The Dopamine DRIFT: Detox makes Receptors Increase with Fasting and Tapering

- ➔ Understanding the Physiology Behind Dopaminergic Drive
- ➔ Dopamine and Your Brain: Neurophysiology and Neuropharmacology

Leveraging Dopamine Baseline Maintenance Practices to Understand Motivation, Increase Focus, Strength, and Endurance & Improve Wellbeing

One of the first things coming to our minds whenever someone mentions dopamine is something akin to a blast of feel-good chemicals. The reality is that your brain produces a vast array of neural messengers that make you feel a whole palette of feelings - but only a handful of special neurological chemicals can make you feel good in a specific and extraordinary way.

If you have come to associate dopamine with feel-good triggers, it might be time for you to get acquainted with the mechanisms that drive and influence its effects in practice. The networks in your brain related to motivation, focus, stress, endurance, and general state of happiness are continually on the lookout for messengers that deliver novel information and help you coordinate accordingly.

What is Dopamine & How Does it Work?

Both a hormone and a neurotransmitter, dopamine plays a pivotal role in the pathways your brain uses to command your bodily functions. Although most of us seem satisfied solely equating dopamine to positive feelings, its role is disproportionately undermined. Both your body and brain produce dopamine, and your neural circuits use it for actions as simple as breathing, as well as for memory creation, motivation, and pleasure.

What quick, pop science fails to inform and elaborate on when talking about dopamine is that there is way more from where the binary dopamine state emerges: for example, instead of identifying connectors, we are solely bracketing in terms of highs and lows.

Nowadays, we have access to abundant and ongoing research that uncovers the myriad wonders of dopamine, including what dopamine depletion refers to in terms of our motivation. Taking a peek at clinical and practical evidence of dopamine and its dysregulations can open the pathway to understanding more of ourselves, helping us make the most out of our capacity.

How Can I Best Manage my Dopamine Levels With Science

The most foolproof way to optimize and better account for your dopamine levels and shifts is inquiring about scientifically proven ways and discovering methods you can implement to leverage them to take advantage of the optimal dopaminergic drive.

Just like numerous measurable quantities of chemicals in your blood impact your physical and physiological state, the dopaminergic modulators prefer it if you keep their chronic baseline into account.

On a subconscious level, our minds never stop weighing costs against benefits when faced with a decision, be it what to have for lunch or whether to accept that new life-changing job offer. However, our brains make us endure the results of our choices on a molecular level.

The old dopamine hypothesis of delaying gratification showed a natural preference for low impulse-control behavior. Luckily, research never ends, and now we can not only include the behavioral effects and tendencies of delay discounting but also how physiologically-measured assessments of dopamine can impact decision-making when taking optogenetics into account.

Science and nature have procured ways for people to acquire and maintain an optimal dopamine baseline. One of the best things you can do for your future self is to understand what drives you and stay aware of how it works beyond the tissue surface. We must admit that understanding non-dopaminergic neurochemicals and how they affect us is an advantage when trying to get the most out of the body. However, discerning myths from proven science calls for starting with the dopaminergic circuits.

Dopamine Myths

When embarking on the conquest to reach and maintain a state of optimal performance, each creature needs its daily D.O.S.E. - an acronym for Dopamine, Oxytocin, Serotonin, and Endorphins, all of which our bodies naturally produce. Some of these neurochemicals interchangeably get their reputations mixed: for example, each of these has at some point called a love hormone: that is because dopamine boosts our drive, serotonin takes care of our mood, and endorphins alleviate pain, but oxytocin is what gets released when you hug someone, play with a child, listen to your favorite music and so on.

Dopamine is released when you exercise, eat dark chocolate, enjoy quality time with your friends, or even on occasions you engage in acts of kindness that have no underlying motivation, like helping a stranger pass the street. Before we get into what can deplete

dopamine, we should understand there is more than a single manner in which serotonin gets produced, modulated, and used in our bodies.

The human body has more mechanisms through which it can produce dopamine: mesolimbic, mesocortical, nigrostriatal, tuberoinfundibular pathways, as well as the hypothalamospinal and incertohypothalamic ones - but let us not get distracted by terminology just yet.

The dopamine that gets produced and released to circulate throughout our brains and body has its customized preferences for optimal functionality - the dopamine schedules and their maintenance are areas where your focus and attention are necessary.

The tonic-phasic dopamine hypothesis involves balancing our capacities with our needs for its release. The phasic dopamine is activated behaviorally by stimuli that activate short-term release - which in turn triggers the tonic release, which governs release intensity regulation by affecting extracellular dopamine levels.

Aside from pathways, we care about neural circuits. Let us place a symmetrical analogy to explain tonic-phasic release: tonic muscle activation is observable in slow muscle twitch/movement for extended periods. Phasic releases use muscle force when needed, with dopaminergic pathways enabling spike and burst activities to accomplish a coordinated action.

The principal dopaminergic neural circuits we need are the mesocorticolimbic and the nigrostriatal pathways. A neurobiology-level understanding of the ventral tegmental and the substantia nigra is not essential to understanding why dopamine matters and how to avoid damaging your neuro-dopaminergic factory.

Dopaminergic Dysregulation Consequences

If the mythical thesis equates more dopamine to a better life, our scientific antithesis begs to differ and offers plenty of clinical evidence.

In the instances when you are experiencing feelings of blissful happiness for an extended period, you have your dopaminergic factory to thank. It all starts with epinephrine or adrenaline through to the locus coeruleus - a part of the brainstem responsible for reactions to panic and stress. The chemicals related to alertness that dopamine manufactures can also convert to noradrenaline or norepinephrine. Given the right circumstances, dopamine can transmute these to pure adrenaline. Your dopaminergic factory may work just fine, but the distribution system is what can cause a hit-or-miss in your desired outcomes.

Dopamine is closely bound to spontaneity and impulsivity. Maintaining your baseline levels by leading a balanced life can sound counterintuitive or even seem averse in contrast to the idea of developing a passion for life. Through trial and error, you will conclude on your own that obtaining dopamine is immensely less challenging than maintaining a functional baseline in the long run.

Why Dopamine is a Marathon and Not a Race

You probably know by now that all chronic and acute stressors can impact dopamine: insufficient sleep quality, saturated fats, stress, obesity, drugs, and alcohol abuse are just the tip of the iceberg. Addiction ranges very high on the list of dopamine-damaging riddles because of its multifold effects: exhausting not only the supplies but also the capabilities, functions, and mechanisms transporting them. The opposite of the addiction-high emotional range is Anhedonia: describing it as a state of apathy barely scratches the surface on a neural level.

Drug abuse had led to incidental evidence confirmed with opioid addiction research when young people started showing up to their clinicians with symptoms of Parkinson's disease. Not all damage is irreversible, but erring on the side of caution always serves your best interests. Dopamine affects movement and the lack of it on small and large scales, so it is also involved in restless legs syndrome, mood and personality disorders, schizophrenia, and ADHD (attention deficit hyperactivity disorder).

Even anecdotal evidence, like the Giardia stomach bug resolvable with antipsychotic Chlorpromazine (aka Thorazine), proves side effects can be detrimental when preventive measures are not in place. Another affected group is people suffering from a host of dopamine-related problems, such as those with Huntington's disease and Lewy body dementia.

The Raw Scientific Link Behind Dopamine and Motivation

When you think of your dopamine levels as a baseline prone to shifts throughout the day, your goal should be to maintain the ups and downs according to your schedule and goals. Keeping in mind that what comes up must come down, we have to take special care of our dopaminergic system so that we avoid facing disbalance and its consequences. Helping yourself with administering supplements should be your last resort, and here’s why:

- Stimulants produce a dopamine spike that has a counterintuitive effect in the long-term: when it comes to work, exercise, and attention - you should never want your baseline to drop;
- Smartphones are another dopamine driver, and by co-engaging one driver with other activities, we are contributing to the piling up disadvantages and developing a distracting nature: layering in dopamine sources equals dopaminergic baseline disruption;
- Solution: remove sources of dopamine release to reset baseline, understanding circuitry;

In optimizing your baseline dopamine, you must consider the reward schedules in your brain might starve for novelty over time. Not only do you have to procure practices to optimize a baseline, but you also must maintain said baseline not to get too reliant on your schedules. The term intermittent optimization comes in here, and it simply means randomness. If, for example, you are used to working out with your smartphone, whether using music or your preferred podcast, taking that element out last-minute triggers a disruption that you handle on a cognitive base - while your brain adapts to delay the reward on a chemical route.

Adding layers for a positive motivational effect can help you for a short time, but only while you are getting started. Our brains are sophisticated organs of habit, so adding a stimulant, a pre-workout drink, a nootropic supplement, and your phone with the intent to get you to work or work out - is not an invalid approach. Undoubtedly, you should seek balance through implementing more sustainable solutions. Here is how some popular productivity additions impact your dopaminergic activity:

- x 2.5 Chocolate, Nicotine, Pursuit, Sex: short-lived dopamine boost
- x 2.5 Cocaine
- x 10 Amphetamine
- x 2 Exercise and subjective enjoyment
- x 2 Cold Exposure affects both Dopamine and Norepinephrine
- x 2.5 Different Temperatures: Epinephrine(or Adrenaline) sustained and above 3 hours above baseline, no crash

It is not difficult to notice that the methods procuring most dopaminergic release are the same ones that cause an even harder drop in the baseline. However, the dopamine procured from cold exposure therapy sustains longer increased levels without a sudden drop in dopamine baseline. The same is valid for subjecting ourselves to drastic temperature changes: the fact we invest more effort in place of shortcuts has proved scientifically to generate long-lasting results.

Whatever your goals with learning to regulate dopamine, you must take precautions to primarily rely on your intrinsic motivation instead of external or exogenous motivation. A social incentive can encourage you, but the competition you participate in is always with yourself. Enduring minute levels of stress can induce cortisol which will temporarily ramp up your dopamine via autonomous arousal induction - but it also results in panoramic vision and calm relaxation.

Whether you opt for natural fine-tuning, help yourself to supplements, or use a combination of both, you must consider the differences in supplements and their sources:

- Pre-workout supplements and energy drinks use dopamine precursors in a method that can deplete long-term dopamine, and that spike can affect long-term baseline maintenance. Alcohol and nicotine also undermine dopamine scheduling capacity;
- Caffeine increases the density and efficacy of dopaminergic precursors and neurons:
    - In coffee, D2 & D3 receptor regulation positively impacts the released dopamine, making it more accessible and functional for the neurochemistry and biochemistry pathways
        - Exception: Combining hard stimulants (MDMA) with coffee proves increased toxicity to MDMA receptors and their long-term function;
    - Caffeine sources: soda, tea, cacao, and guarana are all legitimate caffeine sources, but science says Yerba Mate conquers all;
- Supplements with antioxidant properties do not rev up your glp1 blood sugar and are neuroprotective for dopamine neurons in both pathways;n

- L-DOPA is available in supplement form as well as in beans, seed sprouts, pods, and particularly in broad beans like Vicia Faba and Mucuna Pruriens or Velvet Bean;
- L-Tyrosine is an amino acid the body naturally produces, but it is also present in protein-rich, fatty foods like meat and poultry, eggs and dairy, beans, and whole grains;
- Melatonin interacts with dopamine - but not consistently in the desirable ways, so instead of supplementing, try to get your body to produce your own.

Getting the Most VS Getting the Best out of Your Dopaminergic System

You have probably heard about dopamine fasts and how they are supposed to hard-reset your internal mechanisms and make your life more enjoyable. Kick-starting the engine will undoubtedly help get you into gear and help you get comfortable with being uncomfortable, but time is on your side in the long run, and here are the reasons why. As opposed to clean-cut dopamine fast, dopamine modulation serves the body better to help us physically, psychologically, and neurologically ease it into making changes.

Your body can perceive each change as a challenge to fight against, and you can and should expect to come to a resistance. When it comes to dopamine fasting VS dopamine modulation, many people lean on the go hard or go home mentality. In terms of our neural structures, terms like doing it the easy and the hard way will not serve to encourage your dopaminergic factory long-term.

Dopamine modulation is about making multiple thought-out choices each time we face a challenge - it is about going slow and steady and competing with ourselves primarily instead of among each other. While a short dopamine detox can give you a leg up in conquering your drives and goals, you should aim to reach a stage where detoxifying is no longer a necessity but merely an option after taking it too hard for too long.

Endurance and grit are the basic building blocks of motivation, goal-setting, and following through -- making the engine follow suit will no longer be an issue once you get into the flow and intuitively implement what you cognitively know. Whether you go cold turkey or settle to take the tapering route - consistency is key to getting your dopaminergic neural fiber to the level of your moral fiber.