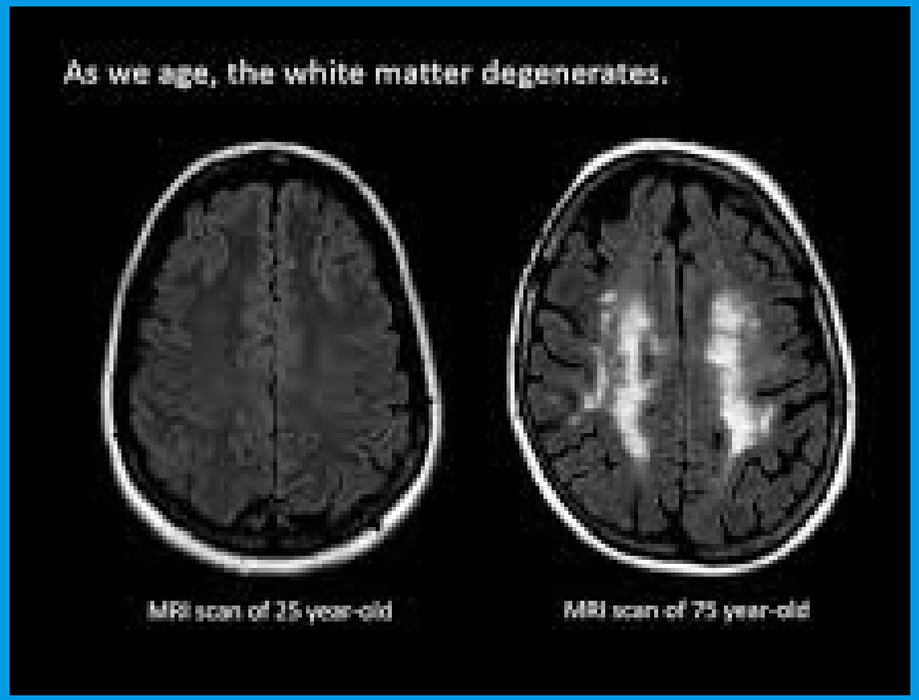
WHAT WE'RE LEARNING TODAY



1. How the brain changes with age
2. Science-backed strategies for movement, nutrition, sleep, and mindfulness
3. Midlife challenges unique to women
4. Explore innovative tools like 40Hz light therapy
5. Actionable techniques for coaching or self-care
6. New 2025 research: walking & diet boost cognition - even in high-risk adults

THE AGING BRAIN

- Hippocampus & prefrontal cortex shrink → impacts memory & decision-making
- Myelin thinning → slows neural transmission
- Lower dopamine & acetylcholine → affects focus, drive, and learning
- Higher oxidative stress & inflammation → increases vulnerability to decline

Did You Know?

- Global dementia costs are projected to exceed $2T by 2030[1]
- In 2025, 7.2M Americans 65+ are living with Alzheimer's — projected to reach 13M by 2050
- Alzheimer's-related deaths have more than doubled (+140%) since 2000

(World Alzheimer Report, 2024)[1]

DEMENTIA RISK CAN BE REDUCED!

14 Modifiable Risk Factors by Life Stages

Life Stage	Risk Factors
Early Life	Low education, Hypertension, Obesity, Alcohol use, High LDL, TBI, Vision loss
Midlife	Hearing loss, Social isolation, Physical inactivity, Diabetes, Air pollution
Later Life	Smoking

Nearly half of dementia cases can be prevented

Preventable Cases 45%

Source: Lancet (2024)

BRAIN RESILIENCE TRIO

Neuroplasticity

The brain’s ability to rewire and grow at any age

Cognitive Reserve

The brain’s “backup system” built through life experiences

Gamma Rhythm

Supports attention, memory, and coordination across brain regions (Buzsáki & Wang, 2012, Annu Rev Neurosci)

Takeaways

- Learning, movement, and connection strengthen brain network extra capacity
- Healthy brains show strong gamma rhythms
- Gamma supports attention, memory, and coordination across brain regions
- Gamma activity naturally declines with age, but can be stimulated
- Fitness builds brain resilience via mitochondria, blood flow, and neuroplasticity
- It’s never too late to build a better brain

MOVE YOUR BODY
TRAIN YOUR BRAIN

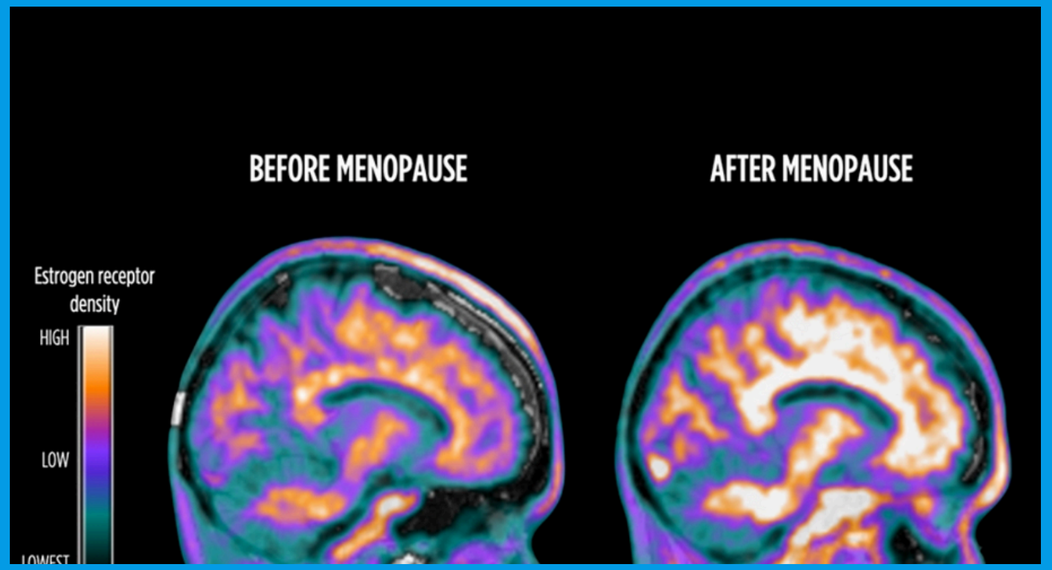
- Move your body, build your brain
- Boosts blood flow & neurogenesis (new brain cells)
- Improves memory, mood & focus
- May reduce dementia risk up to 40%* (Johns Hopkins 2025)

NEUROSCIENCE OF MOVEMENT

- **BDNF** → Grows new brain cells and strengthens connections
  - Cotman & Berchtold, Trends in Neurosciences, 2002
- **Insulin Sensitivity** → Fuels focus and brain energy
  - Mandolesi et al., Frontiers in Human Neuroscience, 2018
- **Lowers Inflammation** → Protects against cognitive decline
  - Gleeson et al., Journal of Applied Physiology, 2011
- **Cortisol Modulation** → Supports calm and clarity
  - Reference: Gleeson et al., Journal of Applied Physiology, 2011
- **Better Executive Function** → Planning, memory, and attention
  - Erickson et al., PNAS, 2011
- Exercise builds mental strength, not just muscle
  - Yue H et al. Int J Behav Nutr Phys Act. 2025

WHY MUSCLE MATTERS FOR WOMEN'S BRAIN HEALTH

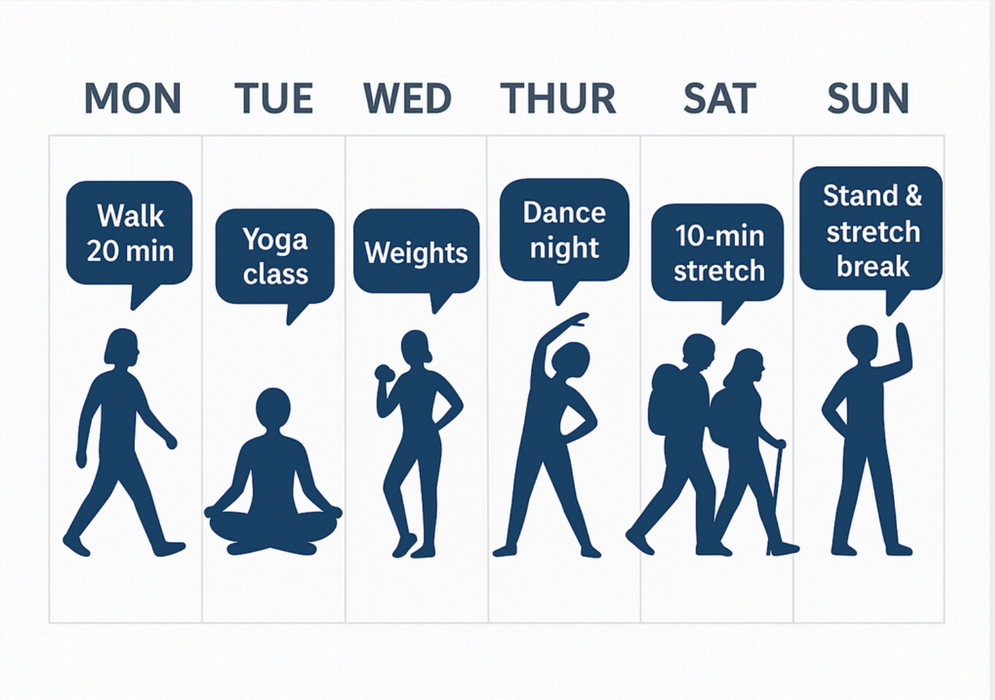
- Supports mood stability
  - (Mosconi et al., 2021) (Barha et al., 2017)
- Protects strength and cognitive resilience through menopause and hormonal shifts
- Helps lower anxiety and brain fog
  - (Heads Up Health & OvationLab, 2025 study)
- Regulates blood sugar, inflammation, and energy
  - (Bianconi et al., 2020; Mandolesi et al., 2018)



Muscle is metabolic brain gold

YOUR BRAIN ON MOVEMENT: A WEEKLY PLAN THAT WORKS

- 150 min moderate cardio
  - Walking, cycling, dancing
- 2–3x strength training for lean mass and hormone support
- 1x mind-body activity
  - Yoga, tai chi, dance
- Daily micro-movements, even 10 minutes count!



Build consistency. Build cognition.

2025 RESEARCH: MOVEMENT AND DIET FOR COGNITION

Walking 🚶‍♀️

A 10% increase in weekly walking leads to:

- +8.5% cognition (women)
- +12% cognition (men)

Incl. APOE4 carriers

(Barha et al., AAIC 2025)

MIND Diet + Lifestyle 🥗

A MIND diet + exercise, cognitive challenge, health monitoring leads to:

- Improved cognition in at-risk adults

(Morris et al., JAMA 2025)

FOOD FOR THOUGHT: WHAT THE BRAIN REALLY NEEDS (1)

- The brain consumes ~20% of the body's energy despite only 2% body weight (Mergenthaler et al., 2013)
- Glycemic control supports cognitive function, mood stability, and reduces neuroinflammation (Gonzalez et al., 2018).
- Essential fatty acids (EPA, DHA) and monounsaturated fats (olive oil) promote neuronal membrane integrity and anti-inflammatory pathways (Bazinet & Layé, 2014)
- The brain thrives on metabolic consistency and nutrient adequacy, not metabolic stress or variability

FOOD FOR THOUGHT: WHAT THE BRAIN REALLY NEEDS (2)

- Polyphenol-rich foods (berries, leafy greens, nuts, fish) provide antioxidants that protect against oxidative stress (Barberger-Gateau et al., 2007; Joseph et al., 2009)
- Nutrient requirements shift during midlife; increased needs for B vitamins (B6, B12, folate), choline, and magnesium influence neurotransmitter synthesis and neuroprotection
  - (Mosconi et al., 2017)
- Ketogenic and low-carb diets may improve mitochondrial efficiency and metabolic flexibility, potentially benefiting insulin-resistant or cognitively impaired populations
  - (Cunnane et al., 2016)

FOOD AS COGNITIVE FUEL

- **Metabolic Support:** Brain needs steady glucose or ketones
  - (Gibson & Green, 2002; Newport, 2015)
- **Neuroprotection:** Antioxidants & omega-3s reduce inflammation
  - (Gómez-Pinilla, 2008; Farooqui, 2011)
- **Neuroplasticity:** Nutrients like BDNF support brain growth
  - (Ratey, 2008; Gomez-Pinilla, 2008)
- **Hormonal Balance:** Food influences estrogen, cortisol, insulin
  - (Brinton, 2008; Paolucci et al., 2018)
- **Cognitive Modulation:** Good nutrition modulates brain fog, mood, and memory
  - (Benton & Donohoe, 1999; Jacka et al., 2011)

MIDLIFE NUTRITION INSIGHTS

- **Magnesium** – supports sleep quality & stress recovery (leafy greens, pumpkin seeds) (Wienecke et al., 2021)
- **Choline** – essential for memory, focus & neurotransmitter production (eggs, salmon, soy) (Zeisel & da Costa, 2009)
- **B Vitamins (B6, B12, folate)** – regulate homocysteine & support mood (whole grains, beans, eggs) (Moore et al., 2012)
- **Omega-3s** – protect mood, cognition & reduce inflammation (fatty fish, flax, walnuts) (Gómez-Pinilla, 2008; Freeman et al., 2006)

“In midlife, nutrition becomes a strategic advantage for clarity, recovery, and performance.”

NUTRITION ACTION STEPS

- Include healthy fats at every meal
  - (Gómez-Pinilla, 2008)
- Eat the rainbow, diverse antioxidants build brain resilience
  - (Joseph et al., 2009)
- Pair carbs with protein / fiber to stabilize blood sugar
  - (Meeusen, 2014)
- Hydrate & limit added sugars to avoid energy dips
  - (Taylor et al., 2015)
- Fill nutrient gaps with supplements
    - Omega-3s, B-complex, magnesium
  - (Freeman et al., 2006; Moore et al., 2012; Wienecke et al., 2021)
- Explore low-carb or ketogenic diets cautiously
  - (Waldman et al., 2018)

"Nutrition is one of the most accessible tools to fuel daily brain performance."

SLEEP IS BRAIN REPAIR MODE

- Deep sleep activates the glymphatic system, clearing metabolic waste and neurotoxic proteins like beta-amyloid (Xie et al., 2013)
- Midlife hormone shifts—including declines in melatonin and fluctuations in estrogen and cortisol—disrupt sleep architecture and quality (Epperson et al., 2015; Luboshitzky et al., 2012)
- 1 in 3 adults report insufficient sleep, leading to impaired cognition and mood regulation (CDC, 2023)
- Consistent sleep routines and proper light exposure help regulate circadian rhythms and support brain repair and resilience (Czeisler et al., 2015; Wright et al., 2013)
- Physical exercise & mindfulness boost gamma brain rhythms linked to memory and focus

WHY CIRCADIAN RHYTHMS MATTERS

- Regulates daily melatonin + cortisol cycles
  - (Czeisler & Gooley, 2007)
- Alignment boost cognitive performance, mood, and hormonal balance
  - (Harmer & Nee, 2020)
- Morning natural light exposure advances circadian phase + daytime alertness
  - (Wright et al., 2013)
- Limiting bright screens at night protects melatonin production + sleep quality
  - (Chang et al., 2015)
- Disruption leads to brain fog, cravings, and poor focus
  - (Spiegel et al., 1999)

MIDLIFE SLEEP CHALLENGES

- Night sweats: Fluctuating estrogen disrupts thermoregulation
  - (Freeman et al., 2014)
- Hormonal waking & early insomnia: Cortisol/progesterone shifts cause early awakenings
  - (Reddy, 2017; Krystal, 2012)
- Racing mind: Stress and anxiety impair sleep onset/maintenance
  - (Palagini et al., 2016)
- Sleep complaints rise by ~60% during perimenopause
  - (NAMS, 2023)

SLEEP ACTION STEPS

- Consistent sleep-wake schedule: Regulates circadian rhythm and improves sleep quality (Hirshkowitz et al., 2015)
- 15–30 min morning light exposure: Aligns melatonin/cortisol rhythms, boosts alertness (Wright et al., 2013)
- Evening wind-down routine: Signals brain to prepare for sleep (APA, 2020)
- Magnesium + select herbal supports: May aid relaxation and sleep onset (Abbasi et al., 2012; Bent et al., 2006)
- Limit blue light 1 hr before bed: Prevents melatonin suppression (Harvard Health, 2020)

MINDFULNESS TRAINS THE BRAIN

- Chronic stress impairs cognition
- Mindfulness reduces cortisol, improves focus
- Breathwork enhances brain-body connection
- 10 minutes of daily mindfulness can improve attention and mood*(British Journal of Health Psychology, 2024)
- Eight weeks of mindfulness training increased gray matter density in the hippocampus (Harvard, 2023).

MIDLIFE STRESS SHIFTS

Midlife Stress Changes

- Estrogen drops, increasing sensitivity to stress
- (Brinton, 2009, Nature Reviews Endocrinology)
- Cortisol stays elevated longer under stress
- (Laughlin & Barrett-Connor, 2000, Journal of Clinical Endocrinology & Metabolism)
- Brain fog, memory glitches, mood swings
- (Weber et al., 2014, Menopause)
- Heightened emotional reactivity
- (Jacobs & Goldstein, 2018, Biological Psychiatry)

Mindfulness Benefits

- Regulates mood and anxiety
- (Goyal et al., 2014, JAMA Internal Medicine)
- Improves sleep quality
- (Rusch et al., 2019, Behaviour Research and Therapy)
- Builds emotional resilience (cognitive strength training)
- (Davidson & McEwen, 2012, Nature Neuroscience)
- Promotes neuroplasticity and focus
- (Tang et al., 2015, Nature Reviews Neuroscience)
- Chronic stress during perimenopause linked to memory and mood shifts

WHAT DOES MINDFULNESS LOOK LIKE?

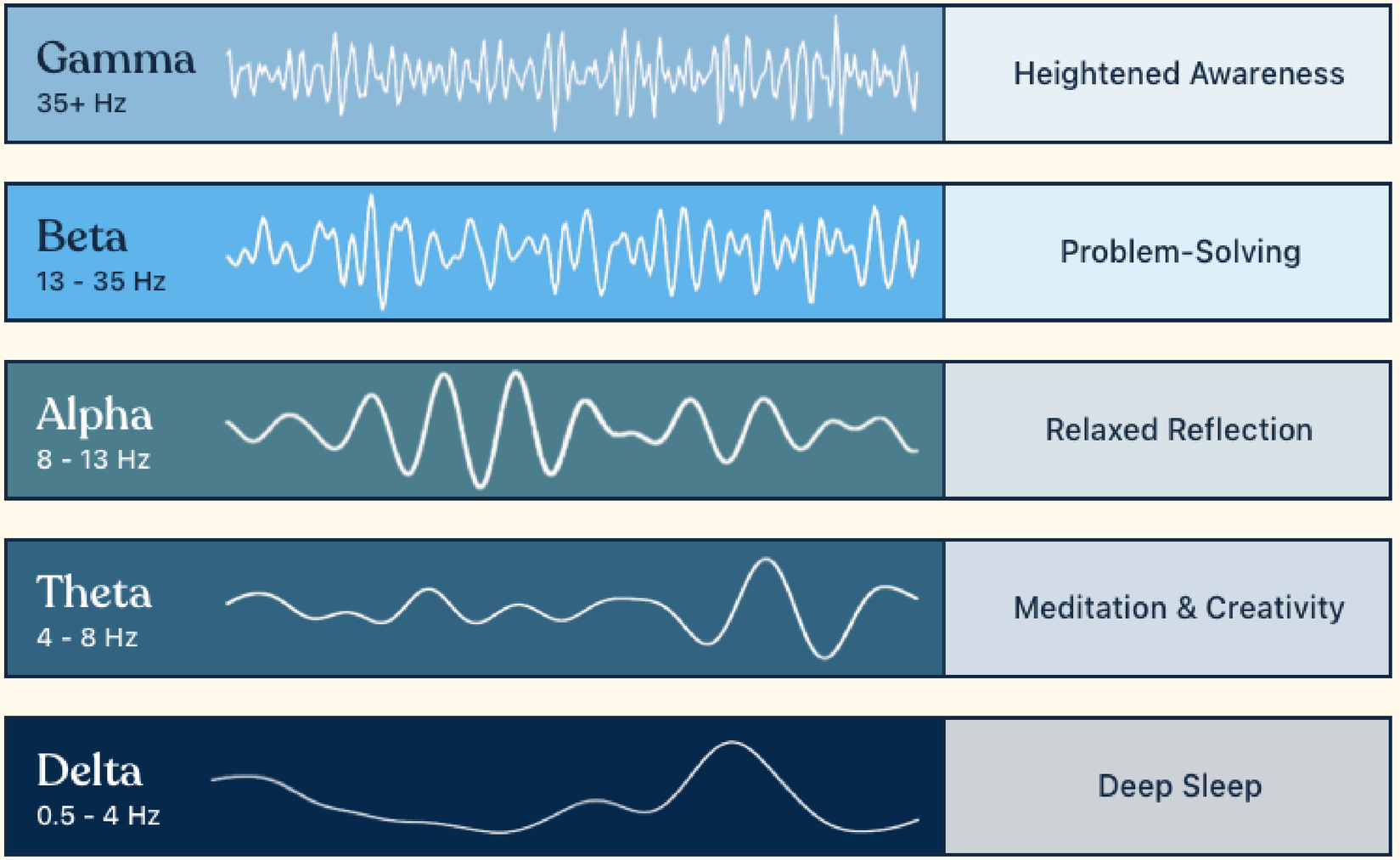
- Breathwork
- Guided meditation
- Nature walks
- Journaling or gratitude

Daily goal: 10 minutes

“The cultivation of mindfulness is essential. It is the turning of the key in the lock to open the door… It is an essential part of holistic health.”

— Terry Moore, BEACON40® Founder

Human Brainwaves



FitMind

THE GAMMA SHIFT

- Gamma brainwaves: Linked to memory, attention, and learning (Fries, 2015)
- Amyloid plaques disrupt healthy rhythms and impair neuron communication (Selkoe & Hardy, 2016)
- 40Hz light stimulation restores gamma rhythm (entrainment) (Iaccarino et al., 2016; Chan et al., 2021)
- Daily 40Hz exposure reduced amyloid plaque in animal + early human studies (Chan et al., 2021)
- Movement + 40Hz: Greater neurogenesis, stronger connections, and faster amyloid clearance (Lee et al., 2022)

WHAT IS ENTRAINMENT?

- Gamma waves (40Hz) act like the brain’s “master clock,” coordinating regions
- Entrainment = syncing brain activity to an external 40Hz rhythm
- May be enhanced when paired with daily movement (SyTAR 2023)

40HZ LIGHT AND THE BRAIN'S CLEAN UP CREW

- Microglia = brain's immune cells that clear debris like amyloid and tau
- 40Hz light boosts microglial activity without increasing inflammation
- Linked to reductions in amyloid and tau in preclinical studies
- Supported by research from MIT, BU, and Georgia Tech

MORE LIGHT & SENSORY-BASED INTERVENTIONS FOR BODY AND BRAIN

- **Red/NIR Light (PBM):** Boosts cellular energy (ATP), speeds recovery, reduces soreness/inflammation
  - (Hamblin, 2017, AIMS Biophys)
- Supports endurance & performance, same pathways may benefit brain health
- **Binaural Beats:** Sound-based brainwave entrainment
  - (García-Argibay et al., 2019, Psychol Res)
- **Music Therapy:** Mood, focus, and motivation support
  - (Raglio et al., 2015, CNS Spectr)
- **Vagus Nerve Stimulation:** Breath, sound, or cold exposure for nervous system regulation
  - Gerritsen & Band, 2018, Front Hum Neurosci

HOW TO USE BEACON40®

- Place BEACON40® in your peripheral vision during daily activities
- 1 hour per day recommended
- Complements lifestyle strategies
- Suitable for personal or client use

PERIPHERAL VISION IS KEY

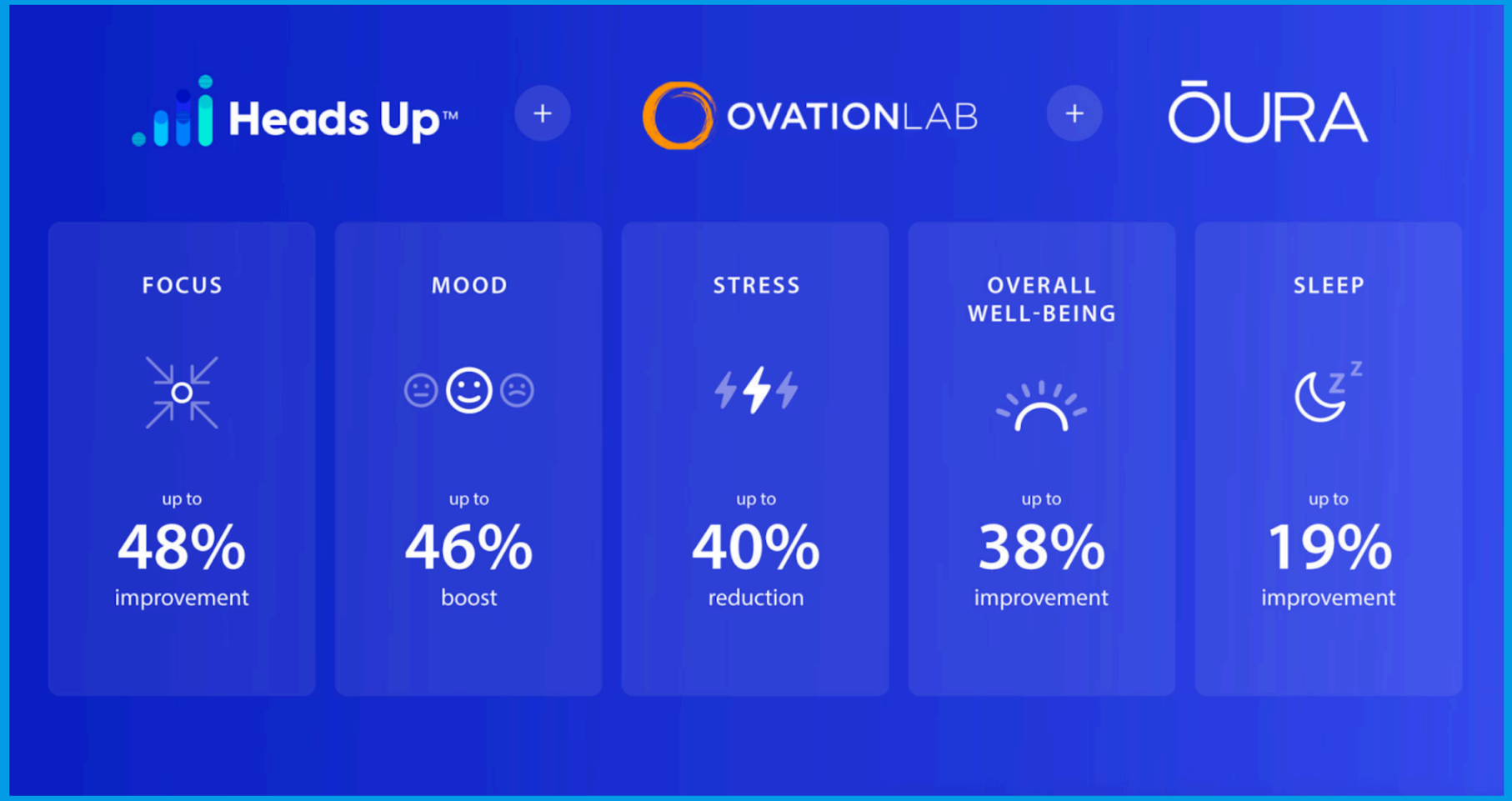
1. Peripheral input better engages the visual cortex
2. More effective gamma wave entrainment
3. 40Hz in peripheral field = enhanced brain-wide synchrony

WHAT SETS BEACON40® APART

- **Award-winning design**
  - Precision-built for cognitive support, with a modern, durable form factor that blends into any space.
- **Customizable experience**
  - Adjustable brightness, color options for ambiance, optional app available for scheduling and remote control.
- **True 40Hz stimulation**
  - Unlike screen-based options, BEACON40® is hardware-calibrated for consistent 40Hz flicker, no drifting, no guesswork.

WHAT SETS BEACON40® APART

Real World Results: Third Party Study



TESTIMONIALS

🧠 MEMORY FOG & COGNITION

“I’m 63… struggling with finding my words and some memory fog. By the 3rd night, I had the best sleep I’ve had in years—no tossing and turning or waking up. I’ve been using it for months now and absolutely love it!” — Jan R., Verified Reviewer

😌 SLEEP & RECOVERY

“Since using BEACON40, I’ve had a marked improvement in my sleep. My REM increased from 40 to 90 minutes, and I wake up refreshed most mornings.”— Fran S., Verified Reviewer

🎯 FOCUS & PRODUCTIVITY

“I’ve noticed a major improvement in focus using BEACON40. It’s helped reduce the tons of hours I used to spend working after hours.” — Beth, Verified Reviewer

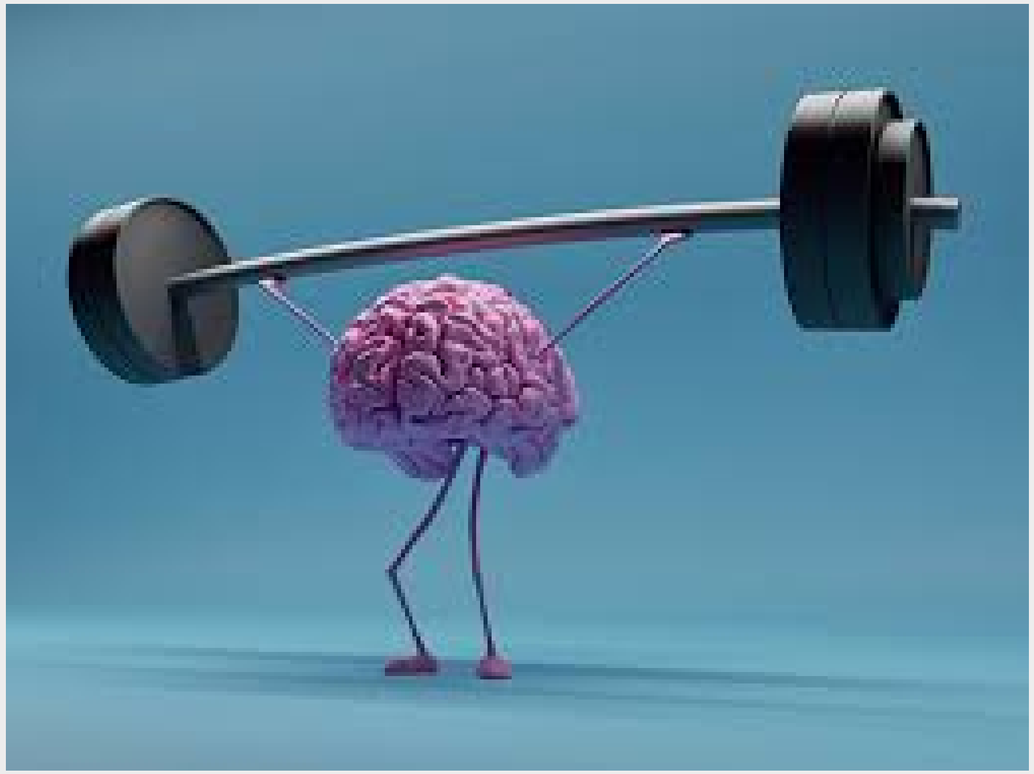
🔥 MENOPAUSE & MENTAL CLARITY

“Going through post-surgical menopause and under a lot of mental stress, I felt like my brain just wasn’t functioning like it used to… I’ve felt overall sharper and more focused.” —Francine, Verified Reviewer

BRINGING IT ALL TOGETHER

SAMPLE BRAIN HEALTH RX

- Daily walk or light exercise (20–30 min)
- Balanced antioxidant-rich meals with healthy fats
- 7–8 hours of quality sleep with regular schedule
- 5 minutes mindfulness or breathwork daily
- Optional: 40Hz light therapy 1 hour/day



AFFILIATE & AMBASSADOR OPTIONS

- Offer clients science-backed brain wellness tech, 40Hz light therapy to support memory, focus & sleep
- Earn **20% commission** with average order value of $300+
- Easy to share via blog, social media, email, or client referrals
- No medical license required
  - Just curiosity & passion for brain health
- Tools & support provided
  - Referral link, potential creative assets, and a dedicated account manager

B40®

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CLEAR MIND.
RESILIENT YOU.

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Thank you for joining today!

Feel free to email at **support@beacon40.com** for any questions or clarifications!