ATTUNE

myattune.app

FREE GUIDE

The Focused Mind

What science really knows about meditation — and how your brain can finally show it's working.

Dr. André Keizer

Neuroscientist · Founder & Director, Attune Labs & qEEG-Pro

INSIDE THIS GUIDE

INTRODUCTION

You meditate. But does it work?

Millions of people meditate every day. They sit, they breathe, they close their eyes — and then they guess. They guess whether they were truly focused or just quietly distracted. They guess whether the session was "good" or not. They guess whether it is working at all.

Traditional meditation apps don't help. They count minutes. They celebrate streaks. But none of them can tell you what your brain was actually doing while you sat there. That is not just a design oversight — it reflects a real scientific limitation. Until recently, measuring the difference between a focused mind and a wandering one required a research-grade EEG lab. That is no longer true.

This guide explains what neuroscience has learned about meditation over the last two decades: how researchers classify different types of practice, why detecting focus vs. mind-wandering became the field's central challenge, and how a specific brainwave signal — occipital alpha power — turned out to be one of the most direct neural markers of focused attention identified to date.

No spirituality. No guesswork. Just what the data shows.

What this guide covers

Part One explains the three scientifically recognised styles of meditation — Focused Attention, Open Monitoring, and Non-dual Awareness — and what each one actually asks your brain to do. Part Two takes you to the core of the problem: how do you tell, from a brain signal, whether someone is genuinely focused or quietly distracted? Part Three introduces CEVAM — the method built specifically to answer that question in daily practice.

You don't need a neuroscience background. You just need to have sat down to meditate and wondered, honestly, whether it was working.

PART ONE

Three types of meditation — and why they are not the same

Scientists studying meditation face a definitional problem: the word covers practices that are neurologically as different as sprinting and yoga. A 2008 landmark paper by Lutz and colleagues,[1] and a major 2021 review by Laukkonen and Slagter,[2] proposed a classification that is now widely used across the field. It identifies three distinct styles:

TYPE	WHAT YOU DO	WHAT YOUR BRAIN DOES
Focused Attention (FA)	Direct and hold attention on a single object — typically the breath, but a flame of a candle, a photograph, or an internally repeated mantra work just as well.	Sustained activation of attention networks; suppression of the Default Mode Network (DMN). Associated with reduced mind-wandering and increased activity in frontoparietal control regions.
Open Monitoring (OM)	Let go of any fixed focus. Observe thoughts, sensations, and perceptions as they arise — without grasping or pushing them away.	Broad, non-reactive monitoring of moment-to-moment experience. Associated with reduced default mode activity and increased metacognitive awareness. EEG studies show elevated frontal theta and reduced alpha suppression compared to FA.
Non-dual Awareness (ND)	Rest as pure awareness itself. No division between observer and observed. Described in Zen, Tibetan, and Advaita traditions.	The deepest deconstruction of predictive processing. Preliminary evidence suggests global reductions in high-frequency oscillations and decreased default mode connectivity. Neural correlates remain poorly characterised and are an active area of research.

Laukkonen and Slagter propose that these three styles sit on a single continuum, each one progressively reducing what they call counterfactual depth — the brain's tendency to run abstract, temporally extended simulations about past and future rather than resting in the present moment. In plain terms: each style strips away a deeper layer of habitual thinking.

Focused Attention is also what most people mean when they talk about mindfulness meditation — the two terms are used interchangeably in the scientific literature. For the purposes of this guide — and for understanding how Attune works — FA is the most relevant style: it is the most studied, the most measurable, and the one with the clearest neural signature.

1. Lutz A, Slagter HA, Dunne JD, Davidson RJ (2008). Attention regulation and monitoring in meditation. Trends in Cognitive Sciences, 12(4), 163–169. doi.org/10.1016/j.tics.2008.01.005

2. Laukkonen RE, Slagter HA (2021). From many to (n)one: Meditation and the plasticity of the predictive mind. Neuroscience and Biobehavioral Reviews, 128, 199–217. doi.org/10.1016/j.neubiorev.2021.06.021

PART TWO

The holy grail of meditation research

For decades, the central challenge in meditation neuroscience has been straightforward to state, but extraordinarily difficult to solve:

> "How do you know, from the outside, whether someone is focused — or just sitting quietly with a wandering mind?"

Self-report is unreliable. If you ask meditators to report every time their mind wanders, the act of introspection itself disrupts the state you are trying to measure. Behavioural measures — reaction times, error rates — are too indirect. And heart rate or breathing, while useful for relaxation, tell you almost nothing about the quality of focused attention.

What the brain actually does during mind-wandering

When your mind wanders — when you drift from the breath to tomorrow's meeting to a half-remembered conversation — a specific network activates: the Default Mode Network (DMN). The DMN is the brain's internal narrative machine. It generates spontaneous thoughts, simulates future scenarios, rehearses social interactions, and constructs your ongoing sense of self.

During genuine focused attention, the DMN is suppressed. Attention networks take over. The brain stops simulating and starts perceiving — directly, in the present moment.

The signal researchers had been searching for

Among all measurable brain signals, one turned out to have a remarkably consistent relationship with focused attention: occipital alpha power.

Alpha waves (8–13 Hz) recorded from the back of the head — the occipital cortex — reflect the activity of the visual system, even with eyes closed. When you are genuinely attending to your internal visual field with eyes closed, occipital alpha power drops measurably and immediately. When your attention drifts, it rises again.

This is precisely what Dr. Keizer observed in a pilot study with volunteers: directing attention to the internal visual field with eyes closed produced immediate, large reductions in occipital alpha power in the majority of participants — a result that, to our knowledge, has not been reported in this specific form before. Rather than an indirect proxy, it provides a direct, real-time index of attentional engagement during FA meditation, making it possible to objectively distinguish a focused state from a wandering one in real time.

This work is currently being replicated and extended in collaboration with the University of Amsterdam.

Why occipital?	Most EEG meditation research uses frontal or central electrodes. The occipital approach — recording from the visual cortex at the back of the head — is specific to CEVAM and the Attune protocol. By asking meditators to attend to the internal visual field (the dark field behind the eyelids), the visual cortex becomes the target of sustained attention, and its alpha rhythm becomes the measurement.

PART THREE

From lab finding to daily practice: CEVAM

About five years ago, Dr. Keizer observed that directing attention to the internal visual field with eyes closed produces an immediate, measurable drop in occipital alpha power — a finding that had not been clearly described in this specific context before. That observation became the foundation of CEVAM and, eventually, of Attune.

CEVAM — Closed-Eyes Visual Attention Meditation — was developed by Dr. André Keizer to do exactly that. Instead of focusing on the breath (a tactile, interoceptive target), CEVAM asks practitioners to attend to the visual experience that exists behind closed eyelids: the subtle textures, phosphenes, and shifting darkness of the internal visual field. This makes the visual cortex the primary target of sustained attention — which means occipital alpha power becomes a precise, real-time measure of whether attention is engaged or not.

How a session works

1 Sit and close your eyes	Find a quiet position. Put on the BrainBit EEG headband. The sensors rest on the occipital area at the back of your head.
2 Tune in to the dark field	Notice the visual experience behind your closed eyelids. It is never completely black — there are subtle textures, shifting patterns, occasional flashes of light. This is your meditation object.
3 Sustain attention	Let go of thoughts and gently observe the internal visual field. When your mind wanders, the audio feedback signals it immediately — not as a failure, but as information.
4 See your data	After the session, Attune shows you exactly how long you held focus and when your attention drifted — a direct, objective measure of your attentional engagement during the session.

A pilot study showed large, immediate drops in occipital alpha power during CEVAM sessions in the majority of participants — a result consistent with the lab literature, suggesting consistent engagement of the target neural mechanism. Validation with larger samples and longitudinal outcomes is ongoing.

The Attune Starter Bundle

Everything you need to start training your focus with real-time brain feedback.

WHAT YOU GET FROM DAY ONE

- Get real-time audio feedback the moment your focus drifts.
- See how your attention improves over time.
- Stop guessing. Start measuring.

BrainBit EEG Headband	3 Months App Access	Session Analytics
Research-grade occipital EEG	CEVAM & Alpha-Up protocols	Live EEG insights & audio feedback

$499

One-time purchase · 3 months app included · Then $20/month

Order Now — myattune.app

Already have a BrainBit? Try Attune free for 7 days

Ships within 3–5 business days · Cancel subscription anytime

Guided sessions | Live EEG insights | Audio feedback | Session analytics