Gas Discharge Visualization (GDV) as a novel neuro-biophysical tool for assessing stress and personality: Emerging evidence for mental health and consciousness research

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- Quantifying stress and emotional states through biophotonic signatures
- Mapping personality-linked energetic patterns with potential clinical applications

Overview

Biofield & Ultraweak Photon Emission
Definition of ultraweak photon emission and the biofield

Dual-Function Theory
Definition and how it explains the biofield and relationship with the brain

How GDV Works
Principles

GDV Applications and Comparison with Biofeedback
GDV literature survey and research study for comparison with biofeedback

GDV for Personality Testing and Consciousness Research
Personality theory and link to human organs, research study for personality testing and after death experiments

UPE & the Biofield

Ultraweak Photon Emission (UPE)
Spontaneous light emission from all living systems (~$10–10^3$ photons cm^{-2} s^{-1}) in 200–1000 nm range.
Originates from reactive oxygen species (ROS) and metabolic reactions.

The Biofield
An ensemble of weak electromagnetic fields produced by biological tissues.
Reflects cellular metabolism and stress responses; modulated by ROS and oxidative stress.

Salari, V., Seshan, V., Frankle, L., England, D., Simon, C., & Oblak, D. (2025). Imaging ultraweak photon emission from living and dead mice and from plants under stress. *The Journal of Physical Chemistry Letters*, *16*(17), 4354-4362.

Experimental Setup

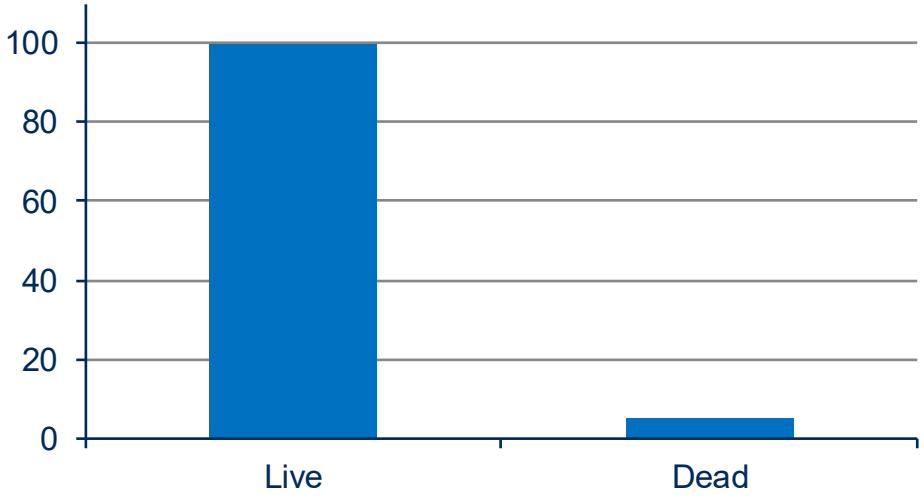
Mice Imaging

Hairless mice were dark-acclimated for 30 min and imaged for 60 min using an IVIS Lumina CCD system; after euthanasia, imaging repeated at 37 °C.

Plant Stress

Arabidopsis and Heptapleurum leaves were adapted to darkness then imaged over up to 16 h while varying temperature (22–39 °C), injuring leaves and applying chemicals.

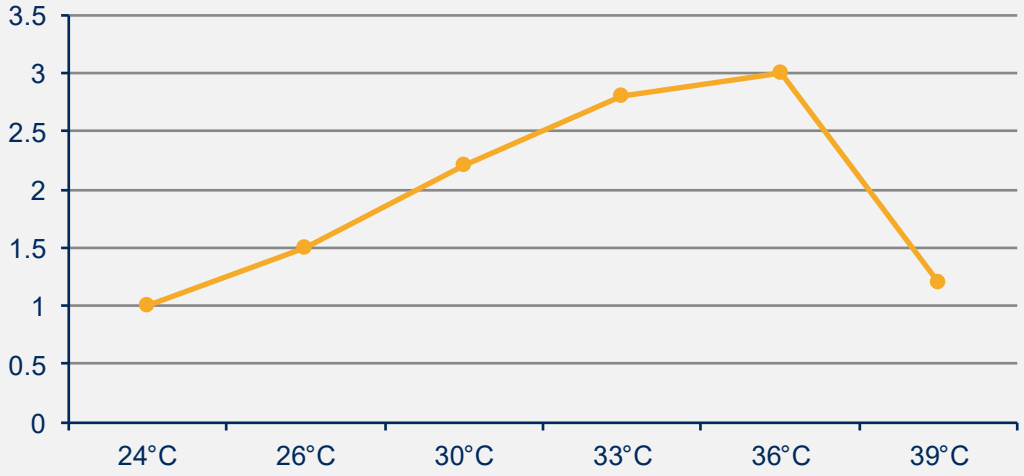
UPE in Live vs Dead Mice



Live mice emit robust UPE

- Photon flux from living mice is dramatically higher than from recently euthanized mice.
- Temperature and anesthesia were controlled (both groups at 37 °C).
- After death, UPE nearly vanishes with only faint residual hotspots.

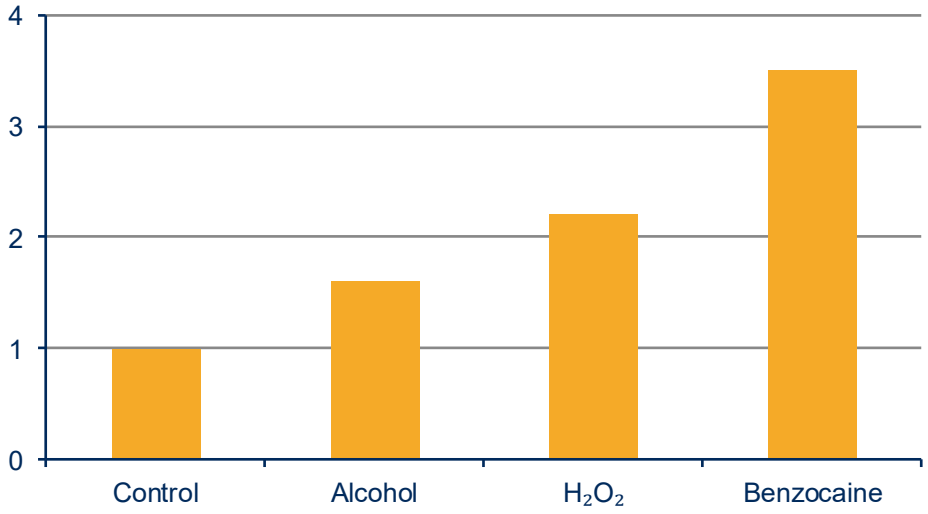
Temperature Effects on Plant UPE



Temperature modulates UPE

- UPE intensity rises as plant temperature increases from 24–36 °C, reflecting elevated metabolic activity and ROS.
- Above 36 °C, emission drops, likely due to thermal stress compromising cellular integrity and reducing photon emission.

Injury & Chemical Stress Effects



Stress amplifies UPE at injury sites

- Injured leaf regions emit more photons than intact regions across all treatments.
- Chemical treatments modulate UPE: hydrogen peroxide increases emission, while the local anesthetic benzocaine yields the highest photon emission.
- Effects likely mediated by ROS and ion channel changes; mechanistic details require further research.

Discussion: Biofield & Stress

Stress & ROS

Environmental and physiological stressors trigger ROS production, boosting UPE as a reporter of oxidative stress.

Biofield & Vitality

UPE reflects the biofield: emissions are robust in living systems and decline sharply after death, indicating the biofield's dependence on metabolism.

Future Questions

How do different stressors and treatments modulate ROS and UPE? Can UPE signals be quantified to distinguish subtle physiological states?

Dual-Function Theory

Biofield
Weak endogenous electromagnetic fields generated by tissues; shaped by vicinal water; amplify low-frequency oscillations and bridge biochemical events with field dynamics.

The **Dual Function Theory** proposes that the brain does not work in just one way — it works in **two interconnected systems at the same time**.

Cavaglià, Marco, and Jack A. Tuszynski. "A Unified Holographic Framework for neural computation and consciousness: From lipid membranes to the Schumann resonance." *BioSystems* (2025): 105669..

Dual-Function Theory

the “classical brain”
This is the part of the brain we already know well:
Uses **neurons, synapses, and electrical signals**
Works through **fast, local communication**
Controls things like:

- thinking
- movement
- perception
- decision-making

Field-responsive
Uses fields and wave-like processes. Lipid membranes, water & cerebrospinal fluid (CSF); slow, holistic integration via endogenous fields; global (whole-brain) way.

Phase Alignment
Consciousness arises when slow coherent dynamics of the field-responsive layer synchronise with fast membrane computations. The brain “thinks locally” but “understands globally”

Mechanisms & Substrates

Lipid Membranes
- Contain dipole fields and heterogeneous nanodomains
- Nonlinear electromechanical coupling supports phase interactions
- Ion channels maintain ~–70 mV potential (energy buffer)

Vicinal Water
- Ordered exclusion-zone water adjacent to membranes
- Supports QED-locked oscillations and storage/release hubs
- Shapes biofield and amplifies low-frequency oscillations

Cerebrospinal Fluid
- Conductive volume acting as cavity for standing waves
- Gates membrane–water interactions via pressure/flow
- Supports nested rhythms (cardiac, respiratory, α/θ)

Together, these substrates form a dynamic interface that stores, shapes and transmits electromagnetic information.

Phase-sensitive interactions across membranes, water and CSF underwrite the brain's biofield and support holographic encoding.

Coupling & Resonance

CSF Resonator & Environmental Fields

Cerebrospinal fluid acts as a conductive cavity supporting standing and traveling waves that couple cardiac (~1 Hz), respiratory (~0.1–0.3 Hz) and cortical rhythms (α/θ).

Schumann Resonance

Earth–ionosphere cavity modes (~7.8 Hz) overlap α/θ bands. Dual-function theory treats SR as an optional timing reference requiring phase-matching; it is not a necessary driver.

Summary of the Dual-Function Theory

	Dual-Function Theory
Core substrate	Lipid membranes, vicinal water & CSF
Information carrier	Phase relations encoded in membrane–water interference patterns
Coherence mechanism	Phase alignment across scales (r(t), PGD, bicoherence)
Environmental coupling	Optional Schumann resonance entrainment; CSF resonator
Consciousness emergence	Holographic interference patterns when slow & fast dynamics synchronise
Novel predictions	Phase-specific manipulations (phase shift, scrambling) modulate behaviour

Predictions & Experiments

Dual-Function Theory

- Co-variation of phase metrics (r(t), PGD, bicoherence) with Raman/FLIM and UPE during tasks; disruptions under anesthesia or cholesterol manipulation.
- Phase-specific manipulations (phase-shifting or scrambling, off-resonance pacing) abrogate coherent behaviour; amplitude preserved but phase randomised.
- Optional SR coupling: in-phase exposure modulates α/θ PGD; shielding/inversion produces null effects.

Dual Function Theory links to the Biofield

Synthesis
Dual-Function Theory frames the brain as a coupled biochemical and biofield processor.

Link to Biofield
Vicinal water, lipid membranes and CSF shape the biofield and enable phase-sensitive integration.

How GDV Works

What is GDV?

GDV uses biophotonic imaging to visualise the biofield around fingertips exposed to high-intensity electromagnetic fields. The resulting gas discharge patterns reveal autonomic activity and stress.

High-voltage EM field

A dielectric-separated electrode generates a strong electromagnetic field around the fingertip.

Electron avalanche

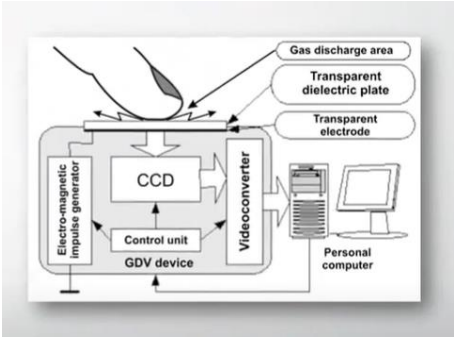
Breakdown voltage triggers ionisation; cascading collisions produce photons and branching patterns.

Photograph emission

A sensitive camera records the glowing corona discharge around the finger.

Analyse parameters

Software quantifies area, intensity, fractality and entropy to infer stress and energy.



Measurement Parameters & Autonomic Tone

Area & Intensity

Reflect energy reserves of organs; larger areas indicate higher reserves.

Fractality

Quantifies complexity of emission patterns; higher fractality implies adaptability.

Entropy

Measures order versus disorder in the biofield; lower entropy reflects coherence.

Activation coefficient

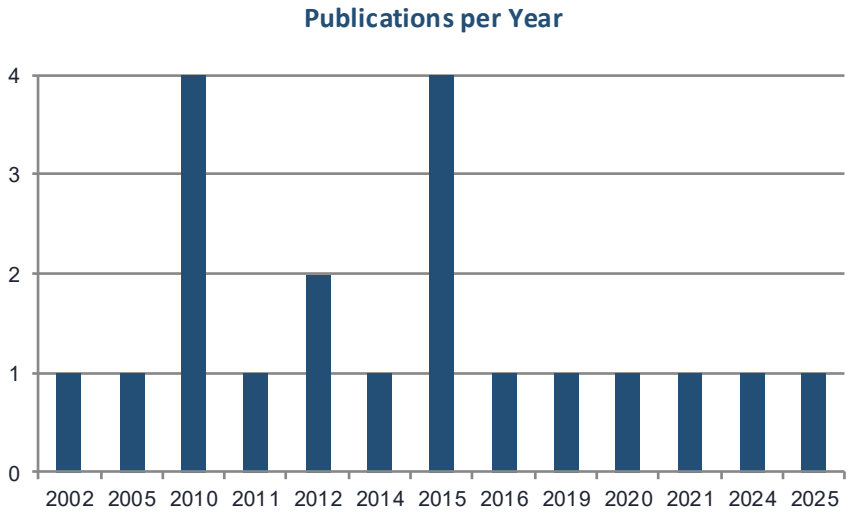
Difference between sympathetic and parasympathetic activation (autonomic tone).
Sympathetic activates during stress, danger, or effort. Parasympathetic (Rest and Digest)Active during relaxation and recovery

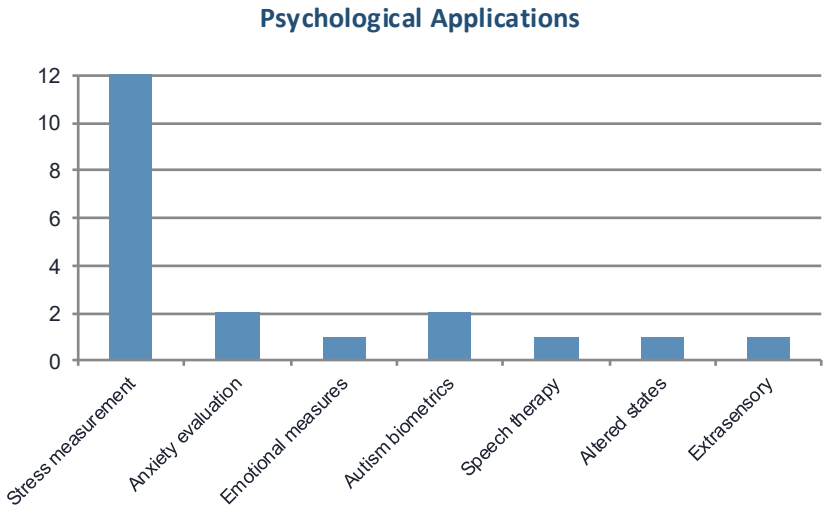
Autonomic Tone & Stress Index

Autonomic tone = the balance between these two systems.
Autonomic tone is used to assess:
Stress levels
Cardiovascular health
Emotional regulation
Recovery and fitness
Disorders (e.g., anxiety, dysautonomia)

GDV calculates the balance between sympathetic and parasympathetic nervous activity.
Stress index (T) decreases when interventions like meditation, yoga, dance or music restore parasympathetic dominance.

Publication Trends & Applications (Valverde & Korotkov)





60% of studies focus on stress measurement.

Other areas include anxiety, emotional states, autism, speech therapy, altered consciousness and extrasensory research.

Valverde, & Korotkov. (2025). Gas discharge visualisation technology for psychological research applications: A systematic review. *International Journal of studies in Psychology*, *5*(2), 67-75.

Key Findings & Case Studies

Stress reduction

Meditation programs (Anapanasati, integrated yoga) lower activation coefficient and increase energy reserves in over 400 adults.
Massage therapy, osteopathy and other complementary treatments reduce stress and improve well-being as measured by GDV.
Walking in nature benefits taekwondo and Paralympic athletes; lower stress correlates with better performance.

Anxiety & emotional state

Stress index is used to evaluate anxiety in ESL learners and speech therapy; therapies like art, dance and music produce significant reductions.
Extreme emotions in cardiovascular patients markedly impact corona discharge images, mirroring HRV findings.

Autism & consciousness

GDV differentiates autistic children from controls; elevated sympathetic activity suggests potential biomarkers.
Altered states of consciousness and extrasensory perception training produce distinct GDV dynamics and improve participants' psychosomatic state.

Biofeedback & HRV for stress measurements

What biofeedback measures

- HRV & heart rate
- Respiration & skin conductance
- Muscle tension & brain activity

How it works

Sensors capture physiological signals and provide real-time feedback. Participants learn to consciously regulate breathing, heart rate and muscle tension to alleviate stress.

[6]

Study for Psychological stress with GDV and HRV Biofeedback

Group 1
Enhanced Amino Acid Supplement
n = 30

Group 2
Non-enhanced Amino Acid Supplement
n = 20

Group 3
Placebo
n = 20

Randomised, placebo-controlled trial (30 days)

Participants aged 35–65 were randomly assigned to one of three groups (Enhanced Amino Acid Supplement, Non-enhanced Amino Acid Supplement. Baseline measurements were taken, followed by a 30-day intervention and a follow-up assessment.

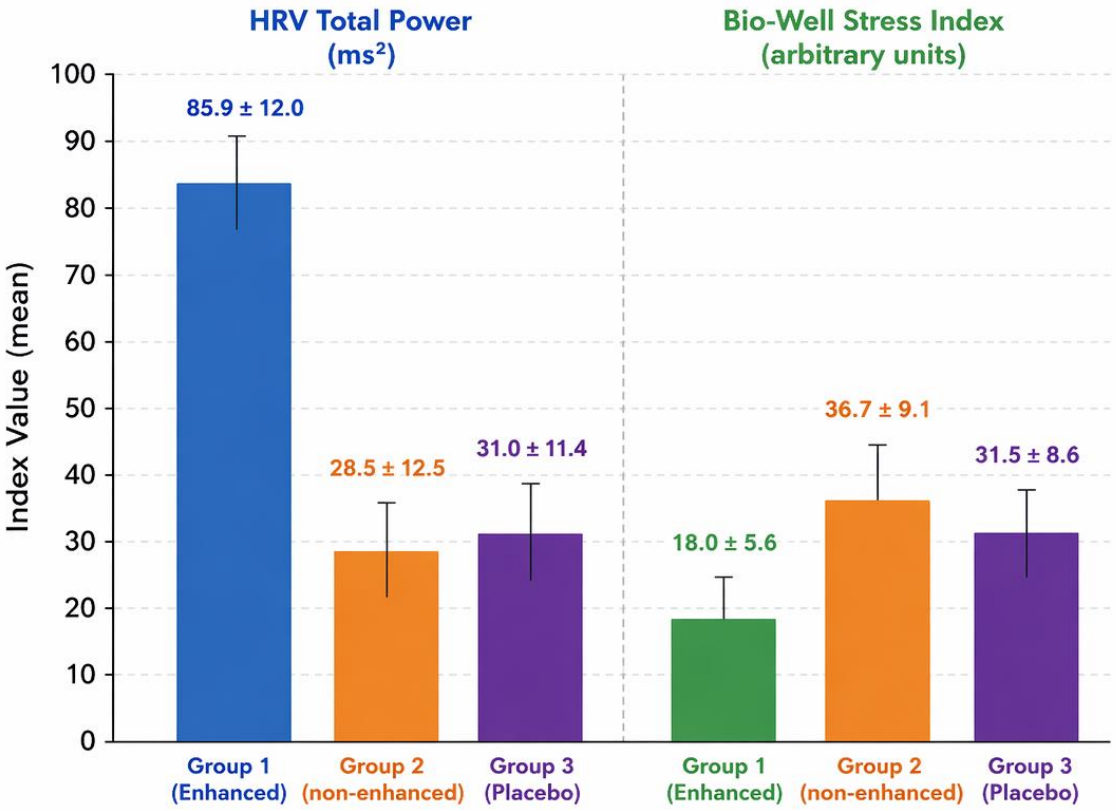
Measurements

- GDV (Bio-Well) stress index
- HRV biofeedback indices (autonomic equilibrium & stress index)

Raul, V., Gavrilova, E. A., Churganov, O. A., & Korotkov, K. G. (2025). Influence of an Amino Acid Composition enhanced with Cold Plasma Radiation on Psychological Stress: A Blood Test, Gas Discharge Visualisation and Biofeedback Approach. *International Journal of studies in Psychology*, *5*(1), 28-34.

HRV & Bio-Well Stress Indices for Study Groups

Values shown as Mean ± SD (from Table 2 of the article)



Note: Error bars represent ± 1 SD (standard deviation).
Higher HRV is better. Lower Bio-Well Stress Index is better.

Comments on Results

- **HRV Total Power (ms²):**
  Group 1 (Enhanced) showed a markedly higher HRV (85.9 ms²) compared with Group 2 (28.5 ms²) and Group 3 (31.0 ms²). Higher HRV indicates greater autonomic flexibility and better overall cardiovascular regulation. This suggests that the Enhanced substance significantly improved parasympathetic activity and reduced sympathetic dominance.

- **Bio-Well Stress Index:**
  Lower values indicate lower stress. Group 1 had the lowest stress index (18.0), followed by Group 3 (31.5), while Group 2 had the highest (36.7). This shows that the Enhanced substance is associated with a substantially lower stress level compared to both non-enhanced and placebo.

- **Overall Interpretation:**
  The Enhanced substance (Group 1) demonstrated superior outcomes—higher HRV and lower stress index—indicating improved autonomic balance and reduced physiological stress compared with the other groups.

GDV vs Biofeedback

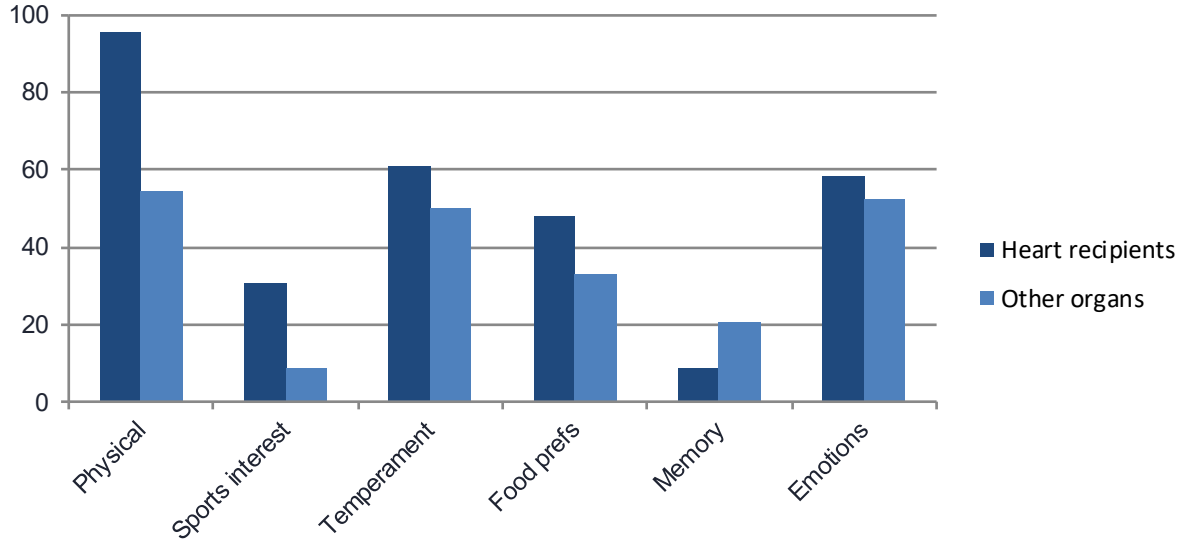
GDV (Bio-Well)

- Non-invasive electro-photonic imaging
- Captures energy field & psycho-emotional state
- Rapid scans (seconds per finger)
- Stress index derived from glow area, intensity & fractality

Biofeedback (HRV)

- Monitors HRV, heart rate, respiration, skin conductance, muscle activity & EEG
- Provides real-time feedback & behavioural training
- Widely used in clinical stress and anxiety management
- Requires sensors and sustained engagement

Reported Personality Changes after Transplant Operations

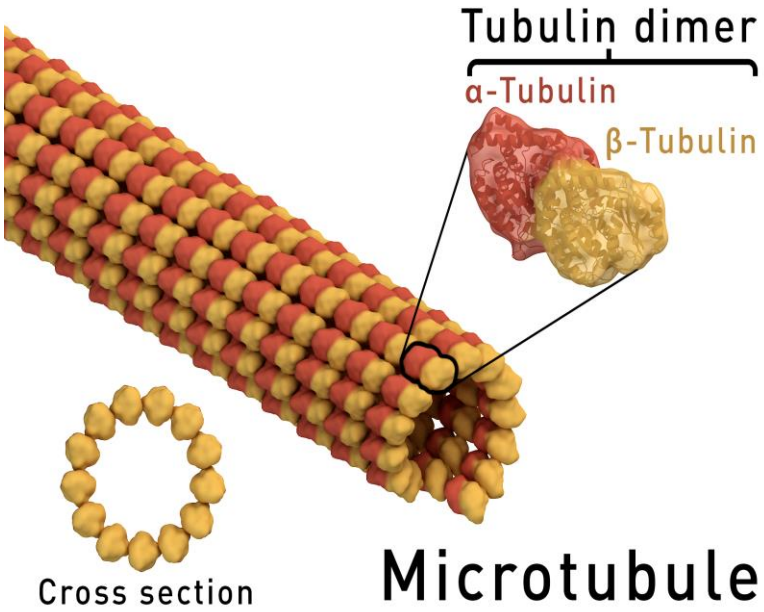


Overall changes:
89.3% of recipients reported some personality shift; 36.2% experienced four or more changes.

Key differences:
Physical changes were far more common in heart recipients (95.7%) than in other recipients (54.2%).
Sports interests, temperament and food preferences also differed, but sample sizes limited statistical power.

Al-Karaki, J., Al-Zafar Khan, M., Rathebe, P., Valverde, R., & Sepehri, A. (2024). Retrieving the information stored in the donated organ may cause the patient's personality to change after the transplant operation. *Italian Journal of Medicine*, *18*(1790).

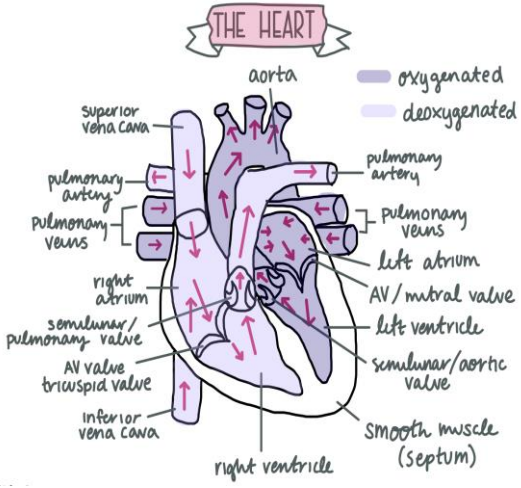
Quantum Information in Microtubules

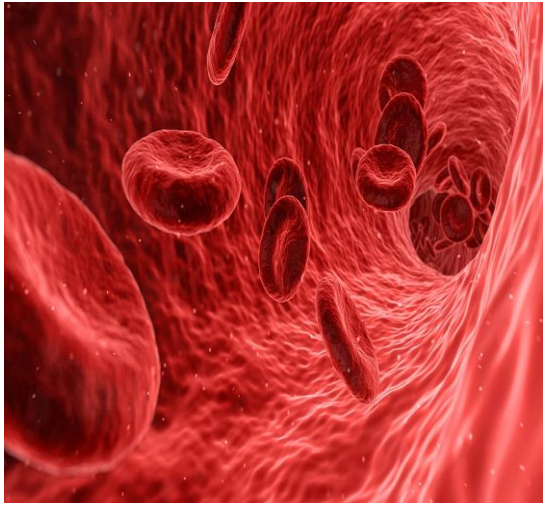


Hexagonal lattices
Microtubules in neurons and other cells consist of tubulin molecules arranged in hexagonal patterns. The Orch OR model proposes that information is stored as the polarization and spin of electrons and photons in these lattices.

Quantum coherence & memory
Loss of polarization disrupts information storage leading to memory loss and disease. Microtubules have been described as nanoscale spintronic oscillators capable of generating micro-consciousness.

Information Beyond the Brain





Heart muscle memory
Cardiomyocytes contain hexagonal myofibril structures similar to microtubules. These structures can polarize and may store quantum information, suggesting why heart transplants are often associated with personality changes.

Red blood cells & DNA/RNA
Hemoglobin's iron atoms are polarizable and can carry spin information from the brain through the bloodstream. DNA and RNA in every cell have hexagonal bases capable of storing spin states, implying that cellular memory is ubiquitous and could be transferred with any organ.

GDV for personality testing study for survival research hypothesis

Survival Hypothesis

Asserts that an individual's personality and consciousness persist beyond physical death. Near-death experiences and quantum consciousness models motivate investigating personality survival.

GDV Technology

A non-intrusive technique capturing electro-photonic emissions around fingertips to reveal physiological and psycho-emotional state. By measuring energy patterns at different finger sectors, GDV quantifies the energy of seven nervous centres which correspond to personality traits.

Personality Research

Past studies linked GDV emissions to Big Five traits such as openness and extraversion. The present research explores mapping these energy patterns to MBTI personality types and testing whether energy signatures persist after death.

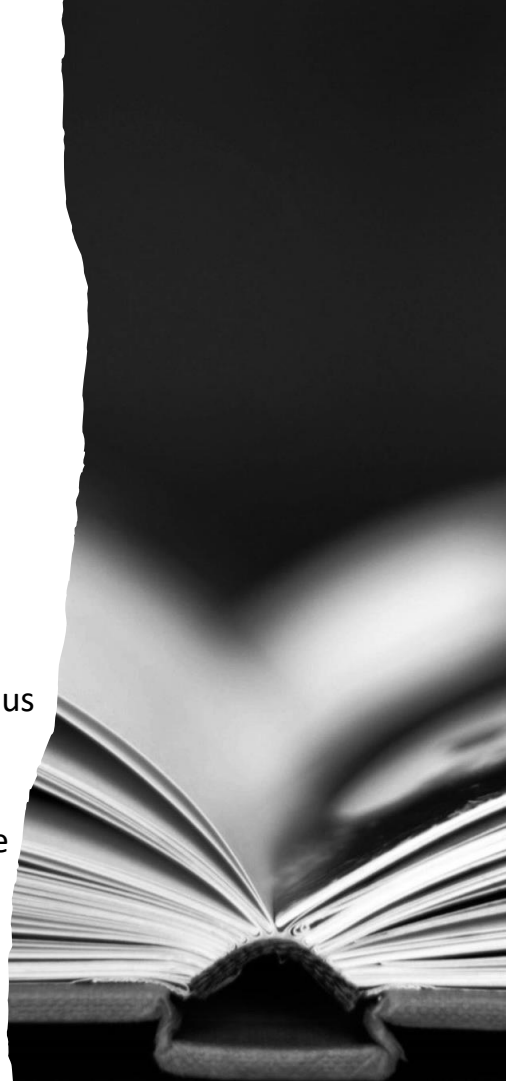
[1] Valverde, R., Korotkov, K., Hamilton, J., & Swanson, C. (2025). Medical biometrics based on Gas Discharge Visualisation technology approach to survival research: A case study. *International Journal of Studies in Psychology*, *5*(3), 81-87.

MBTI framework

- Myers et. al (1998) developed a framework to analyze human personalities that correlate with the human archetypes proposed by Jung (1971).

- The objective of the study is to relate the traditional concept of nervous centers present in the body to the four Jungian Aspects of MBTI framework which are used for assessing the personality of an individual. These sixteen personality types are Extraversion, Introversion, Sensing, Intuiting, Thinking, Feeling, Judging and Perceiving. Chase (2018) created personality archetypes from nervous centers that have practical clinical value in acupuncture.

Chase, C. R. (2018). The geometry of emotions: Using chakra acupuncture and 5-Phase Theory to describe personality archetypes for clinical use. *Medical acupuncture*, *30*(4), 167-178.



MBTI Summary

Myers Briggs Type Indicator (MBTI) Summary

- The MBTI is a *reliable* and *valid* instrument that measures and categorizes your personality and behavior. It is *not* a test. There are no "right" or "wrong" answers.
- Around 1940 a mother-daughter team (Katharine C. Briggs and her daughter Isabel Briggs Myers) developed this instrument to help people understand and use Carl Jung's theory of psychological type preferences.
- Swiss Psychologist, Carl Jung, (1875 – 1961) theorized that you can predict differences in people's behavior if you know how they prefer to use their mind. According to Jung, we each have an *inborn preference* for using our mind in one of two different ways, in four different categories:

Orientation to World	*Take in Information*	*Make Decisions*	*Take in Info. or Decide*
Extraverted Energized by others *or* **Introverted** Energized by ideas, emotions, memories	**Sensing** Using five senses *or* **Intuition** Using gut or instincts	**Thinking** Logical, problem solvers *or* **Feeling** Consider others, compassionate	**Perceiving** Taking in information *or* **Judging** Organizing information and making decisions

Bioenergy Model & MBTI Mapping

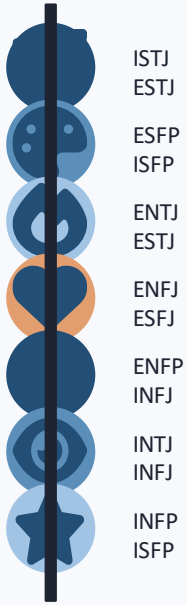
Seven Nervous Centres

Eastern bioenergy models describe seven energy centres along the spine (Muladhara to Sahasrara). Each centre is associated with physical, emotional and mental qualities. GDV measures energy at these centres via fingertip sectors.

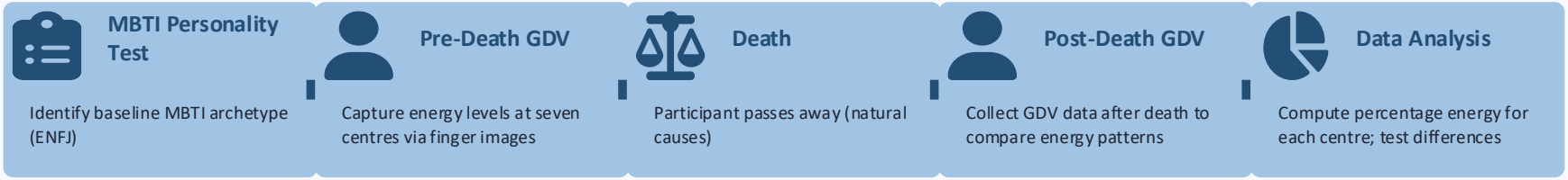
Mapping to Personality

Researchers mapped each centre's qualities to MBTI types and Jungian cognitive functions. For example, the root centre (Muladhara) aligns with ISTJ/ESTJ (stability, grounding), the sacral centre (Svadhishthana) with ESFP/ISFP (creativity, emotion), and the heart centre (Anahata) with ENFJ/ESFJ (empathy, compassion).

These associations are symbolic rather than deterministic but provide a framework to interpret energy patterns as personality traits.



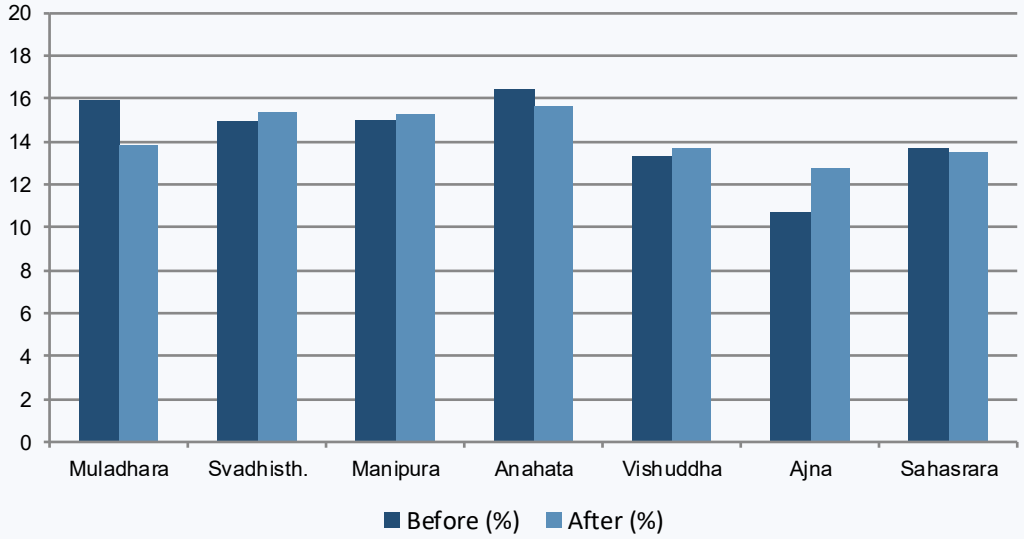
Methodology & Data Collection



Case Study

One male participant provided informed consent. MBTI (ENFJ) identified his personality. GDV measurements were taken for three weeks before death and several times on the day of death. Energy was calculated as area × intensity × conversion coefficient, then converted to percentages for each centre.

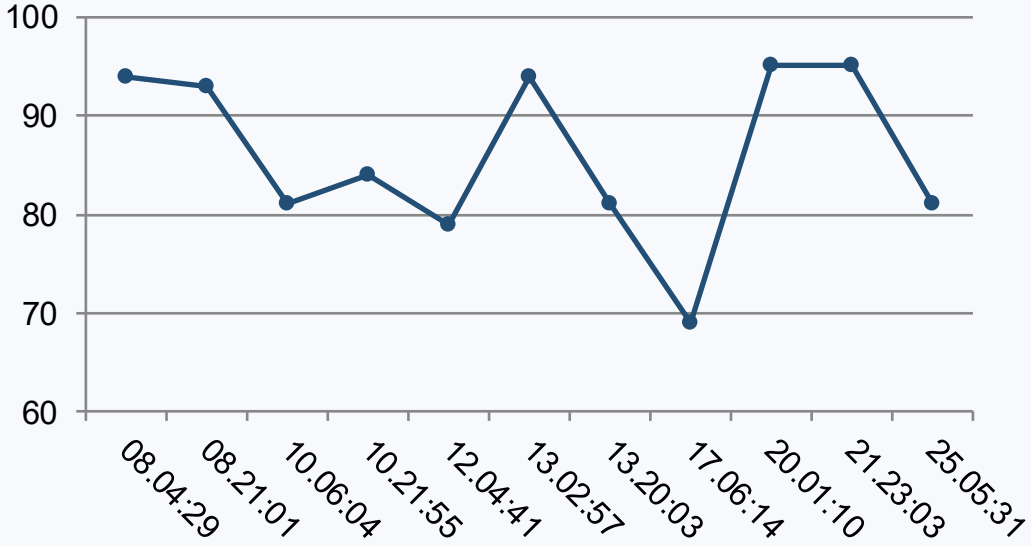
Energy Distribution: Before vs After Death



Key Findings

- Anahata (heart centre) exhibited the highest energy proportion both before (16.4%) and after death (15.7%), corresponding to the participant's ENFJ personality.
- Other centres shifted slightly but overall distribution remained similar.
- The small differences in energy percentages suggest the energy signature—and thus personality—remains stable across death.

Anahata Centre: Alignment & Traits



ENFJ Personality & Anahata

The MBTI test revealed the participant was ENFJ, associated with the heart centre (Anahata). ENFJs are warm, empathetic facilitators who value people's feelings, enjoy helping others, and feel driven to meet others' needs. They are sensitive to criticism and seek harmony.

Alignment Measurements

Anahata alignment averaged 85.35% before death, consistently above the 85% threshold suggested for balanced energy. Fluctuations across sessions indicate natural variability but stability overall.

More information

- https://lifeofconsciousness.com
- https://bio-well.com