



Review Article

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A CONCEPTUAL ANALYSIS ON EXPLAIN AND INTEGRATE RECENT ADVANCEMENTS IN PANCHKARMA

Kanika¹ and *Dr. Varsha Kumari²

¹BAMS 3rd Prof., Dept. of Panchkarma, Smt. Urmila Devi Ayurvedic College, Shri Guru Ravidas Ayurveda University, Punjab 146110, Email- chaudharykanika629@gmail.com

²Assistant Professor, Dept. of Panchkarma, Smt. Urmila Devi Ayurvedic College, Shri Guru Ravidas Ayurveda University, Punjab 146110

*Corresponding Author - Dr. Varsha Kumari, Assistant Professor, Dept. of Panchkarma, Smt. Urmila Devi Ayurvedic College, Shri Guru Ravidas Ayurveda University, Punjab, 146110

E-mail: varshakumari506@gmail.com

ABSTRACT

Panchakarma, which translates to “five actions”, is one of the most effective therapeutic procedures of Ayurveda, a traditional system of medicine in India. It primarily focuses on detoxification of the body, balancing the dosha (Vata, Pitta, and Kapha) and overall rejuvenation. This ancient therapy has been described in the classical texts of Ayurveda, Charaka Samhita and Sushruta Samhita, and consists of five major procedures: Vamana (emesis), Virechana (purgation), Basti (medicated enema), Nasya (nasal therapy), and Raktamokshana (bloodletting).

KEY WORDS:

Panchkarma, Ayurveda, Advanced Panchkarma, specialized technology, automated procedures.

INTRODUCTION:

Modern developments in Panchkarma include the integration of technology, such as automated machines for Vamana, digital steam units, individualized approaches based on genetics (Prakriti), and digital health technology (telemedicine, mobile apps) for better management. Advanced drug delivery systems (nanoparticles), advanced research tools (biochemical markers, imaging) are also used to validate its efficacy, particularly in chronic diseases¹.

Panchkarma is one of the most important therapeutic approaches of *Ayurveda*, mainly designed for internal purification, restoration of *Dosha* balance and maintenance of health. It includes five major procedures, namely *Vamana*, *Virechana*, *Basti*, *Nasya* and *Raktamokshana*. These procedures are not only used for disease management but also for prevention, rejuvenation and promotion of physical and mental well-being. In present time, the scope of *Panchkarma* has increased due to its application in chronic disorders, lifestyle diseases, neurological conditions, metabolic disorders, stress-related problems and preventive healthcare. Recent advancements have focused on standard operating procedures, safety measures, hygienic instruments, digital documentation, patient monitoring and evidence-based assessment, which help to make *Panchkarma* more systematic, reproducible and acceptable in clinical practice.² Recent reviews also highlight the need for technology-based standardization of *Panchkarma* instruments and procedures for better safety, accuracy and clinical reliability.

In classical *Ayurveda*, *Panchkarma* is described as a complete bio-purificatory therapy that removes morbid *Dosha* from the body through planned therapeutic procedures. The success of *Panchkarma* depends on proper selection of patient, assessment of *Roga* and *Rogi Bala*, correct use of *Snehan*, *Swedan*, main procedure and *Paschat Karma*. In the modern era, the understanding of *Panchkarma* is being integrated with recent advancements such as clinical research methods, biochemical parameters, imaging tools, digital health records, automated instruments, improved drug processing, quality control and standardization of procedure-based practice. These developments do not replace the classical principles but support their practical application in a more measurable and scientific way. Studies and reviews have suggested that integration of modern tools, validated clinical parameters and standard protocols can improve the documentation, safety and acceptance of *Panchkarma* in current healthcare systems.³

CHALLENGES IN PANCHAKARMA PRACTICES

The challenges in Panchkarma practices include the following:

- Individualized treatment plans according to the patient's constitution and health conditions.
- Preserving the authenticity of traditional therapies, oils, herbs, and other materials while meeting the standards of modern healthcare.

NEED OF RECENT ADVANCEMENT IN PANCHKARMA

- In order to compete with the rapidly growing globalization
- To make therapy more compatible for increasing global acceptance.
- To impart ease in handling machines.
- To decrease the procedure time
- To decrease the complications.
- To increase the efficacy.

Technological & Equipment Innovations

Automated Procedures: Innovative processes have automated certain Panchkarma procedures such as Vamana with continuous vital sign monitoring, improved hygiene and emergency care.

Developed Droni



Digital Control: In Svedana (Sudation therapy), digital temperature control (DTC) is used to prevent burns, syncope and other complications.



Dual System Steam Generator

- The dual system steam generator in Panchakarma (commonly consisting of both electric and gas systems, or dual outlet systems) provides better efficiency, safety, and flexibility for Swedana (therapeutic sweating).
- It ensures a steady supply of controlled steam for Ayurvedic detoxification.

Specialized and unique Equipment: New equipment includes Shirodhara tables with oscillation, electric oil baths (Avagaha Sweden), Kati Basti with lumbar traction, and advanced Nasya (Nasal) tables. Various types of droni are used to enhance efficacy of therapeutic procedures. There are many advancements in different procedures like basti, vaman and sudation therapy.

KATI BASTI - TRADITIONAL METHOD



KATI BASTI- CURRENT METHOD



Latest Advancement

Benefits of kati basti yantra:

- The yantra itself is usually made from strong materials such as acrylic and is intended to form a leak-proof compartment (dam) when sealed with black gram dough.
- This is to ensure that the oil is retained and that the heat is evenly distributed during the process, thus allowing for a focused application of the warm medicated oil.



INFRA RED AIDED KATI BASTI

Benefits of Infrared aided Basti

- It provides deep penetration
- It ensures better absorption of Snehana and Swedana.
- It provides controlled heat without any heat burns.



ANUVASAN BASTI YANTRA OLD METHOD

ANUVASAN BASTI YANTA - MODERN



ENEMA SYRINGE KIT



They have many advantages like-

- Precision and control
- Hygienic standards

- Specialized Application - Syringes are particularly useful for small volume enemas (less than 500ml) aimed at the lower colon or for delivering specific medications directly into rectum.
- Patient Comfort- They often feature flexible, tapered or non-traumatic tips with rounded edges.

Personalization & Integration

Genomic Integration: Prakriti (Body Constitution) type is integrated with genetic profiling to provide highly personalized Panchakarma therapy. Prakriti analysis is the most crucial part of panchkarma therapy, as it helps the vaidya (physician) to select the most appropriate therapies and medications for an individual.

Digital Health: Telemedicine, mobile health applications facilitate remote consultations, progress monitoring, and lifestyle guidance. Digital platforms such as **Prakriti Parikshan, Ayurgrid and Vaidya Manager** support effective clinical management.

Biochemical Validation: Biochemical parameters along with traditional assessment methods are employed to enhance the quality and effectiveness of treatment outcomes

Advanced Therapies & Research that made Panchkarma more effective

Nano formulations: The development of nanoparticle based herbal formulations improves bioavailability, reduces side effects and increases therapeutic potency.

Mental Health: The combined use of panchkarma therapies such as nasya and shirodhara is effective in managing insomnia, stress and various mental disorders. Panchkarma is also beneficial in conditions like Apsamara and Unmada.

Chronic Disease Management: Advanced research techniques are being employed to understand and apply panchkarma in management of psoriasis, diabetes and other chronic disorders. Panchkarma not only treats disease but also enhances immunity and promotes a disease-free, healthy lifestyle.

Conclusion:

Recent developments in Panchakarma incorporate technological innovations, standardization, and integrative models of clinical practice with traditional systems to

improve safety and efficiency. This includes automated machines, temperature-controlled systems, and scientific research validating its biological effects at the cellular level.

Conflict of interest –Nil

Source of Support –None

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