
IS MICRODOSING A SPECIAL FORM OF BRAIN PRIMING?

The concept of psychedelic Microdosing is moving in waves throughout society and offers strong promise in many areas from depression to creativity and performance. Science is rapidly pursuing quality research to fortify the numerous positive anecdotal reports that move from friend to friend and often into social media.

So, a question could be...is Microdosing an entirely new process or does it have any history that could support the claims?

Let's talk about the principle known as 'Brain Priming'.

About Brian Priming - Fundamentally, the brain is always trying to make sense out of nonsense – finding signals in the noise. Brain Priming works to optimize the search for new signals amidst that noise. Call it adaptation. Call it new learning. Call it neuroplastic change.

It is possible to increase the "learning" efficiency of the brain by preparing it with sets of sensitizing signals that allow for better message recognition and integration. Brain Priming is the influence that a previous experience has on our likelihood of responding in a particular way later on.

BASICS OF BRAIN PRIMING:

Scientifically, Brain Priming was first investigated in the field of behavior-based psychology in the 1950's and then later semantically in the 1970's. It became apparent that semantically (meaning "involving words"), when a person was shown a word from a certain topic, the person would then be able to more quickly recognize another different word that was also from the same topic. For example, if first shown the word "doctor", the person would then more easily recognize the word "nurse" within a group of unrelated words.

In general terms, there are two types of "brain priming": 1) Psychological Priming and 2) Physiological Priming. Certain methods can integrate the two forms in sequenced or overlapping processes.

Priming represents an example of what is often referred to as implicit memory — a nonconscious influence of past experience on current performance or behavior. Priming is often assessed with experimental tasks that do not require conscious recollection of particular previous experiences.

Brain Priming presents a range of creative design possibilities. In designs, two approaches can be considered. The first is more direct and is known as "modal-specific'. This means the priming action is directly related to the following main action. The second design approach is called "cross-modal". In cross-modal, the priming action is not directly related to the main action and acts indirectly to facilitate the subsequent main action.

An example of "modal-specific" Brain Priming could be Movement Priming in which the person gently rehearses the motions they will use in the subsequent main action. Picture a basketball player, softly rehearsing his free-throw attempt at the foul line before they take the actual shot.

An example of "cross-modal" Brain Priming could be "semantic" in which the person mentally repeats positive words or phrases associated with calmness or confidence before engaging in the subsequent main physical action.

Priming is often the result of a three-step process:

1) First, a person is exposed to a priming stimulus, which could be any of the six types (described further below).

2) Second, the priming increases accessibility in the aspect of the brain that is related to the priming message. This increases the likelihood of better encoding the main signaling which will follow.

3) Finally, the newly activated representations result in an increased integration of the main signal messaging.

There are two apparent neural mechanisms for priming: gating and homeostatic plasticity.

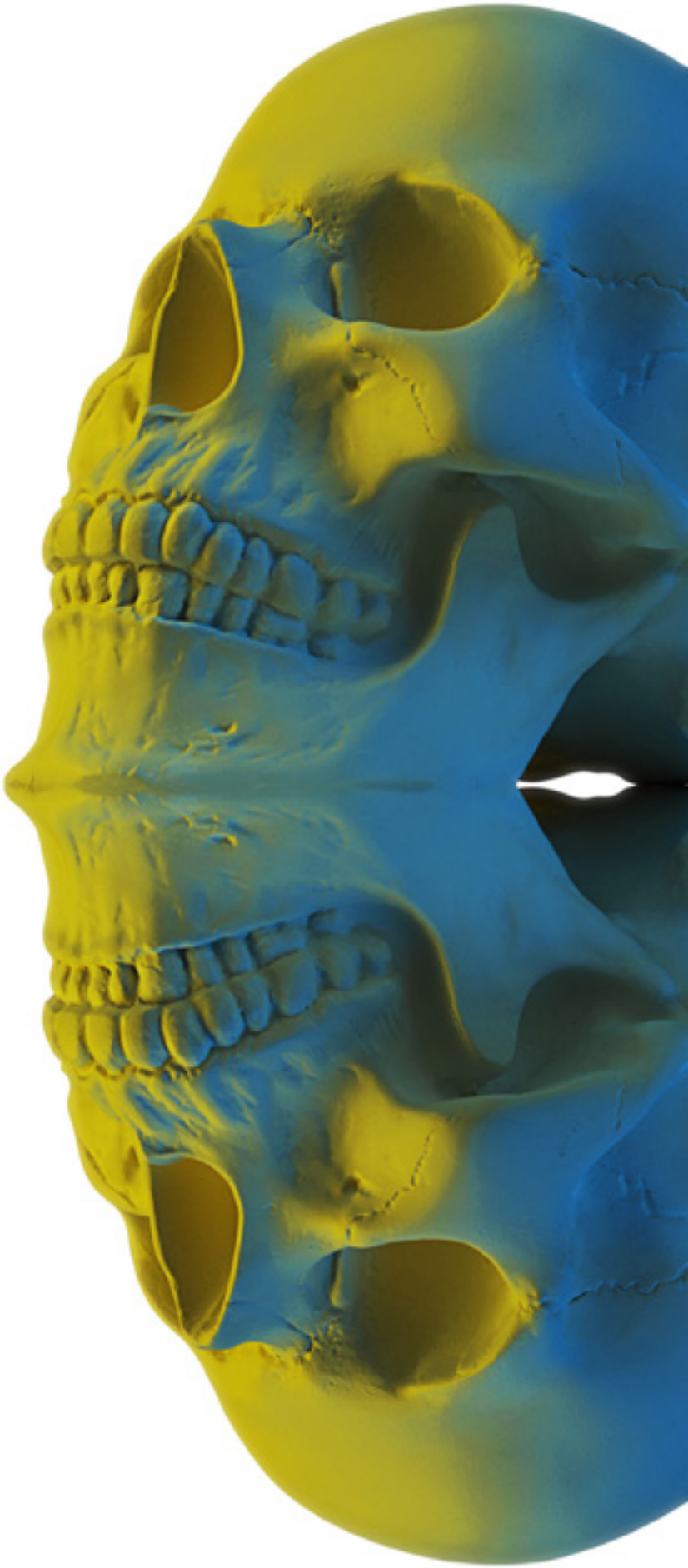
Gating occurs by disinhibition of intracortical inhibitory circuits. It is a neurochemical action involving calcium. Gating is instantaneous and happens simultaneously with the activity.

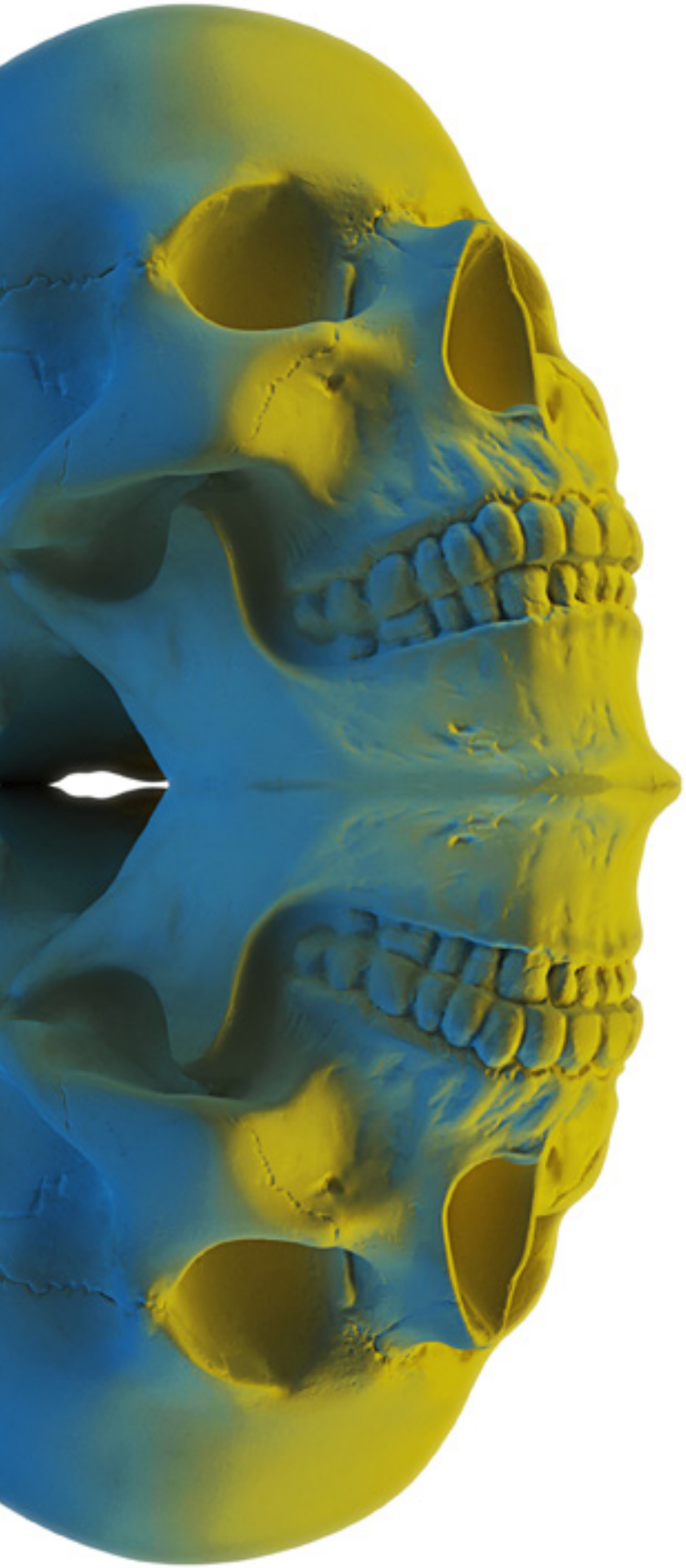
Homeostatic plasticity is the ability of neurons to increase excitability after a period of low synaptic activity is related to changes in postsynaptic glutamate receptors. The time scale of homeostatic plasticity takes place over a longer period of time when compared to gating. The state of the neurons is modulated prior to motor training in order to induce synaptic plasticity.

So, gating is involved with the priming effects that are simultaneous with the main action while homeostatic plasticity priming effects modulate the neurology before the main action. With this in mind, it becomes easier to appreciate the variations in Brain Priming methodologies.

Technically, when considering physiological Brain Priming, the term "cortical neuroplasticity" is common especially in rehabilitation techniques. Priming prior to traditional therapeutic interventions, such as manual and exercise therapy, are capable of improved clinical outcomes.

We all want our brain to be healthy and function well. Knowing confidently that





even our adult brain can still keep learning and changing through neuroplastic adaptation opens up a long list of action strategies. Prepping that adaptation with various forms of Brain Priming makes a lot of sense. Much of childhood adaptive learning comes from natural imitation and mimicry. Adult adaptive learning can benefit from the same, no doubt.

The brain priming paradigms that are supported by the greatest amount of evidence are:

1) Psychological/Semantic – based (eg. verbal language/body language)
2) Energetic Stimulation – based (eg. electromagnetic);
3) Mental/Motor Imagery – based (eg. visualization/mental rehearsal);
4) Sensory – based (eg. light/sound activations - neuroVIZR.)
5) Movement – based (eg. rehearsal pre-task no-load movements);
6) Pharmacological – based (eg. ingested compounds including psychedelics).

Considering the list above, it is easy to recognize that the methods and techniques considered to be Brain Priming are increasingly dynamic and expansive. The unifying principles also appear to fit nicely into the features of neuroplastic brain change. In neuroplasticity methods, the logical "state to trait" condition is foundational. Another way of expressing it is initial "activation" followed by "installation".

WHAT NEUROPLASTICITY TEACHES US ABOUT BRAIN PRIMING:

The "plastic" capacity of the brain opens the door to techniques that more efficiently advantage this ability of change. A Brain Priming action is intended to make the initial short term "state" or "activation" stimulation more effective. One could say that a Brain Priming activity better potentiates the effects of any neuroplastic "activation" process.

We also know that the neuroplastic "trait/installation" change aspect requires regular reinforcements of "Fire Together to Wire Together" principles. So, it doesn't take much to begin to see that the neuroplastic brain capacity for change integrates with the potentiating features of Brain Priming which also nicely overlap with the regular and repetitive characteristics of "pharmacological" Microdosing methodologies.

MICRODOSING:

Back to Microdosing – basic
ally, the idea of Microdosing is to use a low-dose, sub-clinical psychedelic compound to potentiate a psycho-neurological shift or change. Originally, the process was enabled by either LSD or psilocybin. Currently, many other compounds are involved experimentally which supports the concept of a "potentiating agent" rather than a chemical limitation specifically to either LSD or psilocybin. The "potentiating agent" may in fact extend even beyond biochemical psychedelic compounds into biophysical "potentiating agents" as exemplified by the neuroVIZR Light/Sound approach known as Lucid Microdosing.

In conventional Brain Priming, pharmacological agents are among the oldest and most common adjuvants for inducing priming effects. The principles behind pharmacotherapy as an approach to motor priming have been mainly developed from animal studies and conflicting results are seen in human studies. Based on successful animal studies, five groups of pharmacological agents have been proposed to enhance motor recovery after neurological injury: amphetamines, dopaminergic agents (DA), norepinephrines (NE), cholinergic agents (ACh), and selective serotonin re-uptake inhibitors (SSRI).

Focusing specifically on the last item (selective serotonin re-uptake inhibitors - SSRI) and aligning them for comparison with the well-known serotonin dynamics associated with certain psychedelics, it seems like an obvious first step for consideration.

Generally thinking, once accepting that pharmacological agents (listed above) can act as effective Brain Priming "potentiating agents", it is but a very small step to consider the probability that psychedelic compounds, in proper sub-perceptual doses, can also act to support the integration of subsequent stimulation and information.

BACK TO BRAIN PRIMING:

In conventional physiology, it is recognized that the vast majority of self-regulation and adaptive functions occur at either subconscious or unconscious levels of awareness. This perspective integrates nicely with the fundamental appreciation that various Brain Priming techniques can act efficiently at unconscious levels (aka "implicit memory"). Conscious attention and/or awareness may or may not be required for a Brain Priming process to yield an effect. Remember that the principle of Brain Priming (as stated above) is the influence a previous experience has on our likelihood of responding in a particular way later on.

Here is (simplified) an example of psychological semantic Brain Priming:

1) Two homogenous groups of people were separated into Group A and Group B.
2) Each group was given a list of words with letters scrambled.
3) The (seemingly) simple task was to unscramble the letters to discover the original words:
4) Unknowing to the groups, Group A was given a list of negative words (eg. hate, war, fight, etc.) and Group B was given a list of positive words (eg. love, compassion, friend, etc.);
5) The directions given were to unscramble the words and then go into an adjoining room and report your results to the study director who was waiting at a desk in the adjoining room;
6) BUT...also unknowing to the groups was the fact that the experiment also involved having another unrelated person standing at the desk of the study director and being en-

gaged with the study director in such a way as to obstruct the group person attempting to make their report – the actual experiment was designed to measure the amount of time the reporting would wait (aka be patient and tolerate) before interjecting into the obstructing conversation;

7) You guessed it...the Group B (with positive words) waited about 8 minutes before interjecting themselves while the Group A (with negative words) waited about 3 minutes;

8) Result – unconscious semantic Brain Priming with positive words enforced subsequent patience and tolerance while Brain Priming with negative words enforced subsequent impatience and lack of tolerance.

IS MICRODOSING A SPECIAL FORM OF BRAIN PRIMING?

There is a good argument for saying YES, Microdosing is a special form of Brain Priming. And, if so, this perspective can certainly give a strong push to validate Microdosing based on reasonable and acceptable psychophysiological precedents in accepted science. Categorically, as a special form of Brain Priming, Microdosing would be a pharmacological/compound, cross-modal approach relying principally on sustained long term homeostatic plasticity dynamics for induced neuroplastic change. That's a mouthful!

ABOUT GARNET DUPUIS

Garnet was born and raised in Canada and is a naturalized USA citizen. He is an Integrative Health and Wellness expert, teacher & inventor with specialties in inter-disciplinary methodologies. With a wide experience in advanced technologies, Garnet has taught neuromodulation applications in major USA universities, professional sports teams, the Marine Corp and Naval Hospitals and lectured in European and Asian countries.

Garnet has a broad education including college, university and graduate trainings in Classical and Clinical Homeopathy, Oriental Medicine, Massage Therapy/Bodywork, Hydrotherapy, Remedial Exercise, Biofeedback, Psychology and English Literature. Garnet is co-founder of Lucid Studios/neuroVIZR, Thailand. He currently resides in the tropical mountain rainforest in Northern Thailand. He is a life-long meditator and practitioner of Tibetan Dzogchen. Garnet is active in wild animal rescue and conservation and has built, manages and funds a sanctuary for SE Asian apes.

Webiste: https://neurovizr.com/

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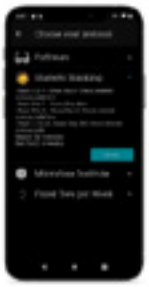

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