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ROLE OF ARTIFICIAL INTELLIGENCE IN FIELD OF AYURVEDA

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ABSTRACT:

Artificial Intelligence (AI) is rapidly transforming the landscape of healthcare, and its influence is now extending to traditional systems such as Ayurveda. Ayurveda, the ancient Indian system of medicine, is based on holistic healing and emphasizes the maintenance of health through balance in the body, mind, and environment. Its core principles revolve around Tridosha theory (Vata, Pitta, and Kapha) and Prakriti (the unique body constitution of each individual). These concepts guide both diagnosis and treatment, making Ayurveda deeply personalized. Despite its richness, Ayurvedic diagnosis and treatment planning often rely heavily on the practitioner's personal experience, intuition, and interpretation of symptoms. This subjectivity can make it challenging to achieve standardization across practitioners, leading to variations in diagnosis and treatment outcomes. Here, AI offers significant potential. By applying machine learning algorithms, natural language processing, and data analytics, Similarly, AI-driven platforms can support practitioners in suggesting personalized herbal formulations, lifestyle modifications, or dietary recommendations by integrating patient history with classical Ayurvedic guidelines. Moreover, AI can contribute to clinical research in Ayurveda by ensuring evidence-based validation of therapies and providing tools for comparative studies with modern medical practices. Thus, AI holds the promise of bridging the gap between traditional wisdom and modern technology, making Ayurveda more accessible, standardized, and globally relevant without compromising its holistic essence.

KEYWORDS: Ayurveda, Artificial Intelligence, balance health.

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INTRODUCTION:

In today's world, Artificial Intelligence (AI) is everywhere so much so that we can say people are living with a "fever of AI" in their daily lives. From the moment we wake up to the time we go to bed, AI is involved in many things we do, often without us even realizing it. This "fever" is not about being sick, but about how deeply AI has entered and influenced our routines, habits, and lifestyles. Nowadays, AI is changing many areas of healthcare and day to day life activities and it is now starting to play an important role in Ayurveda. Ayurveda focuses on treating each person based on their unique body type (called *Prakriti*), daily habits, and environment. The integration of Artificial Intelligence into traditional systems of medicine, marks a significant advancement in healthcare innovation. AI can help make Ayurvedic treatments more accurate, faster, and easier to use, while still respecting its ancient wisdom.

Aim and objectives:

Aim to provide the role of AI in field of ayurveda and its future benefits.

Methods:

This paper looks at how AI can help in different parts of Ayurveda. For example, AI can study large amounts of Ayurvedic texts and patient data to find patterns between body types and common health problems. It can also help doctors choose better treatments for each person by analyzing their symptoms and lifestyle. Tools like Natural Language Processing (NLP) allow computers to understand and translate old Ayurvedic books, making that knowledge more available to modern practitioners. It also explores the role of AI in enhancing Ayurveda through data analysis, diagnostic support, treatment personalization, drug discovery, and patient monitoring. AI algorithms can

process large volumes of historical Ayurvedic texts and clinical data to identify correlations between *Prakriti* types and disease, thus supporting early diagnosis and preventive care. Machine learning models are increasingly used to design personalized treatment plans by analyzing patient symptoms, medical history, and lifestyle data. Natural Language Processing (NLP) techniques enable digitization and interpretation of classical Ayurvedic literature, bridging the gap between traditional knowledge and modern healthcare systems.

Understanding Ayurveda Through AI

AI, especially in the form of machine learning (ML), natural language processing (NLP), and predictive analytics, is being used to interpret ancient Ayurvedic principles and apply them to modern medical contexts.

- **Prakriti Analysis:** AI tools can analysed questionnaires, facial features, speech patterns, or biometric data to determine an individual's *prakriti* (body constitution), enabling customized wellness plans.
- **Dosha Detection:** By analysing symptoms, lifestyle data, and lab reports, AI can suggest which dosha(s) are out of balance and recommend corrections through diet, lifestyle, and herbs.

Digitization of Ayurvedic Knowledge

India has become a pioneer in digitizing its traditional knowledge. The **Traditional Knowledge Digital Library (TKDL)** is a repository that has cataloged thousands of formulations from ancient texts. AI makes this data searchable and usable for:

- **Protecting intellectual property rights**

- **Discovering new formulations through text mining**
- **Translating and contextualizing ancient Sanskrit manuscripts**

AI tools allow researchers to connect ancient wisdom with modern biomedical concepts, identifying novel therapeutic uses for herbs or formulations.

AI in Diagnosis and Decision Support

AI-powered systems help Ayurvedic practitioners in:

- **Pulse diagnosis (Nadi Pariksha):** Using sensors and AI algorithms to analyze pulse signals and correlate them with health conditions
- **Tongue and skin analysis:** Image recognition tools can help identify imbalances or disease conditions
- **Decision Support Systems (CDSS):** AI can assist in diagnosis, suggest treatment plans based on patient history, and flag contraindications

Such tools are especially useful in rural or remote areas, where access to experienced Ayurvedic practitioners may be limited.

AI in Drug Discovery and Safety Monitoring

AI enhances pharmacovigilance and reverse pharmacology in Ayurveda:

- Predicting herb-drug interactions when combining Ayurveda with allopathy
- Identifying bioactive compounds from classical Ayurvedic herbs
- Analyzing clinical outcomes from real-world data and generating scientific evidence

This supports the validation of Ayurvedic treatments and bridges the gap with evidence-based medicine.

AI-Powered Wellness Apps and Wearables

A new generation of AI-integrated **mobile applications and wearable devices** are

making Ayurvedic lifestyle practices more accessible:

- Daily and seasonal routines customized to dosha types
- Real-time monitoring of vitals to suggest lifestyle adjustments
- AI chatbots offering guidance on diet, yoga, meditation, and herbal remedies

Such innovations are promoting Ayurveda among younger, tech-savvy populations worldwide.

AI in Ayurvedic Education and Research

AI is being introduced in Ayurvedic education to modernize learning:

- Interactive simulations for prakriti analysis and clinical diagnosis
- Virtual mentors and AI tutors to guide students through complex texts
- Data analysis tools for Ayurvedic researchers to evaluate treatment outcomes

India's Ministry of AYUSH is developing AI-integrated curricula and certification courses to equip future practitioners with modern tools

Global Recognition and Institutional Efforts

- The World Health Organization (WHO) has acknowledged India's AI efforts in traditional medicine, especially through initiatives like the Global Centre for Traditional Medicine in Jamnagar.
- Institutions like IITs, AIIMS, and private startups are collaborating on AI-Ayurveda research for mental health, chronic disease management, and integrative oncology.

How AI can help in day-to-day life:

Your smartphone assistant (like Siri, Alexa, or Google Assistant) uses AI to answer questions, set alarms, and even tell jokes. This can be use as the reminder for patients to maintain our health by asking particular

info about one's personal need. AI suggests what videos to watch on YouTube; this can give a huge knowledge about ayurveda and its way of application. Voice typing, predictive text, and language translation also use AI, for easy understanding the things with better and in simple way. There are many AI generated app and software which can help to maintain the health.

DISCUSSION:

Given that Ayurveda is an age-old system with roots in tradition and Artificial Intelligence (AI) is the apex of contemporary science, the two may appear to be very different. However, when combined, they offer a powerful, complementary approach to healthcare. The discussion revolves around how AI can preserve, modernize, and scale the benefits of Ayurveda in today's digital age.

CONCLUSION:

AI has great potential to support and improve Ayurveda in many ways—by making it more accurate, efficient, and easier to access. With collaboration between Ayurvedic experts, scientists, and AI developers, we can create a future where traditional wisdom and modern technology work together to improve health and well-being for all.

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