

**ADVANCES AND RESEARCH INSIGHTS IN KRIYA SHARIR IN THE
MODERN ERA****Usha*¹**

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ABSTRACT

Kriya Sharir, one of the important branches of Ayurveda, deals with the study of development and actions of the body. The word Kriya means activity or action and Sharir means body. Thus, Kriya Sharir is the study of activities or functions of the body. It includes the knowledge of various developmental changes that occur in a living body from spermatic stage to dissolution stage. Kriya Sharir describes the functions of body organs and part, sense organs, motor organs, and characteristics of body Dosha, Dhātu, and Mala. Different research insights and advances related to Kriya Sharir are discussed here. The Indian systems of medicine, particularly Ayurveda, emphasize prevention and management of diseases through promotion of positive health and healthy lifestyle as a part of their health care strategy. Ayurveda is one of the ancient systems of medicine, which has its own exclusive principles of health and disease. B.H.M.S being a modern age system of medicines, emphasis on scientific research in

advancement of the system. Although Kriya Sharir is ancient science of Ayurvedic bio-medical research, yet attempts have been made to assimilate modern perceptions. Such historical insights are expected to trigger further research in such areas. Kriya Sharir, the Ayurvedic perspective of Physiology describes in detail the embryological development and explanation of bio-mechanics of organ functions along with the concept of maintenance of homeostasis. Attempts have been made to assimilate the essential points of Kriya Sharir with modern understanding 1.

KEYWORDS: Kriya Sharir, Advances Technology, Kriya sarir research.

INTRODUCTION TO KRIYA SHARIR

Kriya Sharir is one of the branches of Ayurveda, which is considered as the Upanga or the ancillary sciences of Ayurveda along with other sciences like Rasayana, Vaikrutiya, Vimana, etc. Kriya Sharir is defined in various ways. It is a combination of three words, i.e. Kriya, Sharir and Samiksha. Kriya means “Function”, Sharir means “Body” and Samiksha means “To study” or “To analyze”. So in simple words, Kriya Sharir is the study of functions of body or the functions of activities that take place in body 2. In language of modern science, it can be explained as the study of human physiology. Kriya Sharir is one of the most important branch of Ayurveda as it is very essential to know and understand the various functions and activities that takes place in human body from the time of conception till death. It plays a pivotal role in understanding normalcy, pathology, diagnosis, treatment and prognosis of different diseases 3. As per Ayurveda, human beings are made of five great elements that are Earth, Water, Fire, Air and Ether. These five great elements combines in different proportions to form Tridoshas (Vata, Pitta and Kapha), Pancha Bodhas (Dhatu), Saptajivika (Indriya, Manas, Prana, Upadesha, Tejas and Atma), Agni, Oja and other compounds. These Doshas, Dhatu, Agni and Mala plays a significant role in health, disease and in understanding various functions of human body. Hence it becomes essential to know the meaning, importance and key terminologies of Kriya Sharir before delving deeper into the ancient and modern literature and research insights on Kriya Sharir. The purpose of this paper is to highlight the historical and modern research perspectives on Kriya Sharir and thereby embody the insights and findings which can trigger further research in this branch of Ayurveda in this modern era of scientific exploration. The paper provides a comprehensive review on what Kriya Sharir is, its importance and how it is viewed in ancient and modern context.

AIMS AND OBJECTIVES

- To analyze the evolution of Kriya Sharir with respect to modern scientific advancements.
- To explore the application of modern research methodologies in validating Ayurvedic physiological concepts.
- To establish correlations between traditional Ayurvedic principles and modern physiological understanding.
- To identify gaps and propose future research directions in the study of Kriya Sharir.

MATERIALS AND METHODS

Literature Review: A comprehensive review of classical Ayurvedic texts, including Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya, was undertaken to understand the foundational principles of Kriya Sharir.

Modern Scientific Literature: Research papers, case studies, and review articles published in indexed journals were analyzed to identify advancements in the context of Kriya Sharir.

Historical Evolution and Traditional Concepts

Kriya Sharir, a significant discipline within Ayurveda, focuses on the assessment of bodily functions through ancient methodologies. This study delves into the historical progression of Kriya Sharir, from ancient times to the present day, with an emphasis on research insights that have advanced understanding of bodily functions. Tracing the etymology of Kriya Sharir, the traditional view of bodily functions is elucidated, shedding light on the refinement of these concepts throughout history. Numerous scholars and texts that shaped the perspective of Kriya Sharir are referenced. While much progress has been made on a macro level, the sole focus on translation and contemporary analogies has rendered some concepts obscure. A comparative approach, juxtaposing historical and traditional perspectives with modern interpretations, unveils the inherent complexities of Kriya Sharir concepts 2.

The aim is not to present a comprehensive account of everything related to Kriya Sharir but to highlight select studies and concepts from various epochs that are crucial for formulating an understanding of Kriya Sharir. By bringing attention to historical advancements, this work aspires to pave the way for further enhancements in contemporary times. Information about Kriya Sharir disciplines from ancient to recent times is also compiled. Finally, the familiarity of past practices with ongoing research on understanding human physiology is underscored, providing a tenable backdrop for discussions on contemporary methodologies. Kriya Sharir, an important limb of Ayurveda, deals with the assessment of bodily activities or functions. An understanding of bodily activities is essential for determining their normalcy or aberration. An effort has been made to examine the historical evolution of Kriya Sharir, tracing its progression from ancient times to the present 4. Textual references are provided to delineate the traditional concepts shaping the understanding of bodily functions.

Modern Techniques and Technologies in Kriya Sharir

Kriya Sharir, or the 'Study of Body Activities', is one of the eight branches of Ayurvedic Sharir or Anatomy, which details complex bodily functions in both normal and diseased states. It encompasses the development, description, and understanding of bodily functions from conception until death, as well as the study of body attributes post-death. Investigations into body functions have been conducted since ancient times, with efforts made to describe them in simple terms, observations, illustrations, and other forms. Innovations in methodologies, procedures, and technologies that assist observations or make the undetectable detectable are critical in advancing Kriya Sharir research. Investigative methodologies can be broadly classified as qualitative or quantitative, with advancements observed in both over time. Qualitative research is descriptive and interprets observations, while quantitative research is analytical and assesses numerical data based on statistical or mathematical calculations. Currently observed methodologies in Kriya Sharir research include either traditional techniques or simple adaptations of modern techniques. However, methodologies currently revolutionized by modern techniques and technologies are deemed relevant today. Kriya Sharir research involves the description of bodily activities employing either observational approaches or the introduction of experiments to understand the mechanism of activities. Observational approaches are facilitated by accessible technology, but the introduction of experiments to understand mechanism activities is largely dependent on available or developed techniques and technologies. Activities of substances could only be understood by means that assist in exposing these actions, such as detecting the changes these substances impart on their environment. Activities that do not cause perceptible change to their environment may remain uncovered unless they are modelled through today's technology that assist in observation at different magnitudes spanning from macroscopic to subatomic levels. Kriya Sharir observations extended from gross observations visible to naked eyes to the microscopic scale, the lowest observable scale of life based on available technology and imagination on the possible cause of observation jumbling at microscopic scale. However, the modern scientific understanding of Kriya Sharir parichedas based on one or several overlapping outlines is observed to have nearly expended possibilities of extension, and the limits of currently available or imagined technologies that assist understanding body and life is perhaps approached. Most experimental observations in Kriya Sharir had remained to either modern scientific observational proofs of descriptions or simple adaptation of procedures observed in ancient Kriya Sharir texts. Recent scientific advancements in technologies composing systems to contain, manipulate, and observe activities of materials at

dimensions below microscopic exceeding capabilities of widely accessible technologies that assist understanding body and life at either Kriya or Kriyasharir parichedas can potentially make ten to twenty times smaller Kriya Sharir parichedas analyzable directly or indirectly.

Current Research Trends and Findings

Systems of proper bodily function, elaborated and understood thousands of years ago, form a treasure of knowledge addressed to humankind. Modern interest and research in these ancient insights will enhance modernity with enriching dimensions, as well as guard and protect the treasure from extinction or distortion due to time and unawareness. Presenting current research trends addresses the need to demonstrate growing interest. Recent findings of interest are summarized, along with a few insightful examples. Efforts spanning multiple disciplines to enrich the understanding of the bodily system are highlighted. Kriya Sharir or the science of kriya (function) of sharir (body) deals with the understanding of bodily system functions in Ayurveda, the eternal science. Kriya Sharir principles are researchable and executable universally irrespective of time, geography, and culture, as these principles are addressed to sharir, a common bond of all humankind. Research in Kriya Sharir, even if it is an insignificant fraction currently, will address contemporary global challenges in health, longevity, and quality of life, while enlightening with the eternal knowledge of the value and purpose of life. A body of sharir feels and experiences, and hence sharir is also known as pratyaksha, the direct perception. Kriya Sharir principles explain and model the functioning of sharir for a detailed understanding and systematic maintenance. Sharir is to be insured against all possible adverse effects on its health and longevity. Like an insurance policy is needed for a treasure, a systematic Kriya Sharir research is needed to guard the treasure of Kriya Sharir principles from possible distortion due to its unawareness in modernity, although the adherence to Kriya Sharir principles still renders the proper functioning of the bodily system 5. Currently, Kriya Sharir is a treasure unawared and hence unaccessed by the contemporary modernity. Kriya Sharir research is aimed at illuminating the treasure so that its understanding and execution becomes widespread.

Future Directions and Implications

In conclusion, within the modern era, the Kriya Sharir, or physiology, of Ayurveda has witnessed a resurgence of interest among researchers, scholars, students, and academicians. This scientific field of Ayurveda, which comprehensively describes the functions of body components at gross and subtle levels, has been the focus of multiple research contributions.

New avenues of research in Kriya Sharir have immense potential to further bridge the gap between traditional knowledge systems and modern scientific understandings. Thus, a strong foundational discipline exists for those interested in exploring novel avenues related to Kriya Sharir in the future, and some possible avenues are highlighted here. An advancement of methodologies employed for research in Kriya Sharir could drastically change the fate of this science. The ancient scholars of Ayurveda meticulously observed and experimented with their subjects of study to arrive at knowledge. The results of their observations and experiments were summarized in texts that are excellent repositories of knowledge even today. The possible use of modern experimental methodologies could further enhance the quantitative reliability of the inferences drawn from the Kriya Sharir principles enunciated in these texts. In this endeavour, advanced technologies/devices, such as imaging tools and bio-signature analysis systems, could be used to gain better insights into specific aspects of Kriya Sharir. The principles and insights of Kriya Sharir could become the basis for novel implementable systems, devices, or methods by innovative researchers/implementers. The Kriya Sharir principles are deep, subtle, and comprehensive to be understood and practiced as a whole by an individual. The Kriya Sharir principles are subtle and systemic approaches to health maintenance and disease management. Simple principles, if rigorously followed, could lead to complex or comprehensive states or systems. Therefore, the Kriya Sharir principles could be possible health-maintaining systems/devices or methods 6. The yoga-as-experimentation model could be an asset in the deep investigation and holistic understanding of the Kriya Sharir principles. The Kriya Sharir principles describe implementable aspects of Ayurveda health science. Implementation means practice as well as teaching and dissemination. Dissemination should aim to take the Kriya Sharir principles to the mass populace. There is a need to plan and conduct educational programs on the Kriya Sharir principles for Ayurveda professionals and health practitioners of other traditions systems so that these insights could be incorporated into educational curricula or fields of practice. Good cross-cultural studies require a deeper understanding of both cultures. The parallel studies of Kriya Sharir principles and structures/functions of systems in western sciences could lead to better cross-cultural studies in the future. The potential for health science research, practice, and education outreach exists to fill the populace with the Kriya Sharir principles. The mechanism of understanding knowledge systems should be explored bioethically. A particular ethics should be drafted for Ayurveda research, practice, and education systems, and rigorous bioethical audits should be conducted 7. As the knowledge systems are globalized, the auditing should also be pan-global.

DISCUSSION

The insights presented in the discussion seek to explore their significance one last time. A broad overview of the key findings and insights of this review paper is first provided. Then, consideration is given to some implications of the findings, focusing on how integration of traditional and modern approaches could lead to a more cohesive understanding of human physiology. This paper's nine previous sections each addressed a theme that was further examined here, often in the spirit of uncovering deeper meanings and correlations. Strengths and weaknesses of contemporary research approaches to Kriya Sharir are also discussed, in the hope of promoting some soul-searching reflection on this point. As one recent example, it has been wondered why research on Kriya Sharir tends to focus on just Tridosha, Pancha Mahabhuta, and Sapta Dhatu, when Ayurveda considers at least eleven other principles, such as Prakriti and Satva. That said, it is also important to note that the meaning of one knowledge set can change, and even become lost entirely, in translation into a different culture; and this is especially true regarding translations into the dominant Western languages.

6. Finally, some thoughts on research directions that could have significant impact are proffered, focusing on the "low-hanging fruit" of unresolved questions that might yield the richest harvests. Within the broader agenda, there is an attempt to foster a more vibrant ongoing academic dialogue by asking questions that should remain of interest to others. Ultimately, this section seeks to bridge the discussion to the conclusions, which summarize how this paper aims to enhance understanding of the Kriya Sharir knowledge set. Kriya Sharir is one of Ayurveda's three branches concerned with the living body, focusing on the body's functions after conception. Understanding Kriya Sharir is important for appreciating the principles of health, disease, and treatment, and the A&K systems offer unique perspectives on it. A comprehensive review of Kriya Sharir research advances in the last few decades and recent insights from contemporary biophysics offers a ground for further research and consideration of integrative approaches. There is a need to bolster Kriya Sharir research, particularly studies bridging Ayurveda with contemporary bio-physical models, to expand its global relevance. Shadowing development, questions about Kriya Sharir principles, including Sampuran Sharir, Tridosha, and Prakriti, are posed to enhance understanding and dialogue.

CONCLUSION

The exploration of Kriya Sharir, encompassing its historical evolution, contemporary research trends, and future directions, reveals its significance in understanding human physiology. The

journey began with acknowledgement of its contribution, recognizing Kriya Sharir as a foundation for research in Sharir (body) science. Insights gained from historical evolution shed light on Ayurveda's antiquity, authenticity, and relevance. Kriya Sharir's continuous relevance through ages inspires further exploration. Contemporary research trends are embraced, highlighting Kriya Sharir's applicability across Ayurveda and health science colleges, resulting in noteworthy research publications. Future directions are presented, focusing on scholarly discourse expansion and research inquiries in Kriya Sharir. The discussions and inquiries fostered through this essay pave the way for further contemplation and research in Kriya Sharir. Kriya Sharir, as Ayurveda's physiological science, is essential for holistic understanding of Sharir (body), Jiva (living being), and Parameshvara (supreme deity). Kriya Sharir's relevance, significance, and applicability across time and climes invigorate contemplation and exploration. Bridging traditional knowledge systems with contemporary scientific advancements is essential. This integration necessitates collaboration between disciplines, ensuring enriched understanding and applications in health sciences. A holistic approach, encompassing diseased, normal, and enhanced states of being, is pivotal for future advancements in biological and biomedical research. With this vision, questions arise regarding Kriya Sharir's expositions and explorations in Ayurveda and allied disciplines: Will Kriya Sharir be the pathway for enriched scholarly discourses? Will it evoke excitement in research inquiries?

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