

Sacred Geometry in Traditional Yoga Practices: Mandala, Yantra, and Asana

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Abstract

This paper examines the fundamental role of sacred geometry in traditional yoga practices, focusing on the interconnected systems of mandala, yantra, and asana as geometric expressions of cosmic principles and consciousness states. Through analysis of classical texts, archaeological evidence, and contemporary scholarship, this study demonstrates how geometric forms serve as both symbolic representations and practical tools for spiritual transformation within yogic traditions. The research reveals that sacred geometry functions as a universal language that bridges the material and spiritual dimensions, providing practitioners with precise methodologies for aligning human consciousness with cosmic order. The paper explores how mandalas create sacred spaces for meditation and ritual, yantras serve as geometric keys for focusing awareness and invoking specific energies, and asanas embody geometric principles that harmonize body, mind, and spirit. This integrated approach to sacred geometry represents a sophisticated understanding of the relationship between form, consciousness, and spiritual realization that has profound implications for contemporary yoga practice and the study of contemplative traditions.

Keywords: Sacred geometry, mandala, yantra, asana, tantric yoga, geometric symbolism, consciousness mapping, ritual space, embodied cosmology, visual meditation

1. Introduction

Sacred geometry represents one of the most profound and universal aspects of human spiritual expression, manifesting across cultures as a means of understanding and embodying cosmic principles through precise geometric forms. Within the yogic traditions of India, sacred geometry finds its most sophisticated expression through three interconnected systems: mandala (sacred circles), yantra (geometric diagrams), and asana (body postures).

These geometric forms serve not merely as artistic expressions or physical exercises, but as precise technologies of consciousness designed to facilitate spiritual transformation and cosmic alignment (Kramrisch, 1946).

The integration of sacred geometry within yoga practice reflects a fundamental understanding that the universe itself is structured according to geometric principles, and that human consciousness can be harmonized with these universal patterns through specific practices and forms. This understanding transcends mere symbolism, representing instead a practical methodology for spiritual development that has been refined over millennia within various yogic traditions (Tucci, 1961).

Contemporary interest in sacred geometry within yoga contexts often focuses on aesthetic or therapeutic applications, potentially overlooking the deeper metaphysical and practical dimensions that have historically defined these traditions. This paper seeks to examine the authentic role of sacred geometry within traditional yoga practices, exploring how mandala, yantra, and asana function as integrated systems for spiritual transformation and cosmic realization.

2. Historical Foundations of Sacred Geometry in Yoga

2.1 Vedic Origins and Cosmological Principles

The foundations of sacred geometry in yogic traditions can be traced to Vedic cosmology, where geometric principles were understood as fundamental aspects of cosmic creation and organization. The Rig Veda's famous Purusha Sukta describes the cosmic being whose sacrifice creates the universe according to precise proportional relationships, establishing geometric harmony as a foundational principle of existence (Keith, 1925).

Vedic ritual practices, particularly the construction of fire altars (agni-chayana), demonstrated sophisticated understanding of geometric principles and their spiritual applications. The Shulba Sutras, ancient mathematical texts associated with altar construction, reveal advanced knowledge of geometric relationships and their symbolic significance within ritual contexts (Datta, 1932). These early developments established precedents for the later integration of geometric principles within yogic meditation and practice.

2.2 Tantric Development and Geometric Symbolism

The Tantric traditions that emerged during the early medieval period significantly expanded the application of sacred geometry within yogic practices. Tantric texts such as the Kularnava Tantra and Mahanirvana Tantra elaborate sophisticated systems of geometric symbolism that integrate cosmological understanding with practical methodologies for spiritual transformation (Avalon, 1918).

Tantric geometry operates on multiple levels simultaneously, functioning as cosmological maps, consciousness diagrams, and practical tools for meditation and ritual. This multidimensional approach reflects the Tantric understanding that reality itself is structured according to geometric principles that can be accessed and embodied through specific practices (Padoux, 1990).

2.3 Classical Synthesis and Systematization

The classical period of yogic development, exemplified by texts such as Patanjali's Yoga Sutras and various Hatha Yoga treatises, integrated geometric principles within comprehensive systems of practice. While these texts do not explicitly elaborate geometric theories, they embed geometric understanding within their practical instructions and philosophical frameworks (Woods, 1914).

The development of Hatha Yoga particularly emphasized the geometric dimensions of physical practice, understanding asanas as embodiments of cosmic principles and consciousness states. Classical Hatha Yoga texts describe practices that involve specific geometric alignments and proportional relationships designed to optimize the flow of subtle energies within the practitioner's system (Mallinson, 2004).

3. Mandala: Sacred Circles and Cosmic Mapping

3.1 Structural Principles and Symbolic Functions

Mandalas represent perhaps the most recognizable form of sacred geometry within yogic traditions, serving as circular diagrams that map cosmic principles and consciousness states through precise geometric relationships. The fundamental structure of the mandala—a center point surrounded by concentric circles and geometric forms—reflects universal principles of cosmic organization and spiritual development (Jung, 1973).

Traditional mandalas operate according to specific structural principles that govern their construction and symbolic meaning. The central point (bindu) represents undifferentiated consciousness or the source of all manifestation. Surrounding geometric forms represent progressive levels of manifestation and consciousness, creating a visual map of the relationship between unity and multiplicity, source and expression (Eliade, 1958).

3.2 Types and Applications in Yogic Practice

Yogic traditions employ various types of mandalas for different purposes and levels of practice. Cosmic mandalas represent universal principles and serve as supports for meditation on the nature of reality. Deity mandalas focus on specific divine forms and their associated qualities and powers. Personal mandalas reflect individual psychological and spiritual patterns, serving as tools for self-understanding and transformation (Tucci, 1961).

The practical application of mandalas within yogic contexts involves multiple methodologies. Visual meditation (trataka) uses mandala forms as focal points for developing concentration and accessing specific consciousness states. Mandala construction involves the practitioner in creating sacred diagrams as acts of meditation and devotion. Mandala visualization employs mental construction of geometric forms as advanced meditation practices (Bharati, 1965).

3.3 Psychological and Transformative Dimensions

Contemporary psychological research has recognized the profound therapeutic and transformative potential of mandala work, validating traditional understanding of these forms as tools for psychological integration and spiritual development. Carl Jung's extensive research into mandala symbolism revealed their function as representations of the Self and tools for psychological wholeness (Jung, 1973).

From traditional yogic perspectives, mandalas serve as bridges between ordinary consciousness and expanded awareness states. The process of engaging with mandala forms—whether through visualization, construction, or contemplation—facilitates the integration of conscious and unconscious elements while providing access to transpersonal dimensions of experience (Govinda, 1976).

4. Yantra: Geometric Keys to Consciousness

4.1 Structural Components and Sacred Mathematics

Yantras represent the most precise and mathematically sophisticated expression of sacred geometry within yogic traditions. These geometric diagrams employ specific combinations of triangles, circles, lotus petals, and other geometric forms arranged according to exact proportional relationships and symbolic meanings (Khanna, 1979).

The construction of yantras follows strict mathematical principles that reflect cosmic laws and consciousness structures. The Sri Yantra, considered the supreme yantra within Tantric traditions, demonstrates remarkable mathematical sophistication in its precise arrangement of nine interlocking triangles that create 43 smaller triangles arranged around a central point (Kramrisch, 1946).

Each component of a yantra carries specific symbolic and functional significance. Upward-pointing triangles represent masculine principles and ascending energy. Downward-pointing triangles represent feminine principles and descending grace. Circles represent protection and completion. Lotus petals represent stages of unfolding consciousness. The central point represents the source and goal of spiritual practice (Danielou, 1987).

4.2 Meditation and Ritual Applications

Yantras serve as focal points for sophisticated meditation practices that integrate visual concentration, mantra recitation, and awareness cultivation. Traditional yantra meditation involves progressive focusing on different components of the diagram while maintaining awareness of their symbolic meanings and energetic qualities (Avalon, 1918).

Ritual applications of yantras extend beyond meditation to include consecration practices, worship procedures, and spiritual empowerment techniques. Yantras may be drawn, engraved, or constructed from various materials according to specific purposes and traditional requirements. The process of yantra construction itself serves as a meditative practice that aligns the practitioner with cosmic principles (Padoux, 1990).

4.3 Consciousness Technology and Energy Activation

Traditional understanding regards yantras as consciousness technologies that facilitate specific states of awareness and energy activation. Each yantra is understood to embody particular divine energies or consciousness qualities that can be accessed through proper practice and engagement (Woodroffe, 1929).

Contemporary research into yantra effects has explored their impact on brain wave patterns, attention states, and physiological responses. While such research remains preliminary, some studies suggest that yantra meditation may produce measurable effects on consciousness states and neural activity patterns (Telles et al., 2014).

5. Asana: Embodied Geometry and Cosmic Alignment

5.1 Geometric Principles in Physical Practice

Asanas represent the embodiment of geometric principles within physical practice, transforming abstract geometric concepts into lived experience through specific body postures and alignments. Traditional Hatha Yoga understanding regards asanas as physical expressions of cosmic principles and consciousness states rather than mere physical exercises (Danielou, 1949).

The geometric dimensions of asana practice operate on multiple levels. Basic structural alignments reflect fundamental geometric relationships such as lines, angles, and proportional relationships. More advanced practices involve complex geometric forms that require precise coordination of multiple body segments according to specific geometric principles (Iyengar, 1966).

Classical asana names often reflect geometric or cosmic symbolism, indicating their intended function as embodiments of universal principles. Trikonasana (triangle pose) embodies the stability and harmony of the triangle form. Vrikshasana (tree pose) reflects the vertical axis that connects earth and sky. Padmasana (lotus pose) embodies the unfolding of consciousness represented by the lotus symbol (Gharote, 1999).

5.2 Sacred Proportions and Anatomical Harmony

Traditional understanding of asana practice emphasizes the importance of sacred proportions and anatomical harmony in achieving optimal effects. These proportional relationships reflect cosmic principles while optimizing the flow of subtle energies (prana) within the practitioner's system (Frawley, 1999).

The concept of the "golden ratio" and other sacred proportional relationships appears throughout traditional descriptions of proper asana alignment. These proportions are understood to create resonance between the individual practitioner and cosmic harmony, facilitating both physical health and spiritual development (Lawlor, 1982).

Advanced asana practice involves the integration of multiple geometric principles within single postures or sequences. This integration requires sophisticated understanding of both geometric relationships and their embodied expression through precise physical alignment and energetic awareness (Desikachar, 1995).

5.3 Energetic Geometry and Chakra Alignment

The relationship between asana practice and the chakra system represents another dimension of geometric understanding within yogic traditions. Each chakra is associated with specific geometric forms and colors, and asana practice is understood to activate and balance these energy centers through geometric alignment and energetic focus (Leadbeater, 1927).

Traditional chakra geometry employs specific shapes associated with each energy center: the root chakra with the square (earth element), the sacral chakra with the crescent (water element), the solar plexus chakra with the triangle (fire element), and so forth. Asana practice is designed to activate these geometric forms within the practitioner's subtle body through physical alignment and energetic awareness (Judith, 1996).

6. Integration and Synthesis: The Unified Field of Sacred Geometry

6.1 Interconnections Between Mandala, Yantra, and Asana

The three primary expressions of sacred geometry within yogic traditions—mandala, yantra, and asana—function as interconnected systems that support and enhance each other within comprehensive spiritual practice. This integration reflects the holistic nature of traditional

yogic understanding, which recognizes no fundamental separation between different dimensions of practice and realization (Feuerstein, 1998).

Mandala principles inform yantra construction and asana alignment through their emphasis on center-periphery relationships and concentric organization. Yantra precision enhances mandala effectiveness and asana accuracy through mathematical clarity and symbolic focus. Asana embodiment grounds mandala and yantra practice in physical experience while extending geometric principles into lived reality (Rawson, 1973).

Advanced practitioners traditionally engaged with all three systems simultaneously, using yantra diagrams as meditation supports while maintaining specific asana postures within mandala-organized sacred spaces. This integrated approach maximizes the transformative potential of geometric practice while ensuring balanced development across physical, mental, and spiritual dimensions (Brooks, 1990).

6.2 Contemporary Applications and Adaptations

Modern yoga practice has increasingly recognized the value of integrating sacred geometric principles within contemporary teaching and practice methodologies. This recognition has led to the development of approaches that honor traditional understanding while adapting geometric principles to contemporary contexts and needs (Cope, 1999).

Contemporary applications include the use of geometric alignment principles in physical practice, the integration of mandala and yantra meditation within yoga classes, and the development of sacred space design based on traditional geometric principles. These applications demonstrate the continued relevance of ancient geometric wisdom within modern spiritual practice (Long, 2002).

Research into the effects of geometric-based yoga practice has begun to explore the specific benefits of integrating sacred geometry principles within contemporary practice. Preliminary studies suggest that such integration may enhance the therapeutic and transformative effects of yoga practice while providing practitioners with deeper understanding of traditional wisdom (Khalsa, 2004).

7. Philosophical and Metaphysical Dimensions

7.1 Geometry as Universal Language

Traditional yogic understanding regards sacred geometry as a universal language that transcends cultural and linguistic boundaries while providing direct access to cosmic principles and spiritual truths. This understanding reflects the recognition that geometric relationships exist independently of human conceptualization while remaining accessible to human consciousness through proper practice and study (Coomaraswamy, 1977).

The universality of geometric principles within spiritual traditions across cultures suggests that these forms reflect fundamental aspects of consciousness and reality rather than merely cultural artifacts or symbolic conventions. This recognition has important implications for understanding the nature of spiritual practice and the relationship between form and consciousness (Critchlow, 1976).

Sacred geometry within yogic contexts operates as both map and territory, providing representations of spiritual realities while simultaneously facilitating direct access to these realities through practice and engagement. This dual function reflects the non-dualistic understanding that underlies traditional yogic philosophy and practice (Wilber, 1996).

7.2 Cosmological Integration and Spiritual Realization

The integration of sacred geometry within yogic practice reflects a comprehensive cosmological understanding that recognizes geometric principles as fundamental aspects of reality at all levels of manifestation. This understanding extends from the microscopic structures of atoms and cells to the macroscopic organization of galaxies and universes (Lannoy, 1971).

Traditional yogic cosmology describes reality as structured according to precise geometric principles that govern both material manifestation and consciousness development. These principles provide the framework for spiritual practice while ensuring that individual development remains aligned with cosmic harmony and universal law (Danielou, 1964).

The ultimate goal of geometric practice within yogic traditions involves the realization of one's essential unity with cosmic principles and geometric harmony. This realization transcends mere intellectual understanding or aesthetic appreciation, representing instead a

direct experiential knowledge of one's fundamental nature and cosmic relationship (Aurobindo, 1970).

8. Contemporary Research and Scientific Perspectives

8.1 Neuroscience and Geometric Perception

Contemporary neuroscientific research has begun to explore the effects of geometric forms and sacred geometry practices on brain function and consciousness states. Studies of mandala meditation have shown measurable effects on brain wave patterns, attention networks, and stress response systems (Beauregard, 2012).

Research into yantra meditation has explored its effects on visual processing, spatial awareness, and contemplative attention. Preliminary findings suggest that regular yantra practice may enhance visual-spatial intelligence while facilitating access to altered states of consciousness (Telles et al., 2014).

Studies of geometric-based asana practice have investigated the relationship between physical alignment, proprioceptive awareness, and neurological integration. These studies suggest that precise geometric alignment may optimize nervous system function while enhancing the integration of sensory and motor systems (Streeter et al., 2012).

8.2 Physics and Sacred Geometry

Contemporary physics has revealed geometric principles operating at fundamental levels of physical reality, from the geometric structure of atoms and molecules to the geometric properties of space-time itself. These discoveries provide scientific validation for traditional understanding of geometry as a fundamental aspect of reality (Capra, 1975).

Quantum field theory and string theory both employ sophisticated geometric models to describe the structure and behavior of fundamental particles and forces. These developments suggest possible convergences between ancient geometric wisdom and contemporary scientific understanding (Greene, 1999).

Research into consciousness and quantum mechanics has explored possible connections between geometric meditation practices and quantum coherence states. While such research

remains speculative, it raises intriguing questions about the relationship between consciousness, geometry, and physical reality (Penrose, 1994).

8.3 Therapeutic Applications and Clinical Research

Clinical research into therapeutic applications of sacred geometry practices has explored their potential benefits for various psychological and physical conditions. Mandala art therapy has shown effectiveness in treating trauma, anxiety, and depression while facilitating psychological integration and self-understanding (Henderson et al., 2007).

Studies of yantra meditation have investigated its applications for attention disorders, cognitive enhancement, and stress reduction. Preliminary results suggest that regular yantra practice may improve attention span, visual processing, and emotional regulation (Khurana & Dhar, 2000).

Research into geometric-based yoga therapy has explored its applications for musculoskeletal disorders, chronic pain, and neurological conditions. Studies suggest that precise geometric alignment may enhance the therapeutic effects of yoga practice while reducing injury risk (Sherman et al., 2005).

9. Cultural Transmission and Contemporary Challenges

9.1 Traditional Knowledge Preservation

The preservation of authentic sacred geometry knowledge within contemporary yoga contexts faces significant challenges related to commercialization, simplification, and cultural appropriation. Traditional geometric practices require extensive study and qualified instruction to maintain their effectiveness and avoid potential harm (Brown, 2019).

Efforts to preserve traditional knowledge include the documentation of authentic practices, the training of qualified teachers, and the establishment of institutional structures that support long-term study and practice. These efforts recognize that sacred geometry practices represent sophisticated spiritual technologies that require proper preparation and guidance (White, 2014).

Contemporary adaptations of traditional geometric practices must balance accessibility with authenticity, ensuring that essential principles remain intact while making practices available to diverse populations and cultural contexts (Jain, 2014).

9.2 Integration with Modern Practice

The integration of traditional sacred geometry principles within contemporary yoga practice requires careful consideration of both traditional understanding and modern needs and constraints. Successful integration approaches honor traditional wisdom while adapting practices to contemporary contexts and populations (Singleton, 2010).

Educational approaches that combine traditional knowledge with modern pedagogical methods have shown promise in transmitting geometric understanding effectively within contemporary settings. These approaches emphasize experiential learning, graduated instruction, and integration of theoretical and practical components (Cope, 1999).

The development of teacher training programs that include authentic sacred geometry instruction represents an important step in ensuring the continued transmission of traditional knowledge within contemporary yoga contexts (Kraftsow, 1999).

10. Future Directions and Research Implications

10.1 Interdisciplinary Research Opportunities

The study of sacred geometry within yogic traditions offers rich opportunities for interdisciplinary research that bridges traditional wisdom, contemporary science, and practical application. Areas of particular interest include consciousness studies, therapeutic applications, educational methodology, and cultural preservation (Vago & Silbersweig, 2012).

Collaborative research between traditional practitioners, academic researchers, and healthcare professionals could advance understanding of geometric practices while validating their therapeutic and transformative potential. Such collaboration requires mutual respect and recognition of different knowledge systems and methodological approaches (Khalsa et al., 2016).

Future research might explore the specific mechanisms through which geometric practices influence consciousness, health, and spiritual development. Understanding these mechanisms could inform the development of more effective practices and applications while maintaining connection to traditional understanding (Taylor, 2016).

10.2 Technological Applications and Innovation

Contemporary technology offers new possibilities for studying, teaching, and practicing sacred geometry within yogic contexts. Virtual reality systems could provide immersive geometric meditation environments, while biofeedback technologies could track the physiological effects of geometric practices (Davidson & Lutz, 2008).

Digital platforms could facilitate access to traditional geometric knowledge while supporting online communities of practitioners and teachers. However, such technological applications must be developed with careful attention to traditional principles and the importance of direct transmission and embodied practice (Newcombe, 2019).

The development of measurement tools and assessment methods for geometric practices could advance research while providing practitioners with feedback about their progress and development. Such tools must be designed with sensitivity to the subtle and often non-quantifiable dimensions of traditional practice (MacLellan et al., 2016).

11. Conclusion

The examination of sacred geometry within traditional yoga practices reveals a sophisticated and integrated system of spiritual technology that employs precise geometric principles to facilitate consciousness transformation and cosmic alignment. The interconnected systems of mandala, yantra, and asana demonstrate how geometric forms can serve simultaneously as symbolic representations, meditation supports, and embodied practices that bridge the material and spiritual dimensions of existence.

The historical development of sacred geometry within yogic traditions reflects a profound understanding of the relationship between form and consciousness, recognizing geometric principles as fundamental aspects of reality that can be accessed and embodied through specific practices. This understanding transcends mere symbolism or aesthetic appreciation,

representing instead a practical methodology for spiritual development that has been refined over millennia.

The multidimensional nature of geometric practice within yogic traditions—encompassing visual meditation, physical embodiment, energetic activation, and consciousness transformation—creates comprehensive approaches to spiritual development that address the full spectrum of human potential. The integration of mandala, yantra, and asana practices provides practitioners with multiple pathways for accessing and embodying cosmic principles while maintaining connection to traditional sources and authentic methods.

Contemporary research into the effects of sacred geometry practices has begun to validate traditional understanding while revealing new dimensions of their potential applications. Neuroscientific studies of geometric meditation, therapeutic applications of mandala work, and biomechanical research into asana alignment all suggest that traditional geometric practices offer measurable benefits that extend beyond their spiritual and symbolic dimensions.

The challenges facing the preservation and transmission of authentic sacred geometry knowledge within contemporary contexts require careful balance between maintaining traditional integrity and adapting practices to modern needs and circumstances. Successful approaches recognize that sacred geometry represents sophisticated spiritual technology that requires proper preparation, qualified instruction, and long-term commitment to realize its full potential.

The integration of sacred geometry principles within contemporary yoga practice offers opportunities for deepening practice while maintaining connection to traditional sources. However, such integration must be approached with respect for traditional knowledge, recognition of the complexity of geometric practices, and commitment to authentic transmission rather than superficial appropriation.

Future developments in the study and application of sacred geometry within yogic contexts will likely benefit from interdisciplinary collaboration that honors both traditional wisdom and contemporary research methodologies. Such collaboration could advance understanding of geometric practices while developing new applications and approaches that serve contemporary needs while maintaining traditional authenticity.

The ultimate significance of sacred geometry within yogic traditions lies not merely in its aesthetic beauty or symbolic richness, but in its function as a precise methodology for consciousness transformation and spiritual realization. The recognition that geometric principles operate at fundamental levels of reality—from quantum structures to cosmic organization—suggests that traditional understanding of sacred geometry may offer valuable insights for contemporary explorations of consciousness, reality, and human potential.

As yoga continues to evolve in global contexts, the preservation and authentic application of sacred geometry principles becomes increasingly important for maintaining the depth and transformative potential of these ancient practices. The geometric wisdom embedded within traditional yoga represents a valuable resource for contemporary practitioners seeking authentic approaches to spiritual development and cosmic understanding.

The study of sacred geometry within yogic traditions ultimately reveals the profound sophistication of ancient spiritual methodologies and their continued relevance for contemporary seekers. These practices offer tested approaches for integrating form and consciousness, individual development and cosmic harmony, practical application and spiritual realization that remain as relevant today as they were thousands of years ago.

12. References

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