www.ijarp.com ISSN 2456-9992 Page: 01-11

International Journal Advanced Research Publications

Review Article

Volume: 02
Issue: 05

SCIENTIFIC INTERPRETATION OF HANUMAN CHALISA WITH AYURVEDIC AND YOGIC CORRELATION: A NEUROCOGNITIVE REVIEW

[*1]Dr. Ravina Dudi, [2]Dr. Brmhanand Sharma, [3]Dr. Saurabh Agrawal, [4]Dr.Gajendra Dubey [5]Dr. Avadhesh Shandilya

[1](MD Scholar, PG Department of Swasthavritta and Yoga, PGIA, DSRRAU Jodhpur.)

[2](Associate Professor & HOD, Department of Swasthavritta and Yoga, PGIA, DSRRAU Jodhpur)

[3](Associate Professor, Department of Swasthavritta and Yoga, PGIA, DSRRAU Jodhpur)

[4](Associate Professor, Department of Swasthavritta and Yoga, PGIA, DSRRAU Jodhpur)

[5](Assistant Professor, Department of Swasthavritta and Yoga, PGIA, DSRRAU Jodhpur)

Article Received: 20 April 2026, Article Revised: 10 May 2026, Published on: 30 May 2026

***Corresponding Author: Dr. Ravina Dudi**

(MD Scholar, PG Department of Swasthavritta and Yoga, PGIA, DSRRAU Jodhpur.)

DOI: https://doi-doi.org/101555/ijarp.6687

ABSTRACT

Traditional Indian scriptures often encode psychological and physiological principles with in symbolic language. This review analyzes the opening verses (Doha 1- **"Shri Guru Charan Saroj Raj, Nij Man Mukur Sudhari"** and Doha 2-**"Buddhiheen Tanu Janike, Sumirau Pavan Kumar"**) of the *Hanuman Chalisa* through the lens of neuroscience, **Ayurveda**, and **Yoga**. The study correlates concepts such as humility, breath regulation, and focused awareness with neuroplasticity, autonomic regulation, and cognitive enhancement. It proposes an integrative model linking ancient wisdom with modern scientific understanding, highlighting its relevance in mental health and lifestyle disorders.

KEYWORDS: Neuroplasticity, Pranayama, Triguna, Cognitive Function, Mindfulness, Ayurveda, Yoga

1. INTRODUCTION

Ancient Indian texts emphasize mental discipline, humility, and breath control as foundations of well-being. Modern neuroscience supports these principles, particularly in areas such as

Neuroplasticity, cognitive bias, and autonomic nervous system regulation. This paper explores how the initial verses of the Hanuman Chalisa reflect these mechanisms and integrates them with Ayurvedic and Yogic frameworks.

2. Textual Basis and Conceptual Framework

2.1 Doha 1: Mental Purification

"Shri Guru Charan Saroj Raj, Nij Man Mukur Sudhari"

This verse emphasizes cleansing the "mirror of the mind" through humility and guidance.

Scientific Interpretation

- Mental clarity enhances learning efficiency
- Ego reduction decreases cognitive bias
- Receptive states activate neuroplastic changes

Ayurvedic Correlation

- Enhancement of **Sattva guna** improves *Dhi, Dhriti, Smriti* (Charaka Samhita)
- Reduction of **Rajas and Tamas** leads to mental clarity

Yogic Correlation

- Concept of *Chitta Shuddhi* (mental purification)
- Foundation for higher states like *Dharana* and *Dhyana*

2.2 Doha 2: Breath and Awareness

"Buddhiheen Tanu Janike, Sumirau Pavan Kumar"

This verse highlights acceptance of limitations and remembrance through breath and awareness.

Scientific Interpretation

- Acceptance leads to cognitive openness
- Breath regulates the autonomic nervous system
- Oxygen improves brain metabolism (ATP production)

Ayurvedic Correlation

- Role of *Prana Vayu* in brain and sensory function
- Breath maintains balance of **Vata dosha**

Yogic Correlation

- **Pranayama** improves focus and reduces stress
- *Dharana* (focused awareness) enhances cognition

3. Neurophysiological Mechanisms

3.1 Brain Function and Plasticity

Neural circuits adapt based on mental states and repeated practices. Focused attention and calmness strengthen synaptic connections (Doidge, 2007).

3.2 Breath and Nervous System Regulation

Slow, controlled breathing activates the parasympathetic system, reducing stress and improving emotional regulation (Brown & Gerbarg, 2005).

3.3 Mental States and Brain Waves

Meditative states are associated with stable alpha and theta wave patterns, linked to relaxation and improved cognition (Lutz et al., 2008).

4. Ayurvedic Perspective

4.1 Triguna Theory

- **Sattva:** clarity and intelligence
- **Rajas:** agitation
- **Tamas:** inertia

A Sattvic state is essential for optimal cognitive functioning.

4.2 Tridosha and Neurophysiology

- **Vata:** neural signaling
- **Pitta:** metabolism and intellect
- **Kapha:** structural stability

Balanced doshas ensure proper brain functioning.

4.3 Prana Concept

Prana governs consciousness and is closely linked to respiration. Proper flow enhances mental clarity and vitality.

5. Yogic Perspective

5.1 Pranayama

Regulates breath and improves oxygen supply, directly influencing brain performance.

5.2 Dharana and Dhyana

Enhance concentration, stabilize mental fluctuations, and improve executive functions.

5.3 Chitta Shuddhi

Mental purification reduces emotional disturbances and improves clarity.

6. Integrated Model

The teachings can be summarized as:

Humility + Breath Regulation + Focused Awareness → Enhanced Cognitive Function

This aligns with:

- Neuroplasticity activation
- Reduced cognitive bias
- Improved autonomic balance

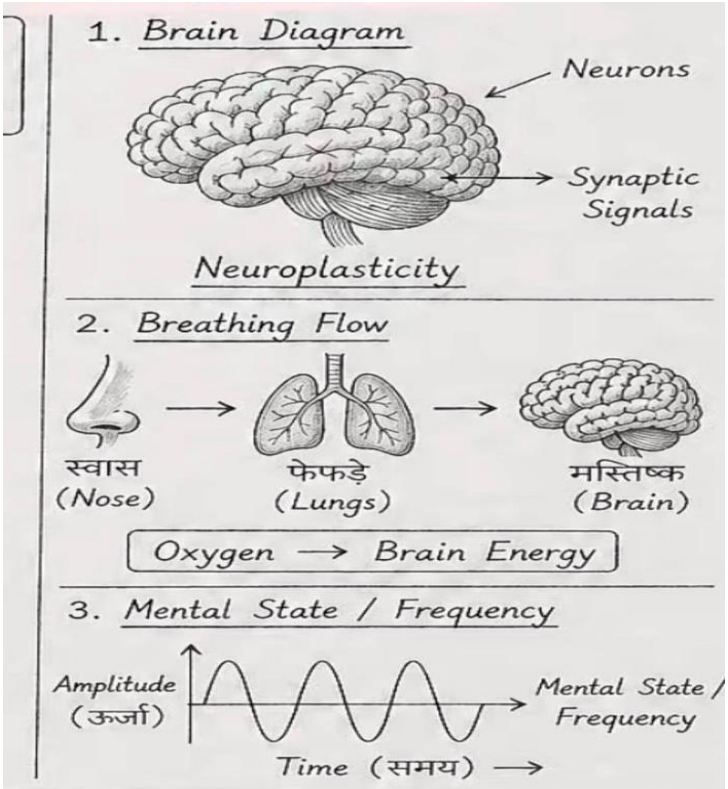
7. Clinical and Practical Implications

7.1 Applications

- Stress management
- Anxiety and depression
- Lifestyle disorders (diabetes, hypertension)
- Cognitive enhancement in students

7.2 Suggested Protocol

- Daily Pranayama (10–15 min)
- Meditation (10–20 min)
- Mindfulness practices
- Behavioral humility (ego reduction)



Neuroplasticity is how your brain physically changes itself when you learn, think, or practice something repeatedly.

How it works inside the brain:-

1. Neurons communicate

Your brain has billions of neurons (nerve cells).

They talk to each other through connections called synapses.

2. New connections form

When you learn something new (like a skill, language, or meditation):

- Neurons start firing together
- New pathways are created

"Neurons that fire together, wire together."

3. Connections get stronger

If you repeat the same activity:

- Those pathways become faster and stronger
- The brain becomes more efficient at that task

Neuroplasticity is the brain's ability to reorganize itself by forming new neural connections throughout life. It allows neurons to adapt their structure and function in response to learning, experience, sensory input, or injury. This capacity underlies human learning, memory, and recovery from neurological damage such as stroke or trauma.

Key facts

- Also known as: Neural or brain plasticity
- Core processes: Synaptic change, neurogenesis, and functional reorganization
- Peak plasticity: Early development; persists across the lifespan
- Clinical relevance: Basis for rehabilitation after brain injury
- Maladaptive effects: Can cause chronic pain or tinnitus

Mechanisms of change

At the cellular level, neuroplasticity operates through modifications in synapses—the junctions between neurons. Repeated activation strengthens these synapses (long-term potentiation), while unused connections may weaken or disappear (synaptic pruning). Structural changes, such as dendritic growth and axonal sprouting, support the formation of

new pathways. In adults, limited neurogenesis occurs mainly in the hippocampus and olfactory bulb, aiding memory and sensory adaptation.

Types of plasticity

- Structural plasticity: Physical changes in neural pathways and grey-matter volume due to learning or recovery.
- Functional plasticity: Shifting of cognitive or sensory functions from damaged to healthy regions—for example, the right hemisphere taking over language tasks after a left-hemisphere stroke.
- Cross-modal plasticity: Recruitment of sensory cortices for other modalities, such as the visual cortex processing touch in people who are blind.

Developmental and adaptive significance

During childhood, the brain undergoes "critical periods" when sensory and language systems are especially responsive to environmental input. In adulthood, experience-dependent plasticity continues, enabling new skill acquisition, habit formation, and adaptation to environmental changes. Factors that enhance plasticity include cognitive challenge, social interaction, physical exercise, and adequate sleep.

8. DISCUSSION

The integration of spiritual teachings with scientific frameworks reveals that ancient practices were empirically aligned with human physiology. Concepts like Prana and Sattva can be interpreted as early models of neurophysiological regulation and cognitive optimization.

The proposition that ancient spiritual teachings align with modern scientific frameworks invites a reinterpretation of traditional concepts as empirically grounded models of human physiology and cognition. Foundational ideas embedded in texts like the *Hanuman Chalisa*, and systematized within **Ayurveda** and **Yoga**, suggest that early scholars developed coherent mind–body theories based on sustained observation and experiential validation. When translated into contemporary terminology, constructs such as *Prana* and *Sattva* show strong conceptual overlap with mechanisms described in neuroscience, psychophysiology, and cognitive science.

1. Reframing *Prana* as an Integrative Regulatory System

Within classical literature, *Prana* denotes the vital force governing respiration, sensory processing, and mental activity. From a modern standpoint, this can be interpreted as a systems-level construct integrating:

- respiratory physiology (oxygen exchange),
- autonomic regulation (sympathetic–parasympathetic balance),
- and neural energetics (ATP-dependent brain function).

Evidence from controlled breathing studies indicates that slow, rhythmic respiration enhances vagal tone, improves heart rate variability, and dampens stress reactivity. These effects parallel the described functions of *Prana Vayu* in maintaining cognitive stability and perceptual clarity. Rather than a single measurable entity, *Prana* may be best understood as a unifying abstraction for interdependent physiological processes that collectively support neural efficiency and मानसिक regulation.

2. *Sattva* and the Neurocognitive Profile of Optimal Function

The Ayurvedic construct of *Sattva* characterizes a state of clarity, balance, and harmony in the mind. Contemporary neuroscience offers analogous descriptions in terms of:

- efficient prefrontal cortex engagement,
- moderated limbic (emotional) reactivity,
- and coherent large-scale brain network activity.

Such a profile is associated with improved executive function, sustained attention, and emotional resilience. Research in meditation and mindfulness demonstrates that individuals trained in attentional practices exhibit enhanced cognitive flexibility and reduced bias—outcomes consistent with a Sattvic state. Thus, *Sattva* can be interpreted as a qualitative marker of optimized neurocognitive functioning rather than a purely philosophical attribute.

3. Empirical Underpinnings of Traditional Practices

A key point of discussion is whether ancient practices can be considered "empirical." Although lacking modern instrumentation, traditional systems employed iterative observation, introspection, and transmission across generations—methods that produced reproducible outcomes. Techniques such as *Pranayama*, *Dharana*, and *Dhyana* were preserved because of their consistent effects on:

- attentional stability,
- emotional regulation,
- and overall well-being.

Contemporary findings corroborate these effects, showing structural and functional brain changes associated with repeated contemplative practice, including alterations consistent with **Neuroplasticity**. This convergence supports the view that ancient frameworks captured valid aspects of human physiology, albeit in a different descriptive language.

4. Mechanistic Convergence: From Practice to Physiology

The pathways through which these practices exert their effects can be mapped across systems:

- **Breath regulation (Pranayama):** modulates autonomic balance, reduces cortisol, and enhances interoceptive awareness.
- **Focused attention (Dharana):** strengthens frontoparietal attention networks and improves task performance.
- **Meditation (Dhyana):** stabilizes neural oscillations (e.g., alpha/theta activity) and supports emotional regulation.

These mechanisms provide a plausible bridge between traditional claims and measurable biological outcomes, reinforcing the interpretation of *Prana* and *Sattva* as early system-level descriptors.

5. Cognitive and Behavioral Implications

Spiritual teachings emphasize humility, self-awareness, and disciplined practice. In modern cognitive terms, these translate to:

- Reduced cognitive bias and ego-driven distortions,
- Improved inhibitory control and decision-making,
- Enhanced adaptability in complex environments.

Such attributes are central to executive functioning and are increasingly targeted in behavioral and clinical interventions. The alignment suggests that traditional practices were effectively training higher-order cognitive processes long before they were formally defined.

6. Limitations and Critical Considerations

While the parallels are compelling, caution is warranted in drawing direct equivalence:

- Traditional concepts are holistic and context-dependent, whereas scientific models are reductionist and variable-specific.
- Terms like *Prana* and *Sattva* do not map one-to-one onto single physiological markers.

- Much of the supporting evidence is indirect or correlational, highlighting the need for rigorously designed, interdisciplinary studies.

Future research should aim to operationalize these constructs using measurable biomarkers (e.g., HRV for autonomic balance, neuroimaging for attentional networks) to strengthen the translational bridge.

7. Implications for Integrative Health

Despite these limitations, the synthesis offers a valuable framework for integrative medicine. By combining traditional practices with evidence-based approaches, it is possible to develop interventions that are:

- preventive (reducing stress and disease risk),
- promotive (enhancing cognitive and emotional well-being),
- and sustainable (based on daily behavioral practices).

This integrative model is particularly relevant for addressing modern health challenges such as stress-related disorders, lifestyle diseases, and cognitive decline.

9. CONCLUSION

The Hanuman Chalisa provides a holistic framework that aligns with principles of neuroscience, Ayurveda, and Yoga. Its teachings on humility, breath, and awareness contribute to improved mental clarity, emotional stability, and cognitive performance, making it highly relevant for modern integrative medicine.

The *Hanuman Chalisa* can be understood as more than a devotional composition; it presents a coherent, practice-oriented framework that resonates with key principles of modern neuroscience as well as classical systems like **Ayurveda** and **Yoga**. When interpreted through an integrative lens, its emphasis on humility, breath regulation, and sustained awareness reflects core mechanisms known to influence brain function, emotional balance, and cognitive performance.

Humility—symbolized in the opening invocations—functions as a cognitive regulator. By attenuating ego-driven biases and fostering receptivity, it enables clearer perception, improved learning, and more balanced decision-making. Contemporary cognitive science similarly recognizes that reduced cognitive bias and greater psychological flexibility enhance executive functioning and adaptive behavior. Thus, humility can be viewed as a behavioral strategy for optimizing higher-order cognition.

Breath awareness, repeatedly emphasized through symbolic references to "Pavan," aligns closely with physiological mechanisms governing the autonomic nervous system. Controlled breathing practices, analogous to Yogic *Pranayama*, are known to enhance parasympathetic activity, reduce stress responses, and improve emotional regulation. These effects contribute directly to better mental clarity and sustained attention. In this context, breath serves as a practical interface between conscious control and involuntary physiological processes, linking traditional concepts of vital energy with measurable neurophysiological outcomes.

Similarly, the practice of focused awareness (*Sumiran*) reflects the principles of attentional training and mindfulness. Sustained attention stabilizes neural activity, enhances information processing, and supports emotional resilience. Repeated engagement in such practices promotes **Neuroplasticity**, leading to long-term improvements in cognitive efficiency and मानसिक stability. This demonstrates that the Chalisa implicitly advocates techniques that are now widely used in evidence-based mental health and performance optimization programs.

From an Ayurvedic perspective, these practices collectively promote the predominance of *Sattva*, the quality associated with clarity, harmony, and balanced mental functioning. From a Yogic standpoint, they facilitate progression toward higher states of concentration and meditation. When viewed through modern science, they correspond to optimized neural integration, balanced autonomic function, and efficient cognitive processing.

In the context of contemporary healthcare, this integrative framework holds significant relevance. The increasing burden of stress-related disorders, lifestyle diseases, and cognitive dysfunction calls for approaches that address both mind and body in a unified manner. The Hanuman Chalisa, when interpreted beyond its devotional context, offers a set of simple yet powerful behavioral tools—cultivating humility, regulating breath, and training awareness—that can support preventive, promotive, and therapeutic strategies in integrative medicine.

In conclusion, the teachings of the Hanuman Chalisa illustrate a timeless convergence between spiritual insight and scientific validity. By aligning with principles of neuroscience, Ayurveda, and Yoga, it provides a holistic model for enhancing mental clarity, emotional stability, and cognitive performance. This synthesis underscores its enduring relevance and its potential contribution to modern evidence-based, integrative healthcare systems.

REFERENCES

1. Charaka Samhita
2. Patanjali Yoga Sutras
3. Doidge, N. (2007). *The Brain That Changes Itself*.

4. Brown, R. P., & Gerbarg, P. L. (2005). Sudarshan Kriya yogic breathing in stress. *Journal of Alternative and Complementary Medicine*, 11(4), 711–717.
5. Lutz, A., Slagter, H. A., Dunne, J. D., & Davidson, R. J. (2008). Attention regulation and monitoring in meditation. *Trends in Cognitive Sciences*, 12(4), 163–169.
6. McEwen, B. S. (2007). Physiology and neurobiology of stress. *Physiological Reviews*, 87(3), 873–904.