



The Convergence of Health and Technology: How tech-based health solutions are helping us live our best lives

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Naturally Informed 2024

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1



Section 1:
Why are we talking about this?

**What if it were possible to cut rates of mental illness
in half in 10 years?**



**What if healing begins with an updated
understanding of trauma?**





U.S. Burnout by the Numbers

120,000

Stress-attributed deaths each year caused by burnout

\$63.2B

Average cost of lost productivity to U.S. business due to chronic stress at work

\$190B

U.S. healthcare expenses from burnout

11.3 days

Average productivity loss for workers due to chronic stress at work

Tim's body thinks his computer is a bear

Our bodies are not designed for chronic daily stress.

It over-activates the brain's fear center (amygdala) and disrupts activity in the emotional cortex (limbic system).

The result? Tim can't sleep or focus well, his mood suffers, and his heart rate variability (HRV) drops.






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Chronic stress trains the nervous system to be in fight-or-flight mode and suppresses your rest-and-digest nervous system, making us wired, tired, and unable to focus.

Overactive Fight-or-Flight



-  Loss of emotion control
-  Poor sleep
-  Can't focus
-  Low HRV
-  Increased BP and HR

SYMPATHETIC
(FIGHT-OR-FLIGHT)

CHRONIC STRESS SUPPRESSES REST-
AND-DIGEST



PARASYMPATHETIC
(REST-AND-DIGEST)

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Abdallah et al, 2019; Kelmendi et al, 2016; Horn et al, 2016; Wahbeh et al, 2016; Lehrer & Gevirtz 2014

8

- Biofeedback
- **Deep breathing**
- **Meditation/Mindfulness**
- Float Tanks (sensory deprivation)
- **Yoga** (movement meditation)
- **Soothing Touch** (Massage)
- **Sound/Music**
- Vagal Nerve Stimulation
- **Empathic Listening**
- Apollo Neuro/Vibration

Rest-and-Digest Restored



- In control of emotions
- Improved sleep
- Better focus
- Improved HRV
- Decreased BP and HR

Lehrer & Gevierts, 2014; Craig, 2009; Strigo & Craig, 2016

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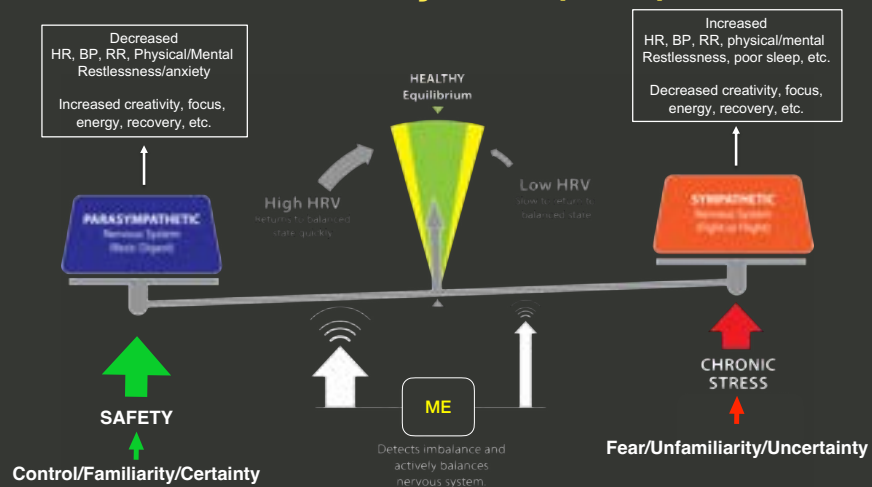
SYMPATHETIC
(FIGHT-OR-FLIGHT)

IMPROVED PARASYMPATHETIC TONE
WITH APOLLO USE

PARASYMPATHETIC
(REST-AND-DIGEST)

9

The delicate balance of the autonomic nervous system (ANS)



Big Tech Heart Rate Variability (HRV)

HRV is the most reliable easy measurement of our recovery level AND the impact of trauma/stress on our bodies.



11

Traumatic experiences are intense, meaningful, challenging experiences over time, where we perceived ourselves to be **THREATENED...**

for which we did **NOT have adequate preparation or support** after to cope successfully.

Results in a more 'negative' reference toward self and the world resulting in decreased vagal/parasympathetic activity




What does 'Psychedelic' mean?

- 'Psyche' = Mind
- 'Delos' = To show
- 'Psychedelic' = To show or reveal the mind or 'mind-manifesting'
- To expand our awareness to include that which is typically beneath our awareness
- Psychedelic substances are molecular 'non-specific amplifiers' to awareness

To access psychedelics states, no drugs are required!

15

Clinical Psilocybin	Clinical MDMA
Reduced symptoms of depression Improved coping with end of life distress	>60% of patients with PTSD no longer met diagnostic criteria after 12 months
Improved sense of safety	Improved sense of safety
Improved feelings of connection to self and others	Improved feelings of connection to self and others
Rated as one of the most meaningful experiences ever	Rated as one of the most meaningful experiences ever
With just 1 dose & psychotherapy	With just 1-3 doses & 12 weeks of psychotherapy
Currently in FDA Phase 2 trials	Currently in FDA Phase 3 trials



Psychedelic medicines have shown greater promise to safely treat disorders of trauma than any other medicines EVER studied.

Many Indigenous cultures have been using psychedelic medicines to address trauma for millennia...



How do psychedelic states work to improve learning?

What is Neuroplasticity?

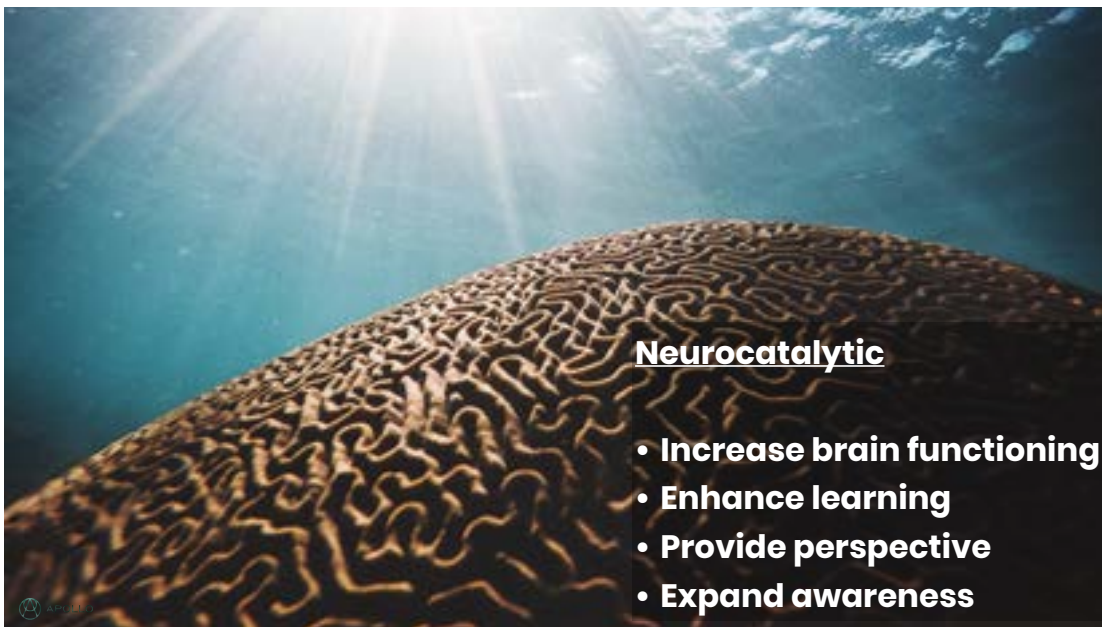
Neuroplasticity = **Learning**

Learning is the neural process of growing and training networks of neurons in the brain in 3 primary ways:

Neurogenesis - Making new neurons

Neuroregeneration - Recovering old neurons

Synaptogenesis - Making new connections



Neurocatalytic

- Increase brain functioning
- Enhance learning
- Provide perspective
- Expand awareness

The 7 Most Important Neurocatalytic Techniques

1. Intentional breathing
2. meditation/mindfulness
3. Soothing touch
4. Movement
5. Music and intentional listening
6. Nutrition
7. Sleep



Psychedelic Substances are neurocatalytic

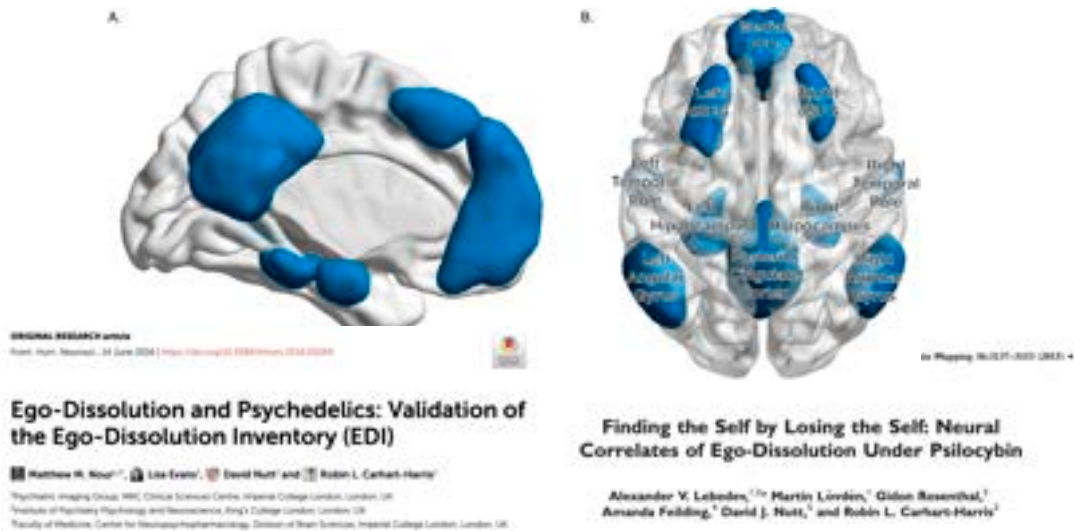
Mind-revealing; molecular non-specific amplifiers of awareness and neuroplasticity.

- Cannabinoids
- Ketamine
- Phenethylamines (ie. MDMA/mescaline)
- Tryptamines (Psilocybin, LSD, DMT, Ayahuasca)



The Default Mode Network (DMN)

McCormick & Telzer, 2018



The Default Mode Network (DMN) and Ego

The DMN is a signature of perception from one point of view:

- The ego (at rest)

The entrainment of the DMN occurs to automate patterns important for survival.

The DMN keeps us within the realm of what we know.



Psychedelic medicines, meditative states, and other altered state experiences reduce typical DMN connectivity, attenuate ego, and leave us with infinite possibilities.

Carhart-Harris et al., 2015; Carhart-Harris & Nutt 2017; Lebedev et al., 2015

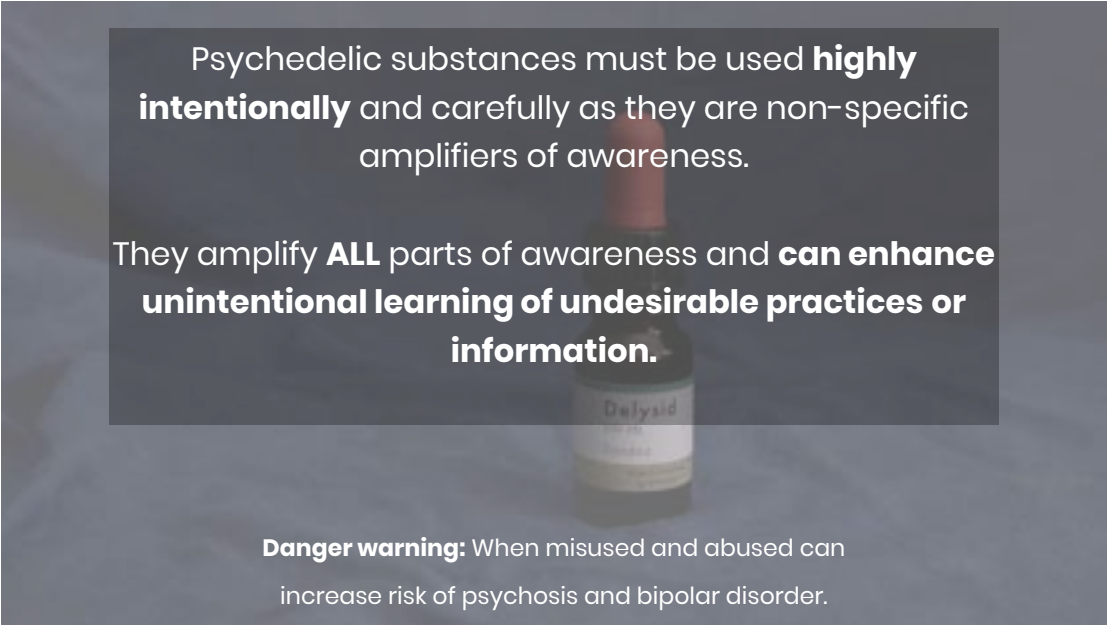
Practice makes mastery.

The more we practice thinking, perceiving, or doing anything, the better we get at it.

This occurs because our neurons make new proteins that increase the strength and efficiency of neural connections.

These evolutionarily conserved mechanisms of learning date back >300M years.





Psychedelic substances must be used **highly intentionally** and carefully as they are non-specific amplifiers of awareness.

They amplify **ALL** parts of awareness and **can enhance unintentional learning of undesirable practices or information.**

Danger warning: When misused and abused can increase risk of psychosis and bipolar disorder.



The future of mental health involves unlocking the mechanisms of psychedelic medicines so that we can maximize access to care by:

- 1) Replicating the beneficial effects with **technology** for those who aren't good drug candidates
- 2) Developing more objective biomarkers for predicting treatment responses and enhancing outcomes

The Future of Truly Personalized Medicine is Here!

Health Ai: “Hello there! Would you mind connecting me to your devices so I can understand you to help you live your best life?”



APOLLO

Apollo calms you through
your body's natural
response to touch.



APOLLO

Born in the lab, Apollo is backed by clinical and real-world research.

Originally developed from research in The Department of Psychiatry at the University of Pittsburgh Medical Center, Apollo is backed by 13 clinical trials, with 14 more underway.



Apollo improves sleep & combats stress as much as exercise or meditation.

Up to 19% increase
in deep sleep



Up to 11% increase
in HRV



Up to 30 minutes more
sleep each night



Up to 4% decrease
in resting heart rate

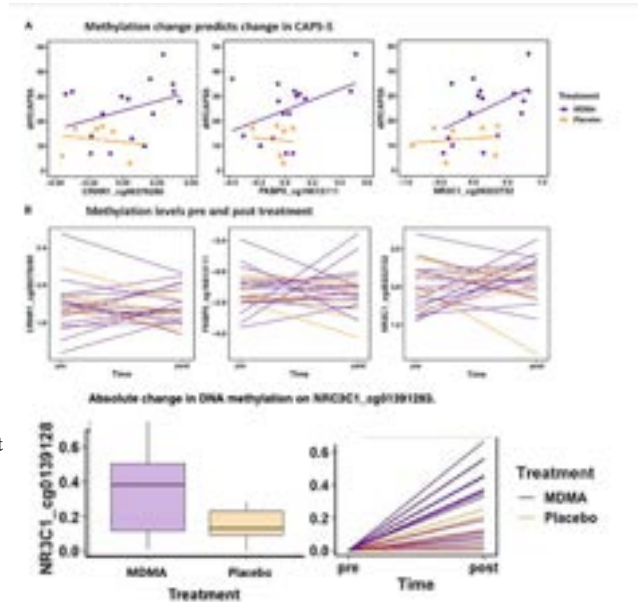


The Study:

- >1300 Apollo + Oura Users
- Subjects used Oura Ring alone for 9 months on average to establish pre-Apollo baseline
- Subjects used Apollo + Oura for 15 months on average
- Results: statistically significant improvements in deep sleep, REM sleep, total sleep, heart rate, and HRV just by wearing Apollo ($p < 0.05$).

Pilot study suggests DNA methylation of the glucocorticoid receptor gene (NR3C1) is associated with MDMA-assisted therapy treatment response for severe PTSD

Candace R. Lewis^{1,2*}, Joseph Taft³, Sophie Spencer⁴, Joseph M. Green¹, Charlotte Harrison⁵, Benjamin Kelmendi⁶, David M. Rabin⁷, Rachel Yehuda⁸, Berta Yazar-Klosinski⁹ and Baruch Raeli Cahlon^{1,10*}



Apollo Neuro is collaborating with The Board of Medicine and The Denver VA to compare the epigenetic impact of the Apollo wearable and MDMA-assisted therapy in PTSD.



Premium subscription SmartVibes™ unlocks Apollo's predictive & generative AI.

- Launched in November 2023.
- **The first product to predict and prevent unwanted middle-of-the-night wakeups before they happen.**
- Generates Vibes automatically throughout the day and night to help you bounce back from stress.



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AND THE #1
NEUROSCIENCE TAKE
AWAY IS....

SAFETY
IS REQUIRED TO MAKE
MEANINGFUL LIFE
CHANGES THAT STICK.





Thank you! www.DrDave.io

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