



www.quintessencestudio.com

Anjali B. Arnold, B.Sc., B.Ed. Dalhousie University

International Natural Healers Association

Sound Healers Association

Creativity Coaching Association

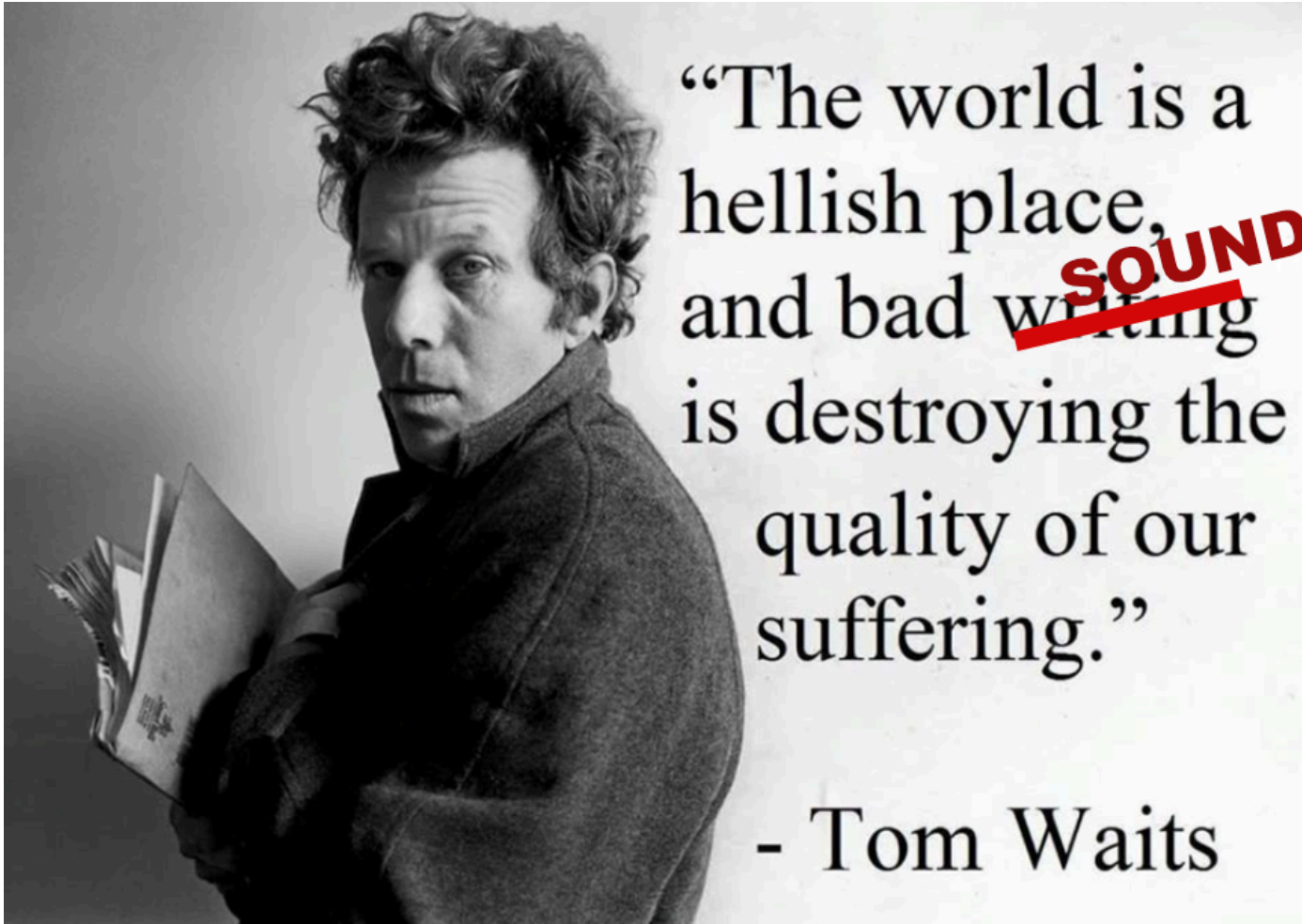
National Institute Clinical Application Behavioral Medicine

FIELDS OF RESEARCH FOR CREATING NEUROSOUND

- Cymatics: sound made visible for study of resonance modes & fluid ordering, harmony & coherence; a way of viewing mathematics of sound waves
- Mind-Body paradigm: ancient to modern methods that tie our experience to breathing including biofeedback and neurofeedback; health is likened to harmony & balance
- Healing beyond the physical body: our multidimensional experience adds energetic and spiritual states of being; spiritual alchemy, Chinese 5-element & natural healing, vibrational-energetic healing methods; what it means to be in harmonious relationship with nature
- States of Being to optimize healing: still, quiet, present, centered, meditative
- Best Sounds/Music for these objectives from a psychoacoustic and neuroscience perspective; emotional valence and psychoacoustics
- Neuroscience of Sound: optimizing listener engagement, attention, relearning how to listen
- Consciousness & felt experiences beyond standard emotion response, transcendental and numinous experiences
- Consciousness studies on perception and physiological, subjective responses to sound through the body-mind complex
- Neuroscience of Brain Lateralization and CNS: Brain Synchronization, Frequency Following Effect, Entrainment effects on the body



**WE ARE NATURAL CREATORS OF MUSIC
WE ARE WIRED FOR SOUND AT 16 WEEK'S GESTATION**



“The world is a
hellish place,
and bad ~~writing~~ **SOUND**
is destroying the
quality of our
suffering.”

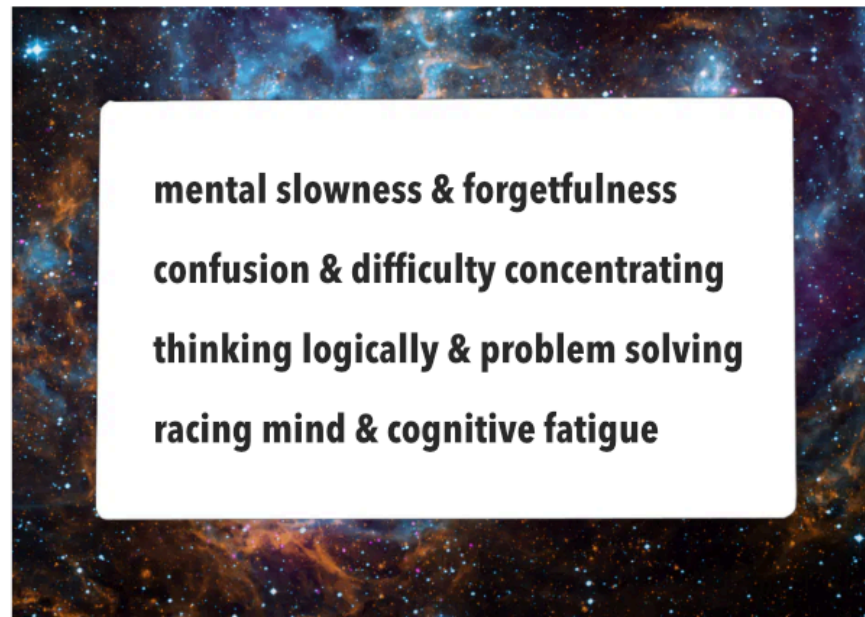
- Tom Waits

QUALITY SOUND IS THE VIBRATIONAL BRIDGE BETWEEN
THE OUTER WORLD & YOUR INNER WORLD

MENTAL OVERWHELM OF TOO MUCH INFORMATION AFFECTS OUR WHOLE MIND-BODY SYSTEM

Immunity to Change: Harvard professors Robert Kegan and Lisa Lahey discuss overwhelm: the increase in complexity associated with modern life has left many of us feeling "in over our heads."

The complexity of our world has surpassed our "complexity of mind" or our ability to handle that level of complexity and be effective.

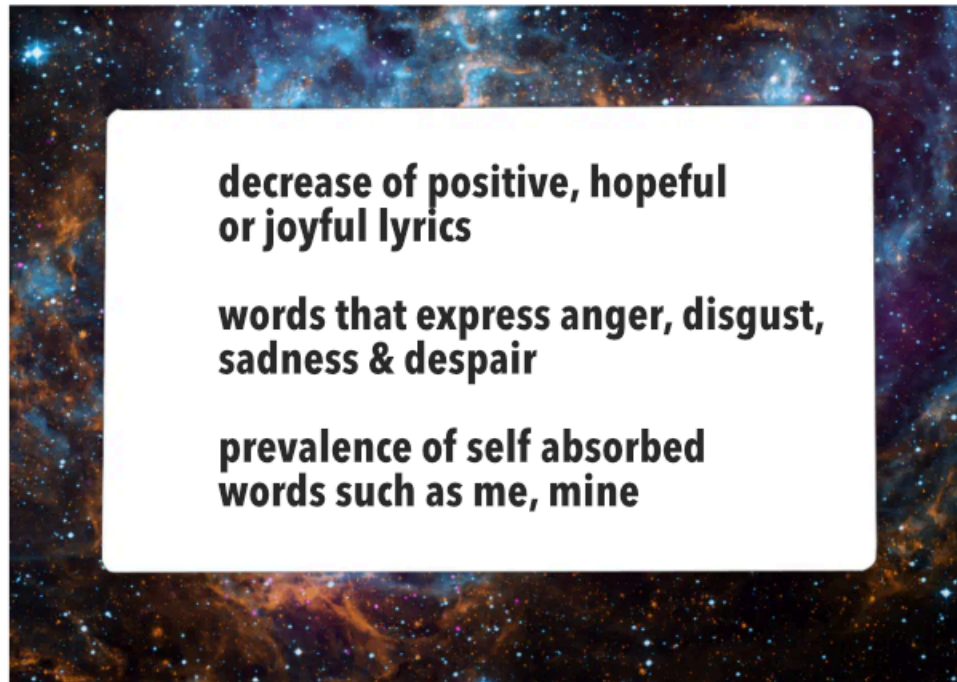


“THE WORLD IS TOO MUCH WITH US” – WORDSWORTH

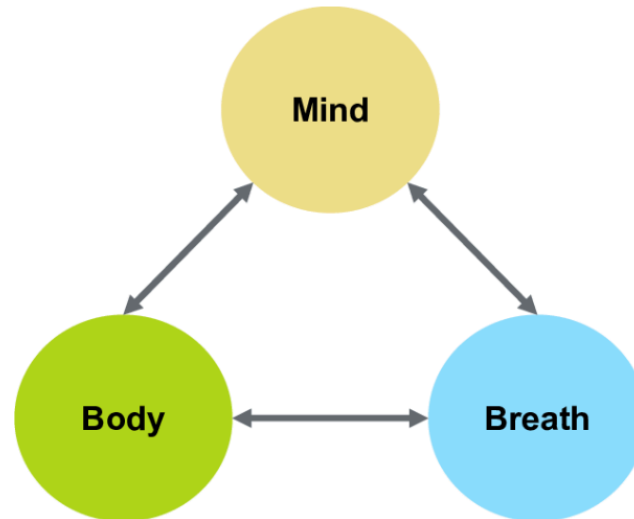
THE GROWING “OVERWHELM” OF THIS MODERN WORLD HAS INFLUENCED OUR MUSIC

University of Innsbruck Austria: Study shows song lyrics getting simpler, more repetitive, angry and self-obsessed – Researchers analysed the words in more than 12,000 English-language songs across several genres from 1980 to 2020

Rap showed the greatest increase in negativity while modern Rock showed a return to positivity, perhaps a nod to its heyday decades ago



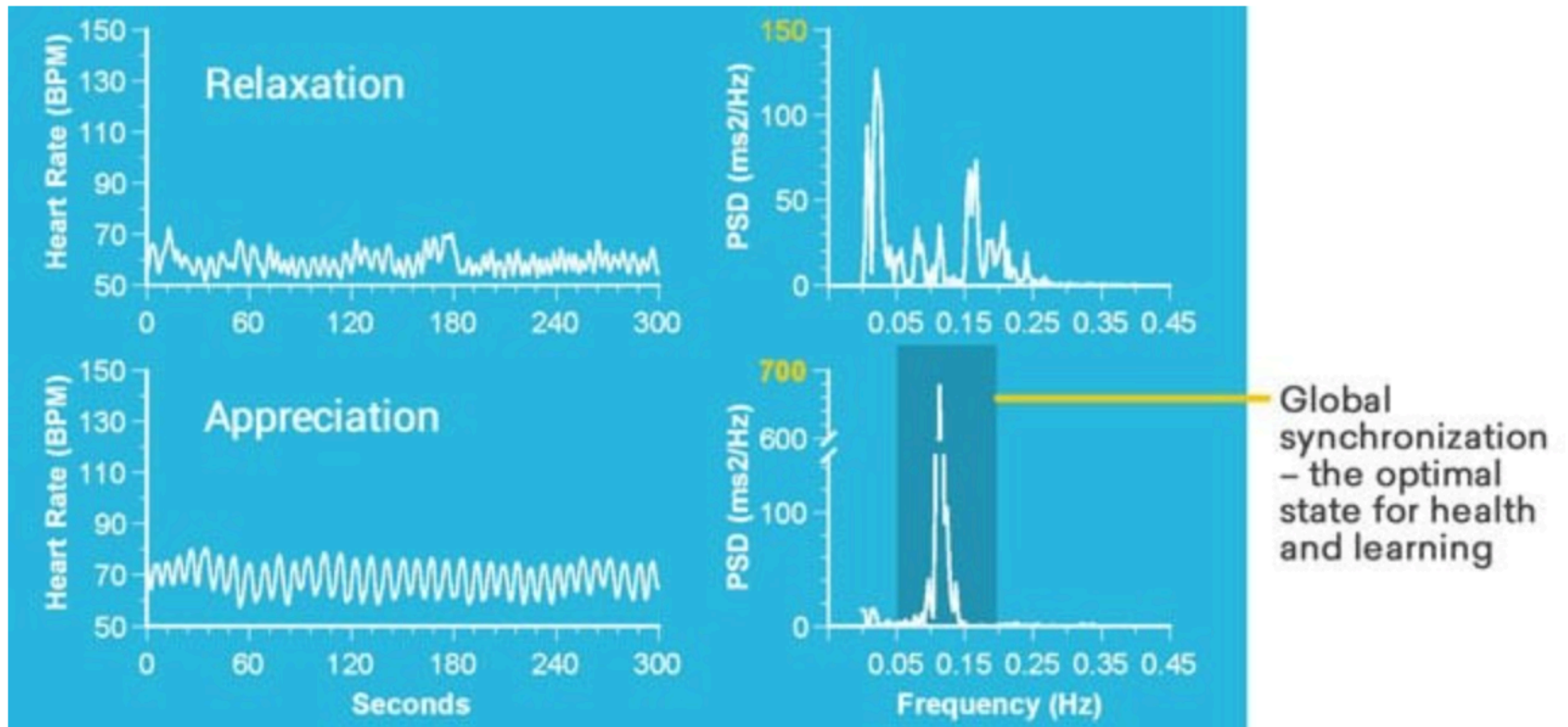
MIND ↔ BREATH ↔ BODY
~REGULATOR~



**HOW WE FEEL (EMOTIONS) & WHAT WE THINK
AFFECTS OUR BREATHING**

THE REVERSE IS TRUE ALSO

HEARTMATH INSTITUTE RESEARCH
~HEART/BRAIN SYNCHRONIZATION & COHERENCE~



C/O HEARTMATH: CARDIAC PATTERN & POWER SPECTRUM DENSITY

**RELAXATION AND POSITIVE FEELING BRING OPTIMAL BENEFIT
WHEN RESPIRATION RATE IS 0.1 HZ (= 6 BREATHS / MIN)**

BUILDING NEUROSOUND



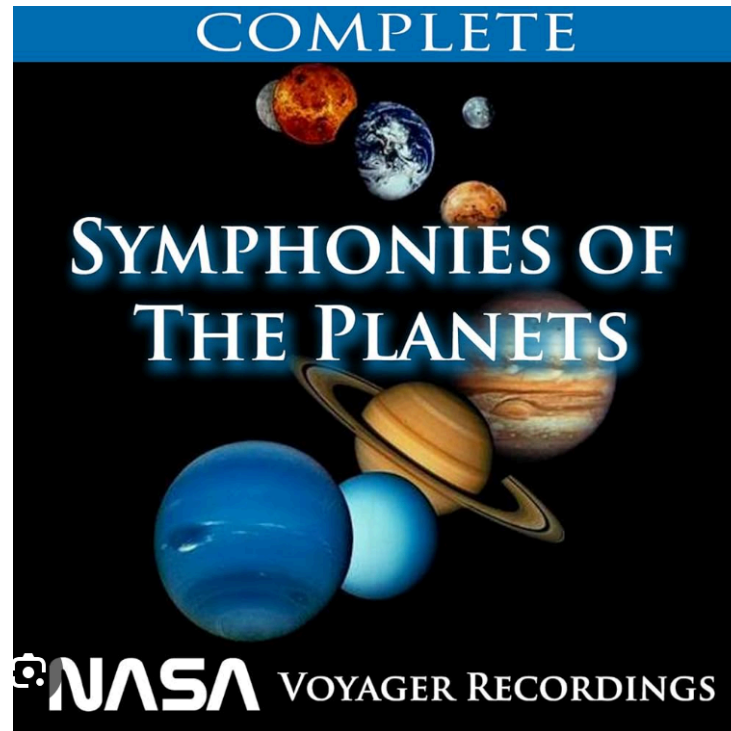
WE SUBCONSCIOUSLY RECOGNIZE & RESPOND POSITIVELY TO NATURAL SOUNDS WITH AN 'INNER SENSED' DEEP-FELT RELAXATION

EARTH ~ grounding, giving & receiving – (key of F)

FIRE ~ inner power, Flexibility, Inspiration – (key of C)

WATER ~ Flow & Let Go, feeling, cleansing – (key of D)

AIR ~ Breath, Mind, Choice, Objectivity – (key of A)



**THE DEEPEST PART OF WHO WE ARE RE-ALIGNS TO SUBTLE & UNEXPECTED
NATURAL SOUNDS AT A SUBCONSCIOUS LEVEL ~ PART OF OUR EVOLUTION**

- Sounds from space
- Land Animal, insect sounds
- Under-ocean creatures sounds
- Sacred sounds of ancient languages (vowels)
- Music harmonies and specific tones

SPIRITUAL ALCHEMY FOR INNER TRANSFORMATION

| | | |
|----------|-----------------------------------|---------------------|
| 1 | false roots & beliefs to identity | calcination |
| 2 | duality constraints to expansion | dissolution |
| 3 | fragmentation to integration | separation |
| 4 | vulnerability to compassion | conjunction |
| 5 | stagnation to growth action | fermentation |
| 6 | misalignment to truth alignment | sublimation |
| 7 | life force to conscious awareness | radiation |

THE DEEP HUMAN CONDITION OF WHO WE ARE THAT CAN'T BE
QUANTIFIED OR MEASURED IS INFLUENCED BY SOUND

NEUROSOUND: HARMONY OF SPIRITUAL ALCHEMY

Root, 4, 5

Nervous system rebalancing

Root, 4, 6

Motivating and strengthening

Root, m3, m6

Emotional connection to memory

Major chord

Self-directing and decision making

Root, 5, 7

Unlocking creativity and expanding

Major triad, 6

Dreaming state, multidimensional

Root, 2, 3, 4, 5

Deep sleep, healing, rejuvenating

Triton, m7

Perturbing, loosening and releasing

NATURE & NURTURE OF HARMONY

Expanded Solfeggio Scale

| | |
|-----|---|
| 174 | reduce pain |
| 285 | influence energetic system and fields |
| 396 | transmutes grief to joy |
| 417 | facilitates change |
| 528 | inner alchemical transmutation (love frequency) |
| 639 | interconnectedness, unity |
| 741 | self-expression, truth, solving problems |
| 852 | re-alignment to inner truth |
| 963 | awakening, enlightening |

Modes relate to civilization/culture, history, ancestry

Tuning

1. Equal Temperament is expected but not inspiring
2. Just Tuning is rarely used and is alchemically deadening
3. Unequal (well-tempered) tunings chosen according to historical setting
4. Concert pitch has always varied throughout history
5. This tuning/frequency is better than [---] (let's argue)

CHART OF KEY CHARACTERISTICS

C Major

Completely pure (Schubart, 1784)

Cheerful and pure (Knecht, 1792)

State of nature, virginal chastity and purity, lovely innocence of youth (Heinse, 1795)

Naturalness and nobility (Gervasoni, 1812)

Cheerful and pure, innocence and simplicity (Weikert, 1827)

Simple, unadorned (Schumann, 1835)

Concerning the psychical expression of this key, it appears to be completely pure (Schilling, 1835)

C# Major

Penitential lamentation, intimate conversation with God (Schubart, 1784)

Despair (Knecht, 1792; Schrader, 1827; Weikert, 1827; and Ebhardt, 1830)

D Major

Gay things and grandeur (Rousseau, 1691)

Joyful and very militant (Charpentier, 1692)

Pleasant, joyful, bright, songs of victory (Masson, 1697)

Songs of mirth and rejoicing: grandeur and magnificence (Rameau, 1722)

Martial ardour (Hawkins, 1776)

The key of triumph, of Hallelujahs, of war-cries, of victory-rejoicing (Gathy, 1835)

E flat minor

Horrible, frightful (Charpentier, 1692)

Feelings of the anxiety of the soul's deepest distress, of brooding despair, of blackest depression of the most gloomy condition of the soul. Every fear, every hesitation of the shuddering heart, breathes out of horrible e flat minor. If ghosts could speak, their speech would approximate this key. (Schubart)

E Major

Uplifting (Junker, 1777)

Bright (Gretry, 1797)

B flat minor

Gloomy and terrible (Charpentier, 1692)

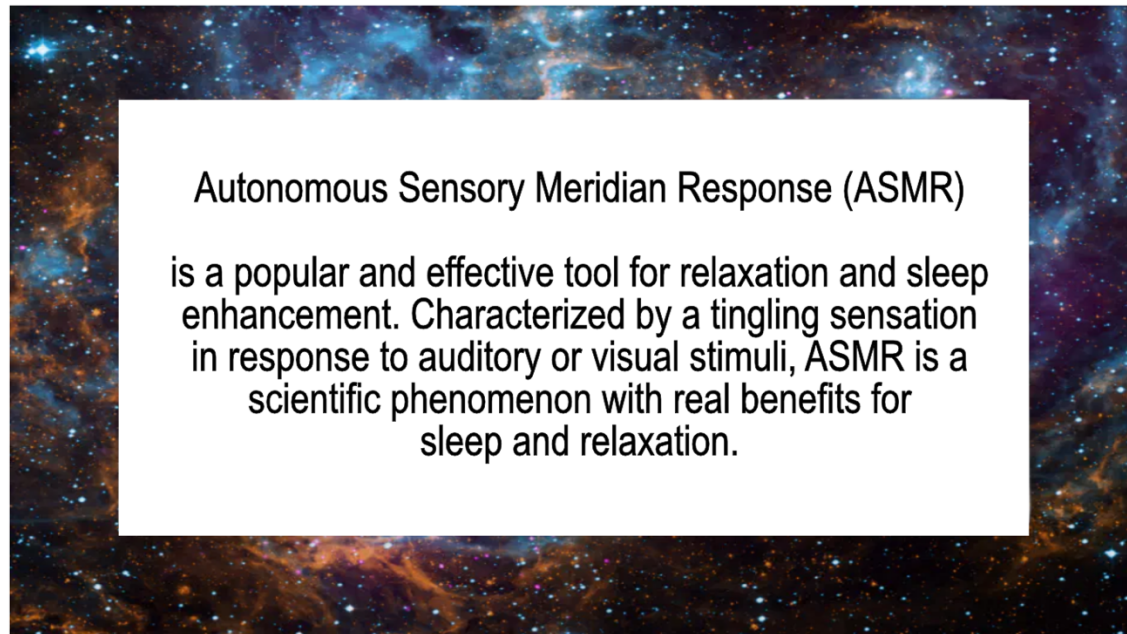
Mournful songs (Rameau, 1722)

Preparation for suicide sounds in this key (Schubart, 1784)

These excerpts are taken Owen Jorgensen's book on Tuning. They were originally from A History of Key Characteristics in the Eighteenth and Early Nineteenth Centuries, by Rita Steblin, Ann Arbor: UMI Research Press, 1983.

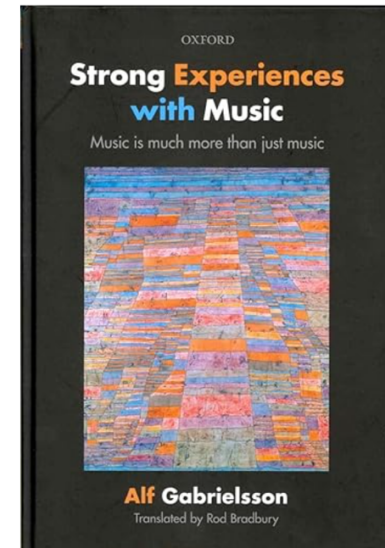
NEURO SOUND IS DESIGNED TO INVITE DEEPLY FELT SENSATIONS

**THESE SUBTLE, SURPRISING EXPERIENCES, UNLIKE STANDARD EMOTIONS,
REVEAL SHIFTS IN STATES OF CONSCIOUSNESS (BRAINWAVES)**



**SOUNDS CAN MAKE YOU TINGLE...LIKE A SOFT TOUCH,
SHIVERS, OR FEELING OF MOVEMENT OR A PRESENCE**

Frisson is a French word meaning to 'shiver' or to have 'chills' in response to listening to music. Best described as a sudden rush or wave of emotions that some people experience when affected by an emotive piece of music.



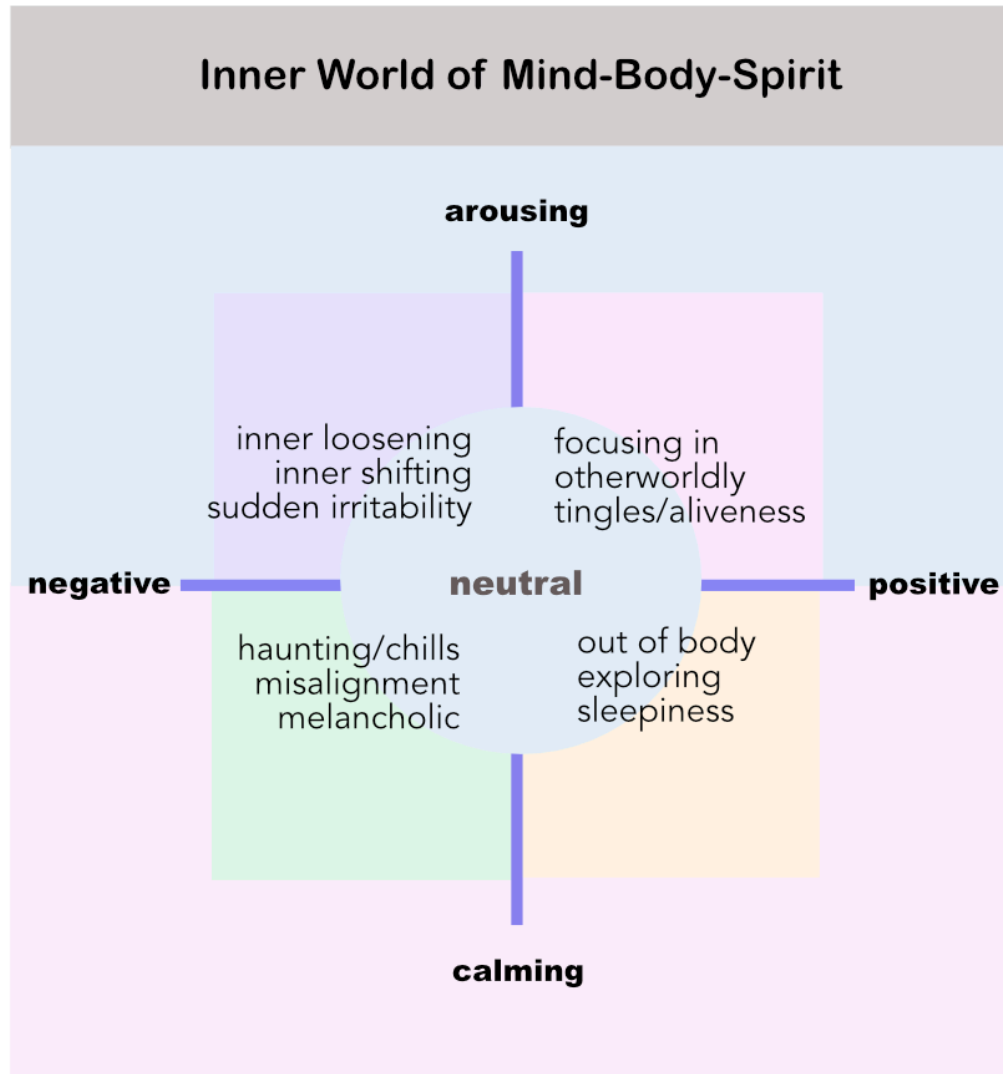
Synesthesia: Sensory Crossover

When stimulus via one sensory or cognitive pathway leads to involuntary experiences in a second sensory or cognitive pathway. For instance, people with synesthesia may experience colors when listening to music, see shapes when smelling certain scents, or perceive tastes when looking at words.



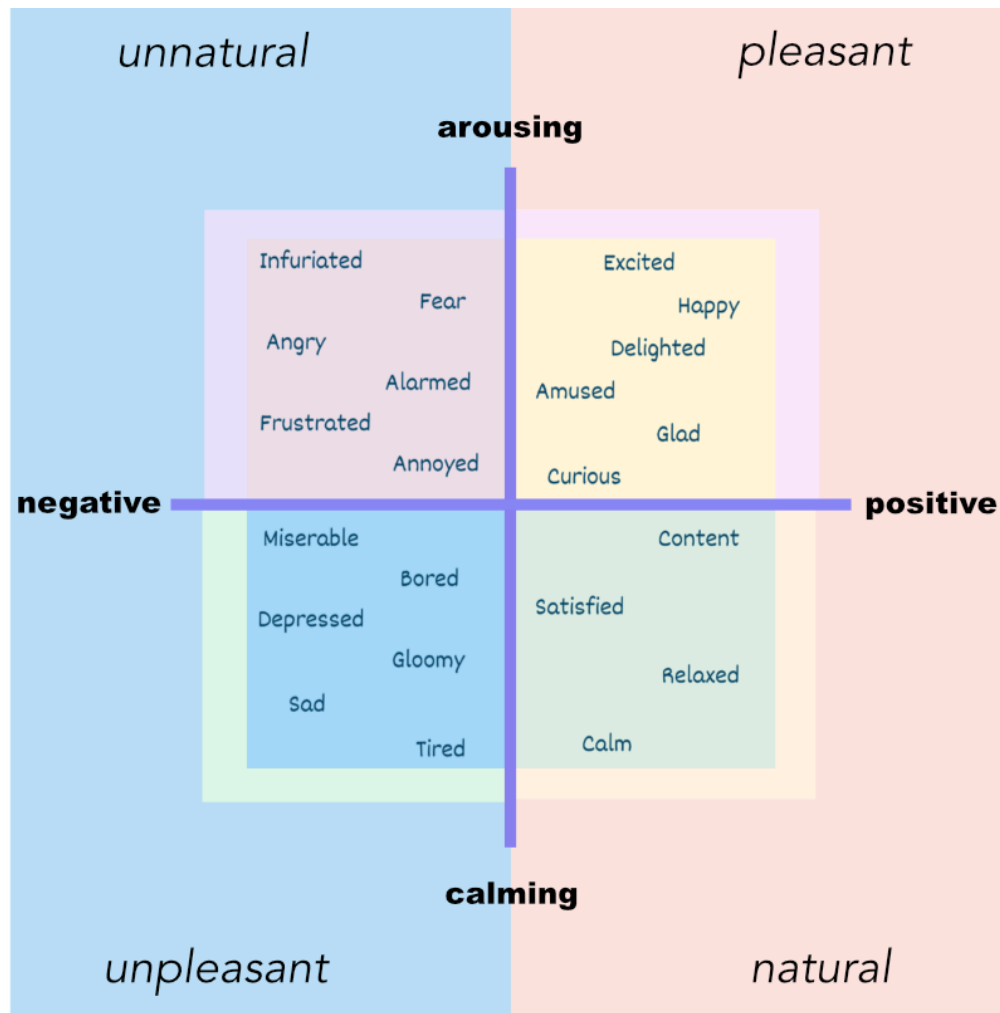
(CENTERED STATE OF BEING) X TIME = HEALING

changes in brainwaves → changes in feeling



processing emotions → release of memories

EMOTIONAL VALENCE – STRUCTURING SOUND TO CALMING – POSITIVE AIDS OPTIMAL BREATH REGULATION



Quality of Sound matters - we want to engage listeners to get them feeling again.

Feeling safe to go inward, they take charge of their healing.

EMOTIONAL RESPONSE TO MUSIC VS TASK EFFECTIVENESS

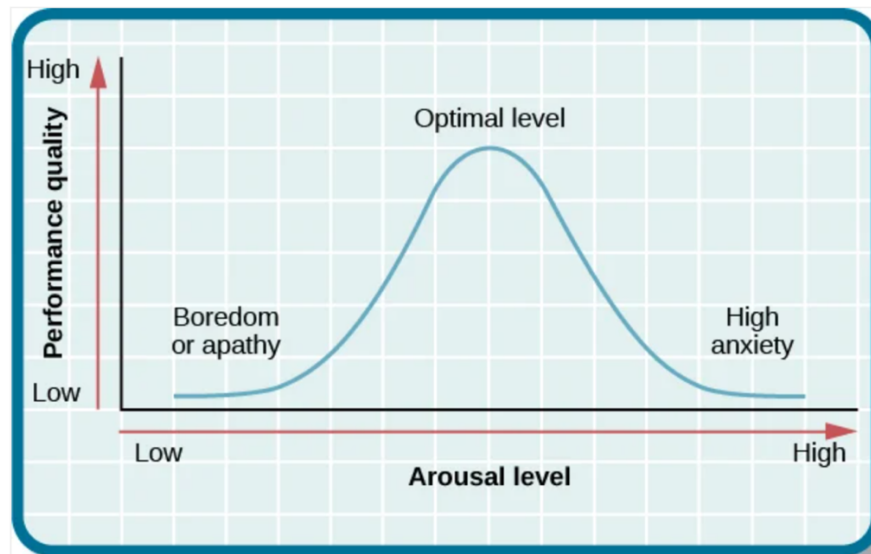


- In this 2021 study, participants listened to music with both calming and exciting music components to mimic the low and high-arousing environment. This study recorded cognitive (mind) and physiological (body) responses to music to see how “completion” type task performance (effectiveness) varied with arousal.
- To decode the underlying arousal and performance, they used peripheral physiological data as well as quantitative behavioral signals, ie: electrodermal activity (GSR), plus self-reported qualitative arousal index as per the Emotional Valence system and correlated to sequences of correct/incorrect responses and reaction time in cognitive tasks.

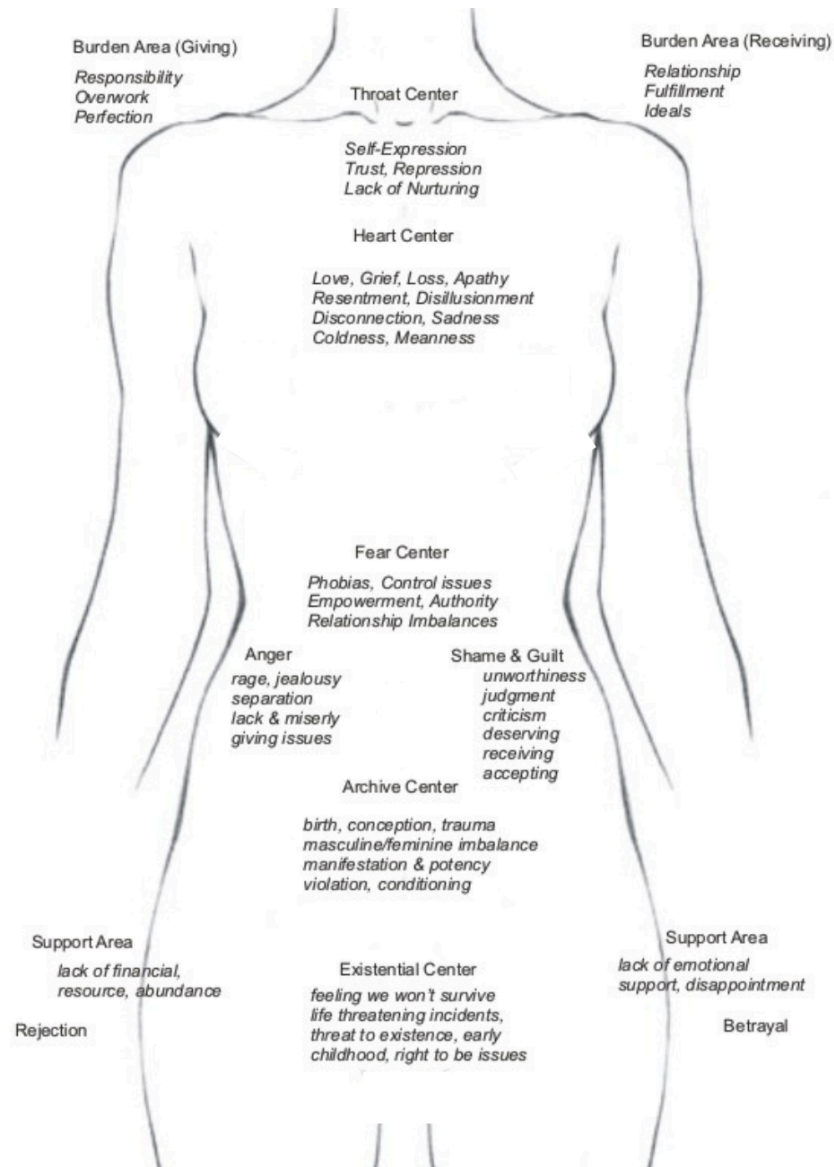
The Yerkes-Dodson law states that a moderate level of arousal results in optimal performance.

An excessively high level of arousal may result in anxiety.

A deficient level of arousal creates boredom.



**CONCLUSION: OPTIMAL AROUSAL LEVEL LOWERS
~ AS TASKS GET MORE DIFFICULT ~ CALMER ENVIRONMENT IS BETTER ~
THE SAME IS TRUE FOR SOUND HEALING**



HEALING TAKES TIME BECAUSE “MEMORIES” ACCUMULATED OVER MYRIAD EXPERIENCES, REMEMBERED OR FORGOTTEN, ARE STORED IN OUR BODY AND CAN BE FELT AS EMOTION-PAIN, DISCOMFORT OR TIGHTNESS

MAIN HEALING CATEGORIES BASED ON MY AKASHIC WORK

| | | |
|----------|--------------------------------------|-------------------------|
| 1 | repression, isolation, disconnection | self destructive |
| 2 | turmoil, uncertainty, inexpression | inner chaos |
| 3 | aggression, self-rejection, rigidity | anger |
| 4 | boundaries, inhibition, unawareness | identity issues |
| 5 | withdrawal, inertia, repetition | passivity |
| 6 | compulsions, guilt, sorrow | powerlessness |

~ INTENTION – ATTENTION – NO TENSION ~



~ GENTLE NEURAL PATHWAY PATTERN INTERRUPT ~

NeuroSound

DESIGNED TO REALIGN

LISTENING WORKSHOP 1

**MORE NEUROSOUND EXPERIENCES ARE AVAILABLE AT
WWW.QUINTESSENCESTUDIO.COM/RESEARCH-LAB**

HEADPHONES RECOMMENDED

QUESTIONS & DISCUSSION

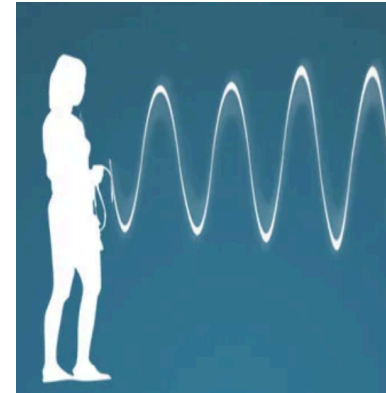
**THE WAYS WE SENSE VIBRATION
ARE PROCESSED BY THE BRAIN**



**BINAURAL
20 TO 20K**



**MECH-TACTILE
ELF TO 16K**

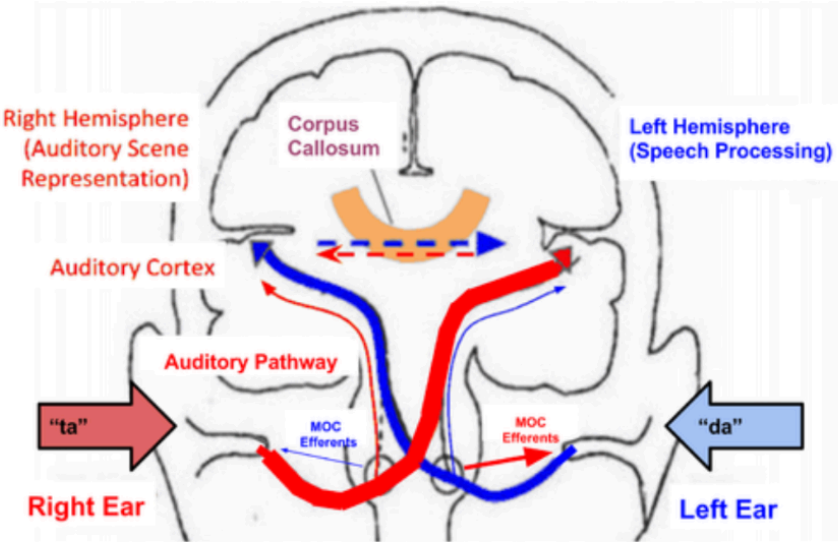


**AMBIENT – FELT
ELF TO UHF**

NEURO SOUND AUDIO IS VIA BINAURAL PATHWAY (STEREO L/R HEADPHONES)

**I WANT TO KNOW IF UPGRADING SOUND QUALITY TO HI RES/DSD
TO INTENTIONALLY FEATURE AMBIENT-FELT COMPONENT
WHEN PLAYED OVER LOUDSPEAKERS WILL ENHANCE HEALING EXPERIENCE**

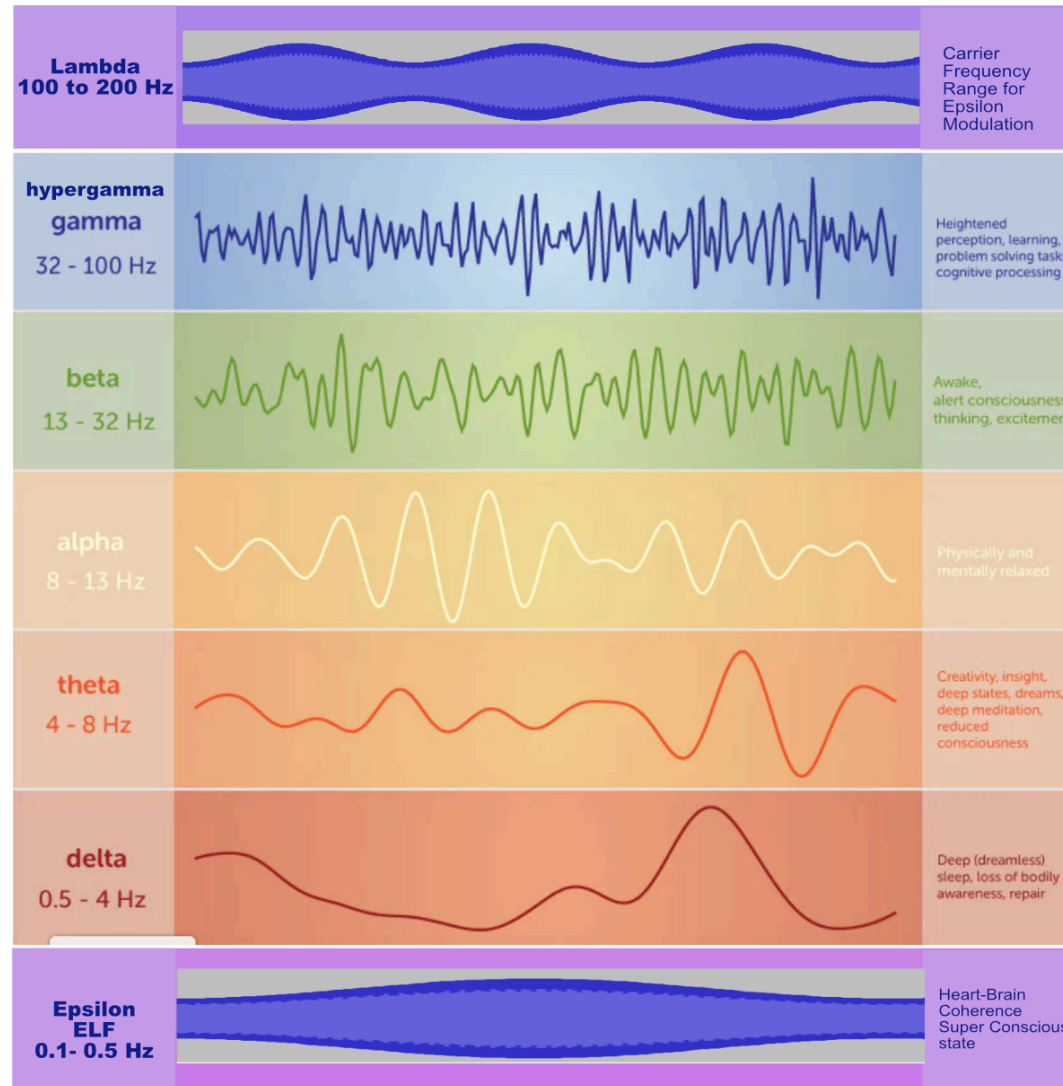
BRAIN FUNCTION & SOUND



| RIGHT-BRAIN FUNCTIONS | BRAIN | LEFT-BRAIN FUNCTIONS | |
|-----------------------|-------|----------------------|--|
| Art awareness | | Analytic thought | |
| Creativity | | Logic | |
| Imagination | | Language | |
| Intuition | | Reasoning | |
| Insight | | Science and math | |
| Holistic thought | | Written | |
| Music awareness | | Numbers skills | |
| 3-D forms | | Right-hand control | |
| Left-hand control | | | |

$$|\text{BEAT FREQUENCY}| = \text{LEFT EAR F1} - \text{RIGHT EAR F2}$$

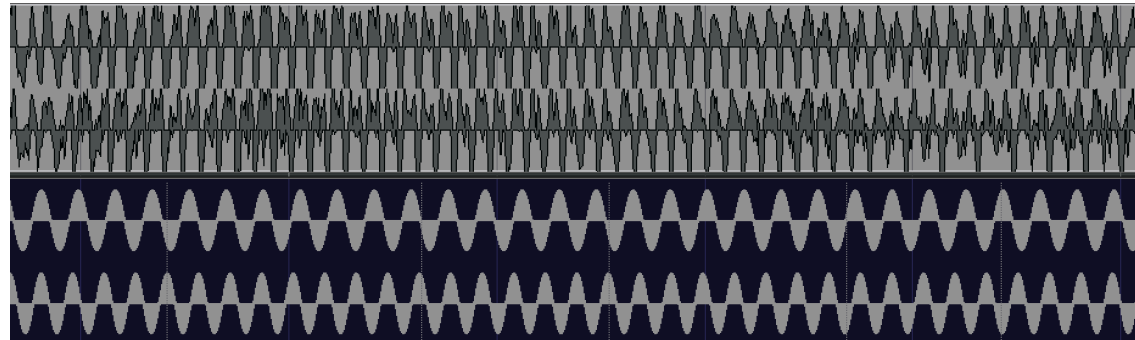
(create any LF value below hearing threshold $0.1 < \text{BF} < 32 \text{ Hz}$)



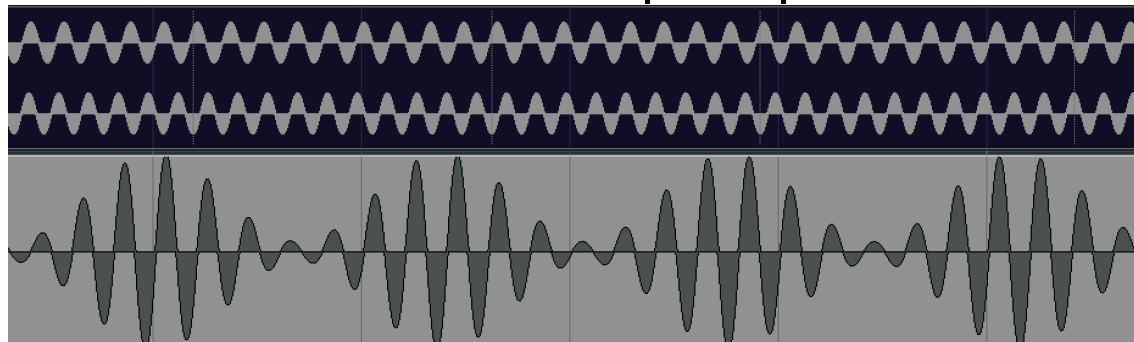
**EXTREMELY LOW FREQUENCY (ELF) CAN MODULATE A CARRIER WAVE
OR BE CREATED IN THE BRAIN AS AN EPSILON BINAURAL BEAT**

PHASING ON PURPOSE: BEAT FREQUENCY

CARRIER WAVE



LF1 & RF2 CREATE |BEAT| $(F2-F1)$

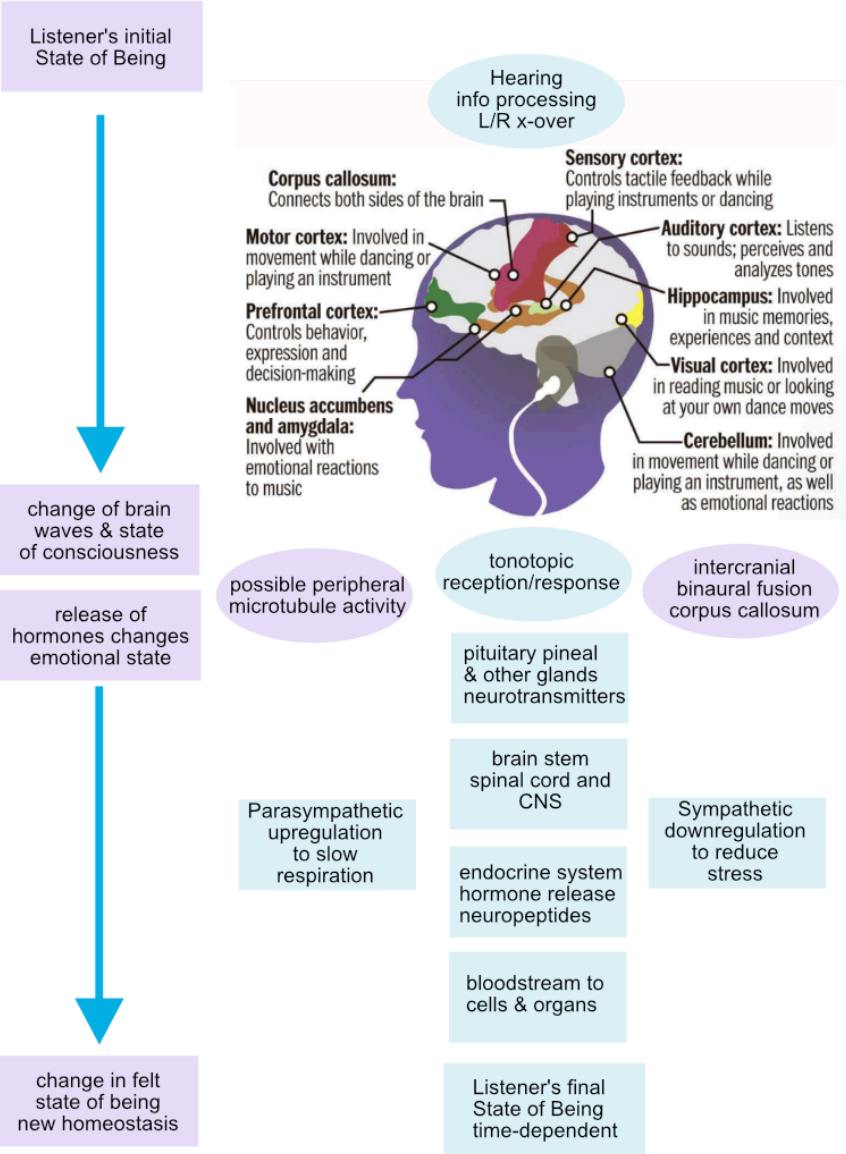


ISOCHRONIC (MONO) SIMULATION OF BINAURAL BEAT

➔ GREATER LISTENER ENGAGEMENT IMPROVES WHOLE MIND-BODY
RESPONSE TO SOUND - INCLUDES BUT IS NOT LIMITED TO -
AUTONOMIC- PARASYMPATHETIC BREATH REGULATION &
RELEASE OF NEUROTRANSMITTERS INTO THE BLOODSTREAM

ATTENTION ~ TAPPING ALONG ~ VOCALIZING ALONG ~ FELT EXPERIENCE
MIND-BODY HEALING WITH SOUND

NeuroSound

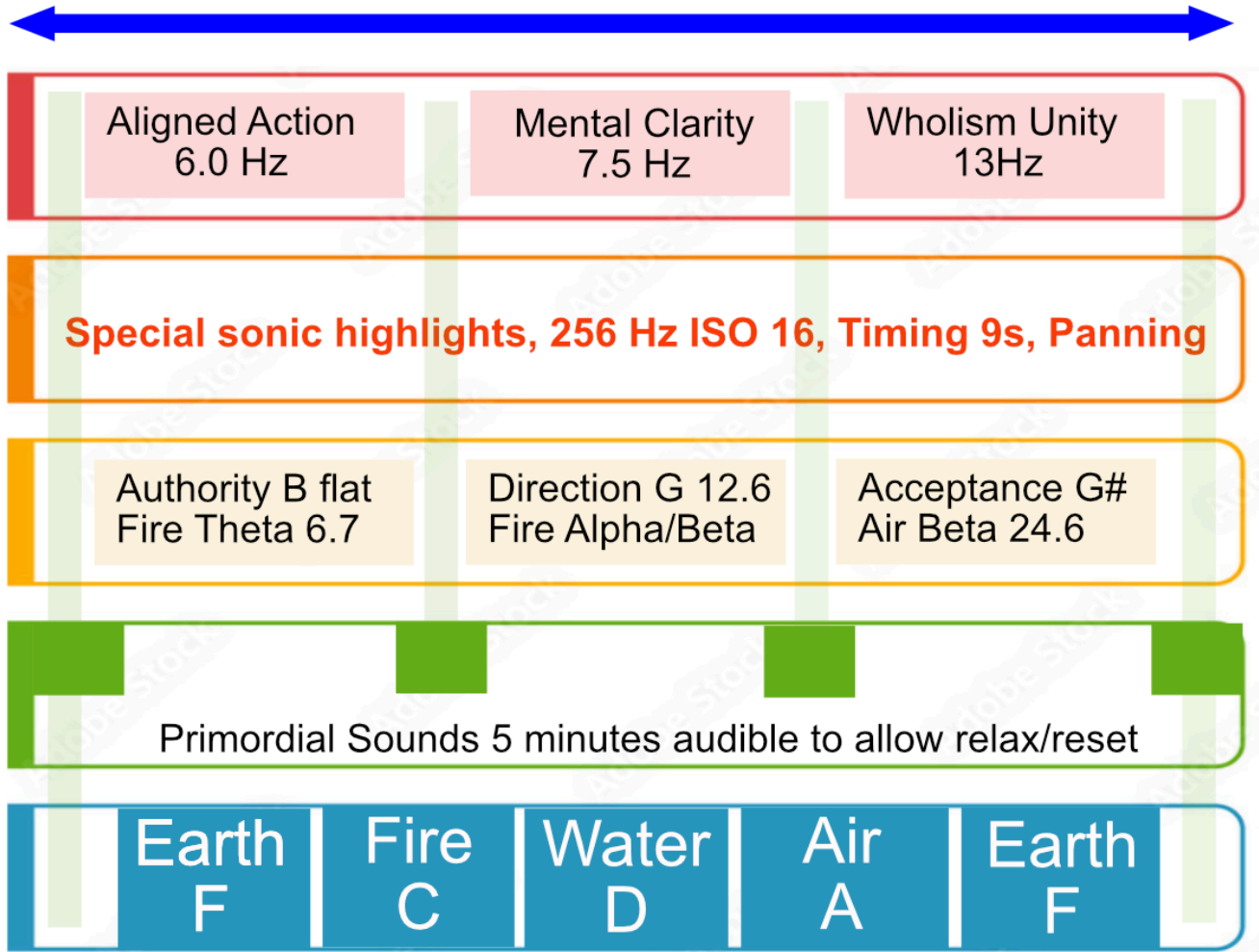


Worldwide Tested & Clinical reports of resonant frequencies for healing (including Rife)

| | |
|---------------|--|
| 0.1 Hz | heart-brain coherence |
| 1.46 Hz | hypothalamus, pituitary gland, pineal gland (add 48.35 Hz) |
| 1.92 Hz | nerve regeneration |
| 3.85 Hz | Theta-Alpha bridge for anger & negativity |
| 4.84 Hz | liver and pancreas |
| 5.31 Hz | lung and pulmonary |
| 7.83 Hz | Earth Schumann Resonance enhances PSI, profound intuitive relaxation |
| 9.98 Hz | serotonin release leading to mood elevation |
| 13 to 14.5 Hz | Alpha Beta Bridge, enhanced mental clarity, focus, unifying |
| 15 Hz | direct to auditory cortex (vibrational conduction) |
| 24.6 Hz | direct to visual cortex ie EMDR, cat's purr |
| 31.32 Hz | stimulates injury recovery and physical healing at cellular level |
| 38 Hz | endorphin release leading to pain relief and pleasure sensation |
| 40 to 43 Hz | Gamma Beta Bridge, neural enhancement, creative expansion |
| 136.1 Hz | OM frequency |

Inner Freedom

20 minutes



Nature Cycle Basis is the same for all Inner Freedom Audio

NeuroSound

NEURO SOUND HEALING SUMMARY

- Sound healing purposely adjusts and manages Emotional Arousal Level. The purpose is to shift the mind state through changes of state of consciousness/being and re-educate the body away from stuck patterns. Felt experiences means change.
- NeuroSound is designed to bypass the Egoic Thinking Mind, cycling the right arousal through to the right calming, without anything that your mind can latch on to.
- NeuroSound promotes inner shifts at physical level to allow what is stuck, repressed, rejected or avoided to be released from the body. After it's cleared, it's easier to recognize and address it, as though the emotional overwhelm has been neutralized.

The Category of Healing determines the How I build a NeuroSound Audio program

- Combination of analog and digital recording
- Right Loudness
- Optimal (multi-) Timbral Qualities
- Specific frequencies & tonal harmonies (intervals)
- Music structure & progression for arousing or calming
- Specific timings and natural rhythms
- Panning & movement for sense of place (centered)
- Reverb for sense of space
- Time duration of the audio program
- Addition of specific elements when customizing for a client

ANALOG VS DIGITAL: DO WE FUNCTION AS ANALOG OR DISCRETE?

- Combination of analog and digital, either or, at the highest quality level possible, is welcomed by our physiological and neural systems.
- Our mind-body system already functions as a combination of analog and discrete processes
- Over the last two decades, pioneers of consciousness studies Stuart Hameroff and Roger Penrose at University of Arizona have theorized our perception of continuous consciousness is a series of discrete snapshots taken by our brain at 40Hz, in harmony with gamma brainwave synchrony.
- Their Orchestrated Objective Reduction model identifies these discrete snapshots derive from quantum computations taking place at mega-, giga- and tera- Hz levels in the brain's microtubule structures. They are inside neurons, and process information, regulate membrane and synaptic activities, as well as create the brainwaves we record on EEG.
- Brainwaves are analog waveforms, our "clock system" is likely analog, yet neuronal action potential pulses show up like digital delta-function (spikes of varying height).
- Electrical pulses between the brain, heart and CNS are like discrete 1/0, yet heart sinus rhythm shows as analog waveform

NEUROSOUND INNER FREEDOM AUDIO HEALING

www.quintessencestudio.com/research-lab

EXPERIENCE LAYERS OF NEUROSOUND

| | | | |
|---|--|--|---|
|  | <p>Potency Empowerment, Freedom & Joy</p> <p>Helplessness, overwhelm, compulsions, grief, guilt becomes emotional processing, forgiveness, self-honouring</p> |  | <p>Equanimity Harmony, Flow & Balance</p> <p>Co-dependency, enmeshment, inferiority, abdication of self-identity becomes inherent nature, self-validation, healthy interdependence</p> |
|  | <p>Vitality Passion, Intention & Action</p> <p>Passivity, avoidance, inertia, despair, withdrawal becomes expression, certainty, safety, adaptability</p> |  | <p>Lucidity Congruence, Calm & Clarity</p> <p>Inner chaos, turmoil, anxiety, self-doubt becomes inner truth, flexibility, realignment</p> |
|  | <p>Integrity Determination, Compassion, Gentleness</p> <p>aggression, rigidity, isolation, self-rejection/sabotage becomes self-care, self-love, kindness</p> |  | <p>Autonomy Connection, Inspiration & Expression</p> <p>repression, self-damage, fragmentation, disconnection becomes wholeness, inner independence, belonging</p> |

HI-RES AND DSD: THE HYPERSONIC EFFECT MAY CONTRIBUTE TO STRONGER FELT EXPERIENCES

PLOS ONE

 OPEN ACCESS  PEER-REVIEWED

RESEARCH ARTICLE

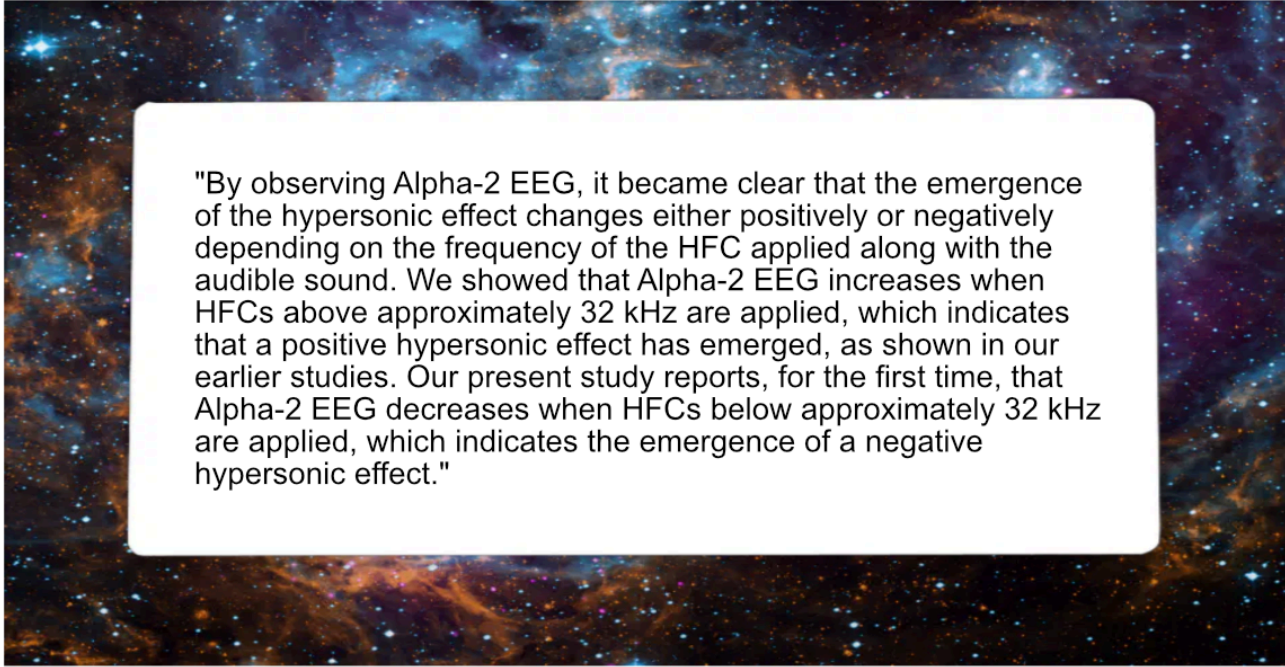
Frequencies of Inaudible High-Frequency Sounds Differentially Affect Brain Activity: Positive and Negative Hypersonic Effects

Ariko Fukushima, Reiko Yagi, Norie Kawai, Manabu Honda, Emi Nishina , Tsutomu Oohashi

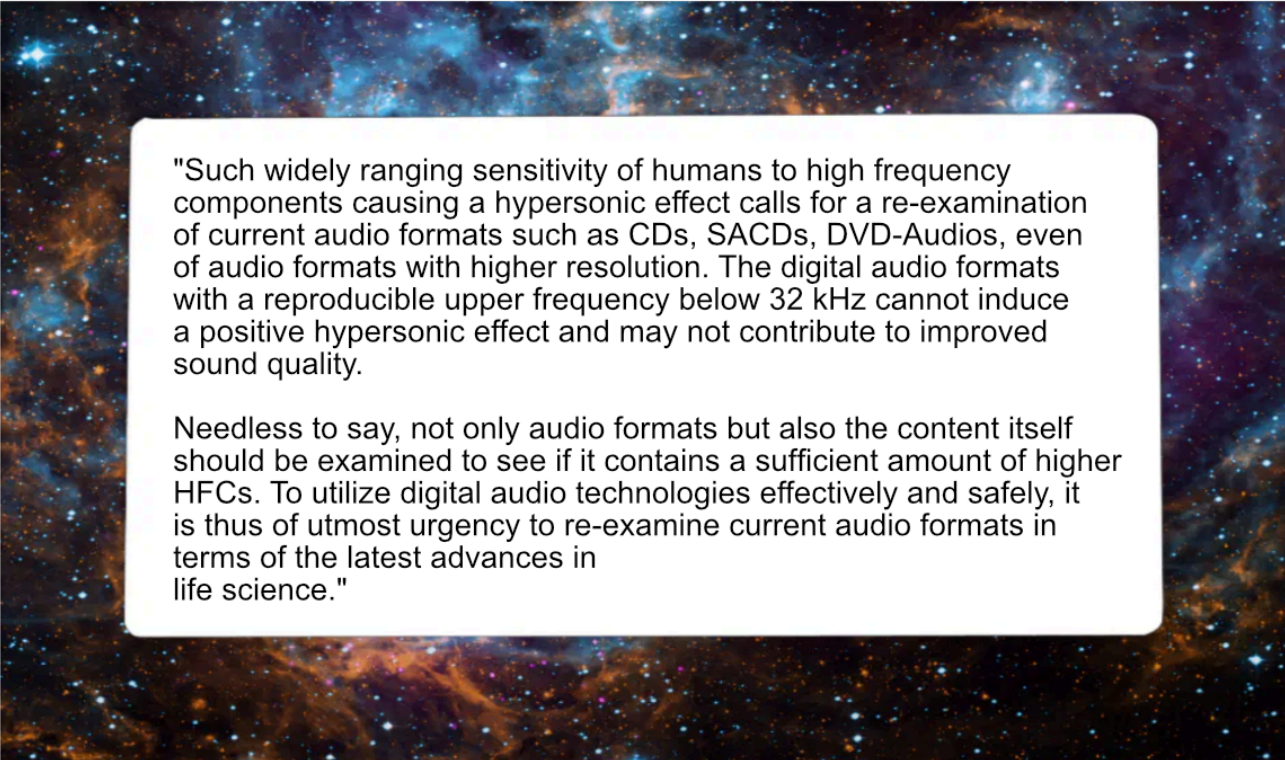
Published: April 30, 2014 • <https://doi.org/10.1371/journal.pone.0095464>

The hypersonic effect is a phenomenon in which sounds (played ambiently) containing significant quantities of non-stationary high-frequency components (HFCs) above the human audible range (max. 20 kHz) activate the midbrain and thalamus and evoke various physiological, psychological and behavioral responses, including raising the volume of comfort listening level.

This study focuses on the HFC bands that generate positive alpha waves in this felt experience.



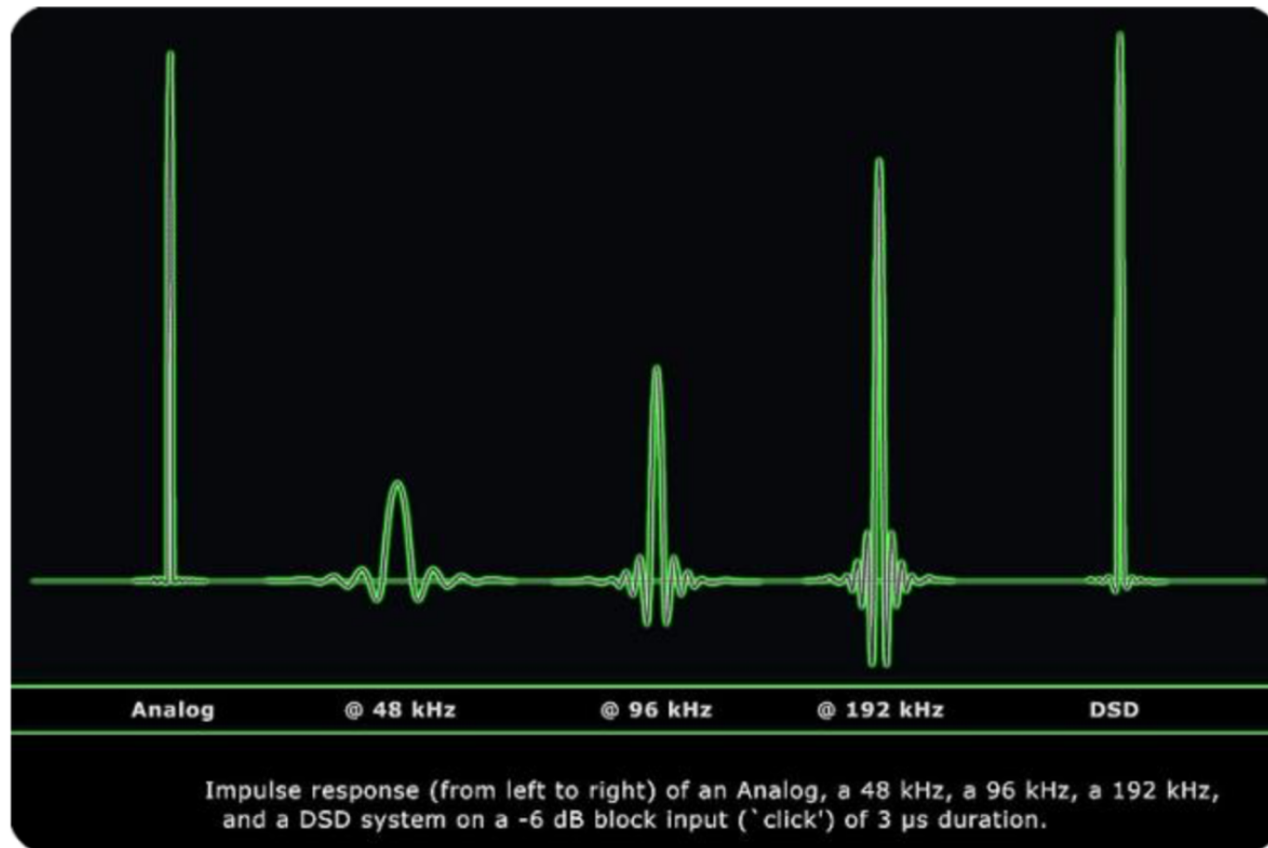
"By observing Alpha-2 EEG, it became clear that the emergence of the hypersonic effect changes either positively or negatively depending on the frequency of the HFC applied along with the audible sound. We showed that Alpha-2 EEG increases when HFCs above approximately 32 kHz are applied, which indicates that a positive hypersonic effect has emerged, as shown in our earlier studies. Our present study reports, for the first time, that Alpha-2 EEG decreases when HFCs below approximately 32 kHz are applied, which indicates the emergence of a negative hypersonic effect."



"Such widely ranging sensitivity of humans to high frequency components causing a hypersonic effect calls for a re-examination of current audio formats such as CDs, SACDs, DVD-Audios, even of audio formats with higher resolution. The digital audio formats with a reproducible upper frequency below 32 kHz cannot induce a positive hypersonic effect and may not contribute to improved sound quality.

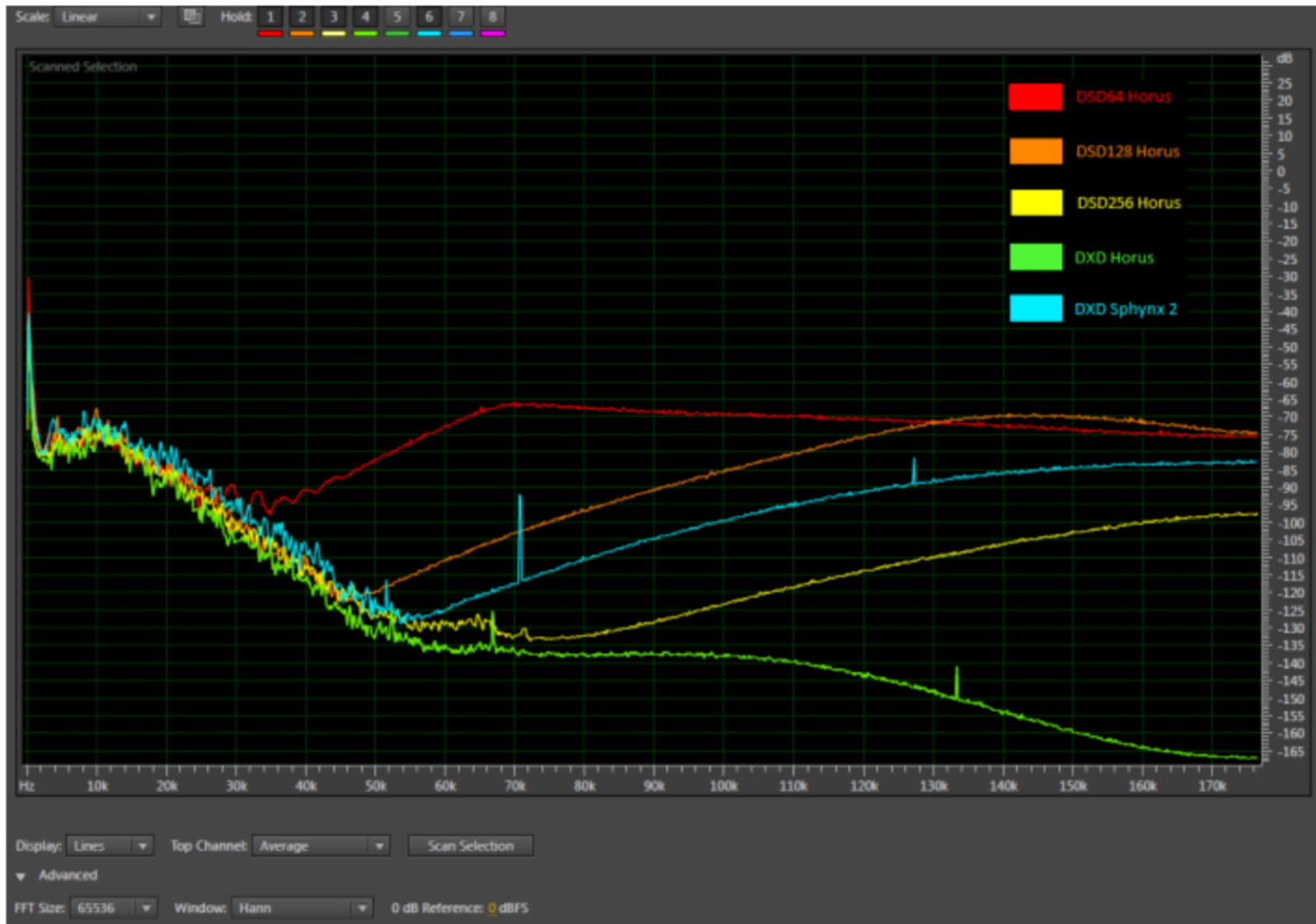
Needless to say, not only audio formats but also the content itself should be examined to see if it contains a sufficient amount of higher HFCs. To utilize digital audio technologies effectively and safely, it is thus of utmost urgency to re-examine current audio formats in terms of the latest advances in life science."

DIRECT STREAM DIGITAL IS DIFFERENT



THE SUBTLETY OF TRANSIENTS IS LOST AT LOWER SAMPLING RATE

- ⊕ Standard Delta processing is integrative, higher sampling rates mean more data needs to flow and be stored/accessed
- ⊕ Direct Stream Digital is a Sigma Delta Process where the next sample compares to the previous sample and only the change is single-bit streamed.



“If you were to look at a DSD signal once converted back to analog, you would notice a large spike in level in the ultra-high frequency range. The noise spectrum of the DSD signal increases above 22kHz because a noise shaping process is used to obtain the dynamic range of 120dB of the primary audio band — 20Hz-20kHz. The noise shaping process is simply a dither-like noise added to the signal when sampling, it prevents additional quantization error when dealing with those same ultra-high frequencies in the original audio stream. One thing to note when selecting higher DSD rates, this noise is pushed even further up the frequency scale; i.e. above 44kHz for DSD128.” c/o Merging Technology DSD Workflow

HI RES AVAILABILITY AND PLAYBACK

HDtracks Hear the difference

IT'S NEVER BEEN EASIER TO DOWNLOAD AND OWN THE WORLD'S HIGHEST-QUALITY MUSIC

HDtracks was founded in 2008 by Norman and David Chesky - the GRAMMY Award-winning pioneers of revolutionary audiophile recording techniques and the founders of the groundbreaking audiophile label, Chesky Records.

We take our obsession with quality seriously. Industry-leading audio technology, painstaking quality controls, a vast library, and user-friendly interface make HDtracks the world's leading audiophile music discovery platform.

[Get started for free >](#)

HD TRACKS

 NativeDSD [Catalogue](#) [Selections](#) [Specials](#) [Blog](#) [Contact](#) [NativeDSD Plus](#) [Log in](#)

Getting you closer to the original performance, since 2014!

NativeDSD is your best source for recorded music for over 10 years—
available in Stereo & 5 Channel Surround Sound DSD & DXD.
Additional formats optimized for your listening system.

[Browse Over 3,000 Albums](#)

Excellent  Trustpilot

NATIVE DSD

- ⊕ RACK DEDICATED HI RES/DSD PLAYER RECORDER (TASCAM DA3000)
- ⊕ PORTABLE PLAYER (SONY WALKMAN DIGITAL \$1800, H2HIFI WALKER \$200)
- ⊕ DOWNLOADABLE PLAYERS (HDTRACKS, FOOBAR, JRIVER ETC...)
- ⊕ EXTERNAL DAC (\$\$\$ MERGING OR PSAUDIO TO \$ FOCUSRITE)

SUMMARY

DISCUSSION, Q&A

LISTENING WORKSHOP 2

WWW.QUINTESSENCESTUDIO.COM/RESEARCH-LAB