

A Multimodal Evaluation of Trataka Practice: A Window into Calmness, Sleep, and Inner Balance

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Introduction

In the quiet glow of a flame lies an ancient secret to stillness. Trataka, one of the shatkarma (six cleansing techniques) of Hatha Yoga, is a meditative practice of steady gazing described in texts such as the Hatha Yoga Pradipika and Gheranda Samhita. Traditionally believed to purify the eyes and strengthen concentration, modern science now suggests that its effects reach far deeper—potentially harmonizing the body's autonomic functions and emotional state.

Recent explorations in mind-body science highlight the importance of cardio-respiratory coupling (CRC)—the rhythmic synchronization of heartbeats with breath. Strong CRC, especially in the high-frequency (HF) range, reflects parasympathetic (rest-and-digest) activation. This physiological signature of relaxation formed the basis of our investigation into Trataka. This pilot study examined both immediate and short-term effects of Trataka on anxiety, sleep, mindfulness, and autonomic regulation, using a multimodal approach combining psychological scales and physiological data.

Methods

Two small experiments were conducted:

Experiment 1:

Participants performed a single session of Trataka using one of four light sources—candle, diya with sesame oil, diya with ghee, and LED light. Anxiety was measured before and after practice using the GAD-7 scale and a custom experiential questionnaire. During the session, cardio-respiratory coupling (CRC) was recorded.

Experiment 2:

In a seven-day home-based study, participants practiced Trataka for 15 minutes daily. The Pittsburgh Sleep Quality Index (PSQI) and the State Mindfulness Scale for Physical Activity (SMS-PA) were administered before and after the intervention.

Results

Experiment 1: The Immediate Calm

Even a single session of Trataka led to a marked drop in anxiety. GAD-7 scores fell from 4.93 to 2.97, showing measurable relaxation. Participants' feedback echoed this shift: they felt calmer, more comfortable, and emotionally lighter. Reports of eye strain and dryness also reduced, suggesting the practice was not only mentally soothing but physically gentle.

Physiological measures confirmed these subjective impressions. CRC coherence in the HF band increased during all light-source conditions, signifying enhanced heart-breathing harmony. Notably, the diya with ghee produced the most pronounced and sustained effect, even during the post-rest phase—hinting at Trataka's lingering influence on the nervous system.

Experiment 2: Seven Days to Better Sleep

A week of consistent practice transformed sleep quality. PSQI scores dropped from 6.14 to 3.42, moving participants from the "poor sleeper" to "good sleeper" range. Mindfulness scores revealed subtle yet meaningful changes: while mental awareness slightly dipped, bodily awareness rose, suggesting that Trataka grounds the practitioner in sensory presence—feeling rather than overthinking.

Discussion

Far from being a mere focus exercise, Trataka appears to function as a natural neuro-biofeedback mechanism. By gazing steadily at a simple flame, practitioners subtly guide their physiological rhythms toward balance. The enhanced synchronization between heart and breath mirrors a deeper psychological calm—what yogic literature calls chitta-prasādana, the clarity of mind.

The sustained coherence observed even after the practice suggests that Trataka helps the body "remember" relaxation—a quality invaluable in today's overstimulated world. Its simplicity, accessibility, and non-pharmacological nature make it a promising adjunct for managing anxiety, sleep disturbances, and stress-related dysregulation.

Conclusion

In just 15 minutes a day, Trataka offers a doorway to equilibrium—soothing the mind, synchronizing the body, and kindling an inner stillness that lingers beyond the flame.

This pilot study provides early scientific validation for what yogis have long known: that through the steady gaze, one may find not only focus but also profound peace.

References

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