

1 Role of Ayurveda in the Management of Alzheimer's Disease: A

2 Comprehensive Review

3 ABSTRACT

4 Alzheimer's disease (AD) is the most common form of dementia and represents a major challenge for
5 ageing populations worldwide. The disorder gradually impairs memory, reasoning, learning ability,
6 and daily functioning, significantly affecting both patients and caregivers. Given the limited capacity
7 of current treatments to halt disease progression, there is increasing interest in complementary
8 approaches that support cognitive health and overall well-being. This review explores the Ayurvedic
9 perspective on Alzheimer's disease and evaluates the potential contribution of traditional
10 interventions to its management. Although classical Ayurvedic texts do not describe AD as a separate
11 disease entity, many of its manifestations resemble conditions associated with memory impairment
12 and disturbances of higher mental functions. According to Ayurvedic principles, cognitive decline is
13 linked to age-related physiological changes, imbalance of *Vata Dosha*, depletion of *Majja Dhatu*, and
14 deterioration of mental faculties. The review highlights the importance of balanced nutrition, healthy
15 lifestyle practices, and *Medhya Rasayana* therapies in preserving cognitive function. Herbal
16 preparations such as *Brahmi*, *Mandukaparni*, *Ashwagandha*, and *Shankhapushpi* have shown
17 promising neuroprotective and cognition-supporting effects in experimental and clinical studies. In
18 addition, yoga and pranayama may improve attention, emotional health, and quality of life. Together,
19 these approaches provide a holistic framework that may complement conventional care and
20 promote healthier cognitive ageing.

21 **Keywords:** Alzheimer's disease; Ayurveda; Cognitive decline; Medhya Rasayana; Neuroprotection;
22 Yoga and Pranayama.

23 INTRODUCTION

24 Neurological disorders have become an important public health concern due to their increasing
25 prevalence and long-term impact on individuals and society.^[1] Advances in healthcare have improved
26 life expectancy; however, a growing aging population, along with lifestyle changes, dietary
27 imbalances, and mental stress, has contributed to a rise in chronic neurological conditions.^[2] These
28 disorders often result in progressive impairment of cognitive and functional abilities, creating
29 significant challenges for patients, caregivers, and healthcare systems.

30 Among the various neurodegenerative conditions, Alzheimer's disease (AD) is the most prevalent
31 cause of dementia. It is characterised by a gradual decline in memory, learning capacity, reasoning,
32 and behavioural functions, eventually affecting an individual's ability to carry out routine daily
33 activities.^[3] According to the World Health Organisation, dementia affects more than 55 million
34 people globally, and Alzheimer's disease contributes to nearly two-thirds of these cases.^[4] The
35 continuous increase in disease burden and the limited effectiveness of existing therapeutic options
36 highlight the need for supportive and preventive strategies that can complement conventional
37 management.

38 Ayurveda, one of the world's oldest systems of medicine, views health as a state of equilibrium
39 between the body, mind, and consciousness. Although Alzheimer's disease is not mentioned as a
40 distinct entity in classical Ayurvedic literature, many of its clinical manifestations resemble conditions
41 described under *Smritibhramsha*, *Smritinasha*, and *Dhi-Dhriti-Smriti Vibhramsha*, which involve
42 disturbances in memory and higher cognitive functions.^[5] From an Ayurvedic perspective, ageing-

43 related aggravation of *Vata Dosha*, depletion of *Majja Dhatu*, and impairment of mental faculties
44 play a central role in the development of cognitive decline.^[6]

45 A distinctive feature of Ayurveda is its emphasis on prevention and preservation of health through
46 *Swasthavritta*. Balanced nutrition, appropriate lifestyle practices, rejuvenative measures (*Rasayana*),
47 and Yogic disciplines are considered essential for maintaining mental clarity and supporting healthy
48 ageing.^[7] In this context, Ayurvedic principles may offer valuable insights into the prevention and
49 supportive care of neurodegenerative disorders. Therefore, the present review examines the role of
50 Ayurveda in neurological disorders, with special emphasis on Alzheimer's disease, and discusses the
51 relevance of Ayurvedic concepts and interventions in promoting cognitive health and improving
52 quality of life.

53

54 **MATERIALS AND METHODS**

55 This review was prepared by collecting and analysing information from classical Ayurvedic texts and
56 published scientific literature related to Alzheimer's disease, cognitive impairment, *Medhya*
57 *Rasayana*, Ahara, and Yoga. Relevant articles from electronic databases and standard Ayurvedic
58 references were reviewed and synthesized to evaluate the potential role of Ayurvedic interventions
59 in supporting cognitive health and quality of life in Alzheimer's disease.

60

61 **RESULTS**

62 **Alzheimer's Disease: Clinical and Pathological Overview**

63 Alzheimer's disease is the predominant cause of dementia and represents one of the most
64 challenging neurodegenerative disorders affecting the aging population. The condition is
65 characterised by a gradual decline in memory, reasoning ability, language, and executive functioning,
66 ultimately compromising an individual's capacity to perform routine activities independently.^[8] The
67 prevalence of Alzheimer's disease continues to rise globally, largely due to increasing life expectancy
68 and demographic shifts toward older populations.

69 The disease is associated with multiple risk factors including advanced age, cardiovascular disorders,
70 diabetes mellitus, obesity, depression, traumatic brain injury, and genetic susceptibility.^[9]

71 Pathological changes primarily involve the accumulation of amyloid- β plaques and neurofibrillary
72 tangles, resulting in neuronal loss, synaptic dysfunction, and progressive cerebral atrophy,
73 particularly within the hippocampus and cortical regions responsible for memory and cognition.^[10]
74 Although contemporary therapeutic approaches provide symptomatic benefit, their ability to alter
75 the natural course of the disease remains limited.

76

77 **Ayurvedic Interpretation of Alzheimer's Disease**

78 Classical Ayurvedic texts do not describe Alzheimer's disease as a distinct nosological entity;
79 however, several conditions outlined in the literature exhibit striking similarities to its clinical
80 presentation. The progressive deterioration of memory observed in Alzheimer's disease closely
81 corresponds to *Smritibhramsha* and *Smritinasha*, while impairment of intellect, judgment, and
82 recollection may be correlated with *Dhi-Dhriti-Smriti Vibhramsha*.^[5]

83 Ayurveda regards memory as an outcome of the coordinated functioning of *Atma, Manas, Buddhi,*
84 and *Medha*.^[11] Disruption of this integrated system adversely affects cognitive performance and
85 memory retrieval. The gradual loss of memory, behavioural alterations, and decline in daily
86 functioning observed in Alzheimer's disease therefore align with disturbances described in Ayurvedic
87 concepts of higher mental functions.^[12]

88 Furthermore, the disease demonstrates several characteristics of *Jarajanya Vyadhi* (age-related
89 disorders), where advancing age is accompanied by natural predominance of *Vata Dosha*, tissue
90 depletion, and declining neurological efficiency.^[13]

91

92 **Factors Contributing to Cognitive Decline According to Ayurveda**

93 Analysis of Ayurvedic literature indicates that cognitive deterioration results from the interaction of
94 multiple pathological processes rather than a single causative factor. Age-related predominance of
95 *Vata Dosha* is considered central to the development of degenerative changes affecting the nervous
96 system. Progressive depletion of *Majja Dhatu*, regarded as the tissue most closely related to neural
97 integrity, contributes to impaired memory, confusion, and declining cognitive capacity.^[14]

98 The role of *Ojas* is also emphasised, as its depletion is associated with reduced mental resilience,
99 diminished adaptability, anxiety, and fatigue.^[15] Psychological stressors such as excessive worry, grief,
100 and fear are believed to disturb *Manas* and *Prana Vata*, thereby adversely influencing memory and
101 concentration.

102 Another important mechanism involves impaired digestive and metabolic function. *Mandagni* may
103 lead to the formation of *Ama*, which obstructs bodily channels, particularly *Manovaha* and
104 *Majjavaha Srotas*.^[16] Such obstruction interferes with adequate nourishment of neural tissues and
105 contributes to progressive dysfunction. Long-standing lifestyle errors, irregular sleep patterns, poor
106 dietary practices, and excessive mental strain collectively described as *Prajnaparadha* are also
107 considered significant contributors to accelerated cognitive decline.^[17]

108

109 **Tridosha and Maintenance of Cognitive Functions**

110 Ayurvedic physiology attributes cognitive performance to the balanced functioning of the three
111 doshas. *Vata* is responsible for communication and regulation within the nervous system, *Pitta*
112 facilitates understanding and intellectual processing, while *Kapha* provides stability, retention, and
113 memory consolidation.^[18] Disturbance of this equilibrium may result in deficits affecting learning,
114 concentration, recall, and higher mental functions.

115 Classical literature further identifies several factors that strengthen memory, including observation,
116 comparison, discrimination, concentration, repeated practice, and continuous intellectual
117 engagement.^[19] These principles indicate that cognitive capacity is influenced not only by biological
118 factors but also by sustained mental activity and disciplined learning practices.

119

120

121 **Dietary Approaches for Cognitive Health**

122 The reviewed literature highlights the importance of *Ahara* in preserving neurological function and
123 supporting healthy ageing. Dietary interventions recommended in Ayurveda are directed toward
124 pacifying aggravated *Vata*, nourishing depleted tissues, improving digestion, and promoting mental
125 clarity.^[20]

126 Nourishing foods such as milk, ghee, wheat, rice, green gram, almonds, dates, figs, and sesame are
127 repeatedly mentioned as supportive measures for maintaining *Majja Dhatu*. Particular emphasis is
128 placed on *Ghrita*, which is traditionally regarded as beneficial for memory and intellectual
129 functions.^[21] Similarly, milk and honey are considered supportive of cognitive health owing to their
130 nourishing and restorative properties.

131 Digestive efficiency is considered equally important. Spices such as ginger, cumin, coriander, and
132 black pepper are recommended to support metabolic activity and prevent the accumulation of *Ama*.
133 A predominantly *Satvika* dietary pattern consisting of wholesome grains, fruits, vegetables, dairy
134 products, and natural sweeteners is described as favourable for maintaining mental clarity and
135 emotional stability.^[22]

136

137 Evidence Supporting Medhya Rasayana

138 A substantial body of experimental and clinical evidence supports the traditional use of *Medhya*
139 *Rasayana* in cognitive disorders. Among these, *Brahmi* (*Bacopa monnieri*) has been the most
140 extensively investigated. Studies conducted in both animal models and human subjects have
141 reported improvements in learning, attention, memory retention, and behavioural parameters.^[23]
142 Findings suggest a particular influence on information retention and reduction in forgetting.

143 Research involving *Mandukaparni* (*Centella asiatica*) demonstrated enhancement of learning
144 performance, improved memory retention, and structural changes indicative of increased neuronal
145 connectivity.^[24] Additional investigations suggest a role in neuronal repair and protection against
146 oxidative stress.

147 *Cognitive-enhancing effects have also been reported for Yashtimadhu, Shankhapushpi,*
148 *Ashwagandha, Guduchi, Jatamansi, and Jyotishmati.*^[25] Experimental studies indicate improvements
149 in learning behaviour, neurotransmitter regulation, memory consolidation, and resistance to
150 experimentally induced amnesia. Collectively, these observations suggest that Ayurvedic nootropic
151 herbs may exert neuroprotective, antioxidant, adaptogenic, and cognition-supportive effects relevant
152 to age-associated neurodegenerative conditions.^[26]

153

154 Yoga and Cognitive Function

155 Yoga has emerged as a promising non-pharmacological intervention for individuals experiencing
156 cognitive decline. The reviewed studies indicate that yoga-based practices may positively influence
157 multiple domains of cognition, including attention, memory, processing speed, and executive
158 functioning. Improvements have been reported among older adults with subjective memory
159 complaints, mild cognitive impairment, and dementia.

160 The beneficial effects of yoga appear to extend beyond cognition. Several studies documented
161 reductions in depressive symptoms, anxiety, stress, and neuropsychiatric manifestations commonly
162 associated with cognitive disorders. Enhanced quality of life and reduced caregiver burden were also
163 reported following structured yoga interventions.^[27]

164 From an Ayurvedic perspective, these benefits may be explained by the regulation of Prana, the
165 pacification of aggravated Vata, and the promotion of *Chitta Prasadana* (mental clarity). Gentle
166 postures such as *Padmasana*, *Siddhasana*, *Swastikasana*, *Vajrasana*, and *Shavasana* have been
167 traditionally recommended for elderly individuals.^[28] Likewise, *Nadi Shodhana*, *Bhramari*, and *Ujjayi*
168 *Pranayama* are believed to improve mental calmness, attention, and emotional stability.^[29]

169 Contemporary research provides additional support for these observations. Neuroimaging studies
170 have demonstrated favourable changes in functional brain connectivity, while biochemical
171 investigations suggest modulation of stress-related biomarkers. These findings indicate that yoga
172 may influence both psychological and neurophysiological processes involved in cognitive decline.^[30]

173 The available evidence indicates a strong conceptual overlap between Alzheimer's disease and
174 Ayurvedic descriptions of age-associated cognitive disorders. The condition may be understood as a
175 consequence of progressive *Vata* predominance, depletion of *Majja Dhatu*, impairment of memory-
176 related faculties, and disturbances in mental and physiological homeostasis. Dietary regulation,
177 *Medhya Rasayana*, and yoga-based interventions collectively demonstrated beneficial effects on
178 memory, cognition, emotional well-being, and functional capacity. Although further high-quality
179 clinical investigations are required, the findings suggest that Ayurvedic approaches may offer
180 valuable supportive strategies to promote cognitive health and enhance quality of life in individuals
181 affected by Alzheimer's disease.

182

183 **DISCUSSION**

184 The present review suggests that the relevance of Ayurveda in Alzheimer's disease lies not merely in
185 symptom management but in its broader understanding of cognitive decline as a consequence of
186 ageing, lifestyle disturbances, and progressive deterioration of mental faculties. While modern
187 research primarily focuses on molecular changes within the brain, Ayurvedic principles draw
188 attention to factors that influence the overall maintenance of cognitive health. This distinction
189 becomes important in Alzheimer's disease, where pathological changes begin years before clinical
190 symptoms become evident.

191 A recurring theme across the reviewed literature is the relationship between ageing and cognitive
192 deterioration. In Ayurveda, old age is considered a phase dominated by *Vata Dosha*, and excessive
193 *Vata* is associated with degeneration, instability, and decline in functional capacity. The gradual loss
194 of memory, reduced comprehension, behavioural changes, and dependence observed in Alzheimer's
195 disease appear consistent with this description. Although Ayurvedic concepts cannot be directly
196 equated with modern neuropathology, they offer a functional framework for understanding the
197 progressive nature of the disorder.

198 The findings also indicate that Ayurveda approaches cognitive decline through multiple pathways
199 rather than a single intervention. Dietary regulation, maintenance of digestive efficiency, mental
200 well-being, herbal support, and yogic practices are all considered interrelated components of care.
201 Such an approach may be particularly relevant in Alzheimer's disease, which itself arises from a
202 complex interaction of biological, psychological, and environmental factors. The emphasis on *Ahara*
203 is noteworthy because nutrition influences not only physical health but also cognitive resilience. The
204 traditional recommendation of nourishing and *Medhya* foods reflects an attempt to sustain tissue
205 integrity and mental functions during ageing.

206 The growing body of evidence on *Medhya Rasayana* provides further support for this perspective.
207 Herbs such as Brahmi, Mandukaparni, Ashwagandha, Guduchi, and Shankhapushpi have
208 demonstrated beneficial effects on learning, memory, and cognition in various experimental and
209 clinical settings. Rather than acting through a single mechanism, these interventions appear to
210 influence several processes associated with neurodegeneration, including oxidative stress, neuronal
211 damage, and impaired adaptation to stress. This multifaceted activity is particularly relevant because
212 Alzheimer's disease is now recognised as a disorder involving numerous interconnected pathological
213 pathways.

214 Another notable observation is the potential role of Yoga and Pranayama in addressing dimensions of
215 the disease that are often difficult to manage pharmacologically. Cognitive impairment frequently
216 coexists with anxiety, sleep disturbances, emotional instability, and reduced quality of life. The
217 reported benefits of yogic practices on attention, mood, memory, and overall well-being suggest that
218 they may complement conventional care by supporting both mental and functional health. Their
219 simplicity, accessibility, and safety make them especially suitable for elderly populations.

220 An interesting convergence can be observed between traditional Ayurvedic concepts and current
221 understanding of dementia prevention. Several factors described in Ayurveda, including poor dietary
222 habits, psychological stress, disturbed sleep, and unhealthy lifestyle practices, are now recognised as
223 modifiable risk factors for cognitive decline. This overlap highlights the potential value of preventive
224 strategies aimed at maintaining cognitive function before irreversible degeneration occurs.

225 However, the available evidence should be interpreted cautiously. Much of the research on
226 Ayurvedic interventions remains exploratory, and variations in study design, sample size, duration of
227 treatment, and outcome assessment limit direct comparisons. Future studies incorporating
228 standardised interventions and robust clinical methodologies will be necessary to clarify the extent
229 of their therapeutic benefit.

230 Overall, the evidence reviewed indicates that Ayurveda offers a comprehensive perspective on
231 Alzheimer's disease by integrating preventive measures, cognitive support, and lifestyle-based
232 interventions. Although further scientific validation is required, the combined use of appropriate
233 diet, *Medhya Rasayana*, and Yoga may provide meaningful support for cognitive health and quality of
234 life in individuals affected by Alzheimer's disease.

235

236 CONCLUSION

237 Ayurvedic interventions such as *Medhya Rasayana*, appropriate dietary practices, and Yoga such as
238 *Padmasana*, *Siddhasana*, *Swastikasana*, *Vajrasana*, and *Shavasana* offer a practical framework for
239 supporting cognitive health in individuals with Alzheimer's disease. By focusing on nourishment,
240 mental well-being, and healthy aging, these approaches may complement existing therapies and
241 help maintain functional independence and quality of life. Further clinical research is needed to
242 better define their therapeutic potential in dementia care.

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