

Review Article

Volume 15 Issue 04

April 2026

## RECENT ADVANCES IN KAYACHIKITSA INTEGRATING ARTIFICIAL INTELLIGENCE IN AYURVEDIC CLINICAL PRACTICE

**\*Dr. Viveka<sup>1</sup>, Dr. Shagufta Malhotra<sup>2</sup>, Dr. Nitin Goel<sup>3</sup>**

<sup>1</sup>MD Scholar (Kayachikitsa), KSVAMC & RC, Shobhit University Gangoh, UP

<sup>2</sup>M.D. (Ay.), Associate Professor, Department of Kayachikitsa, KSVAMC & RC, Shobhit University Gangoh, UP

<sup>3</sup>M.D, Kayachikitsa, Associate Professor, KSVAMC & RC, Shobhit University, Gangoh U.P

\*Corresponding Author: Dr. Viveka, MD Scholar (Kayachikitsa), KSVAMC & RC, Shobhit University Gangoh, UP

### Abstract:

The internal medicine branch of Ayurveda known as Kayachikitsa uses the concepts of Tridosha, Agni, Dhatu, and Srotas to prevent and treat systemic illnesses. Artificial Intelligence (AI) has been incorporated into numerous healthcare systems in recent years due to rapid technology breakthroughs, opening up new possibilities for combining traditional medical expertise with contemporary digital technologies. AI integration in Ayurvedic clinical practice has the ability to improve clinical decision-making, enable individualized treatment plans, increase diagnostic precision, and promote Ayurvedic evidence-based research. In fields like Prakriti assessment, Nadi Pariksha analysis, clinical data management, and Ayurvedic drug discovery, artificial intelligence (AI) technologies like machine learning, natural language processing, and predictive analytics are being used more and more. These developments support the scientific validation of Ayurvedic treatments by facilitating the analysis of sizable datasets from clinical records and traditional texts. AI-assisted systems in the field of Kayachikitsa can help doctors diagnose illnesses, choose suitable herbal formulations, track treatment results, and forecast the course of diseases. Notwithstanding these encouraging advancements, there are still many obstacles to overcome, including a lack of standardized data, the complexity of converting Ayurvedic ideas into computer models, and ethical issues. The current paper examines how AI is

changing Ayurvedic clinical practice while preserving the holistic and customized approach of Ayurveda, highlighting recent developments in its application in Kayachikitsa.

**Keywords:** Kayachikitsa, Artificial Intelligence, Ayurveda, Clinical Decision Support System, Prakriti Assessment, Digital Ayurveda.

## **Introduction**

The Indian traditional medical system known as Ayurveda places a strong emphasis on managing health and illness holistically. Kayachikitsa is one of the eight traditional branches of Ayurveda that focuses on internal medicine, dietary control, and lifestyle changes to cure systemic illnesses. In Kayachikitsa, diagnosis and therapeutic procedures are based on the basic ideas of Tridosha (Vata, Pitta, Kapha), Agni, Dhatu, and Mala. Ayurvedic doctors have historically used specialist diagnostic methods like Nadi Pariksha and Jihva Pariksha in addition to clinical examination techniques like Darshana (inspection), Sparshana (palpation), and Prashna (interrogation). With the development of computational sciences and digital technology, artificial intelligence has become a potent instrument in contemporary healthcare systems.<sup>1</sup> AI is the capacity of robots and computer systems to carry out activities like learning, reasoning, pattern recognition, and decision-making that normally need human intellect. AI has already been used in the medical industry for drug discovery, treatment planning, image analysis, and disease detection. The application of AI to Ayurvedic medicine offers a chance to improve clinical practice's accuracy and efficiency while methodically analyzing traditional knowledge.<sup>2</sup>

Since Ayurvedic diagnosis and therapy include the interpretation of numerous variables, including patient constitution, environmental factors, nutrition, lifestyle, and illness progression, the use of AI in Kayachikitsa is especially promising. Large amounts of textual and clinical data can be processed by AI-based techniques to find trends and correlations that could help doctors make better judgments. Thus, incorporating AI into Ayurvedic clinical practice is a significant step toward creating an evidence-based, contemporary approach to Ayurveda while upholding its traditional tenets.

## **Material and Methods**

The current review article is based on a thorough examination of the body of research on the use of artificial intelligence in Ayurveda and contemporary healthcare systems. Digital

libraries, internet scientific databases, peer-reviewed research articles, and traditional Ayurvedic literature were the sources of pertinent data. The Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya are examples of classical Ayurvedic literature that was consulted in order to comprehend the fundamentals of Kayachikitsa and conventional diagnostic techniques. Electronic databases including Google Scholar, PubMed, and other scholarly sources with an emphasis on artificial intelligence, machine learning applications in medicine, digital health technologies, and computational techniques in conventional medicine were used to compile current scientific data. The literature was retrieved using keywords like "Artificial Intelligence in Ayurveda," "Digital Ayurveda," "AI in healthcare," "Prakriti analysis using AI," and "Ayurvedic clinical decision support systems."<sup>3,4,5</sup>

### **Recent Advances in Kayachikitsa Integrating Artificial Intelligence in Ayurvedic Clinical Practice**

Particularly in the area of Kayachikitsa, recent technological advancements have created new opportunities for using artificial intelligence into Ayurvedic clinical practice. AI has the ability to advance Ayurvedic research capacities, better treatment planning, and modernize conventional diagnostic techniques. The creation of AI-based Ayurvedic diagnostic support systems is among the most significant developments. In order to detect potential illnesses and doshic imbalances, these systems employ machine learning algorithms to examine clinical data, physiological factors, and patient symptoms. AI techniques can help doctors diagnose patients more accurately by comparing patient data with traditional Ayurvedic descriptions of ailments. Specifically, AI algorithms in conjunction with digital pulse analysis devices are being developed to objectively interpret Nadi Pariksha, hence lowering the variability in conventional pulse diagnosis.<sup>6</sup>

The advent of AI-driven Prakriti assessment tools is another noteworthy breakthrough. An individual's vulnerability to illness and reaction to therapy are determined by the core Ayurvedic notion of Prakriti. Prakriti assessment has historically relied on questionnaires and clinical observation. These days, AI-based systems use voice analysis, facial recognition, machine learning, and physiological data to more accurately determine a person's constitutional type. One important aspect of Ayurvedic medicine is the creation of individualized treatment plans, which is made possible by these technologies.<sup>7</sup>

Ayurvedic clinical practice is also changing as a result of the integration of AI technology with electronic health records (EHR). The systematic gathering and preservation of patient data, including clinical symptoms, treatment plans, and therapeutic results, is made possible by digital records. These massive databases can be analyzed by AI algorithms to find trends in the course of diseases and assess how well Ayurvedic treatments work. Predictive models for chronic illnesses like diabetes, metabolic disorders, and digestive problems that are frequently treated in Kayachikitsa can be created using this data.<sup>8</sup>

Additionally, traditional Ayurvedic writings are being analyzed and digitized using AI-based natural language processing (NLP) technologies. By extracting pertinent information about illnesses, medicinal plants, and therapeutic formulas from ancient literature, these technologies help modern researchers and practitioners better access this knowledge. AI helps the evidence-based development of Ayurvedic medicine and enables systematic research by building organized databases from classical texts.

AI is supporting lifestyle management and preventative healthcare, two fundamental tenets of Kayachikitsa, in addition to clinical applications. Wearable health gadgets and AI-powered mobile apps can track physiological characteristics like eating habits, physical activity, and sleep patterns. These methods, which are based on Ayurvedic concepts like Dinacharya and Ritucharya, can offer tailored health advice to preserve doshic balance and stop the onset of illness. While there are many advantages to these technical developments, integrating AI into Ayurveda is not without its difficulties. Significant challenges include the absence of standardized clinical datasets, the scarcity of digital documentation in Ayurvedic practice, and the difficulty of converting Ayurvedic ideas into computer models.<sup>9</sup> Ethical concerns about data privacy and the necessity of appropriate legal frameworks must also be taken into consideration. However, the future of AI-assisted Kayachikitsa is bright given the growing interdisciplinary cooperation between Ayurvedic scholars, medical researchers, and data scientists.

**Recent Advances in Kayachikitsa Clinical Practice and Artificial Intelligence (AI)<sup>10,11,12</sup>**

S.No	Area in Kayachikitsa Clinical Practice	Artificial Intelligence Application	Description / Recent Advances	Clinical Significance
1	Prakriti Assessment	Machine Learning (ML) based classification systems	To ascertain a person's Prakriti (Vata, Pitta, Kapha), AI systems examine questionnaires, facial traits, genetic markers, and physiological data.	enhances the precision and impartiality of constitutional diagnosis and facilitates customized Ayurvedic treatment.
2	Dosha Imbalance Diagnosis	Predictive analytics and pattern recognition	AI techniques predict Dosha imbalance and illness risk by analyzing clinical indicators, lifestyle factors, and patient symptoms.	Helps physicians in early diagnosis and preventive healthcare.
3	Nadi Pariksha (Pulse Examination)	IoT sensors and AI-based waveform analysis	In order to determine Vata, Pitta, and Kapha dominance, smart pulse-diagnosis devices use AI algorithms to evaluate pulse signals.	increases the accuracy and repeatability of conventional pulse diagnosis.
4	Clinical Decision Support Systems (CDSS)	AI-driven expert systems	Based on clinical data and classical texts, AI algorithms evaluate patient data and provide likely diagnoses, treatment plans, and herbal remedies.	helps doctors make clinical decisions based on evidence.
5	Personalized Ayurvedic Treatment Planning	Machine learning models	To provide customized treatment plans, AI analyzes massive databases of patient history, Prakriti, diet, and lifestyle.	Improves treatment precision and clinical outcomes.

6	Ayurvedic Drug Discovery and Formulation	AI-based molecular analysis and data mining	AI predicts therapeutic combinations of herbal medicines and finds active chemicals in medicinal plants.	Accelerates discovery of new Ayurvedic formulations and validates classical drugs.
7	Telemedicine and Remote Ayurvedic Consultation	AI-enabled digital health platforms	Telemedicine technologies with AI integration evaluate patient symptoms, offer first guidance, and help doctors diagnose patients remotely.	Expands accessibility of Kayachikitsa services.
8	Disease Prediction and Risk Assessment	Predictive machine learning models	AI predicts diseases like diabetes, dyslipidemia, and metabolic disorders by analyzing patient data and epidemiological trends.	encourages early intervention and preventative medicine.
9	Ayurgenomics Research	AI-based bioinformatics tools	In order to comprehend illness risk and tailored therapy response, AI integrates genetic data with Ayurvedic Prakriti.	connects contemporary genomics research with Ayurveda.
10	Knowledge Digitization and Text Mining	Natural Language Processing (NLP)	AI systems gather knowledge and standardize terminology by analyzing clinical records and traditional Ayurvedic books.	enhances evidence-based practice and research accessibility.

### **Advancement of Artificial Intelligence (AI) related to Kayachikitsa in Different Institutes-**

Artificial Intelligence (AI) is gradually being integrated into Ayurveda research and clinical practice. In the field of Kayachikitsa (Ayurvedic internal medicine), AI helps in disease prediction, personalized treatment, drug discovery, and analysis of classical Ayurvedic data.

Many institutes in India and globally are exploring AI-based approaches to improve Ayurvedic diagnosis and treatment.

### **1. All India Institute of Ayurveda (New Delhi, India)**

#### **Major AI Advancements:**

- The creation of AI-powered Prakriti evaluation instruments for individualised care.
- Digital analysis of Ayurvedic clinical data for conditions treated in Kayachikitsa, including diabetes, obesity, and metabolic disorders.
- Working together on Ayurvedic clinical decision-support systems with IT institutions.
- Analysing traditional Ayurvedic texts using machine learning.

#### **Research Focus:**

- **AI-based lifestyle disorder diagnosis.**
- **Including Ayurvedic ideas (Agni, Dosha, and Dhatu) in digital models.**

### **2. Institute of Teaching and Research in Ayurveda (Jamnagar, India)**

#### **Major AI Work:**

- Studies on clinical informatics and big data in Ayurveda.
- The creation of AI tools for disease risk prediction and Prakriti analysis.
- Digital records of clinical results from Kayachikitsa.

#### **Application Areas:**

- **Diseases are automatically categorised according to Dosha imbalance.**
- **AI analysis of treatment outcomes and Ayurvedic formulations.**

### **3. Banaras Hindu University – Faculty of Ayurveda**

#### **AI Research Activities:**

- AI-based models for diagnosing metabolic problems, such as thyroid conditions and diabetes.
- Data mining of classical Ayurvedic texts for Kayachikitsa treatments.
- AI integration with Ayurvedic evaluation and biological parameters.

#### **4. Indian Institute of Technology Delhi Collaboration with Ayurveda Institutes**

##### **Key AI Innovations:**

- Prakriti determination using machine learning methods.
- Predictive models for the course of diseases based on artificial intelligence.
- The creation of digital knowledge graphs for Ayurveda.

#### **5. Ministry of AYUSH Digital Initiatives**

##### **AI and Digital Ayurveda Projects:**

- Ayush Grid, a digital health platform that incorporates clinical data from Ayurveda.
- Electronic health records for Ayurvedic practice with AI support.
- Research assistance for clinical analytics and AI-based medication discovery.

##### **Major Applications of AI in Kayachikitsa**

1. **Prakriti Analysis** – For individualised care, AI systems determine the body's makeup.
2. **Disease Prediction** – Early identification of lifestyle conditions (such as diabetes and hypertension).
3. **Clinical Decision Support** – AI recommends suitable Ayurvedic remedies.
4. **Drug Discovery** – Phytochemicals from therapeutic plants are screened.
5. **Text Mining of Classical Literature** – drawing medicinal insights from Ayurvedic literature.

##### **Discussion**

A significant step in updating conventional healthcare systems is the incorporation of artificial intelligence (AI) into Ayurvedic medicine, especially in the area of Kayachikitsa.<sup>13</sup> In order to prevent and treat illnesses, Kayachikitsa emphasizes strengthening Agni, protecting the integrity of Dhatus and Srotas, and maintaining the balance of Tridosha. Due to Ayurveda's comprehensive and customized therapeutic approach, a doctor's experience and analytical skills play a major role in diagnosis and therapy.<sup>14</sup> AI has the ability to help practitioners in this situation by enabling evidence-based decision-making and assessing intricate clinical variables. The capacity to handle substantial amounts of clinical and textual data is one of the main benefits of AI integration in Kayachikitsa. The origin, pathophysiology, and treatment methods of diseases are covered in great detail in Ayurvedic classical writings. However, it takes a lot of time and experience to manually assess such large amounts of

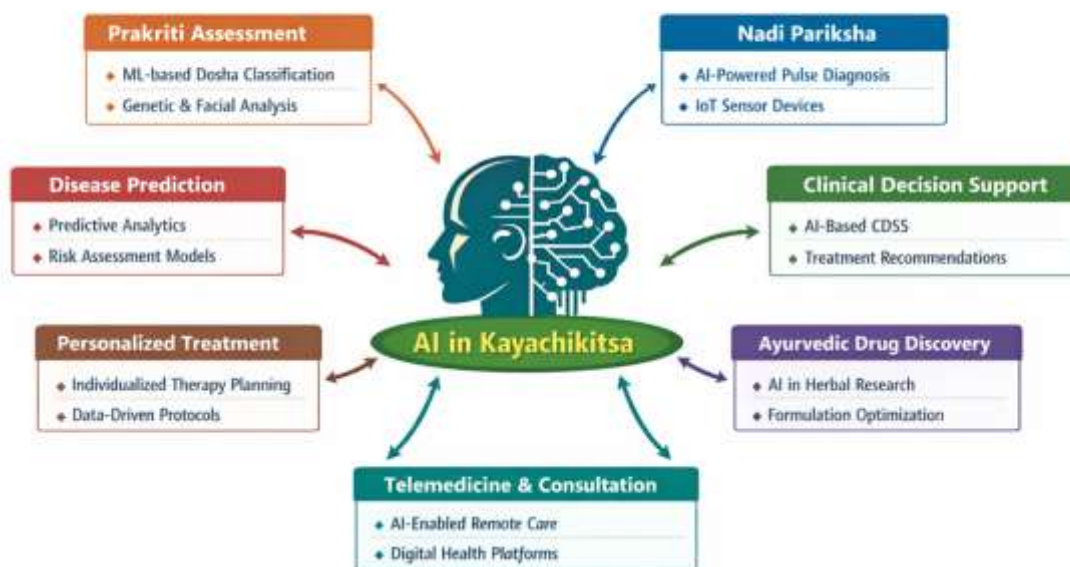
107

data.<sup>15</sup> Physicians and researchers can swiftly access pertinent information by extracting and organizing knowledge from these documents using AI-powered natural language processing techniques. This facilitates communication between modern scientific research and traditional Ayurvedic knowledge.<sup>16</sup>

The application of AI to tailored medicine is another crucial factor. Ayurveda places a strong emphasis on customized care based on environmental variables, lifestyle choices, Vikriti (current imbalance), and Prakriti (constitutional type). AI-powered analytical tools can help practitioners create personalized treatment plans by more methodically assessing these factors.<sup>17</sup> This is especially helpful in addressing long-term lifestyle conditions like metabolic syndrome, diabetes, obesity, and dyslipidemia, which are frequently treated under Kayachikitsa. Additionally, AI enhances the objectivity and repeatability of conventional diagnostic techniques like Prakriti evaluation and Nadi Pariksha.<sup>18</sup> These conventional techniques can be standardized and scientifically proven by combining digital sensors, machine learning algorithms, and physiological data analysis. In addition to improving diagnostic precision, these developments boost Ayurvedic therapies' legitimacy in the international medical community.

AI also plays a major role in the creation of Ayurvedic drugs. AI can find possible bioactive substances and forecast their medicinal effects by computationally analyzing phytochemical databases and herbal compositions. This promotes the creation of new herbal medications and expedites the validation of traditional remedies. AI thus acts as a link between contemporary pharmaceutical research and traditional herbal knowledge.

### Integration of AI in Kayachikitsa Clinical Practice



## **Challenges in Integrating Artificial Intelligence in Ayurveda**

While there are many prospects for using artificial intelligence in Ayurveda, there are a few issues that need to be resolved before it can be implemented successfully. The absence of standardized clinical data in Ayurvedic treatment is one of the main obstacles. It is challenging to get the massive digital datasets needed for AI training and analysis since many Ayurvedic clinics still keep handwritten patient records. The precision and dependability of AI algorithms are constrained in the absence of enough data. The intricacy of Ayurvedic ideas presents another difficulty. Basic concepts like Dosha, Agni, Ama, and Prakriti are multifaceted and qualitative. It is a challenging endeavor that calls for interdisciplinary study to translate these conventional ideas into computational models that AI systems can process.<sup>19</sup>

Another challenge is the scarcity of digitized classical texts. Many Ayurvedic texts have been translated and published, but systematic digital databases that AI algorithms can easily evaluate are still being developed. Challenges include issues with data privacy and ethics. Secure data management and legal requirements are necessary for the usage of AI-driven systems and digital health records in order to safeguard patient privacy. The lack of technical proficiency among Ayurvedic practitioners is another major problem. Digital technologies and AI-based tools may be unfamiliar to many practitioners. To encourage the use of these technologies in Ayurvedic clinical practice, training programs and educational activities are therefore required.<sup>20</sup>

## **Future Scope**

Artificial intelligence in Kayachikitsa has a bright future and might completely transform Ayurvedic medicine. AI can be utilized to create intelligent diagnostic systems that can recognize illness patterns based on Ayurvedic factors thanks to the development of digital health technologies. These kinds of technology can help practitioners make healthcare judgments more quickly and accurately. The development of precision Ayurveda, where AI combines Ayurvedic notions of Prakriti and Dosha with genomic data, metabolic profile, and lifestyle information, is another exciting field. This method could result in highly customized healthcare plans that integrate conventional wisdom with cutting-edge biological research.

Ayurvedic healthcare more accessible, especially in underserved and rural areas. AI can help with large-scale clinical outcome analysis in research, allowing for the creation of evidence-based treatment plans for a range of illnesses. Ayurvedic scientific research will be strengthened by the development of digital Ayurvedic information repositories and computer models of herbal mixtures.

## Conclusion

An important step forward in the development of Ayurvedic treatment is the incorporation of artificial intelligence into Kayachikitsa. AI technologies offer potent tools for strengthening individualized treatment methods, helping clinical decision-making, increasing diagnostic accuracy, and speeding up herbal medicine research. AI assists in bridging the gap between traditional Ayurvedic knowledge and contemporary scientific approaches by evaluating massive datasets from ancient texts and clinical records. Even though there are still a number of obstacles to overcome, including restricted data availability, conceptual complexity, and ethical considerations, ongoing study and technological advancement are progressively resolving these problems. For AI-based solutions to be successfully implemented in Ayurvedic healthcare, cooperation between Ayurvedic scholars, physicians, and data scientists is crucial.

Ultimately, artificial intelligence integration ought to enhance rather than take the place of Ayurvedic practitioners' knowledge and clinical proficiency. Kayachikitsa can develop into a more evidence-based, effective, and internationally recognized healthcare system while retaining its traditional core of customized and preventative treatment by fusing cutting-edge computational technologies with the holistic principles of Ayurveda.

## References

1. M.S. Valiathan. Ayurveda: Putting the House in Order. *Current Science*. 2006;90(1):5–6.
2. B. Patwardhan, A.D. Bodeker. Ayurveda and Traditional Chinese Medicine: A Comparative Overview. *Evidence-Based Complementary and Alternative Medicine*. 2008;5(4):465–473.
3. Charaka Samhita. Edited by R.K. Sharma and Bhagwan Dash. Varanasi: Chaukhambha Sanskrit Series Office; 2018.
4. Sushruta Samhita. Edited by K.R. Srikantha Murthy. Varanasi: Chaukhambha Orientalia; 2016.
5. Ashtanga Hridaya. Translated by K.R. Srikantha Murthy. Varanasi: Chaukhambha Krishnadas Academy; 2017.
6. B. Patwardhan, R. Tillu, M. Chopra. Integrative Approaches in Ayurveda Research. *Journal of Ayurveda and Integrative Medicine*. 2015;6(2):85–87.
7. D. Dey, S. Pahwa. Artificial Intelligence in Healthcare: Applications and Challenges. *International Journal of Advanced Research in Computer Science*. 2018;9(2):188–191.

8. E.J. Topol. High-performance Medicine: The Convergence of Human and Artificial Intelligence. *Nature Medicine*. 2019;25:44–56.
9. Jiang F., Jiang Y., Zhi H. et al. Artificial Intelligence in Healthcare: Past, Present and Future. *Stroke and Vascular Neurology*. 2017;2:230–243.
10. S. Raut, A. Tillu. Ayurveda in the Era of Evidence-Based Medicine. *Journal of Ayurveda and Integrative Medicine*. 2019;10(2):89–91.
11. P. Prasher, R. Gibson, S. Mukerji. Genomic Insights into Ayurvedic Concepts of Prakriti. *Journal of Translational Medicine*. 2008;6:48.
12. S. Rotti et al. Digital Approaches in Ayurvedic Diagnosis and Clinical Decision Support. *Journal of Ayurveda and Integrative Medicine*. 2020;11(4):514–520.
13. T. Davenport, R. Kalakota. The Potential for Artificial Intelligence in Healthcare. *Future Healthcare Journal*. 2019;6(2):94–98.
14. S. Bhat, V. Rao. Machine Learning Applications in Herbal Drug Discovery. *Phytomedicine*. 2021;80:153–164.
15. World Health Organization. WHO Global Report on Traditional and Complementary Medicine. Geneva: WHO; 2019.
16. Ministry of AYUSH. National Policy on Traditional Medicine and Digital Health Initiatives in Ayurveda. New Delhi: Government of India; 2020.
17. R. Sharma, S. Singh. Role of Artificial Intelligence in Predictive Healthcare Systems. *International Journal of Medical Informatics*. 2020;134:104–111.
18. K. Joshi, M. Patwardhan. Systems Biology and Ayurveda: Integrative Approaches in Personalized Medicine. *Journal of Alternative and Complementary Medicine*. 2016;22(4):305–312.
19. S. Dash et al. Application of Data Mining Techniques in Traditional Medicine Research. *Bioinformatics*. 2019;15(3):180–185.
20. R. Tillu, B. Patwardhan. Ayurveda and Integrative Medicine: Emerging Opportunities. *Journal of Ayurveda and Integrative Medicine*. 2011;2(2):65–66.