



For decades, **neurologists** have been trying to prove what **yogis** and **monks** have been claiming for millennia.

...WHAT PHYSIOLOGICAL CHANGES ARE TAKING PLACE IN THE BRAIN?

Figure 2 EEG recordings: 30 60 90

Intensity [$\mu V^2/(c/sec)$]

a. eye closure

b. begin transcendental meditation

c. low voltage readings (2-5min)

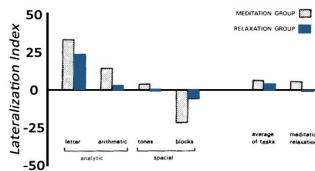
d. end of meditation period

e. eyes open

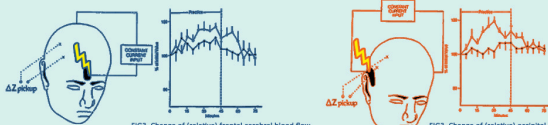
eyes closed meditation

Time (minutes)

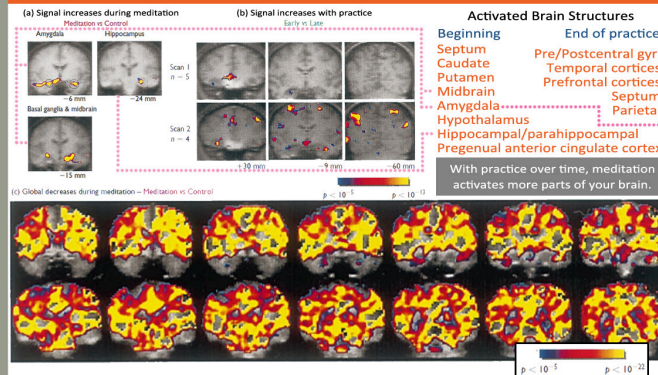
1977. Practitioners showed greater **right-brain**, **left-brain** abilities (asymmetric hemispheric lateralization) when performing cognitive tasks, and greater **unification** when at rest.



1996. Meditators show significantly increased blood flow in the brain's thinking (frontal) and visual (occipital) processors.



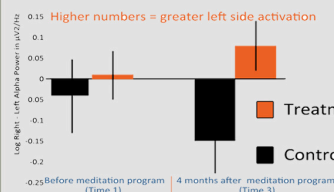
FMRI SCANS IDENTIFY PARTS OF THE BRAIN ACTIVATED DURING MEDITATION 2000



CAN MEDITATION PROVIDE BENEFITS TO THE BRAIN AND BODY THAT PERSIST?

MINDFULNESS BASED STRESS REDUCTION PROGRAM (MBSR)

Attributes tested	Before	After	4 Weeks	8 Weeks
Antibody titer counts			Antibody count ↑	$t(3)=2.05, p<.05$
Anxiety / Personality		Negative Mood ↓	Negative Mood ↓ $t(20)=2.28, p<.05$	$t(20)=2.27, p<.05$ $t(21)=2.45, p<.05$
EEG Leftside Activation		EEG Activation ↑	EEG Activation ↑	$F(1,37)=5.14, p<.05$ $F(1,33)=2.82, p<.10$



Previous research has shown that positive feelings are associated with the left side of the brain.

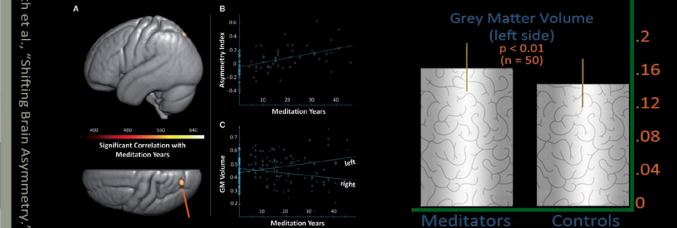
“The findings in this study are the 1st to suggest that meditation can produce increases in relative left-sided anterior activation that are associated with reductions in anxiety ... and increase(s) in positive affect.”

MEDITATION CAN STRENGTHEN THE “HAPPY FEELINGS” PART OF YOUR BRAIN



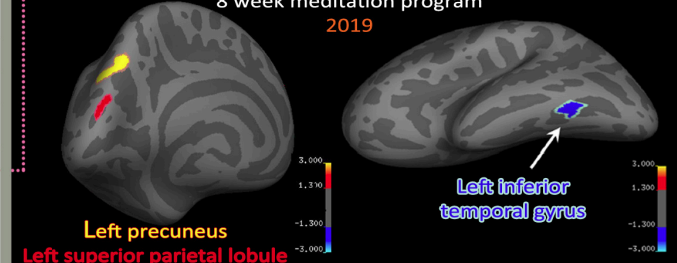
Long term meditation increases the **VOLUME** of neuronal cell bodies 2015

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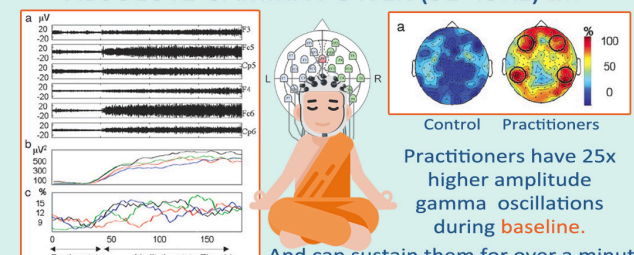
left posterior parietal sulcus
LEFT BRAIN CORTICAL THICKENING

8 week meditation program



Yang et al., "Alterations in Brain Structure and Amplitude of Low-Frequency after 8 Weeks of Mindfulness Meditation Training in Meditation-Naïve Subjects."

ABSOLUTE GAMMA POWER (31-45Hz) 2004



And can sustain them for over a minute!

(Lutz et al., "Long-Term Meditators Self-Induce High-Amplitude Gamma Synchrony during Mental Practice.")