

Guilt and shame activate the brains reward centers.

“Despite their differences, pride, shame, and guilt all activate similar neural circuits, including the dorsomedial prefrontal cortex, amygdala, insula, and the nucleus accumbens.

Interestingly, pride is the most powerful of these emotions at triggering activity in these regions — except in the nucleus accumbens, where guilt and shame win out. **This explains why it can be so appealing to heap guilt and shame on ourselves — they're activating the brain's reward center.**”

Also, in the short term, **worrying makes your brain feel a little better — at least you're doing something about your problems.**

“In fact, worrying can help calm the limbic system by increasing activity in the medial prefrontal cortex and decreasing activity in the amygdala. That might seem counterintuitive, but it just goes to show that if you're feeling anxiety, doing something about it — even worrying — is better than doing nothing.”

But guilt, shame, and worry are horrible, long-term solutions. So what do neuroscientists say you should do? Ask yourself this question:

What am I grateful for?

Yeah, **gratitude** is awesome ... but does it really affect your brain at the biological level? Yes.

You know what the antidepressant Wellbutrin does? Boosts the neurotransmitter dopamine. So does gratitude. Know what

Prozac does? Boosts the neurotransmitter serotonin. So does gratitude.

“The benefits of gratitude start with the dopamine system, because feeling grateful activates the brain stem region that produces dopamine. Additionally, gratitude toward others increases activity in social dopamine circuits, which makes social interactions more enjoyable ...One powerful effect of gratitude is that it can boost serotonin. Trying to think of things you are grateful for forces you to focus on the positive aspects of your life. This simple act increases serotonin production in the anterior cingulate cortex.”

If it feels like there's nothing to be grateful for, doesn't matter. You don't have to find anything. It's the *searching* that counts.

“It's not finding gratitude that matters most; it's remembering to look in the first place. Remembering to be grateful is a form of emotional intelligence. One study found that it actually affected neuron density in both the ventromedial and lateral prefrontal cortex. These density changes suggest that as emotional intelligence increases, the neurons in these areas become more efficient. With higher emotional intelligence, it simply takes less effort to be grateful.”

Very helpful to label negative feelings

But what happens when bad feelings completely overtake you? You feel awful. OK, give that awfulness a name. Sad? Anxious? Angry?

“In one fMRI study, appropriately titled "Putting Feelings into Words" participants viewed pictures of people with emotional facial expressions. Predictably, each participant's amygdala activated to the emotions in the picture. But when they were asked to name the emotion, the ventrolateral prefrontal cortex activated and reduced the emotional amygdala reactivity. In other words, **consciously recognizing the emotions reduced their impact.**”

Suppressing emotions doesn't work and can backfire on you. But labeling, on the other hand, makes a big difference.

“Gross found that people who tried to suppress a negative emotional experience failed to do so. While they thought they looked fine outwardly, inwardly their limbic system was just as aroused as without suppression, and in some cases, even more aroused. Kevin Ochsner, at Columbia, repeated these findings using an fMRI. **Trying not to feel something doesn't work, and in some cases even backfires.**

To reduce arousal, you need to use just a few words to describe an emotion, and ideally use symbolic language, which means using indirect metaphors, metrics, and simplifications of your experience. This requires you to activate your prefrontal cortex, which reduces the arousal in the limbic system. Here's the bottom line: describe an emotion in just a word or two, and it helps reduce the emotion.”

Labeling is a fundamental tool of [mindfulness](#).

In fact, labeling affects the brain so powerfully it works with other people, too. Labeling emotions is one of the primary tools used by [FBI hostage negotiators](#).

Make that decision

Ever make a decision and then your brain finally feels at rest? That's no random occurrence. Brain science shows that making decisions reduces worry and anxiety — as well as helping you solve problems.

“Making decisions includes creating intentions and setting goals — all three are part of the same neural circuitry and engage the prefrontal cortex in a positive way, reducing worry and anxiety. Making decisions also helps overcome striatum activity, which usually pulls you toward negative impulses and routines. Finally, making decisions changes your perception of the world — finding solutions to your problems and calming the limbic system.”

But deciding can be *hard*. Neuroscience has an answer. Make a "good enough" decision. Don't sweat making the absolute 100% best decision. We all know being a perfectionist can be stressful. And brain studies back this up. Trying to be perfect overwhelms your brain with emotions and makes you feel out of control.

“Trying for the best, instead of good enough, brings too much emotional ventromedial prefrontal activity into the decision-making process. In contrast, **recognizing that good enough is good** enough activates more dorsolateral prefrontal areas, which helps you feel more in control ...”

As Swarthmore professor [Barry Schwartz](#) said in my interview with him: “Good enough is almost always good enough.” So when you make a decision, your brain feels you have control. And, as I’ve talked about before, [a feeling of control](#) reduces stress. But here’s what’s really fascinating: *Deciding also boosts pleasure.*

“Actively choosing caused changes in attention circuits and in how the participants felt about the action, and it increased rewarding dopamine activity.

“You give two rats injections of cocaine. Rat A had to pull a lever first. Rat B didn't have to do anything. Rat A gets a bigger boost of dopamine. So they both got the same injections of cocaine at the same time, but rat A had to actively press the lever, and rat B didn't have to do anything. And rat A released more dopamine in its nucleus accumbens.”

When you make a decision on a goal and then achieve it, you feel better than when good stuff just happens by chance. If you go to the gym because you feel you *have to* or you *should*, well, it's not really a voluntary decision. Your brain doesn't get the pleasure boost. It just feels stress. And that's no way to build a good exercise habit.

Interestingly, if people are forced to exercise, they don't get the same benefits, because without choice, the exercise itself is a source of stress.

So make more decisions. Neuroscience researcher Alex Korb [sums it up nicely](#):

We don't just choose the things we like; we also like the things we choose.

Touch

We need to feel love and acceptance from others. When we don't it's painful. And I don't mean "awkward" or "disappointing." I mean actually *painful*.

Neuroscientists did a study where people played a ball-tossing video game. The other players tossed the ball to you and you tossed it back to them. Actually, there were no other players; that was all done by the computer program.

But the subjects were told the characters were controlled by real people. So what happened when the "other players" stopped playing nice and didn't share the ball? Subjects' brains responded the same way as if they experienced *physical pain*. Rejection doesn't just hurt like a broken heart; your brain feels it like a broken leg.

“In fact, as demonstrated in an fMRI experiment, **social exclusion activates the same circuitry as physical pain** ... at one point they stopped sharing, only throwing back and forth to each other, ignoring the participant. This small change was enough to elicit feelings of social exclusion, and it activated the anterior cingulate and insula, just like physical pain would. One of the primary ways to release oxytocin is through touching. Obviously, it's not always appropriate to touch most people, but small touches like handshakes and pats on the back are usually okay. For people you're close with, make more of an effort to touch more often.”

Touching is incredibly powerful. We just don't give it enough credit. It makes you more [persuasive](#), increases [improves](#) your [flirting](#) ... it even boosts [math skills](#).

Touching someone you love actually reduces pain. In fact, when studies were done on married couples, the stronger the marriage, the more powerful the effect.

“In addition, holding hands with someone can help comfort you and your brain through painful situations. One fMRI study scanned married women as they were warned that they were about to get a small electric shock. While anticipating the

painful shocks, the brain showed a predictable pattern of response in pain and worrying circuits, with activation in the insula, anterior cingulate, and dorsolateral prefrontal cortex. During a separate scan, the women either held their husbands' hands or the hand of the experimenter. When a subject held her husband's hand, the threat of shock had a smaller effect. The brain showed reduced activation in both the anterior cingulate cortex and dorsolateral prefrontal cortex — that is, less activity in the pain and worrying circuits. In addition, the stronger the marriage, the lower the discomfort-related insula activity. A hug, especially a long one, releases a neurotransmitter and hormone oxytocin, which reduces the reactivity of the amygdala.” Research shows getting five hugs a day for four weeks increases happiness big time.

“The results are fairly clear that massage boosts your serotonin by as much as 30 percent. Massage also decreases stress hormones and raises dopamine levels, which helps you create new good habits ... Massage reduces pain because the oxytocin system activates painkilling endorphins. Massage also improves sleep and reduces fatigue by increasing serotonin and dopamine and decreasing the stress hormone cortisol.”

Texting is not enough.

When you put people in a stressful situation and then let them visit loved ones or talk to them on the phone, they felt better. What about when they just texted? Their bodies responded the same as if they had no support at all.

“The text-message group had cortisol and oxytocin levels similar to the no-contact group.”

Sum up

Ask "What am I grateful for?" No answers? Just searching helps.

Label negative emotions. Give it a name and your brain isn't so bothered by it.

Decide. Go for "good enough" instead of 'best decision ever.

Hugs. Don't text — touch.

“Everything is interconnected. Gratitude improves sleep. Sleep reduces pain. Reduced pain improves your mood. Improved mood reduces anxiety, which improves focus and planning. Focus and planning help with decision making. Decision making further reduces anxiety and improves enjoyment. Enjoyment gives you more to be grateful for, which keeps that loop of the upward spiral going. Enjoyment also makes it more likely you'll exercise and be social, which, in turn, will make you happier.”