

# The Neuroscience of Jewish Contemplative Practices

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Neuroscience and Spiritual Practices: Transforming the Embodied Mind

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## Neuroscience Perspectives

- Simply localizing function in the brain may add little information of *practical* use to an already adequate psychological or spiritual account – even if there’s a picture.
- Neural networks are extraordinarily interdependent and dynamic; linking complex mental activity to isolated and static “circuits” is a simplifying heuristic, but also potentially reductionistic and reifying.
- Neuroscience is a young science; the links from neural activity to conscious experience could take centuries to work out fully; materialist claims that the “obvious” default view is that mind is only the brain at work are unfounded.
- Nonetheless, while it’s natural to think an extraordinary phenomenon like the mind requires an extraordinary cause, lots of *ordinary* causes can be enough for an extraordinary result. Ordinary DNA molecules – across billions of years, and countless organisms and environments – enabled extraordinary humanity. Similarly, ordinary synapses – 100 trillion of them, most firing dozens of times a second – may be sufficient to enable extraordinary mind.
- In any case, mind does not *causally* reduce to brain: when its patterns of information can be represented by any suitable neural network (like a song can be recorded on any CD), they are causally independent of the neurons they “ride,” and then mind causes mind.
- Further, when twin studies are corrected for homogeneity of environments, most genetic factors account for a third at most of intelligence, happiness, success, or spiritual growth. The normal brain can hold both horrible and wonderful thoughts. It’s the *contents* of mind that are primary, not the organ that enables them.
- Vast numbers of people have progressed on their chosen path without neuroscience.
- Neuroscience is useful for “Transforming the Embodied Mind” when it:
  - Fosters conviction, both about spiritual teachings and the fruits of practice
  - Helps “unpack” the beneficial elements of a spiritual practice through understanding the multiple neural structures and activities that correlate with the practice.
  - Supports the skillful individualization of practice, based on a growing understanding of the natural diversity of brains (e.g., the neural mechanisms underlying temperamental differences)
  - Clarifies the common neural underpinnings of seemingly disparate practices . . .

and the differing neurology of practices with similar names

- Draws attention to the cultivation of general-purpose skills and personal attributes that are implicit in spiritual practices

- Enables a kind of reverse engineering: (1) pick a mental state of interest, (2) identify plausible neural substrates of the *mental* state, and (3) find methods for stimulating and strengthening that *neural* substrate to support and deepen the desired mental state.

### Shanah Practice

- The challenge of holding multiple, diverging ideas in mind.
- Supporting factors:
  - Frontal lobe, language-based understanding and intention
  - Parasympathetic activation to relax, reduce tension and anxiety
  - Stabilizing working memory to support inclusive mental spaciousness; using positive affect to raise tonic dopamine; happiness is skillful means
- Explicit and implicit aspects of spiritual practices
  - Explicit usually gets most attention, as a matter of doctrine or tradition
  - But implicit often matters most through its general effects, such as a training in using frontal lobe based capacities to manage uncomfortable emotional reactions, developing more supple control over the parasympathetic nervous system, cultivating positive emotions, and even expanding the amount of neural real estate routinely allocated to the global workspace of consciousness.

### Shofar Practice

- The neuropsychology of music is a fast-developing research area.
- The simplest sounds often have the most emotional impact (e.g., shofar, Tibetan horns, repetitive chants).
  - Aspects of animal calls are dependent on brain stem structures shared by both humans and fish, indicating a common origin at least 400 million years ago.
  - The evolution of human sound production and reception has continued until relatively recently; modern humans arose about 200,000 years ago, but changes in the basal nuclei first appearing just 50,000 - 90,000 years ago enable the rapid and tight motor control of the dexterous speech we take for granted in daily life.
  - The lower down the evolutionary ladder, the more elemental the sounds. Therefore, the simplest sounds we hear today may often strike the most ancient, most primal chords within the human nervous system.
  - Further, simple sounds like the shofar sometimes resemble laughing and crying – the sounds of which probably date back at least several million years to the common ancestor we share with the chimpanzees: who also laugh and cry.
- Shofar practice illustrates the power of demonstrations – both nonverbal and conveyed through story. These draw on right hemisphere capacities for spatial, gestalt processing – which may both support spaciousness of mind and enable teachings to bypass potential verbal, left-brain “filters.”

### Selected References

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