Citations on Serotonin and Social Dominance

(blog post "Serotonin and Conflict" below)

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Serotonin and Conflict

Loretta G. Breuning, PhD

Serotonin may seem like the opposite of conflict since it produces a pleasant feeling. But animal studies show that this pleasantness is the expectation of social dominance. Citations

A landmark serotonin study put a one-way mirror between an alpha monkey and his troop-mates. The mirror blocked the troop-mates view of the alpha, so they did not make submission gestures in response to his dominance gestures typical of the species. The alpha's serotonin was much higher than his troop-mates at first, but it fell each day of the experiment and he ended up extremely agitated. Apparently he needed their deference to keep stimulating serotonin. He had to get respect to keep his cool.

This fits the reality of daily life in the animal world. Mammals learn in youth that they get bitten if they take food from a stronger individual. A bite triggers cortisol, which paves a neural pathway to the pain signal in similar future circumstances. Thus an animal learns to avoid conflict with bigger individuals. But it still needs to eat, so it scans for safe opportunities to do so. When it sees itself in the position of strength, serotonin is released and it asserts itself. Natural selection built a brain that continually compares itself to others and rewards you with a good feeling when you find a safe way to meet your needs. Even amoeba release serotonin when they determine that it's safe to forge ahead to find food.

We mammals have ten times more serotonin in our stomachs than in our brains. That makes sense because social assertion is a precursor to food in the state of nature. Serotonin rewards social assertion and aids digestion, a dual function typical of neurochemicals.

Serotonin is not aggression. It's the calm sense that it's safe to act on your impulses. The mammal brain evolved to promote survival, and picking your battles promotes survival more than aggression. Group life requires delicate social judgments because the resources you see are seen by other members of the herd or pack or troop or tribe. Mammals evolved to navigate group life by making social comparisons and responding with positive or negative neurochemicals.

It's easy to see the urge for social dominance in others and hard to see in yourself. That's because you interpret the assertions of others with your verbal brain, while your own assertions come from a neurochemical system independent of your verbal brain. So you may insist that you don't care about social dominance because you never think that in words. Of course you're on guard for the assertions of others, which makes it easy to surge with cortisol and condemn them for ego, greed, narcissism, arrogance, over-confidence and aggression. At the same time, your own urge for the one-up feeling is dismissed as a simple survival necessity.

You might blame "our society" for this thought habit, but it makes perfect sense in the context of foraging. In the state of nature, you don't know where your next meal is coming from. You have to keep seeking, and your brain rewards you with a good feeling when you do. Dopamine rewards you for stepping toward rewards; oxytocin rewards you for sustaining social support; and serotonin rewards you for taking the social risks essential to survival.

But each serotonin spurt is soon metabolized, so you have to do more to get more. This makes life challenging for everyone. This is why we're always comparing ourselves to others and feeling urgently threatened by the non-dominant position. When you understand the brain we've inherited, you can be grateful for our success at restraining the urge for social dominance instead of condemning its existence. Each brain constantly struggles to manage the competing urges for social harmony and social dominance.

Mammals of every species seek social power with all the energy they have after meeting immediate needs. It's equivalent to saving for a rainy day. Animals can't put money in

the bank or preserve food for the future, so they could starve tomorrow even if they have plenty today. Investing today's extra energy in social power helps an animal's genes survive tomorrow. Natural selection built a brain that motivates this behavior by making it feel good.

It's not easy being mammal. When you understand your neurochemical operating system, you can make peace with the human quest to trigger serotonin without triggering conflict.

Loretta Breuning, PhD, is Professor Emerita of Management at California State University, East Bay and the author of The Science of Positivity and Habits of a Happy Brain. She's Founder of the Inner Mammal Institute, which offers a wide range of resources that help you build power over your mammalian brain chemistry.