Two birds and one stone
Interoception & Meditation

What Is Interoception?

- The ability to **sense internal body signals** — heartbeat, breath, muscle tension, gut feelings
- Body-focused meditation **strengthens nervous system signals**, sharpening awareness of these cues

What It Improves

- **Emotional regulation** — detect stress responses earlier, intervene before escalation
- **Attentional control** — anchoring focus on the body reduces mind-wandering & rumination
- **Mental clarity** — quieting neural noise improves decision-making & cognitive flexibility
- **Self-awareness** — builds a stronger mind-body connection, enhancing insight into your own states
- **Anxiety & pain management** — retrains the brain's relationship to uncomfortable sensations

Interoception & Meditation (cont.)

What It Improves (cont.)

- **Memory encoding** — focused attention during meditation trains the same circuits used to encode & retain information
- **Addiction & craving resistance** — noticing bodily urges without reacting breaks the automatic craving-to-action loop
- **Reduced rumination** — shifting attention from repetitive thought loops to physical sensation disrupts the cycle
- **Distress tolerance** — sitting with discomfort builds capacity to tolerate difficult emotions without avoidance
- **Trauma recovery** — reconnecting safely with body sensations reverses PTSD-related dissociation
- **Empathy & social cognition** — reading your own body better helps you read others' emotional states

Why the Body Is the Object of Focus

- The body provides a **constant, present-moment anchor** — unlike thoughts, it can't drift to past or future
- Repeated body scanning strengthens **insula cortex activation** — the brain region that processes interoceptive input

Using Five Senses to Build Stronger Memories

Engaging multiple senses during encoding creates **richer, more retrievable** memory traces. Each sense adds a separate neural pathway to the same event. Creates long term memory

The Five Sensory Channels

- **Sight** — Visualize details: colors, shapes, spatial layout of a scene
- **Sound** — Notice ambient noise, voices, rhythm, or silence
- **Touch** — Feel textures, temperature, pressure, weight in your hands
- **Smell** — The most direct path to the hippocampus; anchors emotional memory
- **Taste** — Flavor associations tie to autobiographical memory networks

Why Multi-Sensory Encoding Works

- Creates **redundant retrieval cues** — if one path fades, others remain
- Activates more brain regions simultaneously, strengthening the **memory trace**
- Tip: When making the memory, **deliberately pause** and ask: what do I see, hear, feel, smell, taste?





Spaced Retrieval for Memory

What Is Spaced Retrieval?

- A memory technique that involves recalling information at gradually increasing intervals
- Leverages the **testing effect** — active recall strengthens neural pathways more than passive review

How It Works

- Learn the target information, then retrieve it after **expanding intervals** (e.g., 1 min → 5 min → 15 min → 1 hr → 1 day)
- If recall fails, reset to a shorter interval and rebuild

Key Benefits

- Proven effective for individuals with memory impairments (e.g., dementia, TBI)
- Builds long-term retention with minimal cognitive demand
- Can be used for names, routines, safety strategies, and compensatory techniques, anything you want to memorize

Memory & the Sense of Smell

The Olfactory–Memory Connection

- Smell is the **only sense that bypasses the thalamus** and projects directly to the limbic system
- Olfactory signals reach the **amygdala** (emotion) and **hippocampus** (memory formation) in as few as two synapses
- This direct pathway is why a scent can **instantly trigger vivid, emotional memories** that other senses cannot

Memory & Smell (cont.)

Why It Matters

- **Context-dependent learning** — pairing a scent with study material can boost recall when the same scent is present during retrieval
- **Emotional tagging** — the amygdala flags scent-paired experiences as significant, giving them priority in long-term storage
- **Clinical applications** — olfactory training is used in dementia care to stimulate hippocampal activity & slow cognitive decline

Scents for Focus & Concentration

Peppermint

- Contains **menthol**, which stimulates the trigeminal nerve — increasing alertness, reaction time, & working memory
- Activates the **reticular activating system** — the brainstem network for sustained wakefulness & attention
- Shown to **reduce mental fatigue** and improve accuracy on sustained-attention tasks

Rosemary

- Contains **1,8-cineole**, which increases acetylcholine — the key neurotransmitter for learning & memory
- Enhances **prospective memory** — remembering to carry out future intentions (e.g., taking medication on time)

Lavender (Calm Focus)

- Reduces **anxiety-driven distractibility** — calming the nervous system restores attentional capacity
- Best paired with a stimulating scent (mint + lavender) for **alert relaxation** — focused without wired