrum Disorder*)
* Maternal stress or malnutrition15

**2. Perinatal Causes:**

Complications during or immediately after birth may contribute to learning impairments:

* Birth asphyxia (oxygen deprivation)
* Premature birth and low birth weight
* Traumatic or prolonged delivery
* Neonatal infections or jaundice affecting brain function16

**3. Postnatal Causes:**

Environmental and health-related factors in early childhood that can disrupt cognitive development include:

* Head injuries or brain trauma
* Chronic malnutrition
* Exposure to environmental toxins (e.g., lead, mercury)
* Neglect, emotional deprivation, or lack of cognitive stimulation
* Infections affecting the central nervous system17 (e.g., meningitis, encephalitis)

In many cases, no single cause can be pinpointed. Instead, learning disabilities are often the outcome of multifactorial influences—where genetic susceptibility interacts with environmental stressors. Additionally, some individuals with learning disabilities may also present with co-occurring physical or sensory impairments, such as hearing or visual difficulties, which can further impact learning and development.18

**OBSERVATION AND EVALUATION:**

Identifying and addressing Specific Learning Disabilities (SLDs) begins with systematic observation and a phased, multidisciplinary assessment process. This structured approach ensures early detection, timely intervention, and continuous monitoring to support affected children effectively**.**

**Step 1: Locating the Child (Child-Find Initiative)**

The foundational stage involves identifying children who may be at risk for learning disabilities but remain undiagnosed. In many cases, cultural stigma, lack of awareness, or limited access to resources delays diagnosis and intervention.19

Strategies for early identification include:

* Awareness campaigns through schools, NGOs, and frontline health workers
* Organizing community screening camps and school-based events
* Developing referral networks linking educators, healthcare professionals, and families
* Disseminating information through local media, parent workshops, and institutions

**Step 2: Developmental Screening**

This phase involves quick, cost-effective tools to detect early signs of developmental delay or learning challenges. It is not diagnostic, but helps flag children who require further evaluation.20

Key features of effective screening tools:

* Easy to administer in school or community settings
* Statistically validated for sensitivity and specificity
* Age-appropriate and culturally relevant

Post-screening communication with families is essential, offering clear explanations and next steps for comprehensive evaluation.

**Step 3: Comprehensive Identification and Diagnosis**

Children flagged during screening undergo a detailed diagnostic evaluation conducted by a multidisciplinary team. This team may include clinical psychologists, speech-language pathologists, special educators, pediatricians, and neurologists, depending on the child’s profile.

Evaluation components:

* In-depth case history from caregivers
* Behavioral observation across settings (home, classroom, clinical)
* Use of standardized assessments to evaluate intelligence, memory, attention, language, and academic skills

Additional assessments (e.g., audiometry, emotional functioning) may be included when necessary.21 The final outcome guides the development of an Individualized Education Plan (IEP) or Individualized Family Service Plan (IFSP) to ensure targeted intervention.

**Step 4: Ongoing Assessment and Progress Monitoring**

Once intervention begins, regular monitoring is essential to assess effectiveness and make necessary adjustments.

Monitoring methods include:

* Teacher/parent checklists and observation forms
* Mastery tracking of academic and behavioral goals
* Periodic review and revision of IEP/IFSP goals
* Adaptive modifications based on the child's progress

This iterative process ensures interventions remain responsive and relevant to the child’s evolving needs.

**Step 5: Program Evaluation and Innovation**

Evaluating the overall success of intervention programs helps in measuring outcomes and identifying areas for refinement.

Evaluation tools and methods:

* Structured feedback from families, teachers, and therapists
* Pre- and post-intervention comparisons in academic skills and behavior
* Integration of emerging technologies, such as:
  + Machine learning models for early risk prediction
  + Brainwave pattern analysis for attention deficits
  + AI-driven personalized learning interventions

The use of neuroimaging, eye-tracking, and digital learning analytics is growing, offering promising avenues for early detection, precision diagnosis, and customized educational strategies.

This comprehensive, multi-tiered evaluation model ensures that no child is overlooked due to social stigma, resource limitations, or systemic gaps. By combining early observation, validated screening, and adaptive interventions, this approach creates a responsive support system that empowers children with learning disabilities to thrive.

**PHARMACOLOGICAL APPROACH**-

Ayurveda offers a natural, holistic pharmacological approach to managing learning disabilities, including dyslexia and dyscalculia, through the use of time-tested herbal remedies known for enhancing cognitive function and mental well-being. These formulations are free from harmful chemicals and are derived from natural, neurotonic herbs that promote neurological balance by calming and nourishing the nervous system.²²

In Ayurvedic philosophy, learning and memory are governed by three vital mental faculties:

* Dhi – Learning or grasping ability
* Dhriti – Retention or holding power
* Smriti – Memory or recall capacity

Learning difficulties arise when any of these faculties are impaired or become uncoordinated.

**1. *Suvarnaprashana***

*Suvarnaprashana* is a classical pediatric formulation made from purified gold particles (*Suvarna Bhasma*), mixed with honey, ghee, and Medhya herbs. It is typically administered in the form of a paste or syrup. It enhances intelligence (*Medha*) and speech (*Vak Shakti*), strengthens immunity and memory, stimulates the nervous system.23 It is particularly useful in children with learning disabilities, low cognitive function, or frequent illnesses.24,25

**2. Medhya Rasayana**

Medhya Rasayanas is a group of herbs and formulations specifically mentioned in Ayurvedic classics for their rejuvenating effects on the mind. They act synergistically to support Dhi, Dhriti, and Smriti, and modern research increasingly supports their neuroprotective potential.26

1. **Mandukaparni (Centella asiatica)**

Mandukaparni, commonly known as Gotu Kola, is a classical Medhya Rasayana revered for its profound influence on cognitive enhancement and mental rejuvenation. In Ayurvedic practice, it is used extensively in both pediatric and geriatric populations to promote intelligence, longevity, and emotional balance. It improves mental alertness and neuroplasticity by enhancing cerebral microcirculation, thereby increasing the supply of oxygen and nutrients to the brain. Additionally, it supports nerve regeneration and synaptic function, which are crucial for memory consolidation and learning. Mandukaparni also exhibits anti-inflammatory and antioxidant effects that protect neural tissue from oxidative stress. Traditionally valued for promoting Medha (intellect) and Ayu (longevity), this herb is especially beneficial for children exhibiting cognitive sluggishness, delayed speech, and poor comprehension. Modern studies have shown that it improves levels of brain-derived neurotrophic factor (BDNF), suggesting enhanced synaptic plasticity and neuroprotection—making it a valuable adjunct in managing dyslexia and dyscalculia.27

**b) Brahmi (Bacopa monnieri)**

Brahmi, often hailed as the “Herb of Grace,” is one of the most important Medhya Rasayanas in Ayurveda. Renowned for its capacity to rejuvenate both the brain and heart, Brahmi has been traditionally used to enhance Medha (intellect), improve lifespan, and support clarity of thought. The primary bioactive compounds, bacosides A and B, are known for their neuroprotective, antioxidant, and nootropic actions. These compounds enhance synaptic communication and aid in reducing neural degeneration. Brahmi is particularly effective in improving memory retention, learning speed, and visual processing. It enhances working memory, reduces cognitive fatigue, and improves emotional stability. Clinically, Brahmi has demonstrated improvements in information processing speed, verbal memory, and cognitive performance in children with learning and attention difficulties.28,29 Its neuroregenerative properties make it a cornerstone herb for children with dyslexia, dyscalculia, or broader neurodevelopmental concerns.

**c) *Shankhpushpi* (Convolvulus pluricaulis)**

*Shankhpushpi* is a well-established Medhya Rasayana, traditionally used in Ayurveda to enhance memory, concentration, and emotional well-being. It is rich in neuroprotective compounds like flavonoids, alkaloids, and glycosides that help combat oxidative damage and improve brain function. *Shankhpushpi* supports the three key mental faculties—*Dhi* (intellect), *Dhriti* (retention*), and Smriti* (recall)—making it particularly useful in cases of cognitive overload, inattention, and emotional dysregulation. Its calming properties benefit children with hyperactivity, anxiety, or attention deficit, helping reduce mental fatigue while improving alertness and neurological endurance. Modern pharmacological research supports its role in modulating neurotransmitter systems, particularly dopaminergic and cholinergic pathways, thus enhancing synaptic function and learning capacity.30 In the management of Specific Learning Disabilities such as dyslexia and dyscalculia, *Shankhpushpi* serves as a potent neurotonic that improves both cognitive and behavioral outcomes.

**d) *Ashwagandha* (Withania somnifera)**

*Ashwagandha* is one of the most renowned Rasayana herbs in Ayurveda, valued for its adaptogenic, neuroprotective, and anti-stress effects.31 It helps the body cope with psychological and physiological stress, which are often aggravating factors in learning disorders. *Ashwagandha* functions as a natural tranquilizer by calming neural excitability, reducing hyperactivity, and promoting emotional stability. It effectively modulates cortisol, the stress hormone, and supports the hypothalamic-pituitary-adrenal (HPA) axis. These actions promote restorative sleep and aid in neurological recovery—both critical for executive functioning and learning.32 Studies have shown that *Ashwagandha* improves focus, attention span, and stress resilience in children with learning challenges. Its dual action of soothing the mind while strengthening the nervous system makes it an essential component in managing dyslexia and dyscalculia, particularly in children with anxiety, impulsivity, or emotional dysregulation.

**e) *Shatavari* (Asparagus racemosus)**

*Shatavari*, though traditionally known for supporting reproductive and hormonal balance, has a growing reputation for its neuroprotective and adaptogenic properties, especially in children with emotional and behavioral issues. It contains saponins, polyphenols, and flavonoids, which contribute to its anti-anxiety, anti-depressant, and mood-stabilizing actions. *Shatavari* supports emotional well-being by promoting the release of neurotransmitters like dopamine and serotonin, which help regulate mood and reduce stress-induced neurochemical imbalances.33 It is particularly useful for children facing attention deficits, mental fatigue, and irritability, or those prone to emotional outbursts and sensory overload. As part of a *Medhya* *Rasayana* regimen, *Shatavari* complements herbs like *Brahmi* and *Shankhpushpi* in addressing both the cognitive and emotional dimensions of learning disorders such as dyslexia and dyscalculia.

Together, these *Medhya Rasayanas* offer a comprehensive, safe, and holistic pharmacological approach to the management of Specific Learning Disabilities. They not only enhance the brain’s capacity for learning, retention, and recall but also address associated issues like emotional instability, inattention, and cognitive fatigue. By restoring the balance of Dhi, Dhriti, and Smriti, these herbs play a pivotal role in strengthening the intellectual and emotional foundation of children with SLDs. Ayurvedic pharmacology thus provides a natural, non-invasive, and child-friendly therapeutic alternative that aligns well with modern integrative approaches involving behavioral therapy, educational support, and lifestyle modifications.

***PANCHAKARMA PROCEDURES-***

*Ayurveda* offers a range of *Panchakarma* therapies specifically beneficial in restoring mind-body balance, regulating neurocognitive function, and calming aggravated Doshas—particularly in children with Specific Learning Disorders (SLDs) such as dyslexia and dyscalculia. These therapies help enhance mental clarity, emotional stability, and learning abilities through detoxification and rejuvenation.34

1. ***Shirodhara*-** It is a traditional and widely recognized Ayurvedic therapy that involves the continuous and rhythmic pouring of medicated oils or other therapeutic liquids over the forehead. This gentle and sustained stimulation of the Ajna Marma (third-eye region) induces a deeply relaxed state of awareness, restoring psychosomatic equilibrium. Shirodhara helps regulate the functioning of the brain and spinal cord, improves memory, and enhances vocal clarity. It is known to influence vital energy points (Marmas), thereby promoting mental tranquillity and cognitive function—making it particularly beneficial in neurodevelopmental disorders such as dyslexia and dyscalculia.35
2. ***Shirobasti*** - Thisis another specialized Panchakarma therapy in which warm, medicated oil is held over the scalp within a leather or synthetic cap for a specified duration. This is often followed by *Shiro Abhyanga* (head massage) to facilitate deeper penetration and therapeutic benefit. *Shirobasti* nourishes brain cells, improves neurovascular integrity, and is highly effective in relieving stress, anxiety, insomnia, and a variety of psychological imbalances.36 Historically, it was employed in treating mental disorders and has been shown to offer neuroprotective effects, helping to preserve brain health and prevent cognitive decline. Its calming action supports learning and emotional regulation in children with learning difficulties.
3. ***Nasya*** - *Nasya*is considered a principal route for administering medication to the head region. As per Charaka, "Nasa hi Shiraso Dwaram"—the nose is the gateway to the brain. In this therapy, herbal oils, powders, or juices are instilled into the nasal passages, allowing the medication to reach the *Shringataka marma*—a convergence point linked to the brain, eyes, ears, and throat. Nasya helps in clearing vitiated Doshas from the head region, improves cerebral circulation, enhances mental alertness, and facilitates sensory integration.37 According to *Ashtanga Samgraha*, it enables targeted treatment of cognitive and behavioral disorders by directly influencing the brain and associated structures through microchannels, making it a vital intervention in the Ayurvedic management of learning disabilities.38

**Sattvavajaya Chikitsa**

*Sattvavajaya Chikitsa,* or Ayurvedic psychotherapy, focuses on strengthening the mind by regulating thought processes, emotions, and behaviors. It involves careful observation and engagement with the child's daily routines to promote positive learning experiences. For children with learning disabilities, this approach emphasizes attention to high-frequency or sight words, encouraging repeated exposure and practice. Reading of age-appropriate literature, including storybooks and novels, is recommended to enhance vocabulary, comprehension, and cognitive association. The therapy also includes repeated verbal recitation, guided behavioral reinforcement, and emotional support to cultivate focus, resilience, and confidence. Sattvavajaya serves as a non-pharmacological complement to Panchakarma, addressing the psychological and emotional dimensions of learning challenges.39

**Dietary and Lifestyle Interventions**

Ayurveda emphasizes that balanced diet (Ahara) and lifestyle (Vihara) are fundamental to cognitive development and mental well-being. In the management of Specific Learning Disabilities (SLDs) like dyslexia and dyscalculia, a *Sattvic diet*—rich in fresh fruits, vegetables, whole grains, cow’s ghee, milk, nuts (like almonds and walnuts), and Medhya herbs (e.g., *Brahmi, Mandukaparni*)—is recommended to promote memory, focus, and emotional balance.40 Foods that aggravate Rajas and Tamas—such as processed snacks, refined sugar, caffeine, and excessively spicy or stale foods—should be avoided as they may increase hyperactivity, inattention, and sluggishness. Lifestyle practices that stabilize Vata and enhance Sattva are equally important. These include maintaining a structured daily routine with consistent sleep and study schedules, ensuring adequate sleep (8–10 hours), regular Abhyanga (oil massage) to calm the nervous system, and incorporating Yoga and Pranayama to improve concentration and reduce anxiety. Techniques such as *Nadi Shodhana, Bhramari,* and *Trataka* enhance cognitive clarity and emotional control.41 Overall, Ayurvedic dietary and lifestyle modifications offer a gentle yet effective foundation for holistic support in children with learning disabilities, complementing educational and therapeutic interventions.

**DISCUSSION**-

Specific Learning Disorders (SLDs) such as dyslexia and dyscalculia present unique challenges in child development and education. These conditions are not due to low intelligence or sensory impairments, but rather stem from atypical neural processing that affects specific academic skills—primarily reading and mathematical reasoning. Modern science identifies them as neurodevelopmental in origin, often linked to genetic and environmental factors that influence brain development.42 In Indian educational settings, these disorders are frequently misunderstood or overlooked, leading to emotional distress, poor academic performance, and delayed interventions.43 Ayurveda, with its holistic approach to health and disease, offers valuable insights into the diagnosis and management of such disorders through the lens of mind-body balance.44

From an *Ayurvedic* standpoint, cognitive functions are governed by the dynamic interplay of *Tridosha—Vata, Pitta,* and *Kapha*—and *Triguna—Sattva, Rajas,* and *Tamas*. The faculties of *Dhi* (intellect or learning capacity), *Dhriti* (retention or focus), and *Smriti* (recall or memory) play a central role in mental development.45 An imbalance in any of these can manifest as disturbances in comprehension, retention, or application of knowledge—hallmarks of learning disorders. Particularly, *Vata Dos*ha, and more specifically *Prana Vayu,* plays a crucial role in sensory perception, coordination, and mental processing. Dysfunctions in *Prana Vayu,* along with aggravated *Rajas* and *Tamas*, lead to mental restlessness, inattentiveness, and difficulty in organizing thoughts—symptoms seen prominently in dyslexia and dyscalculia.46

Ayurvedic texts refer to these imbalances as *Manasika Vikara* (mental disorders), especially falling under conditions like *Manodaurbalya* (mental debility) and *Vak Vikara* (speech or communication disorders).47 Additionally, the concept of *Srotodushti* (vitiation or obstruction of physiological channels), particularly in *Manovaha Srotas* (channels of the mind) and *Pranavaha Srotas* (life-force channels), aligns closely with modern understandings of impaired neural connectivity and cognitive dysfunction.48 Factors such as *Prajnaparadha* (intellectual errors), *Asatmendriyartha Samyoga* (improper use of sense organs), and Kala *Parinama* (effect of seasonal/environmental factors) are seen as root causes that disturb the equilibrium of the Doshas and mental faculties.49

In terms of treatment, Ayurveda emphasizes a multi-layered and individualized approach, aiming not only to reduce symptoms but to enhance overall cognitive, emotional, and physiological well-being. A cornerstone of this approach includes the use of Medhya *Rasayanas*—a group of herbs known for their nootropic and neuroprotective effects. Herbs like *Brahmi* (Bacopa monnieri), *Mandukaparni* (Centella asiatica), *Shankhpushpi* (Convolvulus pluricaulis), *Ashwagandha* (Withania somnifera), and *Shatavari* (Asparagus racemosus) have shown promising results in improving memory, attention, learning speed, and emotional balance.50--52 *Suvarnaprashana*, a traditional Ayurvedic formulation given to children, is also known for promoting immunity, intellect, and language skills—attributes beneficial in managing learning disabilities.

Alongside herbal therapy, *Panchakarma* therapies offer profound benefits in neurological and psychological rejuvenation. Treatments like Shirodhara (gentle oil pouring on the forehead), *Shirobasti* (retention of medicated oil on the scalp), and *Nasya* (nasal administration of medicated oils) are particularly effective in calming the nervous system, regulating Prana Vayu, and enhancing brain function. These therapies act on *Marma* points, improve cerebral circulation, and stimulate neurochemical activity, helping restore balance in both Doshas and Gunas.53,54 Their ability to relieve stress, enhance focus, and regulate sleep further supports their use in managing children with dyslexia and dyscalculia.

Another vital component of Ayurvedic intervention is *Satvavajaya Chikitsa*, or Ayurvedic psychotherapy. This involves methods to increase *Satva* (mental clarity and positivity), reduce *Rajas* (hyperactivity) and *Tamas* (inertia), and strengthen willpower, confidence, and attention. Practical tools include structured daily routines, repetition of learning tasks, reading and verbal exercises, visual reinforcement, and guided emotional expression.55 These strategies align closely with modern behavioral therapy but are uniquely grounded in the Ayurvedic view of personality, development, and mind-body harmony.

In the Indian context, where a significant portion of the population lacks access to specialized therapies, Ayurvedic approaches offer affordable, culturally compatible, and non-invasive alternatives. With proper awareness and implementation, *Ayurvedic* therapies can be integrated into school health programs, child development centers, and early intervention services. Additionally, educating parents and teachers about *Satvavajaya* and dietary/lifestyle modifications can help create a supportive environment for children with learning difficulties.56

**CONCLUSION**

*Ayurveda* provides a comprehensive, individualized, and integrative approach to managing Specific Learning Disorders like dyslexia and dyscalculia. Through its rich conceptual framework of *Dosha, Guna, Srotas*, and *Manas*, and interventions such as Medhya *Rasayanas, Panchakarma* therapies, and *Satvavajaya Chikitsa*, it addresses not just the symptoms but the underlying imbalances affecting learning and behavior. When combined with modern pedagogical tools and neurocognitive support, *Ayurvedic* strategies can significantly enhance the quality of life, learning outcomes, and emotional well-being of children with SLDs.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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Details of the AI usage are given below:

1.

2.

3.

**REFERENCES**

1. Sharma N, Sharma S. Understanding learning disabilities in India: issues and challenges. *Indian J Health Wellbeing*. 2016;7(9):909–912.
2. Karande S. Current challenges in managing specific learning disability in Indian children. Indian J Psychol Med. 2008;30(1):1–2.
3. Srinath S, Girimaji SC, Gururaj G, Seshadri S, Subbakrishna DK, Bhola P, et al. Epidemiological study of child & adolescent psychiatric disorders in urban & rural areas of Bangalore, India. Indian J Med Res. 2005;122(1):67–79.
4. Ministry of Law and Justice, Government of India. The Rights of Persons with Disabilities Act, 2016. New Delhi: Government of India; 2016.4
5. Singhal A, Malhotra S. Specific learning disability: issues that remain unanswered. *Indian J Psychol Med*. 2020;42(3):208–14.
6. Sharma PV. Charaka Samhita of Agnivesha, Vol 1. Varanasi: Chaukhambha Orientalia; 2014. Sutrasthana, Chapter 1–8.
7. Tripathi B. Madhav Nidanam. Varanasi: Chaukhambha Surbharati Prakashan; 2021. Chapter 55, Manovikara Nidana.
8. Murthy KR, editor. Ashtanga Hridaya of Vagbhata, Vol 1. Varanasi: Chaukhambha Krishnadas Academy; 2012. Sutrasthana, Chapter 1.
9. Sharma RK, Dash B. Charaka Samhita of Agnivesha, Vol 2. Varanasi: Chaukhambha Sanskrit Series Office; 2014. Chikitsasthana, Chapter 8.
10. Tripathi B. Madhav Nidanam. Varanasi: Chaukhambha Surbharati Prakashan; 2021. Chapter 55, Manovikara Nidana.
11. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-5). 5th ed. Washington, DC: APA Publishing; 2013.
12. Lyon GR, Shaywitz SE, Shaywitz BA. A definition of dyslexia. Ann Dyslexia. 2003;53(1):1–14.
13. Butterworth B, Varma S, Laurillard D. Dyscalculia: from brain to education. Science. 2011;332(6033):1049–1053.
14. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-5). 5th ed. Washington, DC: APA Publishing; 2013.
15. McBride MC, Schiess MC. Fetal brain development: influence of genetics and environment. Clin Perinatol. 2007;34(4):605–621.
16. Marlow N, Wolke D, Bracewell MA, Samara M; EPICure Study Group. Neurologic and developmental disability at six years of age after extremely preterm birth. N Engl J Med. 2005;352(1):9–19.
17. Bellinger DC. Very low lead exposures and children's neurodevelopment. Curr Opin Pediatr. 2008;20(2):172–177.
18. Lerner JW, Johns BW. Learning Disabilities and Related Mild Disabilities: Characteristics, Teaching Strategies, and New Directions. 12th ed. Boston: Cengage Learning; 2015.
19. Karande S, Kulkarni M. Specific learning disability: The invisible handicap. Indian Pediatr. 2005;42(4):315–319.
20. Glascoe FP. Screening for developmental and behavioral problems. Ment Retard Dev Disabil Res Rev. 2005;11(3):173–179.
21. National Centre for Learning Disabilities (NCLD). The evaluation process: How is a learning disability diagnosed? [Internet]. New York: NCLD; 2020 [cited 2025 Jun 30]. Available from: <https://www.ncld.org>
22. Acharya YT, editor. Charaka Samhita of Agnivesha, Chikitsasthana. Varanasi: Chaukhambha Orientalia; 2017. Chapter 1.
23. Vagbhatta. Ashtanga Hridaya, Uttarasthana, Chapter 40 – Suvarnaprashana Vidhi. In: Paradkar HS, editor. Varanasi: Chaukhambha Surbharati Prakashan; 2014.
24. Joshi P, Vyas PP, Singhal HK. Clinical study on *Medhya* effect of *Suvarnaprashana* on intelligence quotient (IQ) in school-going children. *Int J Adv Res*. 2024 Aug;12(8):940–7. (ISSN: 2320-5407).
25. Singhal HK, Vyas PP, Rai DK, Yadav AK, Joshi P. Clinical study to evaluate the efficacy of *Suvarnaprashana* on growth and development and nutrition along with its effect on morbidity status in 0–5 year age children. *J Biol Sci Opin*. 2025;13(1):1–6. doi:10.7897/2321-6328.131400
26. Sharma PV. Charaka Samhita of Agnivesha, Vol 2. Varanasi: Chaukhambha Orientalia; 2014. Chikitsasthana, Chapter 1.
27. Kumar MH, Gupta YK. Effect of Centella asiatica on pentylenetetrazole-induced kindling, cognition, and oxidative stress in rats. Pharmacol Biochem Behav. 2002;74(3):579–85.
28. Stough C, Lloyd J, Clarke J, Downey LA, Hutchison CW, Rodgers T, et al. The chronic effects of an extract of Bacopa monniera (Brahmi) on cognitive function in healthy human subjects. Psychopharmacology (Berl). 2001;156(4):481–4.
29. Singhal HK, Neetu, Kumar A, Rai M. Ayurvedic approach for improving reaction time of attention deficit hyperactivity disorder affected children. Ayu. 2010 Jul;31(3):338-42. doi: 10.4103/0974-8520.77169. PMID: 22131736; PMCID: PMC3221068.
30. Walia R, Kumar R, Mehta M, Garg R, Kumar A, Verma S. Shankhpushpi: A review on its pharmacological and neuropsychological effects. J Ethnopharmacol. 2021;267:113528.
31. Prajapati PK, Gupta GP, Chahar DS, Singhal HK, Sharma B, Sharma N, Chaudhary BP, Gupta A. Exploring the therapeutic potential of *Ashwagandha* (*Withania somnifera*) in alleviating stress and anxiety. *J Pharm Res Int*. 2025;37(4):116–26. doi:10.9734/jpri/2025/v37i47683.
32. Chandrasekhar K, Kapoor J, Anishetty S. A prospective, randomized double-blind, placebo-controlled study of safety and efficacy of a high-concentration full-spectrum extract of Ashwagandha root in reducing stress and anxiety in adults. Indian J Psychol Med. 2012;34(3):255–62.
33. Gautam M, Diwanay S, Gairola S, Shinde Y, Patki P, Patwardhan B. Immune response modulation to Asparagus racemosus by polyherbal formulations used in Ayurvedic medicine. J Ethnopharmacol. 2004;90(1):49–55.
34. Sharma RK, Dash B. Charaka Samhita of Agnivesha, Vol. 2. Chikitsasthana. Varanasi: Chaukhambha Sanskrit Series Office; 2012.
35. Reddy KR. Panchakarma Illustrated. Varanasi: Chaukhambha Sanskrit Bhawan; 2012. p. 211–6.
36. Singh RH, Nariya MB. Management of psychosomatic disorders in Ayurveda. Anc Sci Life. 2004;24(1):8–15.
37. Siyag NS, Vyas PP, Singhal HK. A comparative study of syrup *Trayodashanga Kashaya* and syrup *Vyaghradi Kashaya* along with *Anu Taila Nasya* in the management of *Vataj Pratishyaya* (W.S.R. to allergic rhinitis). *J Ayurveda*. 2023;17:104–13
38. Murthy KRS, editor. Ashtanga Samgraha of Vagbhata, Vol. 2. Uttarasthana. Varanasi: Chaukhambha Orientalia; 2013.
39. Acharya YT, editor. Charaka Samhita of Agnivesha, Chikitsa Sthana, Chapter 1. Varanasi: Chaukhambha Sanskrit Sansthan; 2011.
40. Lad V. Textbook of Ayurveda: A Complete Guide to Clinical Assessment. Vol. 2. Albuquerque, NM: The Ayurvedic Press; 2006. p. 129–35.
41. Sharma H. Freedom from Disease: How to Control Free Radicals, a Major Cause of Aging and Disease. New York: Veda Publishing; 1993.
42. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR®). 5th ed. Washington, DC: APA Publishing; 2022.
43. Karande S, Venkataraman R. Impact of psycho-educational intervention on academic performance and parental attitudes in children with SLD. Indian J Pediatr. 2012;79(6):681–8.
44. Lad V. Ayurveda: The Science of Self-Healing. New Delhi: Motilal Banarsidass; 2015.
45. Acharya YT, editor. Charaka Samhita of Agnivesha. Chikitsa Sthana. Varanasi: Chaukhambha Sanskrit Sansthan; 2011.
46. Murthy KRS, editor. Ashtanga Samgraha of Vagbhata. Uttarasthana. Varanasi: Chaukhambha Orientalia; 2013.
47. Sharma PV. Dravyaguna Vijnana, Vol. 2. Varanasi: Chaukhambha Bharati Academy; 2014.
48. Sharma RK, Dash B. Charaka Samhita of Agnivesha, Vol. 2. Chikitsasthana. Varanasi: Chaukhambha Sanskrit Series Office; 2012.
49. Singh RH. Ayurvedic Perspectives on Selected Pathologies. Varanasi: Chaukhambha Surbharati; 2005.
50. Singh HK, Dhawan BN. Neuropsychopharmacological effects of the Ayurvedic nootropic Bacopa monniera Linn. (Brahmi). Indian J Pharmacol. 1997;29:359–65.
51. Pittler MH, Ernst E. Ginkgo biloba extract for the treatment of dementia: a systematic review. Lancet Neurol. 2003;2(11):701–9.
52. Chatterjee A, Pakrashi SC. The Treatise on Indian Medicinal Plants, Vol. 3. New Delhi: NISCAIR; 2001.
53. Reddy KR. Panchakarma Illustrated. Varanasi: Chaukhambha Sanskrit Bhawan; 2012. p. 211–6.
54. Singh RH, Nariya MB. Management of psychosomatic disorders in Ayurveda. Anc Sci Life. 2004;24(1):8–15.
55. Lad V. Textbook of Ayurveda: A Complete Guide to Clinical Assessment, Vol. 2. Albuquerque, NM: The Ayurvedic Press; 2006. p. 129–35.
56. Sharma H. Freedom from Disease: How to Control Free Radicals, a Major Cause of Aging and Disease. New York: Veda Publishing; 1993.
57. Muralidhara, M., & Rajini, P. S. (2023). Ayurvedic science and herbaceuticals in neurological disorders: An overview of the current scenario; challenges and future perspectives. Ayurvedic Herbal Preparations in Neurological Disorders, 669-690.
58. Pratibha, N., Mukesh, E., & VinodKumar, M. V. (2023). Ayurvedic practice, education and research, beyond dilemmas and confessions. Journal of Ayurveda and Integrative Medicine, 14(6), 100814.