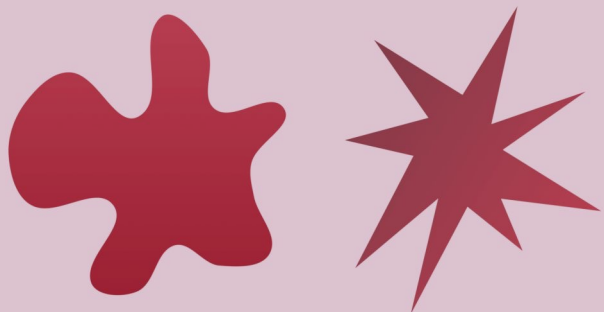


# KIKI OR BOUBA ???

## Take the Poll – A or B?



Scan Me!



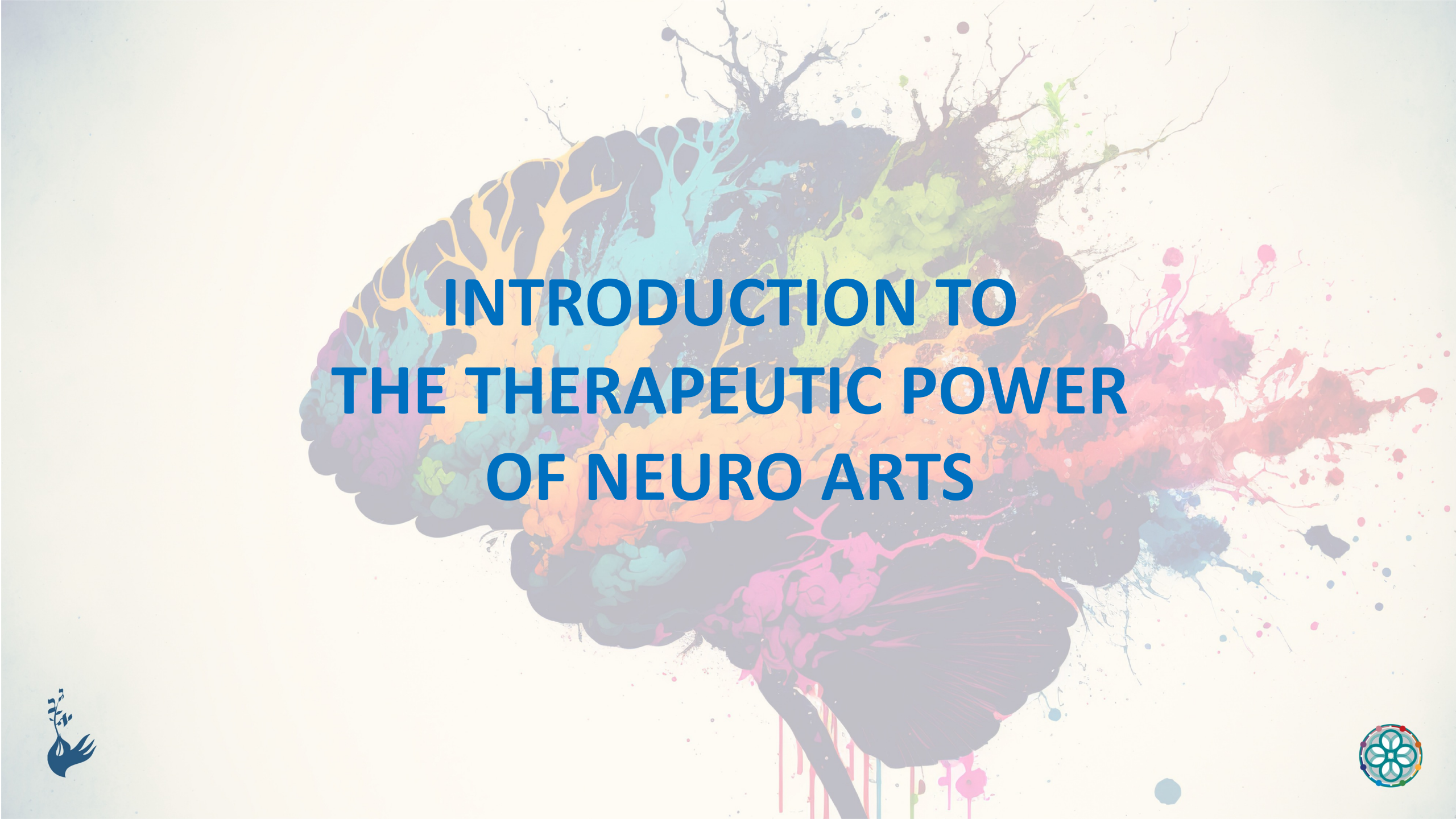


# **THE NEURO ARTS: EVIDENCE-BASED PATHS TO HEALING & TRANSFORMATION**

**Rus Devorah (Darcy) Wallen, LCSW, ACSW, CIMHP**

**NEFESH 2024 SUMMER CONFERENCE**





# **INTRODUCTION TO THE THERAPEUTIC POWER OF NEURO ARTS**



# SUSAN MAGSAMEN

EXECUTIVE DIRECTOR OF THE INTERNATIONAL  
ARTS + MIND LAB, CO-DIRECTOR NEUROARTS BLUEPRINT

## 5 RECOMMENDATIONS FOR THE NEURO ARTS

- 1) To strengthen the research foundation of NeuroArts.
- 2) To honor and support the many arts practices that promote health and well-being.
- 3) To expand and enrich educational and career pathways.
- 4) To advocate for sustainable funding and promote effective policy.
- 5) To build capacity and leadership





**SUSAN MAGSAMEN**  
**EXECUTIVE DIRECTOR OF THE**  
**INTERNATIONAL ARTS + MIND LAB**  
**CO-DIRECTOR NEUROARTS BLUEPRINT**

**“The goal of the (NeuroArts) Blueprint is really simple. It’s to ensure that the arts and the use of the arts in all of its many forms, become part of mainstream medicine and public health with all the fundamentals that that entails in research, practice, education, policy...”**

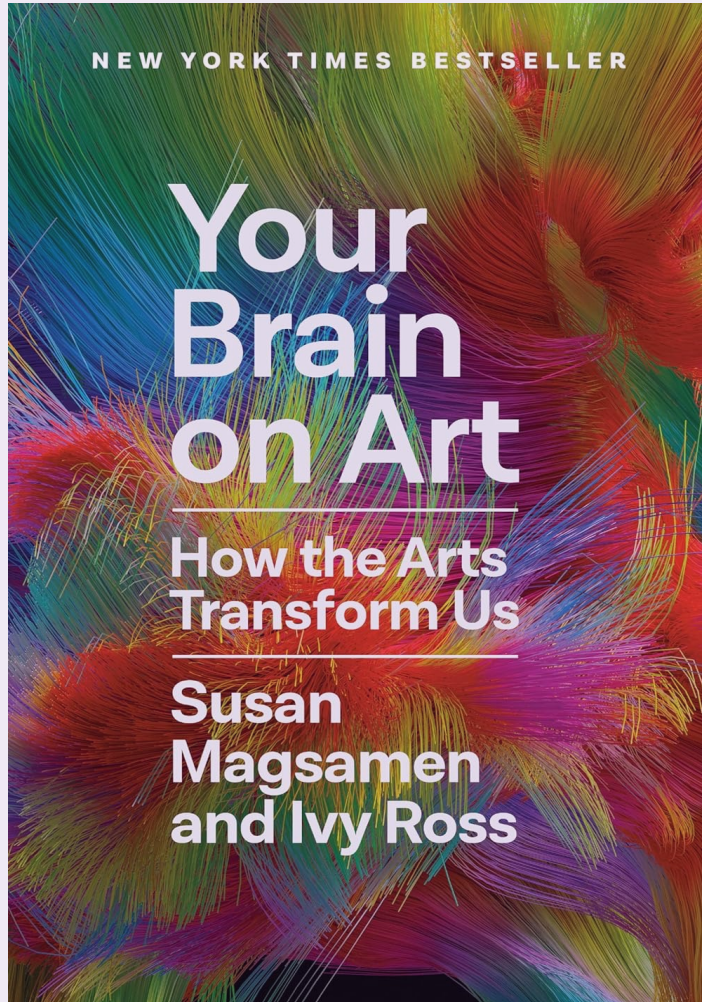


YouTube video December 5, 2022 - Creativity And The Brain: How The Arts Can Shape Well-being





# "YOUR BRAIN ON ART" – PIONEERS • IVY ROSS AND SUSAN MAGSAMEN



- 1. BRAIN'S RESPONSE TO ART**  
Engages reward pathways and emotional centers.
- 2. ART AS THERAPY**  
Manages stress, anxiety, depression, self expression.
- 3. CREATIVITY FOR HEALING**  
Promotes mental well-being and personal growth.
- 4. MINDFUL ART PRACTICES**  
Cultivates present-moment awareness and reduces stress.
- 5. CREATIVE LIFESTYLE**  
Integrates creativity daily for well-being.

Visit [NeuroArtsBlueprint.org](https://NeuroArtsBlueprint.org) for more details.

# MANY MEANS OF HEALING THROUGH THE ARTS

- Preventative Medicine
- Symptom Relief For Issues
- Treatment,
- Intervention For Illness,
- Developmental Issues,
- Accidents,
- Psychological Support,
- Tool For Successful Living With Chronic Issues,
- End of Life Solace and Meaning.





# BENEFITS OF NEURO ARTS

## THE NEUROBIOLOGICAL BASIS OF ARTISTIC ENGAGEMENT

- **Emotional Regulation:** Reduces stress, improves emotional regulation.
- **Social Connection:** Enhances communication, empathy, and social skills.
- **Aging and Brain Health:** Supports healthy aging, cognitive vitality.
- **Research Implications:** Informs art therapy, education, and healthcare practices.





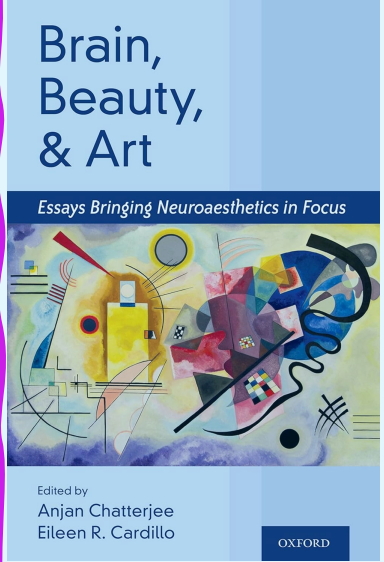
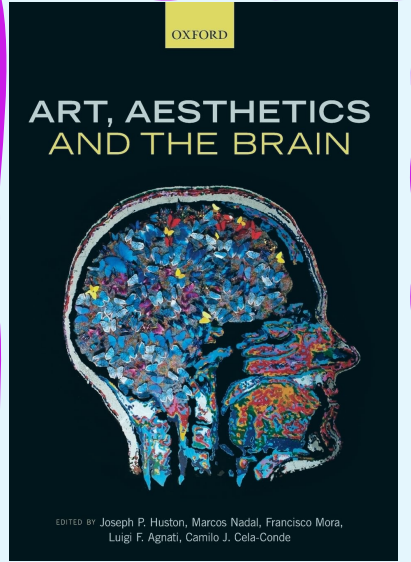
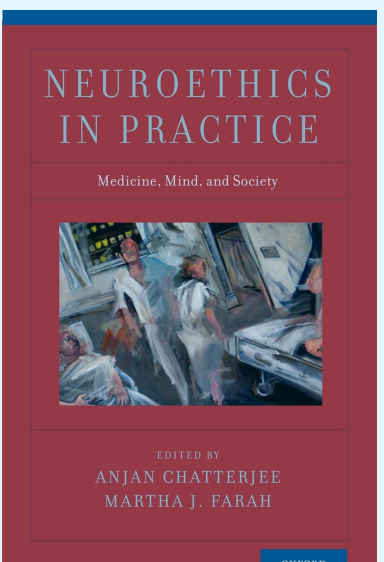
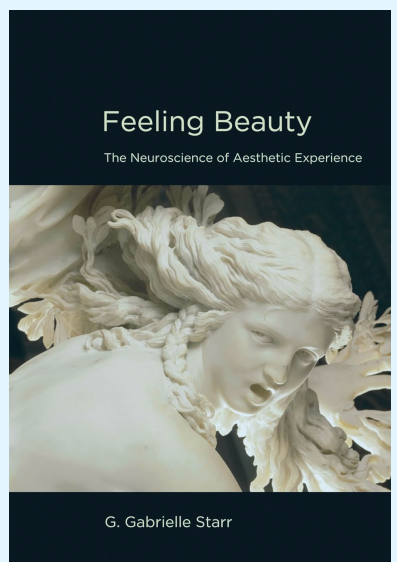
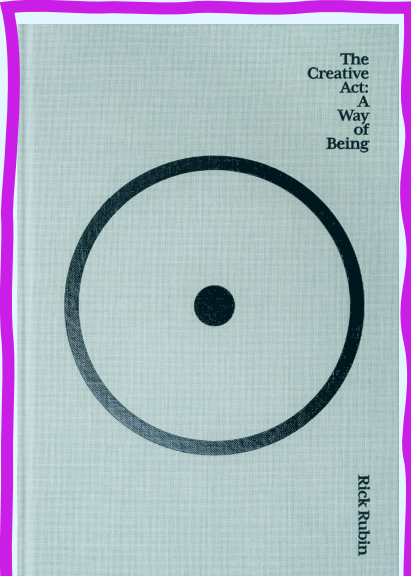
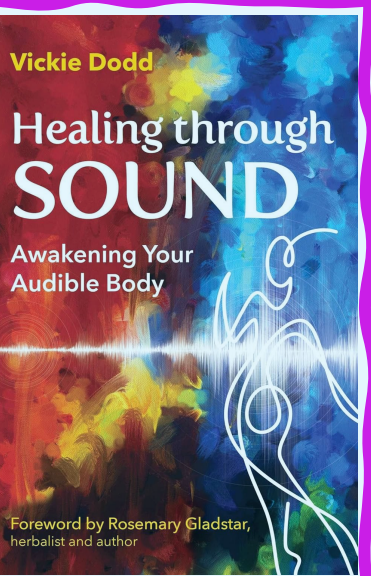
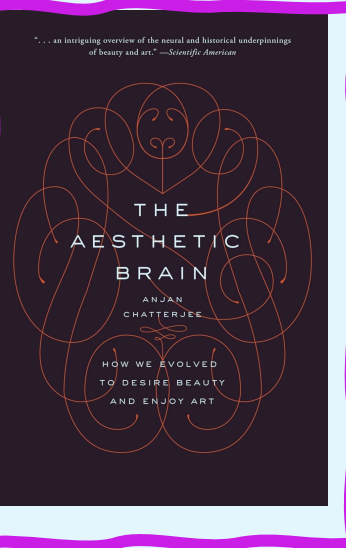
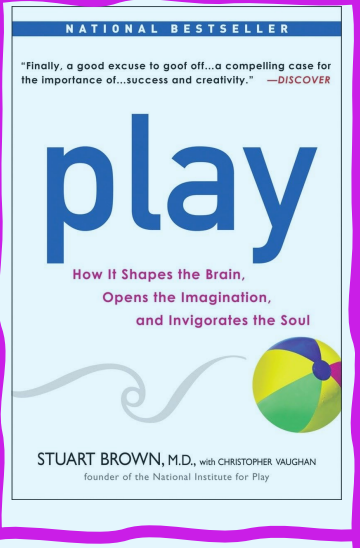
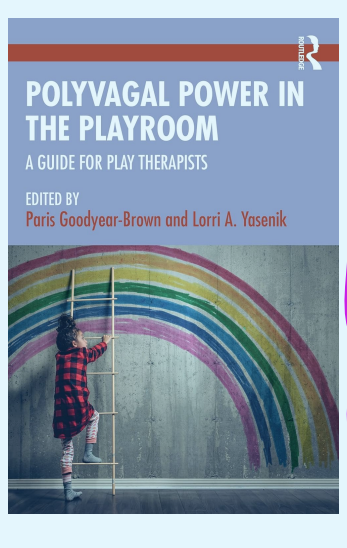
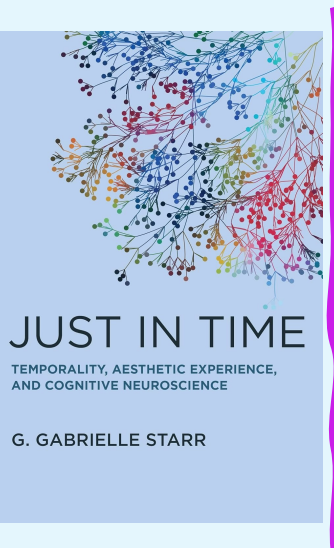
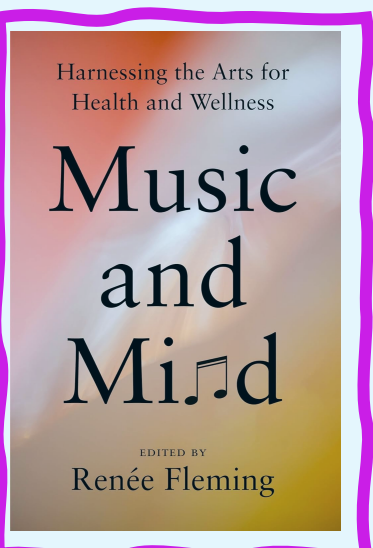
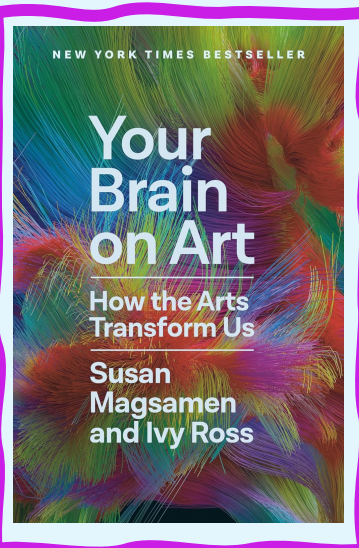
# SOME AREAS OF NEURO ARTS & TRANSFORMATION

- 1. Music Therapy: Addresses emotional, cognitive, and social needs; reduces stress.**
- 2. Visual Arts Therapy: Expresses emotions, reduces anxiety and improves clarity.**
- 3. Dance/Movement Therapy: Enhances body awareness, reduces stress.**
- 4. Drama Therapy: Explores personal issues, enhances social skills.**
- 5. Art in Education: Enhances learning, creativity, critical thinking.**
- 6. Creative Writing and Poetry Therapy: Processes emotions, improves mental health.**
- 7. Art and Neuroscience Research: Explores neural changes and benefits of artistic engagement.**





# SOME NEURO ARTS & NEURO AESTHETICS LITERATURE





# MENTAL HEALTH CRISIS

- The WHO's definition of mental health and the current mental health crisis among young adults and caregivers. (See GIFTPAK article – Daisy Fancourt)
- Daisy Fancourt's studies show regular engagement in the arts lowers mortality risk and enhances cognitive reserve
- Social prescribing of arts, play, and aesthetics for mental health improvement.





# **RESEARCH STUDIES ON THE ARTS & PLAY AND WELLBEING**

**Health Evidence Network Synthesis Report: ROLE OF THE ARTS IN  
HEALTH AND WELL-BEING – Daisy Fancourt & The World Health  
Organization (WHO) - In Your GIFTPAK**

**The report highlights a broad range of studies on  
how arts activities can benefit health, covering various  
methods and disciplines. This includes psychological,  
biological, and behavioral research, demonstrating the  
arts' impact on both mental and physical health.**



# These Papers are in your GIFTPAK

Proyer and Ruch *Psychology of Well-Being: Theory, Research and Practice* 2011, 1:4  
<http://www.psywb.com/content/1/1/4>

 Psychology of Well-Being  
a SpringerOpen Journal

RESEARCH

Open Access

## The virtuousness of adult playfulness: the relation of playfulness with strengths of character

René T Proyer\* and Willibald Ruch



### HEALTH EVIDENCE NETWORK SYNTHESIS REPORT 67

What is the evidence on the role of the arts in improving health and well-being?

A scoping review

Daisy Fancourt | Saoirse Finn

#### Abstract

**Background:** It was hypothesized that playfulness in adults (i.e., the predisposition to play) is robustly associated with the “good character.” Playfulness in adults can be tested via a global cognitive evaluation and an instrument for distinguishing five different facets of playful behaviors (spontaneous, expressive, creative, fun, and silly). Character strengths can be assessed within the framework of the Values-in-Action (VIA) classification of strengths.

**Results:** Data were collected in an online study and the sample consisted of 268 adults. A regression analysis revealed that adult playfulness was best predicted by humor, the appreciation of beauty and excellence, low prudence, creativity, and teamwork. As expected, single strengths (e.g., creativity, zest, and hope) demonstrated strong relations with facets of playfulness with its fun-variants yielding the numerically highest relations. The fun-variant of playfulness was most strongly related with emotional strengths while intellectual strengths yielded robust relations with all facets of playfulness. Strengths of restraint were negatively related with spontaneous, expressive, and silly-variants of playfulness.

**Conclusions:** The findings were in line with expectations and are discussed within a broader framework of research in playfulness in adults. The results indicate that playfulness in adults relates to positive psychological functioning and that more studies further illuminating the contribution of playfulness to well-being in adults are warranted.

**Keywords:** adult playfulness, character strengths, humor, playfulness, VIA, virtuousness

# THE VIRTUOUSNESS OF ADULT PLAYFULNESS

The Relation of Playfulness With Strengths of Character (In Your GIFTPAK)

RENÉ T PROYER AND WILLIBALD RUCH

This study explored adult playfulness in relation to positive psychological functioning, using two approaches:

- **Overall playfulness: Easy onset, high intensity, frequent display of playful activities.**
- **Facets of playfulness: Spontaneous, expressive, fun, creative, and silly behaviors.**



# BRUCE LIPTON

**“To fully thrive, we must not only eliminate the stressors but also, actively seek joyful, loving, fulfilling lives that stimulate growth processes.”**



NATIONAL BESTSELLER

"Finally, a good excuse to goof off...a compelling case for the importance of...success and creativity." —*DISCOVER*

# play

How It Shapes the Brain,  
Opens the Imagination,  
and Invigorates the Soul



STUART BROWN, M.D., with CHRISTOPHER VAUGHAN  
founder of the National Institute for Play

# PLAY:

## How it Shapes the Brain, Opens the Imagination, and Invigorates the Soul

### Stuart Brown, MD with Christopher Vaughan



# PLAY • STUART BROWN

"Play isn't the enemy of learning, it's learning's partner. Play is like fertilizer for brain growth. It's crazy not to use it."



# NEUROPLASTICITY AND SALIENCY

- **Marian Diamond's experiments on "enriched environments" and brain growth.**
- **Increases in BDNF – Brain Derived Neurotrophic Factor**
  - **Salient experiences create stronger neural connections and enhance learning.**





# MARIAN DIAMOND (THE MOTHER OF NEUROPLASTICITY)

- **Enriched Environments (toys, social interactions, learning) lead to increased brain growth and development.**
- **Rats in enriched environments showed thicker cerebral cortex, more dendritic spines, and enhanced cognitive abilities compared vs. in impoverished environments.**
  - **Demonstrated brain plasticity and highlighted the importance of stimulating environments for brain health.**
  - **Enriched environments promote brain growth and cognitive function.**



# BRAIN-DERIVED NEUROTROPHIC FACTOR (BDNF)

## KEY FUNCTIONS

- Supports development, maintenance, and survival of neurons
- Promotes growth and differentiation of new neurons and synapses
  - Crucial for learning, memory, and cognitive function
  - Produced in hippocampus, cortex, and basal forebrain
- Influenced by physical activity, stress, and mental health conditions
- Low levels of BDNF linked to depression, schizophrenia, Alzheimer's
  - Enhancing BDNF can improve mental health
- Exercise significantly elevates BDNF levels, promoting cognitive function and neuroprotection





# PLAY • STUART BROWN & CHRISTOPHER VAUGHAN

## THE “PROPERTIES” OF PLAY

1. Apparently purposeless (done for its own sake)
2. Voluntary
3. Inherently attractive
4. Freedom from time
5. Diminished consciousness of self
6. Improvisational potential
7. Continuous desire



# PLAY • STUART BROWN & CHRISTOPHER VAUGHAN

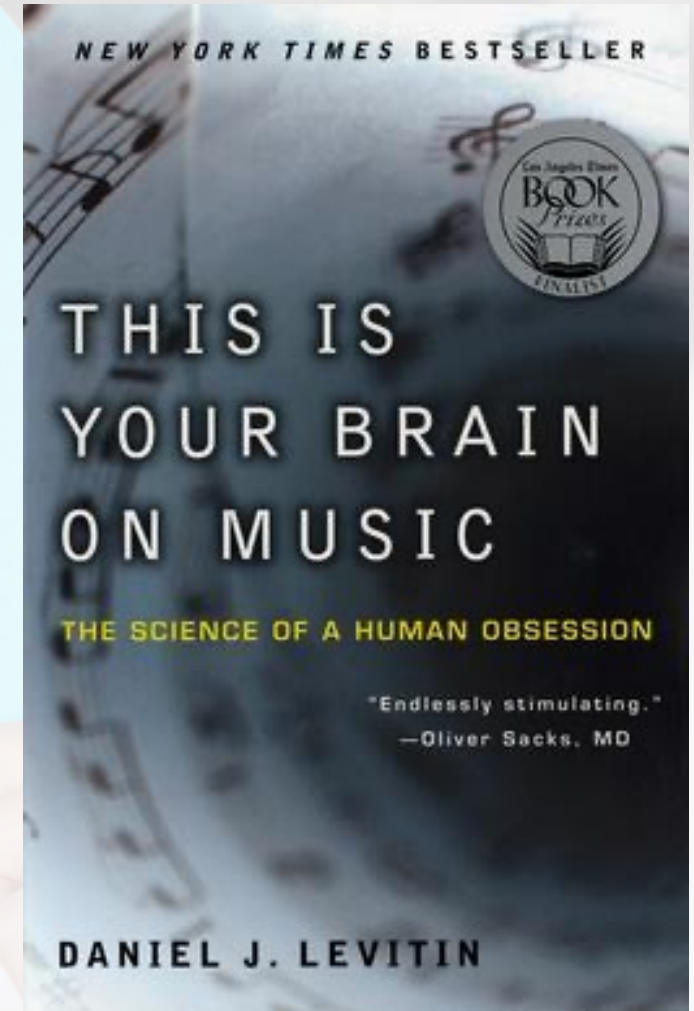
**"The ability to play is critical, not only to being happy, but also to sustaining social relationships and being a creative, innovative person.... I sometimes compare play to oxygen – it's all around us, it goes mostly unnoticed or unappreciated until it is missing." — Stuart Brown**





# HUMOR AND PLAY IN LEARNING

- Dr. Stuart Brown emphasizes the importance of play for imagination, creativity, and curiosity.
- Dr. Dan Levitin's research shows humor stimulates the brain's reward circuitry and enhances learning.
- Dr. Levitin uses humor and play in his neuroscience classes.



# HUMOR AND PLAY IN LEARNING

- Humor stimulates brain's reward circuitry, enhancing learning and memory
- Play is vital for creativity and learning, fostering imagination and curiosity
  - Arts create salient experiences, enhance neuroplasticity, and improve understanding and connection





# INSIGHTS ON PLAY AND DEVELOPMENT

- Lack of play in childhood linked to criminal behavior.
- Play correlates to FC development and cognitive functions.
- Imagination is vital, helping resolve issues and foster success.
- Play makes neural connections, enhances brain organization.
- Play stabilizes body and social development, like sleep.
- Biological drive for play, crucial for lifelong mental health.
- Early dementia shows physical play can delay mental decline.
- Jaak Panksepp's research links play to brain development and impulse control.





**CROSS  
SPECIES  
PLAY  
IN  
THE  
WILD!**





# PLAY VS. THE NEURO ARTS: SIMILAR PROPERTIES

- **Purposelessness:** Both are done for intrinsic satisfaction.
- **Voluntary:** Participation is by choice, enhancing autonomy.
- **Inherent Attraction:** Naturally appealing and enjoyable.
- **Freedom from Time:** Both induce a state of timelessness.
- **Diminished Self-Consciousness:** Reduces anxiety, promotes creativity.
- **Improvisation:** Stimulates creativity and cognitive flexibility.
- **Continuous Desire:** Sustained engagement benefits mental health.



# CONCLUSIONS

- **Playfulness is robustly related to character strengths, particularly humor.**
- **It may serve as a valuable trait for enhancing social interactions and work environments.**
  - **Further studies are needed to fully understand playfulness's contribution to well-being and its role in the "good life."**









# THE NEUROBIOLOGY OF ARTISTIC ENGAGEMENT





# NEUROSCIENCE INSIGHTS

- Human beings are “wired” for art
- Arts engagement rewires neural circuitry, creates new pathways via neuroplasticity
- Art experiences spark neurotransmitter changes, shaping emotions, thoughts, and behaviors



# ARTS AND NEURAL PLASTICITY

- Integrating arts and aesthetics creates more salient experiences, strengthening neural connections and understanding.
- Novelty, humor, curiosity, attention, creativity, motivation, environment, and unique brain.
  - The more salient something is, the quicker and better we learn.





# THE ARTS AND SOCIAL BRAIN

- **Research from Canada, the UK, and the Netherlands shows how the arts ignite the social brain.**
- **Synchrony in group activities like singing and dancing enhances social bonds and feelings of belonging.**
- **Daisy Fancourt's research on perinatal wellness shows how music helps connect mothers and newborns**
  - **Singing groups for postpartum depression show significant benefits**





# ERIC WHITACRE'S VIRTUAL CHOIR 6: SING GENTLY

Over 17,000 singers from 129 countries during COVID

Sing



# FINDINGS FROM NEUROAESTHETICS RESEARCH

- Arts alter immune, circulatory, respiratory, cognitive, affective, reward, and motor functions
- Release neurochemicals, hormones, and endorphins
  - The arts make us healthier, happier, and smarter
  - The arts are being reimagined as transformational vehicles for learning, memory, creativity, innovation, social connection, and quality of life



# CORE CONCEPTS OF NEURO ARTS

- 1. Neuroplasticity**
- 2. Enriched Environments**
- 3. Aesthetic Triad (Anjan Chatterjee)**
  - Sensory Motor Systems**
  - Reward Systems**
  - Cognitive Knowledge & Meaning Making**





# ANJAN CHATTERGEE'S NEURO-AESTHETIC MODEL "THE AESTHETIC TRIAD" OR "THE AESTHETIC MOMENT"

**Sensory  
Motor  
Systems**

**Reward  
Systems**

**Cognitive,  
Meaning Making  
Systems**





# PLAY\* AND NEURAL CONNECTIONS

- **Neural Growth:** More prevalent in youth, rapidly growing connections.
- **"Divinely Superfluous Neurons":** New, initially non-functional neurons activated through play become essential for brain organization.
- **Stabilization:** Like sleep, play stabilizes body and social development, crucial for long-term brain development.
  - **Biological Drive:** Innate impulse to play; essential for mental health and optimism.
  - **Aging Impact:** Diminished play leads to reduced excitement and potential anhedonia.

\*More on PLAY soon!



# UNIVERSALITY OF AESTHETICS

## Language and Graphics

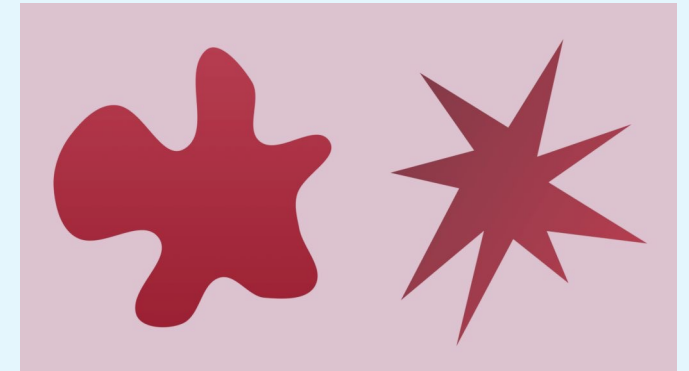


KIKI

OR

BOUBA

???



# “KIKI OR BOUBA EFFECT” POLL (Usually 95-98% “Accuracy”)



Scan Me!



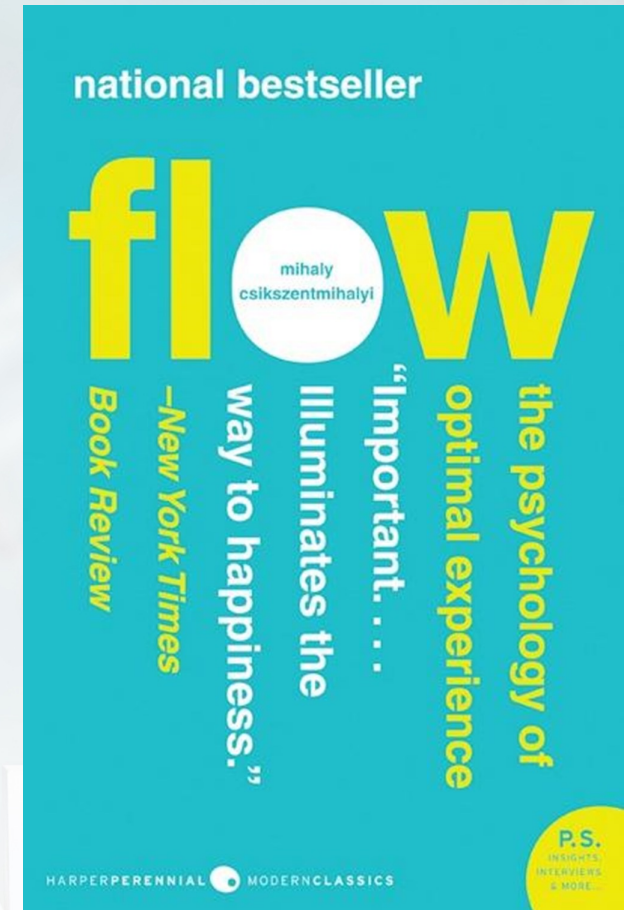
SCAN THE QR CODE OR  
USE THE LIVE POLL HERE IN THE ZOOM APP



# MIHALY CSIKSZENTMIHALY (1990)

## FLOW: THE PSYCHOLOGY OF OPTIMAL EXPERIENCE

Contrary to what we usually believe... The best moments in our lives are not the passive, receptive, relaxing times. The best moments occur when a person's body or mind is stretched to the limits in a voluntary effort to accomplish something difficult and worthwhile.



# MIHALY CSIKSZENTMIHALYI'S "FLOW"

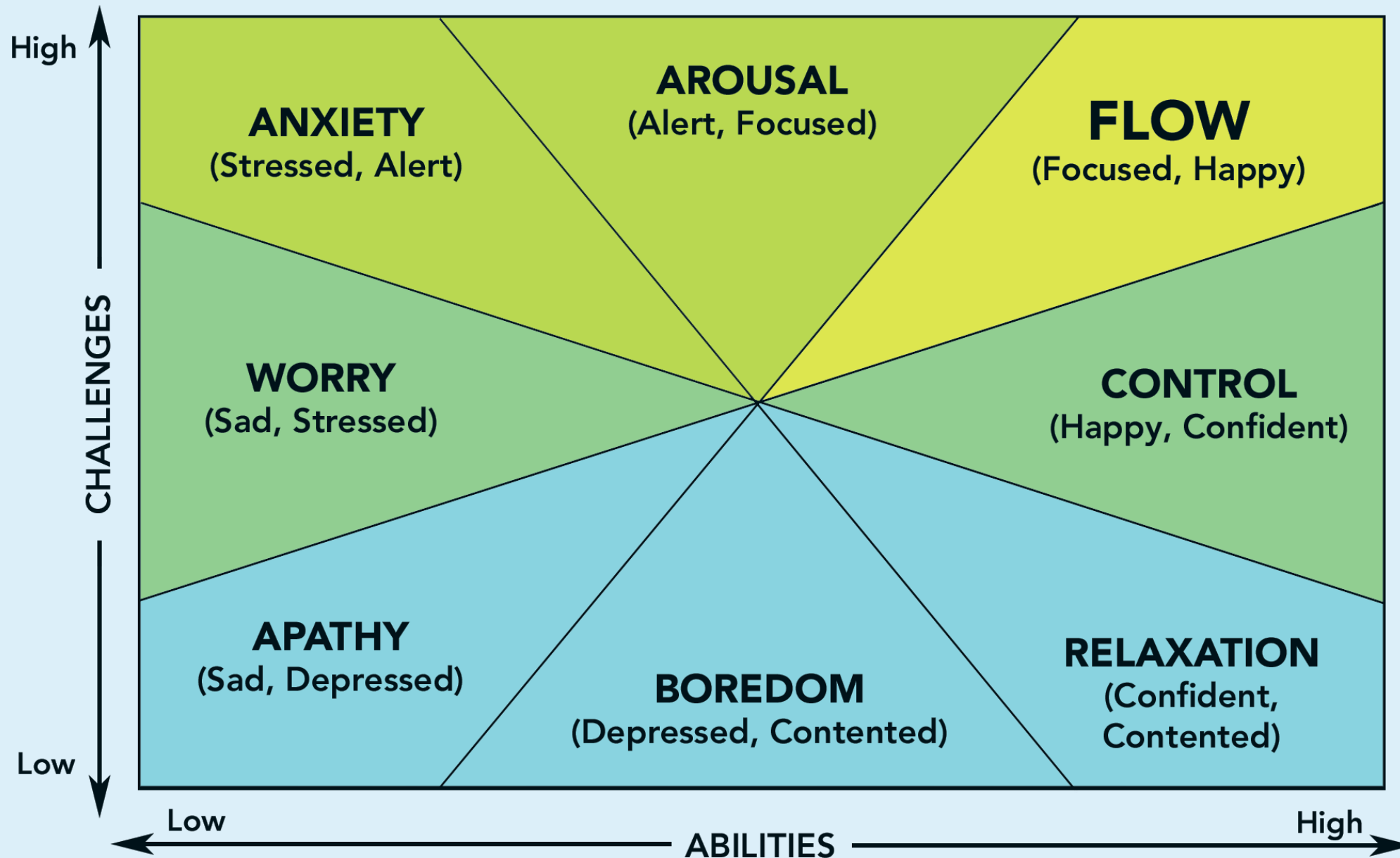
WHEN ABSORBED IN A FLOW STATE THROUGH  
NEURO ARTS, INDIVIDUALS CAN GAIN  
ENHANCED NEUROLOGICAL BENEFITS

- Boosted prefrontal cortex activity.
  - Better brain connectivity.
- Activated reward pathways (dopamine release).
  - Reduced default mode network activity.





# MIHALY CSIKSZENTMIHALYI'S CONCEPT OF "FLOW"



# IN THE FLOW STATE THROUGH NEURO ARTS

## PHYSIOLOGICAL BENEFITS

- Lower cortisol levels.
- Decreased heart rate and blood pressure.
  - Improved immune function.

## HORMONAL BENEFITS

- Increased endorphins.
  - Elevated oxytocin.
- Regulated mood-related hormones.

## EMOTIONAL BENEFITS

- Greater happiness and satisfaction.
- Enhanced self-esteem and confidence.
- Better emotional regulation and resilience.
- Increased sense of connection and belonging.







FLOW

"Flow is being completely involved  
in an activity for its own sake.  
The ego falls away. Time flies.  
Every action, movement, and  
thought follows inevitably  
from the previous one,  
like playing jazz."

- Mihaly Csikszentmihalyi



Toratherapeutics®



NOGA  
Wellness Solutions®





# ERNEST ROSSI AND THE NUMINOUS EPIGENETIC STATE

NEW • NOVEL • PEAK • HEIGHTENED AWARENESS • ABSORPTION

- Immersive engagement in activity, completely absorbed.
- Profound moment of transcendence or intense happiness.
- Profound realization or connection with spiritual truths.
- Deep relaxation, calmness, and heightened awareness.
- Euphoric feeling during or after intense physical exercise.
- Sudden realization or breakthrough in creative endeavors.
- Overwhelming numinous sense of wonder or reverence, etc.





**THE  
NUMINOUS  
EPIGENETIC  
STATE**



- SPIRITUAL
- NEW • NOVEL
- PEAK
- HEIGHTENED  
AWARENESS
- ABSORPTION





# PRACTICAL APPLICATIONS FOR THERAPISTS





# HEALTH BENEFITS

- Evidence arts in improve mental health, managing chronic conditions, and enhancing overall well-being.
- Arts interventions benefit where traditional solutions are lacking and provide a holistic approach to health.



# APPLICATIONS IN VARIOUS FIELDS

- **Composers writing music to activate relaxation response\* such as Chuck Wild – “Liquid Mind”**
  - **Military uses arts for PTSD and traumatic brain injuries recovery**
- **Businesses design creative, collaborative, and innovative work environments**
- **Healthcare incorporates arts to combat**

**\*See “El Sistema” later**





# APPLICATIONS IN VARIOUS FIELDS cont.

- Cities design housing promoting wellbeing and fostering community
  - Schools\* integrate arts to enhance attention, learning, reduce stress, and increase collaboration
- Countries prescribe arts for issues like loneliness and isolation

\*See “El Sistema” later



# ECONOMIC VALUE

- Many arts interventions cost-effective
  - Comparable to or exceeding effectiveness of other interventions.
- Supports both physical and mental health through a single activity
- Potentially more efficient than separate interventions.
  - See “El Sistema” later.





# SOME FACTS ABOUT ARTS ENGAGEMENT

- Arts and aesthetic experiences measurably change the body, brain, mind, health, and behavior
  - Practices can advance health and wellbeing
  - Reduces stress hormone cortisol in 45 minutes
- Museum visits prescribed to decrease loneliness and increase cognitive skills
  - One or more art experiences a month can extend life by ten years
    - Vibration and frequency optimize creativity and cognitive performance
      - Smell informs 75% of emotions

# **SOME FACTS ABOUT ARTS ENGAGEMENT (cont.)**

- **Tuning forks soothe stress and elicit relaxation**
  - **Singing and humming activate the vagus nerve, increases Nitric Oxide enhancing overall wellbeing**
- **Interactive exhibitions build neuroplasticity**
- **Playing music increases synapses and gray matter, supporting cognitive skills**
  - **Arts support emotional resilience in children, adolescents, adults and the elderly**
- **Performing arts enhance perspective-taking, executive function, balance, and more.**



# PERSONALIZED ART PRACTICES

- “Social Prescribing”
- Tailored artistic endeavors for physical and mental health
- Different forms of art (VR, poetry, music, movement) provide varying benefits



# AMBIENCE AND POSITIVE ENVIRONMENTAL INFLUENCES:

- Positive environmental influences impact DNA methylation in genes associated with stress response and mood regulation.
  - Changes in DNA methylation profiles linked to stress-related genes and mood regulation markers.
    - CRH (Corticotropin-Releasing Hormone)
    - BDNF (Brain-Derived Neurotrophic Factor)





# NATURE AND HEALING

**“Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to body and soul.”**

**– John Muir**

- **Richard Louv’s concept of “Nature Deficit Disorder” (NDD).**
  - **Forest bathing in Japan – Shinrin Yoku**
  - **"Mung" (spacing out) in South Korea for anxiety mitigation and mental relaxation.**
- **Guided imagery audio with nature scenes and sounds of nature. (See GIFTPAK)**



# AMBIENCE AND POSITIVE ENVIRONMENTAL INFLUENCES: SHINRIN-YOKU – FOREST BATHING (NATURE EXPOSURE)

Review > J Physiol Anthropol. 2018 Jun 4;37(1):15. doi: 10.1186/s40101-018-0176-8.

## The importance of the exposome and allostatic load in the planetary health paradigm

Alan C Logan<sup>1</sup>, Susan L Prescott<sup>2</sup>, Tari Haahtela<sup>3</sup>, David L Katz<sup>4</sup>

Affiliations + expand

PMID: 29866162 PMCID: PMC5987475 DOI: 10.1186/s40101-018-0176-8



ELSEVIER

Environmental Research

journal homepage: [www.elsevier.com/locate/envres](http://www.elsevier.com/locate/envres)

## The health benefits of the great outdoors: A systematic review and meta-analysis of greenspace exposure and health outcomes

Caoimhe Twohig-Bennett\*, Andy Jones

Norwich Medical School, University of East Anglia, Room 1.23 Queen's Building, Norwich Research Park, Norwich NR4 7TJ, United Kingdom

Environ Health Prev Med (2010) 15:9–17

DOI 10.1007/s12199-008-0068-3

SPECIAL FEATURE

The Trends on the Research of Forest Bathing in Korea and in the World

## Effect of forest bathing trips on human immune function

Qing Li



International Journal of  
Environmental Research  
and Public Health



Review

## Shinrin-Yoku (Forest Bathing) and Nature Therapy: A State-of-the-Art Review

Ma...

> J Physiol Anthropol. 2016 Jan 13;35:1. doi: 10.1186/s40101-016-0083-9.

Sc  
C  
\*

## Natural environments, nature relatedness and the ecological theater: connecting satellites and sequencing to shinrin-yoku

Jeffrey M Craig<sup>1 2</sup>, Alan C Logan<sup>3 4</sup>, Susan L Prescott<sup>5 6</sup>

Affiliations + expand

PMID: 26763049 PMCID: PMC4712592 DOI: 10.1186/s40101-016-0083-9



Environ Health Prev Med (2010) 15:27–37

DOI 10.1007/s12199-009-0091-z

SPECIAL FEATURE

The Trends on the Research of Forest Bathing in Japan, Korea and in the World

## Trends in research related to “Shinrin-yoku” (taking in the forest atmosphere or forest bathing) in Japan

Yuko Tsunetsugu · Bum-Jin Park · Yoshifumi Miyazaki





# ARCHITECTURE AND WELLBEING





# ARCHITECTURE AND WELL-BEING

- Work on human environments through the NeuroArts Lab.
- Natural elements in design reduce anxiety and increase resilience and well-being.
  - Curved vs. Angular Lines





# POETRY AND EMOTIONAL ENGAGEMENT

## Impact of Poetry • Findings from the Max Planck Institute

- Poetry elicits strong emotional responses.
- Triggers physiological reactions like chills and goosebumps.
- Engages the brain's reward circuitry, similar to music and other art forms.
  - Rhythmic and phonological elements enhance cognitive processing.
- Deep engagement with language and emotion.



# THE HEALING POWER OF SOUND

- John Beaulieu - tuning forks and sound healing.
- Sound therapy, including VAT (Vibroacoustic Therapy)
- VAT for stress reduction, pain relief, and cardiovascular.
- Binaural beats (see GIFTPAK for sample Sleep audio)
  - Nature sounds
  - Crystal Quartz singing bowls
- See “A Few Sound Healing Ideas” in your GIFTPAK (such as: singing, humming, chanting, doodling, listening to nature sounds, etc.)





# THE HEALING POWER OF SOUND

- Toxic and Healing Sound (Ex: Urban vs. Nature)
- Binaural Beats (Requires earbuds/headphones)
- Feelings Elicited By Music Genres Or Songs
  - Your “Neuroaesthetic Responses”\*
  - Finding Your “Constitutional Song”\*
  - Tuning Out for Tuning In (meditating, etc.)
- Crystal Qtz. Singing Bowls (Bowling with Alchemists in GIFTPAK)  
Guided Imagery • Humming For Health

\*Next Experiential Exercise 😊 Mine is among our audio samples



# BRAINWAVES & ASSOCIATED BENEFITS

## DELTA

1-4 Hz

Deep sleep  
Pain relief  
Anti-aging (cortisol reduction/DHEA increase)  
Healing  
Access to unconscious mind



## THETA

4-8 Hz

Rem Sleep  
Deep relaxation / inner peace  
Meditation  
Creativity  
Hypnopompic & hypnagogic states



## ALPHA

8-14 Hz

Relaxed focus  
Stress reduction  
Positive thinking  
Accelerated learning  
Flow state (effortlessly engaged in activity & environment)



## BETA

14-30 Hz

Focussed attention (external stimuli)  
High-level cognition  
Analytical thinking & problem solving  
Stimulates energy & action



## GAMMA

30-100 Hz

High-level information processing  
Cognitive enhancement  
Memory recall  
Peak awareness  
Transcendental states





# THE HEALING POWER OF SOUND

## “A Few Sound Healing Ideas” IN GIFTPAK

B”H

(A Few) SOUND HEALING IDEAS FOR HOME AND ON THE WAY (With Minimal Equipment)

Rus Devorah Wallen, LCSW, ACSW, CIMHP

- **HUMMING:** Humming helps activate the vagus nerve, enhances nitric oxide, promoting relaxation and reducing stress. Try humming with headphones or earbuds on.
- **SINGING:** Singing releases endorphins and promotes emotional expression and catharsis.
- **CHANTING:** Reciting or chanting prayers can help focus the mind and induce a meditative state.
- **TONING:** Experiment with vocal sounds and vowels to find tones that resonate with different parts of your body, allowing for energetic balancing. Consider “sympathetic vibration” with various items.
- **BREATHWORK:** Use intentional deep breathing combined with vocalization or sighing to release tension and promote relaxation.
- **LISTENING TO NATURE SOUNDS:** Immerse yourself in the soothing sounds of nature, such as birds chirping, waves crashing, or rain falling.

## HUMMING

Humming helps activate the vagus nerve, enhances nitric oxide, and thus promote relaxation and reduces stress.

- R.D. Wallen 2023





**DR. MITCHELL GAYNOR**

**"One reason sound heals on a physical level is because it so deeply touches and transforms us on the emotional and spiritual planes."**

# **BENEFITS OF SINGING AND VOCAL TRAINING**

## **SINGING AND VOCAL TRAINING CAN HELP TO PROMOTE**

- **Lung development and strengthening**
  - **Improves breathing**
  - **Can improve blood pressure**
- **Back strengthening and posture correction**
  - **Neurological improvement**
- **Oxygen to the blood system and brain**
  - **Can boost immune system**
- **Improve sense of rhythm and balance**
- **Vibration of music can influence brain waves**



# **BENEFITS OF SINGING AND VOCAL TRAINING (cont.)**

## **COGNITIVE AND EMOTIONAL BENEFITS**

- **Increased concentration**
- **Energetic and euphoric uplift**
- **Enhances learning and language in children**
- **Improves Confidence and overcome shyness**
  - **Improves articulation and presence**
    - **Develops discipline**
    - **Forges comforting memories**
- **Choirs and group music promote communal bonding**

# **BENEFITS OF SINGING AND VOCAL TRAINING cont.**

## **ADDITIONAL BENEFITS**

- **Improved vocabulary and grammar**
  - **Helps sufferers of sleep apnea**
  - **Helps retrain breathing for asthma sufferers and clients with panic and hyperventilation syndrome.**
- **Helps reduce the feelings of depression or anxiety through the release of endorphins during singing**
  - **Motivates and empowers**



A close-up photograph of a vibrant red rose resting on a white piano keyboard. In the background, a sheet of aged music paper is visible, featuring handwritten musical notation and the word "Rhapsodien." written vertically. The scene is softly lit, creating a contemplative atmosphere.

MELODY

“The tongue is the pen of the heart and the mind, but melody is the pen of the soul.”

Rabbi Schneur Zalman of Liadi  
- The Alter Rebbe

**THE  
TRANSFORMATIVE  
POWER OF MELODY**

**Rebbetzin Shaindy  
Jacobson**

**About her brother,  
Rabbi Shaya Gansburg, ob”m**





# **EXPERIENTIAL ACTIVITY**

## **YOUR “NEUROAESTHETIC RESPONSE”**

**What feelings are elicited by the following 11 very brief audio samples?**

**(CAVEAT: This is a culturally dependent and completely subject exercise.)**

**USE YOUR OWN “FEELING” VOCABULARY**

**(List with some words is on the next page)**

# YOUR “NEUROAESTHETIC RESPONSE”

## SOME FEELING VOCABULARY

**Playful • Sad • Peaceful**

**Lively • Nostalgic**

**Mournful • Patriotic**

**Despairing • Excited**

**Energetic • Exuberant**

**Pensive • Longing**

**Anticipation**

**Pride • Anxiety**

## SAMPLE #s

1. Enya – Watermark
2. Linus & Lucy – George Winston
3. The Star-Spangled Banner – US Army Chorus
4. What a Wonderful World – Louis Armstrong
5. The Cold Sea’s Embrace – Patrick O’Hearn
6. Unsquare Dance - Dave Brubeck
7. River Flows in You – Yiruma
8. James – Pat Metheny
9. Wolf Eyes – Paul Winter
10. Sing – Karen Carpenter
11. Taps



# EXPRESSIVE ARTS FOR TRAUMA RECOVERY

- Dr. James Gordon's drawing technique for "Transforming Trauma" for trauma recovery.
- 1) Draw yourself, 2) Draw yourself with your biggest problem, 3) Draw yourself with your problem solved!  
"Against your ruminations...the problem is solved!"
- James Pennebaker's research on expressive writing for mental and physical health benefits. (See later)



# PAIN MANAGEMENT

- **Art reduces emotional distress and pain perception**
- **Studies show mindful dance therapy and drawing/music interventions alleviate pain**
- **Snow World VR for burn victims shows 30-50% less pain, better than opioids**





# DANCE AND NEUROGENERATIVE DISEASES

- Programs like Mark Morris Dance Group improve movement in Parkinson's patients
- Dance involves rhythm, spatial awareness, and brain regions like the basal ganglia and motor cortex
- Music therapy helps with Alzheimer's and dementia, stimulating various brain regions
- Live interactive music therapy is highly effective



# NEURODIVERGENCE & INNOVATION

- Ned Sahin's wearable device "Empower Me"
- Enhance social skills for neurodivergent individuals.
- Provides visual and audio cues with sensors.
- Assists with social interactions
- Helps manage emotions
- Aids in staying focused
- Google Glass superpower for autism.
- Personalized programs for those with neurodivergence

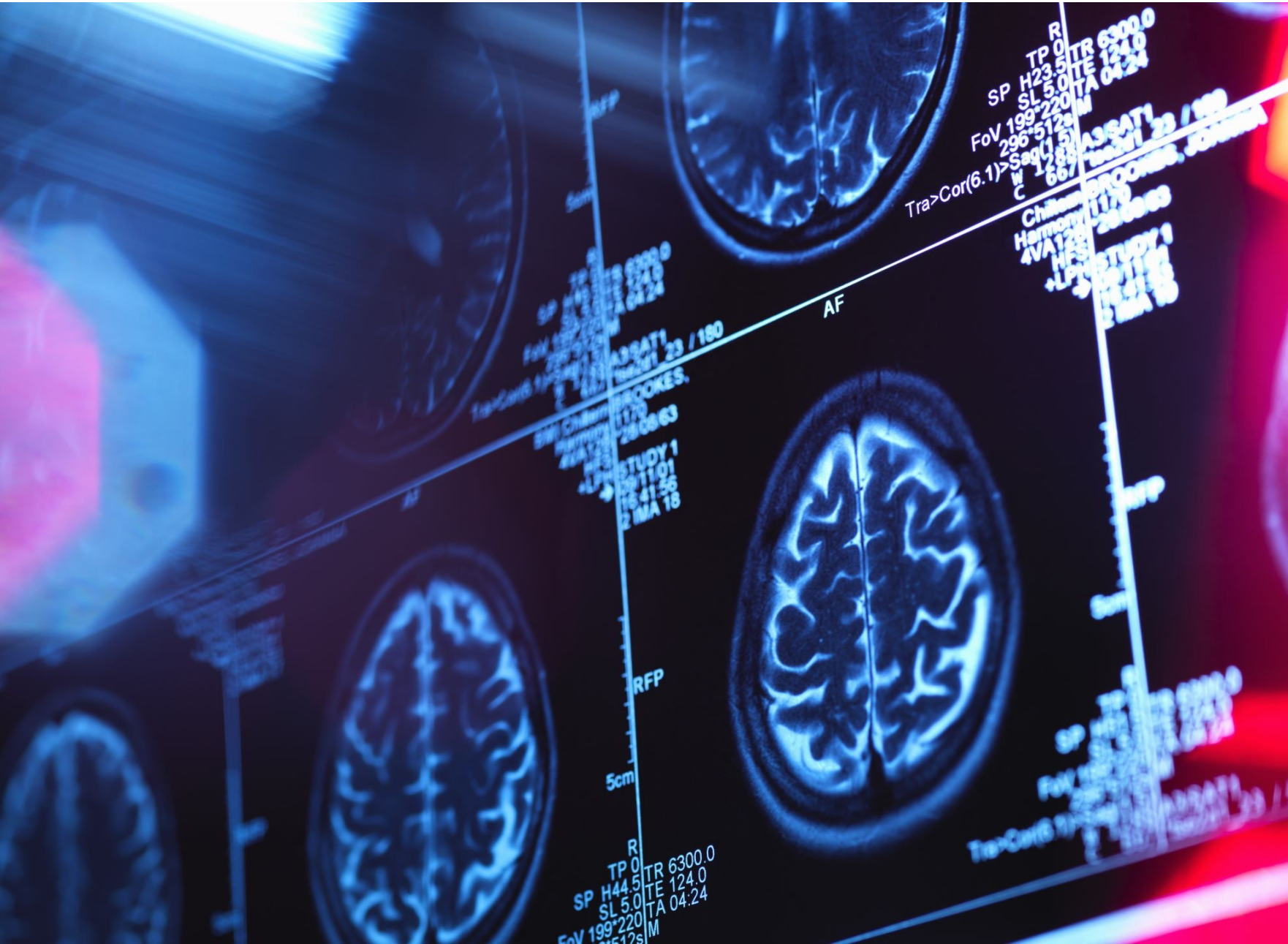




Nine-year-old boy kept getting in trouble for doodling in class until a restaurant hired him to decorate their wall.







# THE POWER OF TOUCH

- Touch as a sensory system for emotional and physiological regulation.
  - Cognitive neuroscientists state that touch and sensory experiences shape neural pathways.
  - Positive touch increases oxytocin flow.



# **ENGAGE YOUR SENSES IN EVERYDAY ACTIVITIES**

- **Try things like music, cooking, gardening, coloring, humming, nature exploration, and more!**
- **See my handout in your GIFTPAK –  
“25 Simple, Inexpensive Ways To Integrate  
The Neuro Arts Into Your Daily Routine”**

# THE POWER OF TOUCH

- **Massage Therapy**
- **Group or Partner “Holding”**
- **Havening (Self-Soothing)**
- **Holding a Baby**



**"Touch comes before sight, before speech. It is the first language and the last, and it always tells the truth."**

**Margaret Atwood**



# TRY THESE 25 SIMPLE, INEXPENSIVE WAYS TO INTEGRATE THE NEURO ARTS INTO YOUR DAILY ROUTINE

- 1. Doodling:** Let your pen wander on paper without any specific goal.
- 2. Journaling:** Write down your thoughts, feelings, or experiences.
- 3. Neurographic Art:** Create abstract designs using lines and shapes to express emotions.
- 4. Humming:** Explore the therapeutic benefits of humming, chanting, or making sounds.
- 5. Coloring:** Use adult coloring books or printouts to relax and unwind.
- 6. Free Writing:** Set a timer and write continuously without pausing or editing.
- 7. Mindful Walking:** Take a leisurely walk outdoors, paying attention to your surroundings.
- 8. Collage-ing:** Use magazines or photographs to make collages reflecting your mood.
- 9. Guided Imagery:** Listen to recordings guiding you through sensory visualizations.
- 10. Sculpting with Clay:** Knead, shape and mold clay to express yourself.
- 11. Nature Sketching:** Sit outside and sketch images or scenes from nature.

# “SOCIAL & AESTHETICS PRESCRIPTIONS”

- Daily Gratitude Journaling
- Custom Guided Audio
- Coloring Or Neurographic Art (Later)
  - Sketching
- Sculpting Or Pottery Classes
  - Group Singing

(See 25 things in your GIFTPAK)







# **ENHANCING SELF-EFFICACY & EXPRESSION**



# **POSITIVE EFFECTS ON NEUROLOGY AND PSYCHOSOCIAL WELLBEING**

- **Enhanced feelings of self-efficacy**
- **Non-verbal expression when verbal is challenging (consider speech problems, aphasia, stuttering, anxiety and Broca's area)**



# **KURT VONNEGUT'S ADVICE TO A HIGH SCHOOL CLASS**

**A high school class once asked the late Kurt Vonnegut to define a successful life. He wrote them a letter which is in your GIFTPAK:**

**“Practice, painting, sculpting, poetry, fiction, essays, reportage, no matter how well or badly, not to get money or fame, but to becoming, to find out what’s inside you, to make your soul grow.”**

**The best kind of learning, sparks curiosity, and return endless discovery. It’s like a renewable energy source.**

# SIR IAN MCKELLEN

'Make your  
soul grow'



Letters  
Live



# ART HEALS



HOW CREATIVITY CURES THE SOUL

SHAUN MCNIFF

**"When art and psycho-therapy are joined, the scope and depth of each can be expanded."**

**—Shaun McNiff**

# "ART HEALS" – SHAUN MCNIFF

- Explores art's transformative power in healing and self-discovery.
- Shares stories and case studies on art's role in promoting healing and resilience. Creativity is innate and healing.
- Creation is transformative, offering self-awareness and growth.
- Emotional exploration leads to self-awareness and wholeness.
- Emotions are energy that can be transformed through expressive arts.





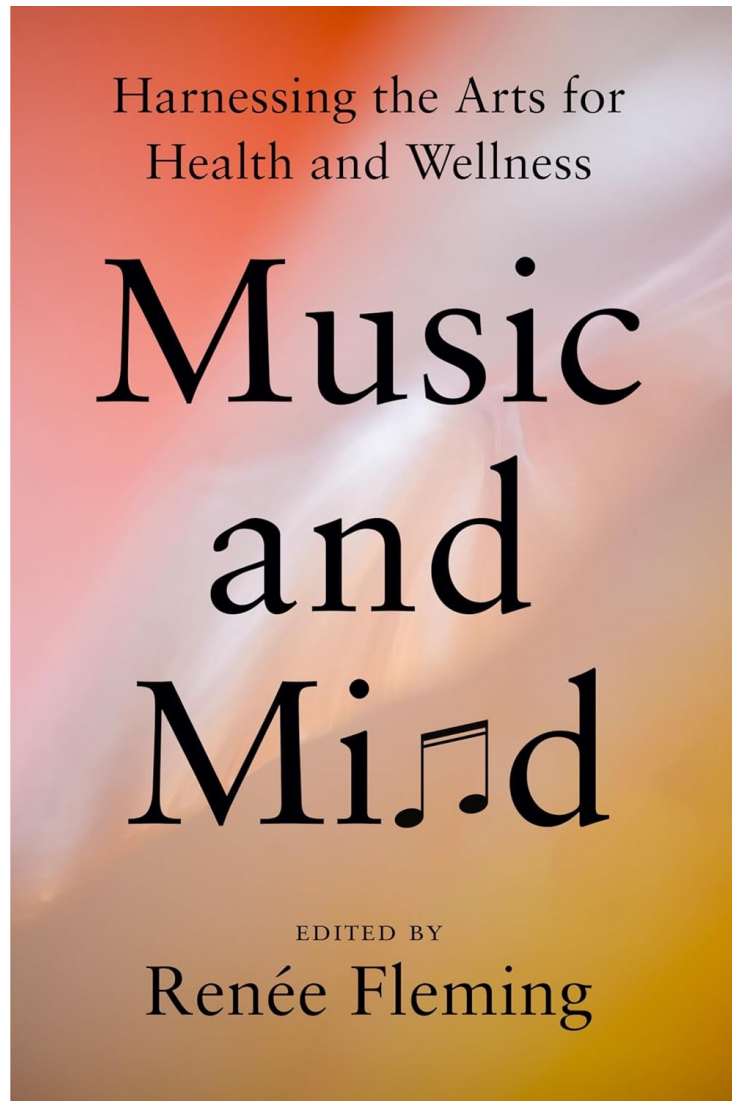
# WILLIAM CONGREVE

**Music has charms to soothe  
the savage beast, to soften  
rocks, or bend a knotted oak.**



# MUSIC AND MIND: HARNESSING THE ARTS FOR HEALTH AND WELLNESS

Renée Fleming

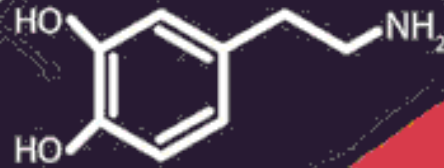


A collection of articles by musicians, artists, scientists, actors, dancers, and more. Each one explaining their experience with the Neuro Arts benefiting them or their populations



# Your Brain On Music

Listening to music causes the brain to release dopamine, a **feel-good chemical**.<sup>6</sup>



Music with a strong beat can stimulate brainwaves. Slow beats encourage the **slow brainwaves** that are associated with hypnotic or **meditative states**. **Faster beats** may encourage more alert and **concentrated thinking**.<sup>13</sup>

Music **occupies the mind** with something familiar and soothing.<sup>12</sup>

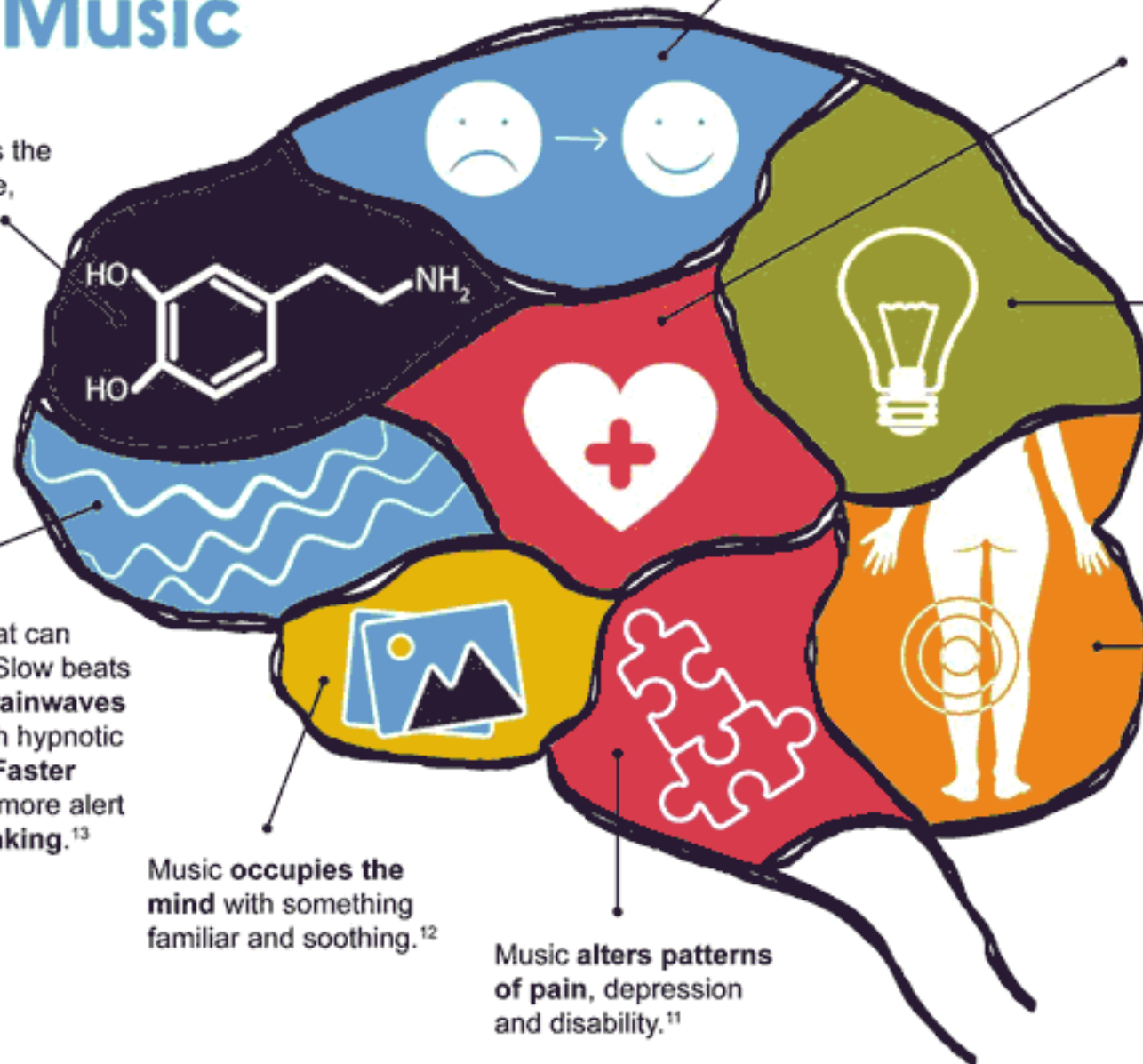
Music **alters patterns of pain**, depression and disability.<sup>11</sup>

Music **acts as a distractor**, focusing the attention away from negative stimuli to something pleasant and encouraging.<sup>7</sup>

Music has the **ability to alter breathing and heart rate**.<sup>8</sup>

Music also has the power to **improve your state of mind**. This helps keep things like depression and anxiety at bay.<sup>9</sup>

Music can help **reduce the perception of pain**.<sup>10</sup>



# ASSAL HABIBI'S RESEARCH ON MUSIC & CHILD DEVELOPMENT

- No best age or instrument
- Start with cultural music at home.
  - Musical activities at any age
  - Fosters engagement and benefits cognitive and social skills.
- Musical training changes brain structure, boosts decision-making, and enhances memory, language, and reading skills.





# **“EL SISTEMA” IN VENEZUELA AND ITS IMPACT ON YOUTH**

- **In 1975, musical instruction and instruments were brought to impoverished children through El Sistema.**
  - **Success story, Gustavo Dudamel graduate of El Sistema**
    - **Later created the youth orchestras in Los Angeles and the Miami Music Project.**
- **Programs like El Sistema improve Competence, Confidence, Caring, Character, and Connections.**

**THE 5 Cs 😊**



# EDUCATIONAL IMPACT OF EARLY AESTHETICS LEARNING

- Programs like El Sistema in Venezuela teach life skills through music.

- Simon Bolivar Youth Orchestra

Improved test scores, socialization, behavior, etc.

- Boosts brain engagement.
- Arts and aesthetics strengthen learning capacity
- Gustavo Dudamel went through “El Sistema” and initiated the Youth Orchestra of Los Angeles



# DUDAMEL & SIMON BOLIVAR ORCHESTRA

Bernstein's Mambo from West Side Story





# "THE CREATIVE ACT: A WAY OF BEING" BY RICK RUBIN

- Find creativity in everyday moments.
- Fully engage with the creative process.
- Nurture your unique creative voice.
  - Release fear to allow creativity.
  - Collaborate to maintain authenticity.
- Creativity is a continuous journey requiring persistence.
  - Make creativity a holistic way of being.





# CREATIVITY AS SPIRITUAL PRACTICE – RICK RUBIN

CREATIVITY AS SELF-EXPRESSION AND CONNECTION TO A HIGHER POWER.

## OVERCOMING BLOCKS

- Exercises to address self-doubt and perfectionism.

## RECONNECTING WITH INNER CREATIVITY

- Emphasizes playfulness and exploration.

## REDISCOVERING PASSION

- Guides to pursue creative activities that bring joy.

## ACCOUNTABILITY AND SUPPORT

- Form creative communities for mutual support.

## INTEGRATION INTO DAILY LIFE

- Make creativity a regular habit for fulfillment.



# PRACTICE EXAMPLE - CASE STUDY

## Orthodox Female Client, late 30's

- Location: Underserved remote area, distance therapy
- Profession: Gourmet chef, can create “something from nothing”
- Family: 5 children, multiple perinatal and postpartum issues
- Medical History: Heart arrhythmias, SVT, high blood pressure, anxiety, childhood, social anxiety

## INITIAL ISSUES

- Postpartum anxiety
- Sleep Disturbances
- Difficulty Nursing



# PRACTICE EXAMPLE - CASE STUDY

## INTERVENTIONS

- Self-Regulation Techniques (meditation, breathing, Havening, Guided Imagery...)
- Day Spa Schedule 😊 (floats, walks, swimming, massage, reflexology, etc.)

## DAILY RELAXING ACTIVITIES

- Daily Meditation • Breathing Exercises • Customized Nursing Meditation
  - Doodling or Coloring
  - Journaling • Positive Affirmations • “Gratituding”
  - Nature Exposure (Real Or Virtual)
- Regular Viewing and Resourcing with Pictures of Family and Friends
  - Weekly Special Meal Planning
  - Supplements and Rx

# CASE STUDY IMPROVEMENTS USING THE NEURO ARTS

- Improved Anxiety and Sleep
- Postpartum issues resolved (including fewer intrusive thoughts)
  - Diminished Physiological Problems: BP and SVT
  - Enhanced Overall Wellbeing and Relaxation  
(she still does Neurographic Art to relax)
- Able to do part-time work and create “something from nothing!”
  - Managing with children and family responsibilities





**DEEPENING THE  
EXPERIENCE WITH  
HANDS-ON ACTIVITIES**





# **EXPRESSIVE WRITING: WORDS THAT HEAL**

## **BY JAMES W. PENNEBAKER & JOHN FRANK EVANS**

- **Therapeutic power of writing for emotional healing and well-being.**
- **Practical exercises and techniques to process emotions and reduce stress.**





# EXPRESSIVE WRITING: WORDS THAT HEAL

BY JAMES W. PENNEBAKER & JOHN FRANK EVANS

## STREAM-OF-CONSCIOUSNESS WRITING

Write without censoring.

## EMOTION-FOCUSED WRITING

Write about specific emotional experiences.

## LETTER WRITING

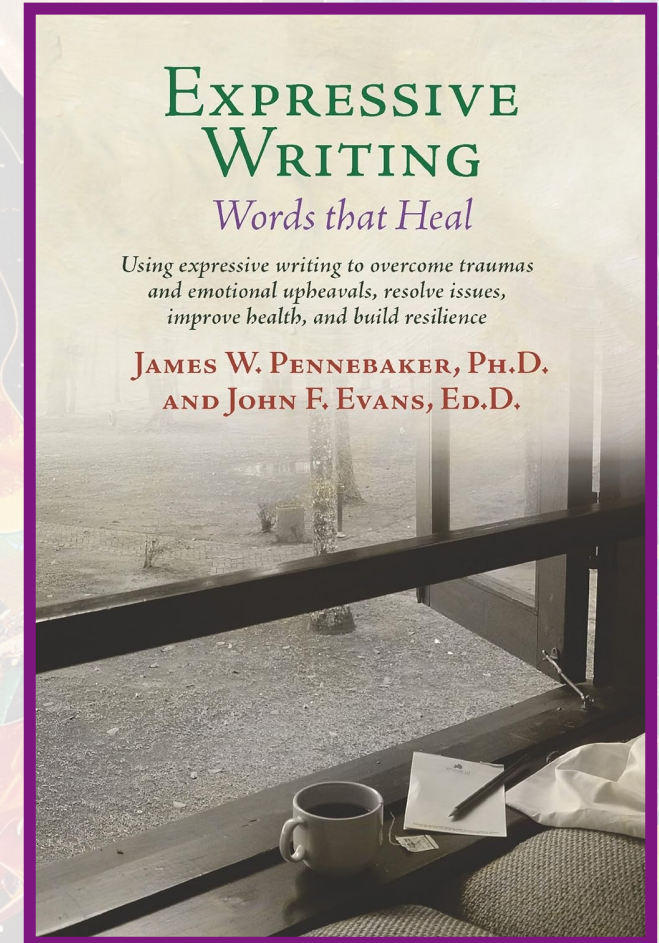
Write unsent letters to express emotions.

## NARRATIVE RECONSTRUCTION

Write about past events from different angles.

## GRATITUDE JOURNALING

Write about positive aspects and things to be grateful for.





# JAMES W. PENNEBAKER

## Tips for Writing to Heal

- Find a time and place where you won't be disturbed
- Write continuously for at least 20 minutes
- Don't worry about spelling or grammar
- Write only for yourself
- Write about something extremely personal and important for you
- Deal only with events or situations you can handle now





The background of the image is a vibrant, abstract pattern of organic, cell-like shapes. The shapes are filled with various colors: bright yellow, deep green, and a muted reddish-pink. These shapes are separated by thick, dark black lines that resemble the outlines of cells or neural pathways. The overall effect is a complex, interconnected network of colors and shapes.

## NEUROGRAPHIC ART

Neurographic Art is not just about creating beautiful images; it's about unraveling the mysteries of our subconscious mind and discovering the depths of our emotions through the strokes of a pen.

- RD Wallen - ©2024



# NEUROGRAPHIC ART EXERCISE BENEFITS

- Relief From Anxiety
- Finding Peace and Relaxation
  - Stress Reduction
  - Mindful Meditation
- Clarity And Perspective
- Expression of Inner Feelings

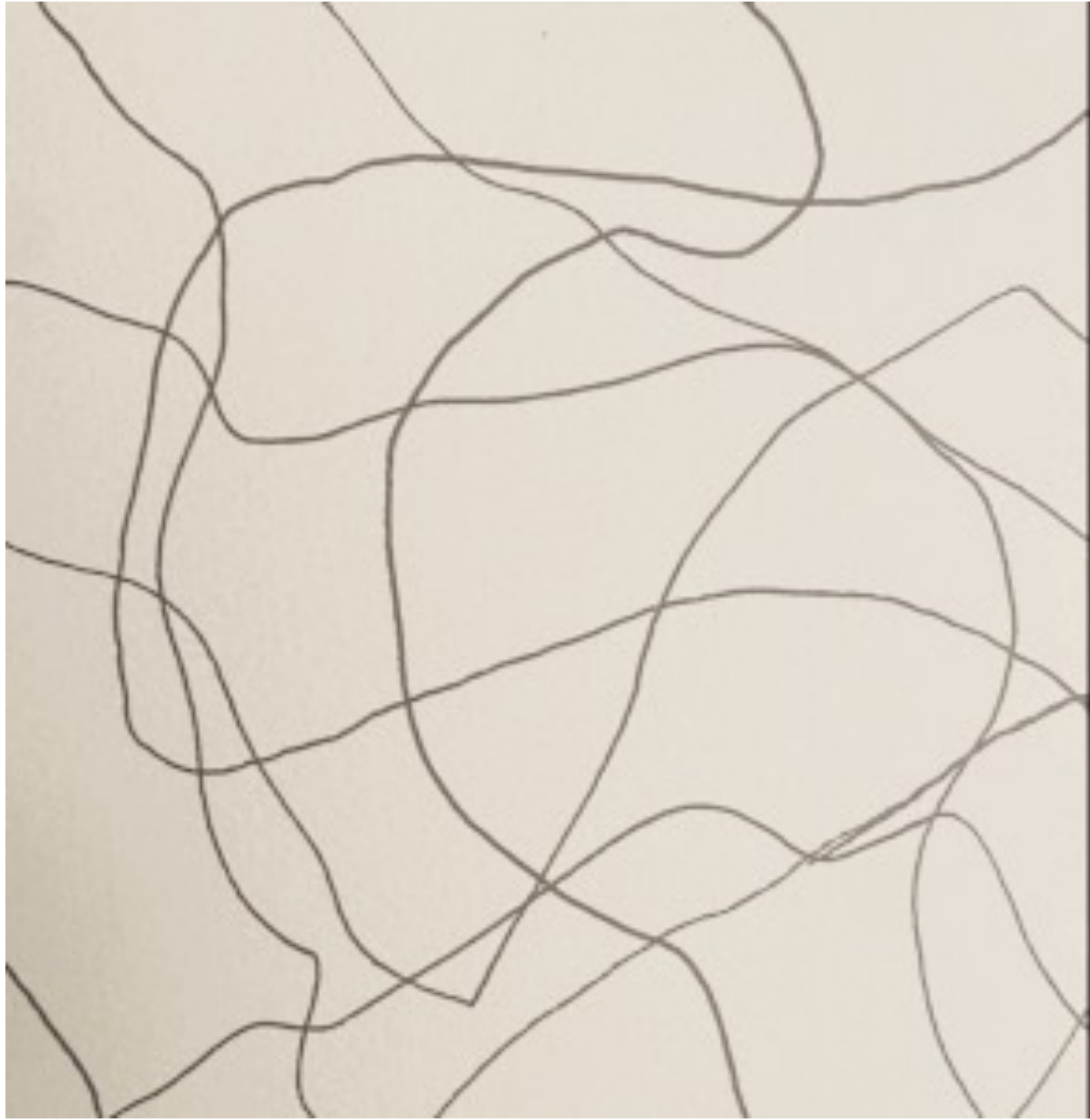




**NEUROGRAPHIC**

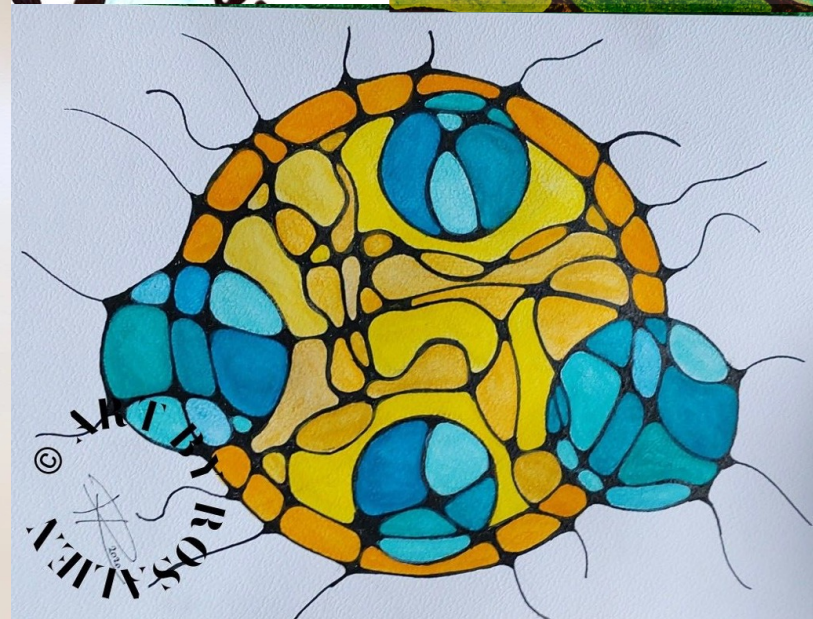
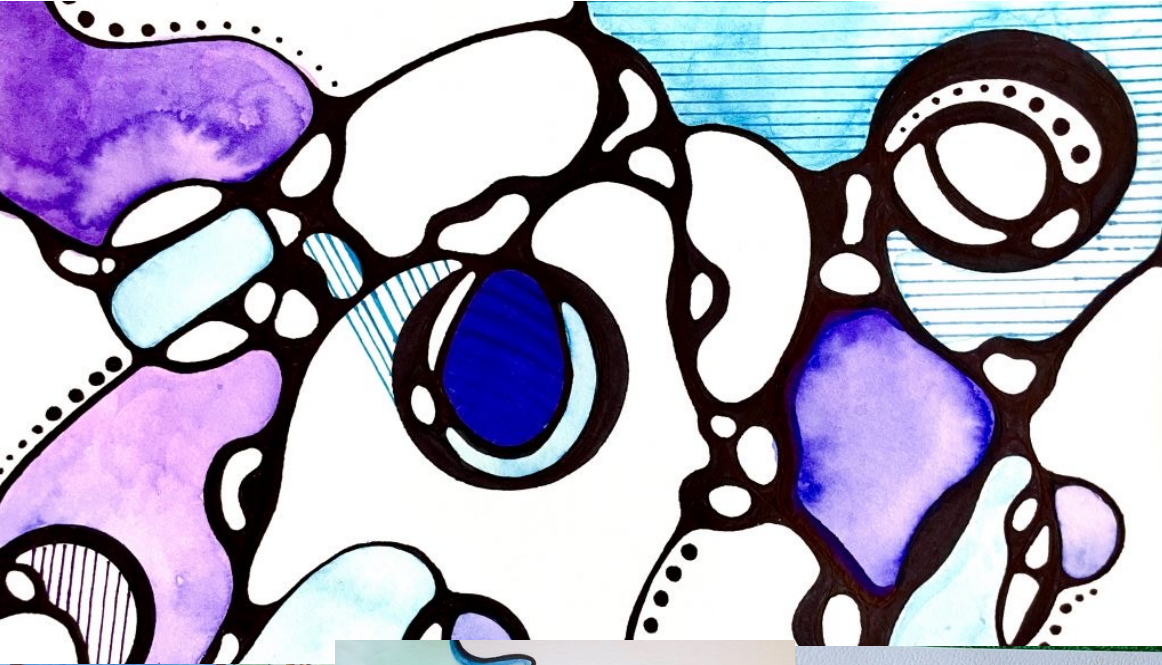
**ART**

**PROCESS**





# NEUROGRAPHIC ART SAMPLES





# NEUROGRAPHIC ART EXERCISE

1. Draw a wavy line from mid-left to top-right.
2. Draw a second wavy line from top to bottom.
3. Draw a third wavy line from top-left to bottom-right.
4. “Round” and curve intersections and fill them in to symbolize neural connections.
5. Color sections with rainbow colors (red, orange, yellow, green, blue, indigo, violet).





**I DID THIS  
WITH A  
SHARPIE,<sup>®</sup>  
CRAYONS,<sup>®</sup>  
AND A  
NICKEL!**

**(the previous one  
with a paint pen)**





# CONCLUSION

**The arts can ease physical and mental distress, enhance learning, strengthen communities, and promote overall health and wellbeing in an economic, low-risk, holistic manner.**



# DISCUSSION





Q&A

time



# THANK YOU FOR JOINING

Here's your Neuro Arts GIFTPAK link  
<https://bit.ly/neuroartsgiftpak>

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