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GS – JOURNAL OF INTEGRATIVE MEDICINE

REVIEW ARTICLE

CAN AI UNDERSTAND *DOSHAS*? A REVIEW OF TECHNOLOGY-*AYURVEDA* CROSSOVERS

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ABSTRACT

Ayurveda, an ancient Indian system of holistic medicine, is based on the dynamic interaction of the three *doshas—Vata, Pitta*, and *Kapha*—which regulate an individual's physical, mental, and emotional constitution. With the fast advancement of Artificial Intelligence (AI) in healthcare, new technologies are developing to digitize and quantify Ayurvedic concepts, notably *Dosha* evaluation. This article investigates the use of AI in *Ayurveda*, covering existing technologies such as *Dosha* identification applications, wearable-based monitoring, and tailored lifestyle recommendations. While these advancements provide accessibility and convenience, they frequently oversimplify the intricate and context-sensitive character of Ayurvedic diagnosis. The issues, which range from a lack of defined procedures to data shortages, show AI's shortcomings in collecting conventional knowledge.

Keywords: *Ayurveda*, Artificial intelligence, AI, *Tridosha*, Assessment

INTRODUCTION

Ayurveda, literally meaning science of life, emerged since ancient era of *Vedas* [1]. The great majority of the hordes of people, primarily from Sri Lanka and the Indian subcontinent, still use Ayurvedic remedies for their health[2]. Yet, from its inception, *Ayurveda* has seen several alterations or transformations over time. However, the fundamental aspects of therapy are essentially unchanged. The foundational idea known as the "*Tridosha Tatwa*" forms the basis of

the Ayurvedic diagnostic and therapeutical approach. *Doshas* are the bio-energetic forces of *Vata*, *Pitta* and *Kapha*- that govern ones physical, mental and emotional constitution[3]. *Dosha* assessment forms the basis of diagnosis, prevention, and therapy in *Ayurveda*. On the other hand, Artificial Intelligence (AI) is rapidly transforming how we manage health—analyzing big data, tracking biomarkers, and personalizing treatments[4]. But can these modern machines grasp something as nuanced and subjective as *dosha prakriti*?

This article explores the emerging world where *Ayurveda* meets AI: reviewing tools, apps, and innovations attempting to quantify ancient wisdom—and asking whether it's truly possible (or even appropriate) for AI to "understand" *Doshas*.

***Tridosha*- the building blocks**

According to *Ayurveda*, every individual is born with a unique balance of *Vata* (movement), *Pitta* (Metabolizers), and *Kapha* (Stabilizers). This innate balance, called *Prakriti*, determines one's physiological tendencies, disease predisposition, emotional responses, and even ideal diet and lifestyle[5]. The percentage of these *Doshas* differs from one individual to other[6].

***Vata Dosha*- The Energy of Movement:** *Vata* is one of the three primary *Doshas* in *Ayurveda*, representing the elements of *Vayu* and *Akasha Mahabhuta*[7]**.** It governs movement in the body and mind—everything from breathing and blood circulation to nerve impulses and elimination[8].

***Pitta Dosha*- The Energy of Transformation:** *Pitta* is made up of *Agni* and a small amount of *Jala Mahabhuta*[7]**.** It governs all processes of digestion, metabolism, and transformation in the body and mind[9].

***Kapha Dosha*- The Energy of Stability:** *Kapha* is composed of *Prithvi* and *Jala Mahabhuta*[7]**.** It provides structure, lubrication, and stability to the body and mind[10].

Dosha assessment is traditionally done through *Darshana* (observation), *Sparshana* (palpation), *Prashna* (detailed questioning), and sometimes even spiritual or intuitive insight[11]. It's not a fixed number or label—but rather a dynamic interplay constantly influenced by age, season, lifestyle, and emotional state[12].

In other words, *Doshas* are deeply contextual and holistic—something even human practitioners spend years learning to interpret with sensitivity.

AI and Health: The Rise of Personalized Tech

Artificial intelligence (AI) is quickly expanding in the healthcare sector due to its capacity to find patterns in vast datasets for study and obtain deep information, potentially improving clinical decision-making based on evidence and achieving value-based therapy. The healthcare sector is experiencing tremendous breakthroughs in artificial intelligence (AI), and various AI applications have been created to address some of the most critical issues plaguing healthcare organizations today.

AI has rapidly integrated into modern health systems through:

- Symptom checkers and diagnostic apps
- Wearable technologies tracking biometrics (sleep, heart rate, stress)
- Predictive analytics for disease prevention
- Virtual assistants and chat boats offering health advice

Naturally, the question of whether these technologies are applicable to traditional systems like *Ayurveda* has begun to be raised by the health sector, particularly integrative medicine.

How AI is being used in *Ayurveda* Today

1**. *Dosha* Detection Apps and Platforms**

Several digital tools claim to determine one's *Dosha* based on user responses:

- Ayusoft: Developed by CDAC in collaboration with Ayurvedic experts, it assesses *dosha* through structured questionnaires[13].
- Jiva Ayurveda App: Offers *dosha* analysis and lifestyle suggestions[14].
- Nadi Tarangini: Uses a specialized device to record pulse waveforms and interpret them using AI algorithms modeled on *Nadi Pariksha* (traditional pulse diagnosis)[15].

Despite being quick and easy to use, these applications frequently simplify *Dosha* assessments to multiple-choice questions, omitting the sophisticated clinical judgment that a *Vaidya* would use. In the diagnosis and treatment of illness, *Yukti* of *Vaidya* is also crucial.

2. AI and Wearable for *Dosha* Monitoring

Startups are exploring the possibility of a connection between *Dosha* changes and physiological indicators such as digestion cycles, skin temperature, or heart rate variability. In order to assist users, rebalance in real time, some experimental models look for patterns that correspond with *doshic* imbalance. But this method needs large datasets, established models, and cultural adjustment— none of which seem to be standardized as of yet.

3. Recommender Systems for Herbs, Diet & Lifestyle

AI tools are being trained to suggest personalized Ayurvedic routines based on user inputs. These often include:

- *Dosha*-specific meal plans
- Herbal combinations (e.g., *Ashwagandha* for *Vata*, Neem for *Pitta*)
- Yoga and breathing exercises

These are helpful as educational entry points, but again—true *Ayurveda* considers more than just *dosha*: it weighs digestion (*Agni*), tissue strength (*Dhatu*), mental state (*Manas*), and more.

Challenges in AI Understanding *Doshas*

- **Subjectivity & Contextual Nature:** *Doshas* are not rigid categories. Seasons, emotions, sleep, food, and even interpersonal connections can cause them to change. This degree of fluidity is difficult for AI, which is based on inflexible input-output models.
- **Lack of Standardization:** There is no globally accepted standard protocol for *dosha* diagnosis. Even among experts, interpretations vary based on lineage and clinical experience.
- **Data Deficiency:** Unlike allopathic medicine, there's limited structured data available from classical Ayurvedic texts or patient records to train AI effectively.

- **Oversimplification Risks:** The profundity of Ayurveda may be undermined if dosha assessment were reduced to a binary test or pulse sensor readout.

The Future: AI as a Tool, not a Replacement

Despite challenges, there is real potential for synergy—if approached respectfully and collaboratively.

- AI could assist Ayurvedic doctors by organizing patient data, identifying *doshic* trends, or suggesting evidence-informed protocols.
- Natural language processing (NLP) could help digitize and analyze classical texts like *Charaka Samhita*, unlocking centuries of insight.
- AI-driven research tools could help validate Ayurvedic concepts using biomedical frameworks, facilitating integrative health innovation.

Ultimately, AI should be seen as an assistant, not a replacement for the Ayurvedic practitioner's wisdom, intuition, and cultural context.

CONCLUSION

So, can AI understand *doshas*? Not entirely—at least not in the way a skilled Ayurvedic *vaidya* can. But AI can support, enhance, and amplify Ayurvedic practice—by expanding access, improving research, and providing tools for daily self-care. The key is to approach this integration with reverence for tradition and responsibility in innovation. *Ayurveda* isn't just a set of rules—it's a living philosophy. And while machines may help map its pathways, only conscious human insight can truly navigate its depths.

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