

Transient Suppression of ACC Monitoring Enables High-Salience Positive Affect

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I'm writing to share a structured observation regarding the anterior cingulate cortex (ACC) and its role in the emergence and persistence of positive affect, which may be of interest from a mechanistic or experimental perspective.

The core finding is that intense positive affect does not appear to scale with raw dopaminergic drive or sensory intensity alone, but rather with a transient *reduction* in ACC-mediated evaluative control at the moment positive salience emerges. In this state, valuation proceeds without immediate arbitration by conflict monitoring, outcome comparison, or meta-evaluation.

Across repeated observations, the following pattern appears consistent:

1. Positive Affect

Positive Affect reliably coincides with a brief window in which ACC monitoring functions are functionally disengaged. During this window, valuation appears to be handled downstream (striatal / limbic, with vmPFC involvement) without being rapidly contextualized or corrected.

Notably, this state subjectively resembles a reactivation of what could be described as an *early or childhood-like valuation circuit*: a mode in which stimuli are treated as intrinsically salient without reference to optimization, comparison, or narrative coherence. Importantly, this is not regression in content or cognition, but a reversion to a simpler valuation policy.

2. Positive affect collapse

Positive affect fades not primarily due to hedonic saturation or neurotransmitter depletion, but when the ACC re-enters the loop and begins:

- evaluating the state ("this is good"),
- comparing it to expectations or alternatives,
- predicting duration, consequences, or meaning.

This re-entry appears sufficient to flatten the experience even when sensory input and dopaminergic tone remain unchanged.

3. Persistence conditions

Positive affect persists longer when the ACC is prevented from stabilizing into a rhythmic evaluative mode. Non-rhythmic motor variability, continuous but low-stakes task engagement, or perceptual flow (especially visual motion) appear to delay full ACC re-engagement without inducing distraction or cognitive load.

These conditions resemble environments in which early valuation systems may have originally operated: continuous interaction, low prediction pressure, and minimal meta-monitoring.

4. **Tolerance reinterpretation**

What is commonly described as “tolerance” may, in many cases, reflect accelerated ACC re-engagement rather than diminished reward system responsiveness. With repetition, the ACC appears to learn to anticipate the state and pre-emptively contextualize it, preventing full emergence rather than reducing magnitude.

This could explain why some individuals report that Positive affect feels “blocked” rather than weaker, and why efforts to increase intensity often fail.

5. **Dissociation between feeling and value**

A dissociation emerges in which certain stimuli retain high *value* judgments despite producing weak immediate affect. This suggests that vmPFC-based valuation can remain intact while ACC-mediated salience gating suppresses felt Positive affect. In this framing, Positive affect requires not just value, but permission for value to be *felt* without supervision.

Taken together, this suggests that positive affect is not simply a function of reward intensity, but a fragile dynamical state requiring:

- intact downstream valuation,
- temporary suspension of ACC oversight,
- and brief access to a low-monitoring, early-style valuation circuit.

This framing may help explain:

- why novelty and unpredictability matter more than intensity,
- why some non-narrative or flow-based stimuli retain emotional efficacy with age,
- why pharmacological enhancement often fails when paired with excessive self-monitoring.

It is a compact, testable model— approachable via ACC perturbation, task design emphasizing monitoring suppression, or fine-grained temporal analysis of affective onset.

Appendix — Task structure relevant to cognitive control

The task referenced (commercially known as *Unreal Tournament 1999* : “*Mode deathmatch*”) is used here purely as an example of a high-temporal-resolution sensorimotor environment and not as a game-specific claim.

In neutral task terms, the environment has the following properties:

- **Continuous perception–action loop**
Rapid visual motion, spatial updating, and motor output occur on a sub-second timescale, limiting the opportunity for explicit evaluation or narrative consolidation.
- **High but bounded unpredictability**
Outcomes are locally uncertain (enemy appearance, projectile trajectories) but globally constrained by stable rules. This sustains prediction error without inducing chaos or disengagement.
- **Immediate, low-latency feedback**
Actions produce perceptual consequences almost instantly, reinforcing downstream valuation circuits without requiring explicit reward signaling.
- **Action interruption affordances**
The task naturally allows last-moment action cancellation, feints, micro-aborts, and non-rhythmic movement patterns. These interruptions appear to disrupt ACC prediction stabilization and prevent monitoring from settling into a repetitive evaluative mode.
- **Minimal semantic or autobiographical load**
The task does not require narrative interpretation, social inference, or future planning, reducing recruitment of higher-order evaluative networks.

When played at a low level difficulty, not looking or caring about the score, when combined with mild physiological arousal middle-session (e.g., Very low dose caffeine) and ACC inhibition (eg : micromovements), preceded by non-monitoring of time and no imagined internal discussion, this task structure appears sufficient to produce a transient state of heightened salience and positive affect that is disproportionate to sensory intensity alone in about 5 minutes, suggesting a central role for monitoring suppression rather than reward amplification.

The task in images

Don't watch the time, don't think about an imaginary discussion

When in the game in mode deathmatch, play on a relatively easy level, don't try to win and don't watch the score.

Never talk in your head, don't comment about anything. If you comment anyway, continue like nothing happened, just ignore.

Do these 4 exercises - you can choose only one or two if you want - but use them very rarely, no more than one per minute and in no special order :



1 : When there is 2 neutral paths, stop and hesitate deliberately for some seconds, then chose a path randomly and continue without thinking about it



2 : Switch weapons for no reason, then go back to the original one like it was just an error : then continue without thinking about it



3 : When there is an opponent, voluntarily fire next to him, as a misfire, one time. Then don't think about it

4) Make a focal micromouvement like moving a little bit the shoulders for no reason, then don't think about it.

While still playing, drink a **sup** of coffee. More coffee than that and it fails.

Resume the game and continue a bit

Then without commenting in your head, switch the game with alt+tab to your favorite music video or child cartoon and the effect should be here. If possible, don't optimize your media player for sound volume.

It's possible that your brain will play music it wants to hear. Joy works with some stimulation on, and a music video is the most important one.

Finally, when joy is here there could be a layer of sense of panic as it's not an habitual state to be in, specially in a body designed to find meaning in hardship. That's normal and will pass.

However, any monitoring like "is it there ?" will collapse it, especially at first. Expecting = Monitoring = Optimization.

=> **It really is the global idea of monitoring** we try to remove. We don't only stop monitoring what's in the head (Is the effect here ? When will it come ?), but also our moves in real life with micromovements, and also in the in-game action (hesitations and errors)=> **Suspension Of Optimization.**

Why not do those exercises many times per minute ? Because it would become something to monitor in itself and *precisely an optimization, so it's counter-productive*. We try to get out the 'optimization feel' itself, in a sense.

Think about how a child play Ut99 :

- They don't look at the time
- They don't look at the score
- They usually don't argue in their head with an imaginary friend
- They move sometimes randomly, both in game and on their chair
- They play low level difficulty
- They don't know how the game work so they sometimes hesitate between two paths
- They sometimes fire randomly in the walls of the map for no reason
- They never expect something from the game

Contrast this with an expert adult player who performs near-optimally across maps. In this case, engagement is often structured around continuous performance optimization, even when the task is experienced as immersive. The present account distinguishes this optimized engagement from a different regime: one in which actions are permitted to occur without ongoing performance arbitration or error minimization. The latter resembles early developmental interaction patterns not in content or competence, but in valuation policy, where salience can emerge without immediate optimization pressure. Importantly, this distinction is functional rather than normative: high skill and optimized performance are not opposed to positive affect, but they recruit a different control configuration than the monitoring-suspended regime described here.

Note on measuring observation-sensitive affective states

Affective states that collapse under observation should not be measured concurrently with induction. Immediate evaluation recruits monitoring and control processes that destabilize the state itself. **Practical solutions with examples:** (i) **Delayed interrogation** : tell participants beforehand that they will be questioned weeks later (e.g., “You will receive a questionnaire 30 days after the session”), reducing online self-monitoring; (ii) **No in-session prompts** : avoid questions like “How do you feel right now?” during the task; (iii) **Neutral framing** : describe the task as a “sensory experience” rather than mentioning joy, flow, or emotion; and (iv) **Indirect proxies during induction** : use passive measures such as task persistence, reaction-time variability, or behavioral engagement during the session, and collect a single retrospective self-report only at the delayed follow-up. **Limitation:** if participants continue to internally evaluate or rehearse the experience despite these controls, observation-induced collapse may still occur, constraining effect size rather than eliminating the bias entirely.