Emotions, Relationships & Social Life

Huberman Lab Keypoints

Episodes in this pack: 14

Neuroscience of Emotions & Tools for Improving Emotion Regulation | Dr. Ralph Adolphs

Guest: Dr. Ralph Adolphs
Date: 2026-08-17 · Duration: 2:09:30
URL: https://www.youtube.com/watch?v=P-h5WSQG1Sw

KEYPOINTS

1. Emotions are functional brain states defined by features like priority, valence, scalability and persistence.
Adolphs, a Caltech professor of psychology, neuroscience and biology, admits theories (Joseph LeDoux, Lisa Feldman Barrett, Paul Ekman) look so different that philosopher Paul Griffiths once argued emotions don't exist as one category. His working view is a package of features. Priority means emotions interrupt whatever you're doing, an idea Nobel laureate Herbert Simon described decades ago. Valence (positive versus negative) may not be strictly required.

2. Emotions scale and persist; reflexes don't.
A reflex is all-or-nothing, like the knee-jerk. Fear scales with how close the threat is, from anxious monitoring of a distant bear to fleeing to panic, and emotions outlast their trigger. These two features come from David Anderson's mouse hypothalamus work. Sadness, Adolphs notes, has one of the longest time constants.

3. You can study emotions without solving consciousness.
Adolphs separates emotion states from the conscious feeling of them, just as vision and memory are studied in animals like horseshoe crabs with no claims about awareness. That lets researchers study emotion in animals by its functional features rather than by asking about subjective experience.

4. Emotions are essential for decision-making.
Citing Antonio Damasio's 1994 book Descartes' Error (Adolphs was then a postdoc with Damasio in Iowa), he notes that people with large frontal-lobe lesions who no longer respond emotionally can't make complex life decisions or organize their lives, because no option feels better than another.

5. Regulation starts with emotional granularity: noticing and naming your emotions precisely.
This idea, which Adolphs credits mainly to Lisa Feldman Barrett, means how finely you can perceive your own states. Once you're aware of an emotion you can apply strategies, mostly cognitive reappraisal (reinterpreting the situation). Huberman notes that real feelings are often a mix, such as confusion plus frustration, which makes naming them hard.

6. The earlier you intervene in an emotion, the better, and both strategy and automaticity are trainable.
Adolphs's first line is situational avoidance: structure your life so you don't land in situations that trigger the emotion you want to avoid. Once you're in one, what works is fairly individual. Two things can be trained: reappraising without overthinking, which can deepen the emotion, and the strength and automaticity of control, so regulation becomes smooth and effortless.

7. We're far worse at reading emotions from faces than we think.
Dog owners are convinced they can tell when their dog feels guilty, but in controlled tests they perform at chance. Adolphs says our confidence 'vastly outstrips our accuracy'. The posed, static Ekman photos used in labs (he used them in his own 1994 Nature paper) aren't what we see in life. Real faces are dynamic, and in practice we ask questions and use context.

8. Where you 'feel' an emotion in your body reflects concepts, not measured physiology.
The well-known body-map figure came from a PNAS paper by Lauri Nummenmaa and colleagues in Finland. Participants were shown a single word and drew where they thought they'd feel it; nothing in the body was measured. Adolphs stresses brain and body are tightly coupled, and work by Feldman Barrett and Tor Wager shows reliable but distributed brain signatures for basic emotions.

9. Autism involves effortful, rather than automatic, social processing.
In Adolphs's webcam eye-tracking studies, people watch Zoom-style videos, and those scoring higher on autistic traits or with a diagnosis make less eye contact, a pattern stable from month to month. He argues the core difficulty is cognitive load: consciously tracking eye contact, turn-taking and the rest is overwhelming when it isn't automatic.

EXAMPLES

1. Amnesic patients stay sad without knowing why.
Patients with severe anterograde amnesia and controls watched sad film clips. Five minutes later, controls said they still felt a bit sad because of the movie. The amnesic patients felt 'really sad' but couldn't remember any movie. This shows emotional persistence is separate from declarative memory.

2. A woman without an amygdala feels no fear of threats, but CO2 triggers panic.
A patient with amygdala lesions poked monsters in a haunted house and wanted to handle snakes and spiders in a pet store. Yet in a study led by Justin Feinstein, with René Hurlemann in Germany, she and similar patients had full-blown panic attacks when inhaling carbon dioxide, which causes panic in about half of people. Internal suffocation alarms run through brainstem circuits rather than the amygdala.

3. Adolphs's ice-bath experiment of one.
Prompted by Feinstein, he started ice baths in an insulated horse trough, buying 40 lb ice bags weekly. The first week was 'terrible, super painful', with breathing and heart rate shooting up. Now his heart rate and breathing drop as he gets in. He reports that his anger at drivers honking behind him in Pasadena has gone 'flat', which he offers as personal, unpublished evidence that trained calm generalizes.

4. Three to five minutes of silence before lab meetings.

Since 2020 (started in memory of George Floyd), his Monday-noon lab meetings open with laptops and phones down and a few minutes of meditative silence, sometimes with a photo of a Kauai landscape on screen. New summer students find it stressful at first.

5. Ultramarathon training through illness.

Adolphs is training for a 100-mile race while dealing with a health condition whose therapy causes joint pain and fatigue. He describes the 'relentless forward momentum' and relentless optimism of ultra culture, and says facing illness has brought gratitude, awe and sharper choices about how to spend his time.

OTHER RELEVANT

1. Build granularity before reappraisal.

Practice distinguishing what you feel, such as frustration versus confusion versus anxiety, then reinterpret the situation. Keep reappraisal brief so it doesn't become rumination.

2. Use deliberate stressors to train automatic calm.

Cold exposure or short meditation can act as reliable, repeatable training in staying calm. Adolphs likens a brief meditation to an ice bath because both are uncomfortable at first. They mention a study, connected to Richie Davidson's meditation research, in which 5 minutes of daily meditation initially raised anxiety. Both treat the generalization to everyday stress as plausible but anecdotal.

3. Don't over-trust a facial read.

Before concluding someone is sad or angry, ask questions and take in the context. A grimace might just be a bad-tasting drink.

4. Create quiet input-free time.

Adolphs, who has no social media, argues that running, meditation or ice baths provide internal processing time that a constant stream of inputs crowds out.

Science of Attraction, Compatibility & Romance | Dr. Paul Eastwick

Guest: Dr. Paul Eastwick
Date: 2026-06-22 · Duration: 2:50:15
URL: https://www.youtube.com/watch?v=CV0GtUlJ6NM

KEYPOINTS

1. 'Mate value' markets describe first meetings well and ongoing relationships poorly
Eastwick, a psychology professor at UC Davis, agrees that marketplace thinking fits initial attraction among strangers, where everyone notices the same surface traits. As people spend time together, those market forces weaken. Attractiveness never stops mattering entirely, but it matters much less once people actually know each other.

2. Dating apps are among the most unequal 'markets' there are
Right swipes and messages pile up on a small group of the most popular profiles, a skew Eastwick likens to a kleptocracy. Regular acquaintance is far less extreme. Because app companies care about engagement and probably need to recruit women onto male-heavy platforms, he doubts their incentives line up with users forming relationships. Matchmaking firms, which need happy dates, are more willing to share data with researchers.

3. People disagree about who is attractive more than you might think
When two people make quick 'hot or not' judgments about someone they have briefly met, they agree only about two-thirds of the time. That disagreement levels the playing field: different people pursue different partners instead of everyone chasing the same few.

4. Attraction usually starts middling and builds through shared moments
The typical first impression in relationships that last is 'fine', not fireworks. Attraction accumulates as you collect moments in which this particular person seems funny, smart, a good listener or hot to you, often things others never get to see. Reciprocal support during a unique shared experience is a common origin of attraction, even if it sounds less exciting than a spark.

5. Copying other people's preferences is a junior-high strategy
'Mate choice copying' means using who everyone else likes as a signal. Eastwick and Huberman see maturity as trusting your own subjective experience of a real person: 'she's hot but I'm not feeling it', or 'he looks unsettled, but I see a spark'.

6. Men and women want the same traits in people they actually meet
On questionnaires, men say attractiveness matters more and women say earning potential matters more. In speed dating, men liked ambitious women slightly more, and women liked ambitious men slightly more by an identical amount. Across roughly 20 years of work and 40-plus countries, those gender differences largely disappear when people evaluate real, met partners rather than profiles.

7. Both sexes prefer slightly younger partners when it comes to second dates
In matchmaking data covering about 4,000 people, where men in the pool averaged about four years older than the women, men were a bit more interested in younger dates. So were women, even though many had told matchmakers not to set them up with younger men. The effect was small in both cases.

8. Men are consistently the more eager partner
Recent reviews find a medium-sized, consistent difference: men want the relationship more, say 'I love you' first, push for exclusivity sooner and think more about exes after a breakup. Women more often initiate breakups. Eastwick's explanation is that many men lack the social-support networks women have, so they lean harder on a partner.

9. Happy partners automatically downgrade tempting alternatives, but fantasies can rebound
Satisfied partners rate alternatives as less desirable than they are ('derogation of alternatives'), which Eastwick calls a protective mechanism. Casual messaging with others can still escalate, so it is 'playing with fire'. Yet in studies where people fantasize about someone other than their partner, desire for the partner also rises, which echoes Esther Perel's view.

10. Feeling your partner is a good lover is among the strongest predictors of relationship satisfaction
The subjective sense that a partner is, or would be, a good lover tracks how positively people feel about the relationship overall and whether they want it to continue. Eastwick warns against fatalism: desire waxes and wanes with kids and stress and can be rekindled. Years of no desire, however, also erode self-worth.

EXAMPLES

1. The forehead-number class demo
Students are randomly given a number they cannot see and told to pair up with the highest-value partner they can. Those who draw low numbers panic because nobody will talk to them, which mirrors how strangers at a party or on an app internalize 'mate value'.

2. Women out-earning men no longer predicts divorce
Marriages used to be more fragile when the wife earned more, but that stopped being true in the 1990s. Objective income has only very small effects on how partners feel about each other; whether a couple has enough resources to get by matters more.

3. UC Davis department couples
Huberman recalls that more than 80% of junior-faculty couples he knew in one department later divorced, mostly on good terms. He offers this as an anecdote, not data, and uses it to argue that workplaces rarely nurture relationships the way churches, hiking clubs or other long-running small groups can.

4. Say Anything as a model first date

The couple goes to a party together and watches each other move through different groups rather than interviewing each other the way app dates do. Activity and group settings show how someone treats other people, including how protective, responsible and kind they are.

OTHER RELEVANT

1. Be around the same people repeatedly

Eastwick's default advice to singles is to join recurring, mixed groups such as kickball teams, hiking clubs or a church. These let attraction build over repeated encounters and come with a community that reinforces a couple over time, much as public wedding vows do.

2. Ask what someone's money actually means

Where wealth came from and how much free time comes with it matter more than the income figure. Cutthroat ambition that sounds great in the abstract can mean a partner or co-parent who is never around.

3. Keep a 'social support bank account', especially if you are a man

What protects health is the felt sense that people outside your partner would be there if you needed them, even if you never draw on it. Activity-based friendships can provide that.

4. Treat past relationships as having been real, not as failures

Eastwick encourages holding the value of an ended relationship or divorce alongside its problems. Huberman describes a rule with his partner: never speak negatively about exes, and practice some deliberate 'selective ignorance' about the past.

How to Better Regulate Your Emotions | Dr. Marc Brackett

Guest: Dr. Marc Brackett
Date: 2026-04-20 · Duration: 2:27:38
URL: https://www.youtube.com/watch?v=FBgM7jndkLQ

KEYPOINTS

1. Emotion regulation means changing your relationship to a feeling, not deleting it
Brackett, who has lived with anxiety for much of his life, sometimes simply greets it ('Hey, how you doing today?'), and it either fades or just sits there. Checking in on your feelings all day would be paralysing. Emotions mostly matter when something shifts, such as an offensive remark, and the choice you make then is 'where the magic happens.'

2. His working formula: regulation = goals + strategies, chosen according to emotion, person and context
Brackett writes it as ER(G + S) = f(E + P + C). The goals follow the acronym PRIME: Prevent unwanted emotions, Reduce difficult ones, Initiate emotions (for example, creating energy in a room when teaching or leading), Maintain a good state, and Enhance or boost one. Which strategy works depends on the specific emotion (anxiety and anger need different tools), on the person (he describes himself as neurotic and introverted) and on context. Leaving a podcast mid-recording to go for a run isn't an option, so in that setting he needs cognitive or breathing tools.

3. Start with your mindset: there are no bad emotions, only unhelpful ways of handling them
When Brackett asked Huberman about his relationship to anxiety, the reflexive answer was 'I hate it.' A neuroscientist friend once had Brackett list everything that made him anxious (fundraising, research quality) and then asked what those things had in common. The answer was that they all mattered to him. Brackett frames anxiety as a signal of perceived uncertainty about something you care about. Treating it as bad by default 'puts you on the path to dysregulation.' The two agree that every emotion is acceptable to feel, but its expression has to fit the context.

4. Precise labels matter because each emotion carries a different underlying appraisal
Brackett calls most people's emotional vocabularies 'awful' ('I'm fine,' 'I'm upset'). He separates terms by their core relational themes. Anxiety is uncertainty about a future you can't predict or control. Stress is too many demands for too few resources. Pressure means something is at stake and depends on your performance. Fear is immediate danger. Anger isn't disappointment, envy isn't jealousy, and happiness isn't contentment. The right label points to the right strategy, but he says labeling is 'necessary but not sufficient.'

5. Boys are socialized, not born, to suppress emotion
Brackett argues that boys learn early that sadness or fear signal weakness, and sometimes homosexuality, which is its own stigma. So they suppress, deny and ignore, while research shows women suppress less but ruminate more. Fathers use more feeling words with daughters than with sons. Teenage boys at schools using his program couldn't see what was wrong with crying, which suggests the pattern can be retrained.

6. Leaders who co-regulate measurably change the culture around them
In Brackett's longitudinal study of schools during the pandemic, teachers who saw their leader as both self-regulated and good at co-regulating reported better outcomes. That perception strongly predicted school culture, burnout and job satisfaction, and frustration was 40% lower where leaders had these skills. He tells Yale first-years that SAT scores predict little among admitted students because of range restriction, and that skills like taking feedback now matter more.

7. Intentional co-regulation aims for the other person's independence, not dependence
Brackett contrasts a fearful parent at the playground ('be careful, be careful') with one who acknowledges their own nervousness, moves closer just in case, and says 'I really do think you're going to make it.' Projecting your fear undermines a child's confidence. Skilled co-regulation supports someone through an emotion so that they eventually regulate on their own. He calls this 'not codependent, not coddling.'

8. Know your assumptions, but don't turn introspection into rumination
Both men stress auditing the beliefs about emotion you absorbed growing up. Huberman's father was taught that smiling a lot meant you were stupid. Huberman also caught himself thinking 'you idiot' when a friend's bird kept hitting windows, a habit from growing up in a 'big pack of dudes.' Brackett compares this to a scientist knowing their assumptions before forming a hypothesis, but warns that too much introspection becomes rumination.

9. Breathing and meditation lower arousal but don't change your perspective
Brackett fully endorses meditation, echoing Richie Davidson's point (from an earlier episode) that it trains stress tolerance, but calls it necessary but insufficient. His joke from his book: a deep breath around his mother-in-law only made clearer why she had to leave his house. Lasting change needs cognitive strategies such as reappraisal, reframing and distancing, or sometimes calling a friend after 15 deep breaths have failed.

EXAMPLES

1. The London 'fishbowl' demonstration
Early in Brackett's career, a headmistress outside London warned that his program would 'turn the boys into homosexuals.' With about 25 teachers watching, he told roughly 20 students how discouraged and hopeless he felt after failing his yellow belt in karate as a bullied kid. He then asked who else had felt that way, and every child raised a hand. His takeaway: 'Kids are dying to express their emotions, boys and girls.'

2. The boy in the blue quadrant
A boy at a school using the Mood Meter said he was in the blue (low, sad) quadrant but declined help: 'I don't want to bother you, sir.' Brackett found it an eye-opener about how early children learn not to ask for support.

3. The post-election 'take the day off' email

After the last US election, one school told students they could stay home if they felt overwhelmed by their feelings. Brackett 'almost had a conniption.' Emotional intelligence, he argues, means learning to live with difficult feelings and move forward, not using them as an excuse. He says allowances like this would create 'a generation of very weak people,' which is the opposite of what his work aims for.

4. Documentary listening study

His partner made a pandemic-era film, America Unfiltered, interviewing gun shop owners, Black mothers whose children were killed by police, and new citizens. Brackett had viewers rate the subjects' warmth before and after watching. Initial judgments were biased by race and by whether the person held a gun, and they shifted markedly once viewers heard the stories.

OTHER RELEVANT

1. Use a meta-moment before you react or walk into a new setting

Brackett developed this with therapist Robin Stern. Notice the trigger, pause and breathe, then picture your best self in your current role (partner, parent, professor) and respond through that lens. Ideally do it proactively, for example before walking into your house after a bad day, to prevent 'incidental leakage' of irritability onto your family. Sometimes you need a 'mega moment,' such as three laps around the house.

2. Build your emotional vocabulary

Practice telling anxiety from stress, pressure, fear and overwhelm, and anger from disappointment. Brackett's How We Feel app is designed to supply the words. The accurate label is what tells you which strategy to use.

3. Judge any strategy by whether your life is actually working

Brackett, a former fitness instructor, saw people use exercise and food as an escape while believing it was healthy, and reframing can turn into self-deception. His test is whether your relationships and work are improving.

4. Practice connection deliberately

Brackett ends with a card game built from his books, called Point of Connection, with prompts like the best advice a mentor gave you or who your heroes are. Players go around a circle and look for overlap. He offers it as a low-tech antidote to disconnection, and it needs no app or Wi-Fi.

Cultivating Awe & Emotional Connection in Daily Life | Dr. Dacher Keltner

Guest: Dr. Dacher Keltner
Date: 2026-04-06 · Duration: 2:20:19
URL: https://www.youtube.com/watch?v=Tmw2dW0a9DY

KEYPOINTS

1. Emotion science grew from six facial expressions to about 20
Paul Ekman's New Guinea work established six static expressions: anger, fear, sadness, disgust, surprise and a smile. Their universality has been contested by Jim Russell, Lisa Feldman Barrett and others. Keltner's lab and others, including Jessica Tracy and Disa Sauter, have since documented roughly 20 distinct expressions, including awe, love, compassion, embarrassment, shame and pain. Ekman himself told the young Keltner to study awe.

2. About half of emotional expression appears to be hardwired
Keltner's former student Alan Cowen worked with Google engineers to have AI code facial expressions in millions of videos from 144 cultures, which once took an hour of manual coding per minute of video. They found about 75% overlap across cultures in how 16 expressions show up in situations like fireworks, a test or laughing with friends. Keltner's estimate is that 50 to 60% of emotional expression is hardwired, with the rest varying in interesting ways.

3. Awe can be measured
Despite its reputation as ineffable, awe has a recognizable vocal burst ("whoa"), facial expression, goosebumps, higher vagal tone and deactivation of certain brain regions. Keltner's lab studied it in the field: beside a T. rex replica in Berkeley's paleontology museum, under giant eucalyptus trees, among veterans whitewater rafting with Stacy Bare, and at the first view of Yosemite. There, Yang Bai asked hundreds of travelers how they felt and heard "small and quiet, but part of something really large."

4. Going from small to vast is the core of awe
Huberman notes that a widening visual aperture, as when you come out of a tunnel into a valley, shifts the nervous system toward parasympathetic calm. Keltner says Pixar's Pete Docter uses the same move in films: narrow, tense framing that suddenly opens onto vastness. It also works metaphorically, as when a cellist's five hours of narrow daily practice becomes part of history on stage.

5. Visual aperture changes time perception
Huberman explains that narrow focus, as when waiting in line or watching a typing indicator, makes the brain take more snapshots, so time drags. That's also why a car crash can feel like slow motion. Panoramic views mean fewer snapshots and a more relaxed state. Awe also links us through time: Keltner describes the smell of eucalyptus on his first day at UC Santa Barbara instantly connecting him to his childhood near UCLA.

6. Collective awe synchronizes bodies and brains
Research on brain synchronization shows heart rates and brain activity aligning at concerts and games, and infants syncing to their culture's music. Keltner calls this a materialistic account of Émile Durkheim's "collective effervescence." Music can unite a crowd within milliseconds in a way a classroom rarely manages. He and Jonathan Haidt argued early on that awe helps a highly cooperative species fold into groups.

7. Self-focus is awe's great enemy
Keltner quotes Emerson: in awe, "all mean egotism vanishes." Citing Jean Twenge's longitudinal data, he says we've grown more self-focused, with a large share of photos now of ourselves, and that worrying about status or money suppresses awe. Both men describe stories that cocaine, "the me drug," ended the communal feel of the Grateful Dead and Laurel Canyon scenes.

8. Embarrassment signals commitment to the group
Keltner first noticed embarrassment after startling people in Ekman's lab: blushing, averted gaze, hiding the face. When people show embarrassment we like and trust them more. Huberman relays a point from Dr. K: a man who doesn't get embarrassed after a clumsy pickup line comes across as creepy. Patients with orbitofrontal damage, studied with Bob Knight, don't show embarrassment when they should.

EXAMPLES

1. The awe walk study with older adults
With Virginia Sturm at UCSF, adults aged 75 and older took a weekly half-hour awe walk for 8 weeks. They went somewhere new, slowed down, timed their breathing to their steps, and shifted from small to vast: a leaf to the whole tree, one child's laugh to a playground's chorus. They felt more awe and kindness, the photos they took showed more of their surroundings, and they reported less physical pain. Keltner says six years later they're seeing signs of better brain health.

2. Awe and health
Keltner cites findings that awe reduces inflammation and raises vagal tone, and that about a minute of awe a day reduced long COVID symptoms. He says doctors are starting to think about prescribing nature and music for this reason.

3. Fraternity nicknames
In an early study, groups of four fraternity brothers at the University of Wisconsin made up nicknames from each other's initials and teased one another, often profanely. Teasing tended to accuse someone of breaking a group norm, like passing out drunk in the street. The more embarrassment was shown, the more they liked each other, and playful teasers who reinforced norms without humiliating were most popular. Keltner separates this from bullying, which excludes or humiliates.

4. Stories of awe from 26 countries

Collecting about 2,600 accounts of awe worldwide, Keltner found sports everywhere, from Brazilian football to Red Sox stories, but no one named Facebook or Instagram. He cites a sociology paper comparing Pittsburgh Steelers fandom to religion, with rituals, towels and "Steeler Nation" bars, and describes Steve Kerr looking up at 10,000 dancing fans.

5. Joe Strummer's campfires

Huberman describes the Clash frontman hosting late-night campfires open to anyone, with music and talk until 2 or 3 am. Keltner notes campfires go back several hundred thousand years, and that small-scale societies tell stories of connection around them. Huberman adds that a fire provides long-wavelength light at night.

OTHER RELEVANT

1. Take a weekly awe walk

Pick a route with some surprise or childlike wonder, slow your pace, deepen and sync your breathing, and keep shifting attention from details to wholes: points of light to patterns of light, single clouds to whole skies. About 30 minutes is enough.

2. Design awe into shared spaces

To counter loneliness and alienation, Keltner suggests rewilding parts of cities, adding public art and music, creating face-to-face encounters and collective rituals like a town-square yoga class, and showcasing moral beauty: other people's courage and kindness. His climbing gym, with monthly local art, music and saunas, is his model.

3. Psychedelics: promise and caution

Keltner links the classic psychedelics, as distinct from MDMA (an empathogen) and ketamine (a dissociative), to awe: a vanishing self and connection to vast things. He cites Molly Crockett's finding of greater kindness a year after festival use, and promising data for death anxiety, addiction, PTSD, OCD and panic. He worries about casual microdosing "like coffee" without guidance, urges honoring Indigenous traditions, and both men caution people with psychosis or bipolar disorder in the family.

How to Deal With High Conflict People | Bill Eddy

Guest: Bill Eddy
Date: 2024-10-28 · Duration: 2:39:21
URL: https://www.youtube.com/watch?v=SuR0DaYoe0Y

KEYPOINTS

1. A high-conflict personality is defined by a pattern of blame
Eddy, a family lawyer, mediator and licensed clinical social worker, describes high-conflict people as preoccupied with blaming others, so conflicts escalate rather than resolve. As a hospital social worker he would fix one crisis, such as a marriage, a job or an eviction, only for the next to appear the following day. In family court he saw the same issues stuck for years in litigation that couples settled in two or three mediation sessions, because personality, not the legal question, was driving the fight.

2. High-conflict personalities overlap with personality disorders but aren't the same thing
Personality disorders involve a narrow, repeated range of interpersonal behavior. Eddy estimates roughly half of people with one are also high-conflict blamers. Others are self-centered without blaming, or more frustrated with themselves than with anyone else. What matters to him in practice is the pattern, not the diagnosis.

3. Prevalence figures come from a large NIH study from the early 2000s
Eddy cites a study by the alcoholism division of the NIH, which hasn't been repeated: narcissistic personality disorder about 6% of US adults (62% male), borderline about 6% (53% female, 47% male, which surprised clinicians), antisocial about 4% (75% male), histrionic about 2% (about 50/50) and paranoid about 4%. Borderline and narcissistic overlapped in around 38% of cases. The current DSM puts all personality disorders at about 10% of people, and that US study found 15%. He notes the numbers are 20 years old and culture may have shifted them.

4. Some high-conflict people look extremely reasonable
People with borderline or histrionic traits tend to be openly dramatic, but some with antisocial or narcissistic traits have spent a lifetime looking good. Eddy describes calm abusers in court explaining that they held a partner down "for her own safety" while the other party appears distraught. He notes that about 80% of people in divorce court now represent themselves, so judges often have little else to go on.

5. Wait a year before committing
Because these patterns emerge in close relationships, often after about six months or right after a commitment, Eddy advises against getting engaged, married or having children in the first year. Living together can actually help, since it shows how someone reacts to small irritations or a bad night's sleep. He isn't dismissing whirlwind romances that last decades, but says earlier generations usually knew their partner's family and history, while today's partners can hide much more.

6. High-conflict emotions are contagious and recruit negative advocates
Cluster B disorders are described clinically as dramatic, emotional and erratic. Eddy, attributing it to the amygdala, says intense fear and anger spread to listeners, so lawyers, therapists and relatives become emotionally hooked but uninformed. A demand to "destroy" the other party is a warning sign.

7. They seem stuck in the grieving process
Eddy's own theory, which he says awaits neuroscience, is that high-conflict people get stuck at denial and anger instead of moving through to acceptance. That's why they keep retelling past grievances to anyone who will listen. It's also why focusing on the past or on feelings tends to drag them back into the hurt.

8. Don't label anyone
Eddy is emphatic that you should never tell someone they're high-conflict or have a personality disorder. You might be wrong, it never motivates anyone, and it sets off their defensiveness. Use the concepts privately to adapt your own behavior. He notes that 90% or more of people are not in this group.

EXAMPLES

1. The congressman at baggage claim
Eddy describes a California congressman who cut a baggage line, shouted "Don't you know who I am?" and shoved an airline worker to the ground. Half the public excused it as sleep deprivation. Applying his rule that 90% of people would never do this, Eddy predicted trouble. Once elected mayor, the man was accused within about eight months of harassing women and alienating his staff, and he left office.

2. Sanctioned false abuse allegations
In one custody case a mother made knowingly false allegations of child sexual abuse and brought relatives and a roommate as advocates. The judge sanctioned her, ordering $110,000 in fees and costs under a statute covering knowingly false abuse allegations, after the father had spent about $40,000 on an evaluation and trial. The family yelled at the judge and were threatened with removal. She never paid, having put her assets in other people's names. Eddy stresses that he sees both true and false allegations.

3. Hang up, and they come back civil
An unrepresented husband kept cursing about Eddy's client. Eddy set a limit, warned he'd hang up, and did. The next morning the man called back and agreed to avoid the insults. Eddy's point is that the consequence, not the limit itself, is what changed the behavior.

4. Domino's 90-second reply
After two employees posted a disgusting video and the stock fell by about 10%, the CEO released a brief video saying the

former employees didn't represent the company and that customers came first. The company recovered. Eddy uses it as an example of a BIFF response: brief, informative, friendly and firm.

5. Watch how they treat staff

Huberman says he once turned down a job because of a brief, dismissive interaction between the would-be boss and a janitor. Eddy describes an executive who posed as a taxi driver to see how job candidates treated him before their interviews.

OTHER RELEVANT

1. Use the WEB method to spot patterns

Pay attention to their Words (blaming, all-or-nothing), your own Emotions (a gut sense that something is disproportionate) and their Behavior (things 90% of people would never do). Check whether the same problems appear across settings, and treat warning signs such as "never talk to my family" or a lack of any long-standing friendships seriously.

2. Leave without blame, gradually

Avoid a direct hit ("you do this and this") and avoid self-blame ("I'm defective"). Both feed their story. Say something neutral, like "we've grown in different directions." Exit in a few steps so they can adjust, but not so many that hopes rise. Don't go back and forth or pour out your feelings, which Eddy says can precede violence. Expect "hoovering," a switch from rage to pleading or seduction, and don't give in if you're sure it's over.

3. The four forget-about-its

Forget about giving them insight into themselves, focusing on the past, dwelling on emotions (ask "what do you think of this proposal?" rather than "how do you feel?") and using labels. Turn the conversation outward to options and next steps.

4. CARS: Connect, Analyze, Respond, Set limits

Connect with an EAR statement showing empathy, attention or respect. One of the three is often enough, and it must be genuine. Analyze by offering choices, having them write lists, or asking for a proposed solution. Respond with a BIFF message. Set limits with consequences you're ready to enforce, which Eddy calls SLIC. One worker who began greeting her difficult boss with genuine interest became the boss's favorite employee within a month.

5. Teach kids the four big skills

Eddy's New Ways for Families program teaches flexible thinking, managed emotions, moderate behavior and self-checking. If a child says Dad ignored their drawing, a reasonable parent helps the child manage that relationship rather than saying "your dad's a jerk," which Eddy links to parental alienation.

How to Find, Build & Maintain Healthy Romantic Relationships | Esther Perel

Guest: Esther Perel
Date: 2024-09-16 · Duration: 2:06:14
URL: https://www.youtube.com/watch?v=ajneRM-ET1Q

KEYPOINTS

1. We enter relationships both to find ourselves and to become someone new

Perel says everyone carries dual needs: security and freedom, togetherness and separateness. We are often drawn to a partner who embodies a part of us we want more of, or have disowned. The irony is that the trait that first attracts us later becomes the source of conflict, because we want change, but only up to a point and on our own terms. Her example: you love a partner's stability and punctuality, later call it rigidity, and your own wish to become more reliable quietly disappears.

2. Cornerstone and capstone relationships ask for different things

Couples who meet in their early 20s build a 'cornerstone' relationship, forming identities together. People who meet a decade later have usually defined themselves, so the partner is a 'capstone' that confirms an identity. Young couples risk crisis when each starts changing individually and the shared 'vest' feels too tight; later couples must generate the energy to merge two finished lives.

3. Many people will have two or three marriages, sometimes with the same person

Perel argues Western adults now often have two or three relationships or marriages, some with the same partner if the relationship keeps redefining itself. Huberman ties this to Erikson's lifelong developmental stages. It is creative redefinition, not just surviving crises: the goal is a relationship that is alive, not merely 'not dead'.

4. Curiosity is the opposite of reactivity

Reactivity creates rapid, narrow cycles of defense, attack and blame. Curiosity is an active engagement with the unknown, and both agree it works best without attachment to a particular outcome. Perel's work is largely about moving couples from reactive to curious. That is hard because a hurt, defensive body is wired for shutdown and self-protection, which works against what the person needs psychologically.

5. Couples confuse their story with the facts

Perel calls much of couples' arguing 'pseudo-factual talk': each person's account of last night is valid as an experience but is still a subjective rendering. She compares two partners' versions to Swiss cheese, where everything one leaves out is exactly where the other's story begins. Implicit memory from earlier life drives the conscious narrative, and our need for coherence can push us to decide that if I feel hurt, you must have meant to hurt me.

6. Conflict has three 'verb states'

Under threat, couples fall into three patterns: both pursue (fight-fight escalation), both withdraw (flight-flight), or one pursues while the other distances. In her example, one partner follows the other through the house feeling the silent treatment of childhood, while the other feels invaded, as they did in a chaotic family home. At that point their younger selves have taken over. The first step is to shift from the story to physiology and feelings.

7. Apology is between two people; forgiveness is your own freedom

A real apology acknowledges how the other person felt, not just that a mistake happened. Some people can't accept a sincere apology because accepting it would seem to shrink a big grievance. Perel cites the Jewish tradition of apologizing three times, after which the burden passes to the person who refuses. Accepting an apology is still not forgiving. Forgiveness happens on your own timeline and can happen alone.

8. People who can't apologize usually struggle with shame

Quoting a friend, Perel defines self-esteem as being able to see yourself as flawed and still hold yourself in high regard. If admitting a flaw means something is wrong with you, saying 'I'm sorry' becomes nearly impossible. She separates shame from responsibility, and real empathy from 'empathic distress' that stays focused on yourself.

9. Love and desire can feed each other or pull apart

Combining love, security and erotic desire in one relationship is, in Perel's words, the grand experiment of modern love. For some people the two are inseparable. For others they are split, often because they learned to love with extra burden, for example by parenting a depressed or alcoholic parent. Desire means owning your wanting, and that is hard to reach next to someone you feel anxiously responsible for. Drawing on Michael Bader's work, she calls this one of the more common patterns.

10. Affairs are often about finding another self, not another partner

Perel says she has seen plenty of infidelity in happy relationships. Some affairs respond to loneliness, neglect or sexual rejection, while others have little to do with the partner. The word she hears worldwide is 'alive': the erotic, which she defines as vitality, curiosity and playfulness rather than sex, acts as an antidote to deadness. She is explicit that this is not a justification. Affairs still involve betrayal and lying, but also longing and loss.

EXAMPLES

1. A wedding vow Perel recommends

'I'll screw up on a regular basis and on occasion I'll acknowledge it.' She uses it to show what self-awareness and accountability without blame look like. After nearly 40 years as a couples therapist, she says partners often treat therapy as a 'drop-off center' for a partner they want fixed, without seeing themselves as part of the system.

2. The late-dinner apology

Huberman sketches a fuller apology for coming home at 9 instead of 7 without calling: own the mistake, then validate that the

partner's upset makes sense. If it still lands badly, Perel and Huberman point to patterns, such as repeated apologies with no change, or a backlog of unvoiced resentments behind the single event.

3. The cup of tea in a session

When both partners are flooded, Perel may sit in silence for 10 minutes, put on music, or stop the session. Sometimes she asks when one last made the other a cup of tea: being able to make tea for someone you'd like to strangle shows love and hate coexisting.

4. The love/desire page exercise

Draw a vertical line down a page. On one side, finish prompts like 'When I think of love I think of…', 'When I am loved I feel…'. On the other, do the same for sexuality and desire. Words that appear in only one column show how thick the line is between the two for you. Couples can do it at the same time and read their answers aloud.

5. Abandonment vs. suffocation

In many couples, one person fears losing the other and one fears losing themselves. Perel says this role is usually stable within a relationship but can flip from one relationship to the next.

OTHER RELEVANT

1. Repair before revival

Perel's sequence after a hurt or betrayal starts with acknowledgment, remorse and guilt for the consequences, even if you think the act was justified. Next, avoid sliding into self-flagellating shame, which keeps you at the center. Then show the partner they matter through daily attention, becoming the 'vigilante' who protects the relationship. Repair is not yet healing. Revival comes from doing new, risky, playful things together, not from returning to the status quo.

2. Ask: 'Knowing yourself, what makes it hard to live with you?'

Perel asks this in early sessions as a readiness check. No one is fully ready. Everyone has relationship issues to work through, and the only question is with whom. Many relationship problems are paradoxes to manage, not problems to solve.

3. Explore your erotic blueprint

Ask where you go in sex, whether that is connection, surrender, being cared for, being 'safely powerful' or play. Perel treats sexuality as a coded language for emotional needs, wounds and longings shaped by how you were cared for. For apologies, she recommends Harriet Lerner's book on apology, which separates moves aimed at self-preservation from real repair.

Protocols for Excellent Parenting & Improving Relationships of All Kinds | Dr. Becky Kennedy

Guest: Dr. Becky Kennedy
Date: 2024-02-26 · Duration: 2:54:02
URL: https://www.youtube.com/watch?v=XT_6Lvkhxvo

KEYPOINTS

1. 'Sturdiness' means staying connected to yourself and someone else at once
Kennedy, a clinical psychologist and founder of Good Inside, defines sturdy leadership as knowing your own values, wants and needs while staying connected to another person whose needs differ. She says this applies to partners, coworkers and friends as much as to children.

2. Parents have two jobs: boundaries and empathy
Most parents, she says, couldn't tell you their job description when a child hits, lies or melts down. Hers has two parts. Boundaries keep you connected to yourself and keep kids safe. Empathy and validation mean treating a child's feelings as real without condoning the behavior. The two are partners: rules without relationship breed rebellion, while empathy without boundaries leaves kids feeling unsafe.

3. A boundary is what you will do, not a request
A boundary requires nothing of the other person. 'Turn off the TV' is a request. 'If it's not off by the time I get there, I'll take the remote and turn it off' is a boundary. Applied to an intrusive in-law: 'Next time you come unannounced, I'll meet you at your car and say this time doesn't work.' Many 'my kid doesn't listen' problems, she argues, come from not setting a boundary early or firmly enough, which leaves kids to do the parent's job.

4. Kids are good inside; bad behavior signals a missing skill
When Kennedy stripped away every parenting assumption, she was left with one: kids are inherently good. They are born with every feeling and none of the skills to manage them, so behavior is feeling without skill. Punishing it is like trying to teach swimming by punishing a child for not swimming. While trained in a reward-and-timeout program, she once told a client mid-session, 'I don't believe anything I've been telling you.'

5. Rewards can crowd out a child's wish to contribute
Kennedy says children, like adults, want to be a purposeful part of the group. Paying for basics leads to teenagers who won't pick up clothes without $5. Instead, she says 'we're on the same team', assumes the most generous interpretation, and asks what would help the child remember.

6. 'I believe you' builds confidence
When a child says they were picked last, replying 'it's no big deal' teaches them that others know their feelings better than they do. Kennedy's go-to sequence is: 'I'm so glad you're talking to me about this. I believe you. Tell me more.' It signals that the child's experience is real and that their big feelings don't overwhelm you. She says it works with spouses and colleagues too.

7. Trauma is what happens when pain is processed alone
Echoing Gabor Maté, Kennedy says trauma is 'what happens inside you', not the event itself. Citing Ronald Fairbairn's line that a child would rather be a sinner in a world ruled by God than live in one ruled by the devil, she explains that a child yelled at by a caregiver, then left alone, resolves it through self-blame or self-doubt. Many adults carry those patterns. The same event processed with a caring adult is very different.

8. Repair starts with yourself
Before repairing with a child, separate your identity from your behavior. Kennedy repeats 'I'm a good parent who is having a hard time' until something shifts. Without that step, apologies become a bid for the child's reassurance. A repair is something you give, not something you get, and it can be a note slipped under the door if face-to-face is too hard.

9. A sturdy leader is like a pilot
Families can end up 'walking on eggshells' around intense kids, giving in to avoid outbursts. A pilot who changes an emergency landing because a passenger is angry frightens everyone. Kennedy's 'deeply feeling kids' have huge, sometimes animalistic tantrums. They are tenacious and free of people-pleasing, but need firm boundaries to avoid becoming tyrants.

EXAMPLES

1. A simple apology script
'I'm sorry I yelled. It's never your fault when I yell. Like you, I'm working on managing my feelings, and next time I'll try to stay calm.' Even just 'I'm sorry I yelled' confirms that what the child experienced really happened.

2. 'I hate you'
Kennedy often does nothing in the moment rather than return the energy. Later she asks for the most generous interpretation, such as intense disappointment over a cancelled play date. Outside the moment she rehearses the skill, aiming for 'Oh man, I was really looking forward to that.'

3. The towel on the floor
Rather than paying her son, Kennedy asked what would help him remember. He wrote his own Post-it reminder for his door, and he now picks up his towel far more often.

4. The note a teen rips up
A teen client screamed 'get out', slammed the door, then opened it minutes later and was hurt that her parents weren't there.

Kennedy tells parents to leave a note anyway, such as 'That was tough. You're a good kid and I love you', even if they hear it torn up. Teens need a home base; without one they become nomads rather than explorers.

5. Inserting frustration on purpose

Kennedy suggests bringing kids on boring errands, making them fold laundry even with paid help, and letting them sit with not making a team for a couple of days. Some reading struggles that test negative for dyslexia, she suspects, are a child's first experience of sustained effort without instant success. Learning happens in the frustrating space between not knowing and knowing.

OTHER RELEVANT

1. Expect to grieve during adolescence

Teens must overcorrect away from parents to form their own identity, and parents genuinely lose closeness. Naming that sadness keeps it from turning into anger at the child.

2. Understand before you intervene

Kennedy's most underused tool is doing nothing in the heat of the moment, then figuring out what skill was missing.

3. Grace over perfection

Kennedy, a self-described pragmatist whose own kids have iPads, says no one has 'messed up their kid forever'. Small changes at the margin are what count.

The Biology of Social Interactions & Emotions | Dr. Kay Tye

Guest: Dr. Kay Tye
Date: 2024-02-05 · Duration: 2:31:06
URL: https://www.youtube.com/watch?v=V0Sdgn0_kFM

KEYPOINTS

1. The amygdala does far more than fear
Tye, a Salk Institute neuroscientist and HHMI investigator, notes that the early Klüver-Bucy lesion studies left monkeys emotionally flat toward everything: food, feces, objects. Fear dominated research because it was easy to study. As a graduate student working on the basolateral amygdala, she showed its neurons strengthen their synapses and fire to cues that predict reward, which surprised the field when she presented it at the first Gordon Research Conference on the amygdala.

2. Valence is assigned at a fork in the road
Valence means net good versus net bad, which Tye distinguishes from value, a scale of magnitude in one direction. Her lab traced amygdala projections and found separate populations sending mostly positive or mostly negative signals to different downstream targets, which drive approach or avoidance. At the time it was hard to publish because few thought neurons in one region could have completely different functions depending on where they project.

3. Novelty gets a single chance to matter
The amygdala responds to anything new, like an unfamiliar tone or a fire alarm, then quickly stops responding if it predicts nothing. Tye calls this giving everything novel a chance to prove its importance in one trial. It's why someone else's ringtone startles her when her own phone is on do-not-disturb, while its owner barely notices it.

4. The amygdala evaluates, but doesn't generate panic
Patient SM, who has damage to both amygdalae, shows no response to fearful faces or threats yet can still panic in response to suffocation. Tye's working model is that the amygdala's roughly 13 subnuclei assign importance and meaning rather than producing autonomic arousal themselves.

5. Hunger can flip fear and reward priorities
Normally the negative-valence amygdala pathway can suppress the reward pathway, because escaping a predator matters more than eating. After one day without food, a big deal for mice given their high metabolism, the balance inverts and reward signaling can silence the fear pathway. The shift appears reversible, and the amygdala may sense hunger through receptors such as those for ghrelin. Tye cites the controversial 2011 Danziger study, in which judges' parole approvals were highest after meal breaks and plunged toward single digits before them. She stresses it was correlational.

6. Loneliness neurons were found by accident
Former postdoc Gillian Matthews was testing whether dorsal raphe dopamine neurons respond to cocaine. The saline controls showed synaptic strengthening too, because injected mice were housed alone. These neurons, unlike the familiar VTA dopamine neurons, are unpleasant to stimulate: mice avoid places where it happens. Yet stimulating them makes mice more social. Tye compares this to eating out of uncomfortable hunger rather than pleasure, and concludes these may be loneliness neurons, encoding an aversive need for social contact.

7. Social homeostasis: your set point shifts
Acute isolation produces a rebound of affiliative behavior when reunited. Chronic isolation produces aggression, territoriality or avoidance across humans, monkeys, mice and even flies. Tye's model is that you detect a deficit and try to reconnect, and if those efforts fail long enough, behavior drops off sharply and you adapt to a new baseline. Then your old normal level of contact feels like overload. She thinks many people experienced this shift going into and out of the pandemic.

8. Empathy tracks whether someone is an ally or an adversary
Tye defines empathy as understanding another's emotion and taking it on, distinct from emotional contagion like group panic. She speculates that empathy is inversely correlated with seeing someone as a competitor standing in your way. Once you realize someone is out to get you, empathy disappears. Long isolation may make everyone feel like a competitor. Whether empathy for positive and negative events is truly asymmetric remains an open question.

9. Prefrontal neurons predict who wins
In stable groups of four cage-mate mice, food-deprived and competing for a reward only one could collect, prefrontal activity stably encoded who was dominant. It also predicted above chance, up to about 30 seconds ahead, which mouse would win the next trial. For subordinates, prediction accuracy jumped near the cue, suggesting they watch the dominant and go when it seems disengaged. Dominants don't watch the subordinates at all. Huberman likens this to Don Draper in Mad Men saying, "I don't think about you at all."

EXAMPLES

1. Tye's one hour a week
To control input from the top down, Tye spends less than an hour a week on email and social media combined. An assistant flags what matters, and she opens only those messages for about 10 minutes a day. Otherwise she overcommits, fragments her attention and can't have epiphanies. She notes this depends on your job and resources, and says she worked differently as a trainee.

2. Reshuffled hierarchies
In preliminary, unreplicated work, Tye's lab ranked mice, then regrouped all the alphas together, all the betas together and so on. Alphas fight it out quickly. Intermediates seem to take longest to form a new order. That inbred mice behave so differently suggests rank during development shapes lasting traits, perhaps like birth order. Tye calls the link between eldest children and leadership loose.

3. Her pandemic experiment of one

Tye went from never being alone to some days seeing no one. At first it felt like free fall. Then she adapted, started a garden and grew comfortable alone. She now deliberately mixes lots of varied social experiences with protected alone time, which she says makes her social system more elastic and resilient. She considers being alone a distinct brain state.

4. Psilocybin under the microscope

Using Neuropixels probes recording thousands of prefrontal neurons in mice given psilocybin, Tye's lab asks whether psychedelics make transitions between hidden "mood" states more fluid, change how many states exist, or merge the neural representations of self and other. They test animals in conflict trials where reward and shock cues appear together, since the ambiguous gray zone is where valence assignment may shift. She cautions against psychedelic use, especially by young people.

OTHER RELEVANT

1. Why isolation research lagged

Harry Harlow's maternal-separation experiments, in which baby monkeys preferred a soft cloth surrogate to a wire one with milk, caused irreparable harm and were deemed cruel. That history, Tye says, left a gap in neuroscience on isolation, even though loneliness is linked to shorter lifespan, mood disorders, and worse outcomes in heart disease and cancer. She notes solitary confinement is considered torture.

2. Social media probably isn't real social contact

Tye predicts, while noting the study hasn't been done, that social media does little against loneliness. She believes meaningful contact depends on synchronous, shared interaction with some interbrain synchrony, and most social media is asynchronous: you react to things that already happened without you.

3. Dynamic hierarchies may be healthier

Huberman recalls a neighborhood pack where the leader changed with the activity: skateboarding, soccer, art or knowledge. Tye agrees that leadership based on competence at the task at hand beats fixed hierarchies. She adds that a key step for a young scientist is the first experiment they run that no one told them to do.

How to Understand Emotions | Dr. Lisa Feldman Barrett

Guest: Dr. Lisa Feldman Barrett
Date: 2023-10-16 · Duration: 2:39:04
URL: https://www.youtube.com/watch?v=FeRgqJVALMQ

KEYPOINTS

1. Science has no agreed definition of emotion, and none of its proposed building blocks is unique to emotion

Barrett, a distinguished professor of psychology at Northeastern, notes that 150 years of debate haven't settled what an emotion is. The classic definition, a coordinated change in brain, body physiology and face, describes nearly every waking moment, because your face is always moving and your physiology always supports movement. For decades scientists expected each emotion to have a diagnostic 'fingerprint' of heart rate, action tendency and facial expression; the data never bore that out.

2. Facial movements are not universal emotional expressions

A movement is just a movement; an 'expression' is an interpretation someone adds to it. Meta-analyses in Western samples show people scowl only about 35% of the time when angry. That is above chance, but the other 65% of the time they move their faces in other meaningful ways. She calls the classic Darwin-derived face set largely 'Western stereotypes enshrined as scientific fact'.

3. Context, not the face, carries most of the meaning

Your brain reads an entire ensemble of signals (sounds, smells, the scene, your own body), not an isolated face. Babies' cries aren't acoustically specific to hunger or tiredness. A clip of someone crying looks 'sad' until the camera pans out to show a little girl whose dad just came home.

4. Outside Western cultures, the presumed universal faces often fall apart

The wide-eyed gasp Westerners call 'fear' functions in Melanesian culture as a threat or 'war face'. Among the Hadza hunter-gatherers of Tanzania, who have much less exposure to Western norms, people often don't treat facial movements as being about emotion at all. Newborns orient to a face-like configuration, but the first three months are a 'massive continuous tutorial' in learning faces.

5. Emotions are categories the brain constructs to predict what to do next

Barrett's model treats anger or fear as highly variable groupings of instances, closer to verbs than nouns. The brain doesn't create a state and then label it; it builds a category of possible futures from past instances, which starts as visceral and skeletal motor plans (heart rate, breathing, blood pressure, muscles). The emotion is a plan for action.

6. Affect is a low-dimensional summary of your body, distinct from emotion

Your brain regulates your organs constantly but you can't sense that detail. Instead it gives you affect: pleasant–unpleasant and worked-up–calm, a barometer that is always present in the foreground or background. Emotion is the story the brain tells about what caused those sensations and what to do. Interoception is the brain's model of the body's state, not your awareness of it.

7. Your brain runs a 'body budget' (allostasis)

Rather than money, the brain budgets glucose, salt, oxygen and water. Sleep and food are deposits; trusted company is 'savings' that makes everything slightly cheaper metabolically. Unpleasant affect often signals a deficit, though not necessarily a problem: discomfort roughly 10–20 minutes into hard exercise just means you are working hard.

8. Barrett frames depression as a bankrupt body budget and a metabolic illness

Its symptoms (fatigue so severe you can't move, distress, lack of positive anticipation) map onto metabolic deficit; learning from pleasant surprises is expensive, so a depleted brain doesn't notice them. She cautions that SSRIs may 'juice the system' at first, but for some people the nervous system later adjusts, so they stop working and weight gain follows. Huberman adds an unpublished view among psychiatrists that SSRIs may deplete mood-supporting systems over time, a possible link to 'treatment-resistant depression'. Both present this as a hypothesis, not established fact.

9. Emotional granularity: finer categories give better predictions

Barrett coined the term almost 30 years ago and stresses it is a process, not a trait. Using 'bad' makes the brain construct a whole library wing of options; 'angry' is a bookcase and 'frustrated' a shelf. Words are compressions, like 'pizza' standing in for about 50 sensory features, and you can add new bins, such as the Turkish concept she describes as anger and sadness at a loss together.

10. Being emotionally intelligent includes knowing when not to construct an emotion

Sometimes a stomach ache is better experienced as a stomach ache. We tend to treat negative affect as information about the world ('that driver is an asshole') when it comes from inside us, and sometimes nothing is wrong except too little sleep, food or movement.

EXAMPLES

1. 2016 consensus paper on facial expressions

The Association for Psychological Science asked Barrett and senior scientists who disagreed with each other to review the evidence on universal expressions. Several refused to serve, she suggests partly out of fear for their funding.

2. Death row and 'reading' faces

The Innocence Project intervened in a case where a woman was on death row largely because a police officer claimed he could read her emotions from her face and body. A stay of execution allowed a retrial. Barrett's point is that this kind of evidence wouldn't pass scientific scrutiny, yet juries rely on it to judge remorse.

3. Uncertainty vs anxiety in New Zealand

Days before COVID was declared a pandemic, with one case in New Zealand, Barrett felt intense, unpleasant arousal. She categorized it as uncertainty rather than anxiety, which meant foraging for information instead of freezing or fleeing. She rerouted flights home mid-trip, and the borders closed about two days later.

4. 'Get your butterflies flying in formation'

When her 12-year-old daughter, under 5 feet tall, tested for a black belt against much bigger boys, her 10th-degree black belt sensei didn't tell her not to be afraid; he gave her pounding heart a new meaning: determination.

5. The 'emotional flu' in Stockholm

While her daughter was recovering from depression, a jet-lagged morning looked like the start of another episode. Barrett fed her, gave her ibuprofen and put her back to bed; after five more hours of sleep she was fine. Barrett explicitly says ibuprofen is not an antidepressant. Her daughter coined 'emotional flu' for a bad body-budget day.

6. Social stress taxes a meal

Barrett cites research that being socially stressed within two hours of eating makes the same meal cost the equivalent of 104 extra calories through less efficient metabolism, which she calculates as about 11 pounds over a year.

OTHER RELEVANT

1. Before trusting a bad feeling, check the body budget

Ask whether you're tired, hungry, stiff or in pain. Sleep, a meal with protein, a walk or run, or shifting attention outward all change affect directly. Studies show ibuprofen or Tylenol reduce negative feeling, which shows how physical affect is.

2. Reinterpret arousal as a cue for action

High arousal under uncertainty comes partly from learning-related neuromodulators. Treat it as a reason to gather information, or as determination, not automatically as anxiety. The feeling may not get more pleasant, but it becomes useful.

3. Beware quick 'fixes' that borrow against the budget

Stimulants and alcohol feel like they fix depletion but leave your baseline lower afterward. Huberman and Barrett note some people describe alcohol as a 'magic elixir' before the cost arrives.

4. Be a deposit, not a tax, for other people

'The best thing for a human nervous system is another human, and the worst thing is also another human.' Strangers who trust each other start synchronizing heart rate, breathing and movement within minutes, with healthy interactions alternating who leads. In creative work, trust in your team and managers is the best predictor of performance once sleep and food are accounted for. Random acts of kindness, like Barrett baking bread for her neighbor, benefit the giver's body budget too.

Dr. Paul Conti: How to Build and Maintain Healthy Relationships | Huberman Lab Guest Series

Guest: Dr. Paul Conti
Date: 2023-09-20 · Duration: 3:04:37
URL: https://www.youtube.com/watch?v=eMqWH3LYiII

KEYPOINTS

1. Healthy relationships start with a healthy self
Conti, a psychiatrist, builds on the model from earlier episodes in this series. The structure of self (character structure, defense mechanisms, what is salient) and the function of self are worked on with curiosity to build empowerment and humility. Those come together in 'agency and gratitude' as verbs. A healthier person, he argues, also recognizes unhealthiness in others, which protects against bad pairings.

2. You cannot predict 'us' from two lists
Relationships show 'levels of emergence': something new arises from the combination that no one can know in advance, even with extensive knowledge of both people. Points of compatibility matter for concrete deal-breakers, such as one person absolutely wanting children and the other absolutely not. But checklists, attachment labels and love languages miss the heart of the matter.

3. Match on generative drive, not surface interests
The generative drive is a set of potentials: the drive to learn, create and spread goodness, inwardly and outwardly, shaped by genes and formative experience but changeable. Two people who both love music can grow together if their generative drives are healthy. If one's aggressive drive dominates, it becomes 'my music is better than yours.' Conti says people rarely look for this in themselves or others, and not doing so causes countless problems.

4. There are three drives to keep in balance
Alongside the generative drive, the aggressive drive includes healthy assertion and proactivity, not just conflict. The pleasure drive covers gratification. Problems arise when the generative drive is low or thwarted, or when assertion is too weak or aggression too strong. Conti distinguishes generative engagement from passive consumption, like reading a great book just to check it off.

5. A trauma bond is not inherently bad
Two people with trauma, for example avoidance that keeps them from crowded places, can reinforce each other's avoidance, which is why the term sounds negative. Conti says the problem is unhealthy drives, not shared trauma. The same pair, if generative, can do together what neither could do alone and leave stronger.

6. 'Repetition compulsion' is not truly compulsive
Conti rejects the word compulsion because these choices can change. Trauma triggers shame and lodges in the limbic system, which 'doesn't care about the clock or the calendar.' So a person may unconsciously seek a similar relationship to make the original one right, as if fixing the present would repair the past. That is why someone can end up in a fourth abusive relationship with 'the same person with a different name.'

7. Narcissism and dependence can lock together
A narcissistic character structure is exploitive, 'a bottomless pit of need arising from vulnerability.' Such a person can survey a room and find someone desperate not to be left. Milder forms of the same pattern appear as attachment insecurity, such as giving up parts of oneself or overworking just so a partner won't leave. Conti stresses that both can be treated.

8. Staying in abuse reflects demoralization, not choice
Outside of extreme oppression, Conti believes people remain in exploitive relationships only when demoralized, with too little drive for assertion. Helping them understand what inside makes change seem impossible, and giving them means, lets them leave.

9. Jealousy can be benign; envy is destructive
In Conti's terms, jealousy says 'you have something I don't, maybe I can work for it,' and can motivate. Envy treats bringing the other person down as equal to lifting yourself, through humiliation, harassment or sabotage. He argues the small fraction of people with envious, narcissistic structures 'does most of the damage on earth,' from hospital and lab hierarchies to wars, and that envy rules out happiness.

10. Power dynamics exist in every relationship, mostly unstated
Power dynamics are not necessarily unhealthy, but most are covert, like an iceberg. Ask honestly what's really going on between us. Can each person raise issues without retribution, even small ones such as coming home late the next day? People often present 'everything is equal' while describing a large disparity.

11. Self first, then other, then the 'magic bridge of the us'
Mentalizing, or understanding another's mind, starts with understanding yourself, since you can't read someone clearly while flooded with your own anxiety. Then consider the other person, then the relationship itself. Distorting defenses such as projection can turn a partner's calm, well-meaning attempt to solve a problem into 'you don't care about me.'

EXAMPLES

1. The friend who walks in without knocking
Conti's boundary walk-through: first check inside whether the behavior bothers you and whether that makes you a bad friend. Settle it with yourself, then communicate warmly: 'I care about you and trust you, but it makes me nervous when people just come in; would you mind knocking?' A blunt 'don't come in anymore' puts the friendship 'on the rocks.'

2. Two avoidant people at the museum

Neither can go alone because of crowds, but together both can. They return with more confidence and pleasure, reinforcing the generative drive. It is Conti's example of a trauma bond working positively through the 'us.'

3. His grandmother's joy in giving

Conti recalls that his maternal grandmother liked receiving gifts but loved giving, and he learned later how much good she did in her community. He also describes a very successful man he consults with who always 'gives a little bit' at the end of any deal. Conti argues the goodness inside explains both his success and his happiness.

4. Kindergarten as the template

Huberman recalls caring adults, snack-time oranges, naps, and a class guinea pig families took home on weekends. Conti agrees that a healthy kindergarten embodies the generative environment: support, care for others and simple goodness that trauma and complexity erode.

OTHER RELEVANT

1. Before dating, work on your own 'map'

Conti rarely sees someone rescued simply by finding a healthier partner. He calls it a 'broken compass' when your choices keep leading you wrong. Examine your defenses and drives so you're drawn to others who have done the same work.

2. Interrupt anxiety before reading others

In conflict, notice your own anxiety and known biases ('I get defensive and read calm as not caring') before interpreting your partner's intent.

3. Lean toward giving

Conti finds the happiest people are givers. Ending exchanges by giving a little more than you take fuels the generative drive.

4. Seek help for entrenched patterns

Repeated abusive pairings, narcissistic traits and pathological dependence are treatable. Clinical care helps people see why change feels impossible.

Science of Social Bonding in Family, Friendship & Romantic Love

Date: 2021-12-20 · Duration: 1:33:22
URL: https://www.youtube.com/watch?v=RgAcOqVRfYA

KEYPOINTS

1. Social bonds run on a homeostatic circuit, like hunger and thirst
Building on Kay Tye's work, Huberman describes a 'social homeostasis' system with a detector, a control center and an effector. It compares the social contact you have with what you expect and drives you to correct the gap. The detector is mainly the anterior cingulate cortex and basolateral amygdala. Hypothalamic and dopamine circuits act as control and effector, and the prefrontal cortex adjusts for shifting social hierarchies, such as who takes the lead in different settings.

2. Loneliness is a mismatch, not just isolation
Psychologist John Cacioppo defined loneliness as the distress that results from discrepancies between ideal and perceived social relationships. What people expect from friendship varies hugely, but the underlying bonding circuit is the same.

3. Dorsal raphe dopamine neurons encode 'social hunger'
In a paper from Kay Tye's lab (first author Gillian Matthews), activating dopamine neurons in the dorsal raphe nucleus induced a loneliness-like state that drove animals to seek social contact; inhibiting them suppressed it. Counterintuitively, loneliness corresponds to more dopamine release from this small cluster, which motivates seeking. Once enough contact occurs, output drops. Where an animal sees itself in the social rank changed whether this drove approach or withdrawal.

4. Short-term isolation makes us social; chronic isolation makes us withdraw
Missing an expected interaction triggers a dopamine-driven push toward people. With prolonged isolation, animals and humans become more antisocial, much as someone used to multi-day fasting doesn't scramble for a missed meal. Chronic isolation raises cortisol, harms immunity and increases the peptide tachykinin (found in flies, mice and humans), which makes the isolated individual irritable and even aggressive once contact returns.

5. Introverts may get more dopamine per interaction, not less desire
In this model, introverts aren't people who dislike socializing. They feel satisfied by less social contact because each interaction releases more dopamine. Extroverts get less dopamine from the same interaction and need more frequent or longer contact to reach their threshold.

6. Social and food cravings share circuitry
People who are socially isolated often eat more or switch to comfort foods. Huberman frames this as the brain seeking dopamine elsewhere when social sources are unavailable, rather than simply as a pathology.

7. Bonds form through synchronized physiology
Heart rate, breathing, pupil size, skin conductance and even shifts in body temperature can synchronize between people. Felt closeness correlates strongly with that synchrony, in both directions. Huberman calls it the concert phenomenon: shared external experiences align internal states.

8. Strong bonds need both emotional and cognitive empathy
Emotional empathy is feeling what someone feels at an autonomic, visceral level. Cognitive empathy is understanding how they think, which doesn't require agreeing. Parent-child bonds, romance and deep friendships involve both. Huberman notes Karl Deisseroth's point that we never truly know another person's feelings; we infer them.

9. Early attachment patterns replay in adulthood
Huberman highlights psychoanalyst Allan Schore's work on right-hemisphere-biased, largely autonomic attachment between infant and caregiver, which he says is re-expressed in adult bonds. Huberman stresses that popular 'emotional right brain, rational left brain' ideas are mostly wrong. Schore's claim concerns specific lateralized attachment circuits.

10. Oxytocin is the long-acting hormonal 'glue'
Oxytocin is involved in milk let-down, uterine contraction and cervical dilation, social recognition, pair bonding, and even honesty in some inhaled-oxytocin experiments. It also has links to autism. Huberman describes a debated sex difference: in females, sexual activity and orgasm release oxytocin, while in males, arousal triggers vasopressin and orgasm releases oxytocin about 30 minutes later.

EXAMPLES

1. Ten hours of isolation in humans
In a Nature Neuroscience study, socially connected adults spent about 10 hours isolated with no social media, email or even fiction. When they viewed images of people interacting, dopamine-related areas responded more, and they also responded more to food. In the reverse experiment, 10 hours of fasting in non-fasters increased craving for social interaction.

2. Same story, synchronized hearts
People who listened to the same story at different times and places developed closely matching heart rate patterns, with the intervals between heartbeats almost mapping onto one another. Huberman takes this as evidence that a shared narrative can align physiology even without being together.

3. Oxytocin genes and Instagram
A Heliyon study (first author Carollo) linked variants in the oxytocin and oxytocin receptor genes to an Instagram sociability index based on follower-to-following ratios. Carriers of certain variants sought more online social interaction. Huberman calls it an exploratory but notable first in merging social media data with genetics.

4. Raising a puppy as a model of autonomic bonding

Huberman describes his bond with his late bulldog, Costello, as deeply emotional and autonomic rather than cognitive, built on touch, walks and fun. While house-training him as a puppy, Huberman lost his appetite and much of his capacity for cognitive work. He was sleep-deprived but almost entirely focused on forming that caretaking bond, the way parents describe early infancy.

OTHER RELEVANT

1. Bond through shared external experiences

To deepen a connection, share a story, music, a sports event or a novel experience that drives physiological synchrony. Huberman tells of his sister, whose dates who took her dancing tended to turn into longer relationships than dates at jazz clubs, where you just sit. Creating a common physiological response through a shared experience is a good entry point. Physical contact helps only where it suits the relationship.

2. Practice cognitive empathy deliberately

In conflict, focus on actually understanding how the other person thinks about the issue, then notice how you think and feel about it. Agreement isn't the goal; understanding is.

3. Watch for comfort eating as a sign of social hunger

If isolation pushes you toward food, recognize it as dopamine-seeking and look for social contact instead. After long isolation, expect re-entry to feel harder and more irritable than you'd predict, and ease back in.

4. Expect breakups to hurt like withdrawal

Losing a bond removes a major source of dopamine and oxytocin and breaks both emotional and cognitive empathy, a form of social isolation even when you're surrounded by people. Huberman quotes Lisa Feldman Barrett: we are nervous systems influencing other nervous systems.

How Humans Select & Keep Romantic Partners in Short & Long Term | Dr. David Buss

Guest: Dr. David Buss
Date: 2021-11-29 · Duration: 2:13:02
URL: https://www.youtube.com/watch?v=HXzTbCEqCJc

KEYPOINTS

1. Long-term and short-term mating follow different rules
Buss's starting point is that what people seek in a marriage or committed partner differs from what they seek in a hookup or brief affair. He grounds this in Darwin's sexual selection: one sex's preferences set the terms of competition in the other. For example, if women prefer men able and willing to invest resources, men compete to acquire and display them. Long-term pair bonding is rare, found in only about 3–5% of mammals and absent in chimpanzees.

2. The 37-culture study found universal desires
Buss's large cross-cultural study found qualities both sexes want everywhere: intelligence, kindness, mutual attraction and love, good health, dependability and emotional stability (women prioritize stability slightly more). 'No one wants a stupid, mean, ugly, disease-ridden mate,' he says, but this wasn't established before the study. He notes that love isn't a Western invention. The !Kung San of Botswana describe the same infatuation phase, which lasts weeks to perhaps six months before shifting into attachment.

3. Reliable sex differences in long-term preferences
Women more than men prioritize earning capacity, status, ambition and a strong 'long-term resource trajectory,' along with a slightly older age. Men more than women prioritize physical attractiveness and relative youth. Women aren't indifferent to looks, and Buss notes men overestimate how muscular women want them to be. These differences have held in roughly two dozen replications and in follow-ups in China, Brazil and India, even as traits like valuing virginity shifted over time.

4. Age gaps widen as men age
In Buss's data, men preferred women about 3–4 years younger, and women preferred men about 3.5–4.5 years older. US marriage statistics converge with this: the average gap is about three years at first marriage, five at second and eight at third. Buss notes that very large gaps create practical problems because partners grew up in 'different cultures.'

5. Deception is built into courtship
Both sexes deceive. Men commonly exaggerate the depth of their feelings and how similar their values are in order to signal long-term interest, because open bids for casual sex are ineffective. Buss cites unconfirmed reports, denied by Tinder, that about 30% of men on the app are married or partnered. He encourages people to skip endless texting and meet in person. Women have the more acute sense of smell, and a man who 'doesn't smell right' can be a deal breaker regardless of his other qualities.

6. Short-term preferences shift toward looks and risk
In short-term contexts, women weight physical appearance more heavily and favor 'bad boy' traits such as confidence, a little arrogance, risk-taking and defying conventions. In long-term contexts they look for 'good dad' traits. Men are willing to lower their standards for low-commitment sex. Women also use mate copying, finding a man more attractive when many other women want him (the rock-star groupie effect). Buss argues that women's attraction is more context-dependent than men's.

7. Women's affairs look more like 'mate switching' than seeking good genes
Kinsey estimated that about 26% of married women and 50% of men commit infidelity, and other studies report lower figures. Buss once backed the dual-mating hypothesis (resources from one man, genes from another) but now favors mate switching: leaving a relationship, trading up, testing one's desirability, or keeping 'mate insurance.' Key evidence is that about 70% of women who have affairs fall in love with the affair partner. Early findings that ovulation shifts women toward masculine, symmetrical men proved much weaker, and some large studies failed to replicate them.

8. Infidelity has sexual, emotional and financial forms
Women tend to define infidelity more broadly, while men focus on sex. Women are more upset by emotional infidelity (a cue that the partner's investment may leave), and men by sexual infidelity. Financial infidelity, meaning secret spending or hidden pooled resources, is less studied, but 30–60% of people keep some financial information from their spouse.

9. Mate-value gaps trigger jealousy, ranging from vigilance to violence
People tend to pair with partners of similar mate value, within about a point. If one partner's value rises, for example through a career taking off, jealousy can activate even without any rival, because the higher-value partner is statistically more likely to stray or trade up. A half-point gap rarely ends relationships, but larger ones do. Buss catalogs 19 tactics, from monitoring phones and partners' eye contact to intimate partner violence. He describes the violence as sometimes functioning to reduce a perceived gap, while stressing he doesn't endorse it.

EXAMPLES

1. The Cheaters show analysis
An analysis of the TV show Cheaters, in which betrayed partners confronted cheaters caught on camera, found a stark contrast. Men's first question was typically whether she had sex with him, and women's was 'Do you love her?' Buss links this to paternity certainty versus loss of commitment.

2. 'Men are like soup'
Illustrating mate insurance, Buss quotes a woman who said men are 'like soup, you always want to have one on the back burner.'

3. The conference organizer

A female colleague of Buss's found a conference organizer very attractive, then six months later wondered what she'd been thinking. As organizer he had been at the center of the room's attention structure. As an ordinary presenter he wasn't.

4. Attachment and infidelity

Offering what he calls informed speculation outside his main expertise, Buss says two securely attached partners favor a lasting bond. Avoidant people struggle more with intimacy and have a higher probability of infidelity, and anxious attachment can create a heavy 'relationship load.' Huberman wonders whether insecurity predicts distress over slow text replies.

OTHER RELEVANT

1. Meet in person early

Online profiles and long message threads leave room for deception and miss cues like smell and how someone handles themselves socially. Coffee gives a more accurate read.

2. Watch for over-fast declarations of depth and similarity

Exaggerated feelings and claims of perfectly aligned values are classic tactics for someone seeking short-term sex while signaling long-term interest.

3. Talk explicitly about what counts as infidelity

Partners often define it differently. Naming emotional and financial boundaries alongside sexual ones prevents mismatched assumptions.

4. Take jealous vigilance seriously

Phone hacking, following and stalking sit on a continuum that can end in violence. Buss's book When Men Behave Badly covers intimate partner violence and stalking in depth.

The Science of Gratitude & How to Build a Gratitude Practice

Date: 2021-11-22 · Duration: 1:25:57
URL: https://www.youtube.com/watch?v=KVjfFN89qvQ

KEYPOINTS

1. A good gratitude practice has outsized, long-lasting effects
Huberman cites studies in which doing a practice once to three times a week produced lasting gains in subjective well-being, meaning and awe, resilience against both past and future trauma, and better relationships across work, family, romance and one's relationship with oneself. He argues the anti-inflammatory and neural-circuit effects are on par with interventions people consider more potent, but only if the practice is the right kind.

2. Gratitude is a prosocial state that competes with defensive circuitry
Prosocial circuits draw us toward people, foods and experiences; defensive circuits drive backing away, guarding vital organs and a quaking voice. The two antagonize each other. Defensive circuits are probably more robust by default, much as the retina has more and stronger neurons for detecting darkening than brightening, which is why most people need deliberate practice to tilt the seesaw toward the prosocial side.

3. Serotonin and two cortical areas carry the gratitude signal
Serotonin, released mainly from the raphe nucleus in the brainstem, biases the brain toward approach and staying with an experience. Antonio Damasio's imaging work found gratitude activates the anterior cingulate cortex and medial prefrontal cortex, with activation scaling with how intensely gratitude was felt.

4. The medial prefrontal cortex sets context and meaning
The same discomfort produces different chemistry depending on framing. Entering an ice bath by choice, knowing its benefits, yields better dopamine and anti-inflammatory effects than being pushed in, even though the adrenaline and the cold are the same. Context-setting has limits, however: you cannot convince your brain that cutting your hand is good, and you cannot fake gratitude for something you actually hate.

5. Listing things you are grateful for is mostly ineffective
Writing or reciting three, five or 20 things you are thankful for, the most common approach online, does little to shift prosocial circuitry in most studies, which surprised Huberman because it was his own practice. Raising autonomic arousal first, for example with about 25 to 30 deep cyclic hyperventilation breaths, cold or chanting, can make such lists slightly more effective by intensifying the emotions involved.

6. Receiving thanks beats giving it
The most potent form is perceiving gratitude directed at you. Because you cannot wait around for others to thank you, the practical substitute is to recall a time you were genuinely thanked, or to absorb someone else's story of receiving help. The story need not resemble your own life; it only has to move you.

7. Story and theory of mind are the active ingredients
The brain organizes information as narrative. Theory of mind, the ability to model another person's experience, a concept developed by Simon Baron-Cohen, lets you experience gratitude second-hand. Gratitude circuits light up when an observer feels affiliation with the person receiving help.

8. Gratitude must be genuine on both sides
A Scientific Reports fMRI study had people receive varying sums of money from benefactors who gave wholeheartedly or reluctantly. Amount mattered, but the benefactor's wholehearted intention had the larger effect on felt gratitude. Huberman's takeaway: genuine thanks are what count, whether you give or receive.

9. Repeated practice rewires fear and motivation circuits
A study titled Effects of Gratitude Meditation on Neural Network Functional Connectivity and Brain-Heart Coupling, which used a resentment intervention as a control, found that regular gratitude practice changed resting-state connectivity so anxiety and fear circuits were less active while well-being and motivation circuits were more active. The interventions lasted only 5 minutes. Other work tracking practice for up to 6 weeks shows the circuits grow familiar with a narrative and activate more readily.

10. Serotonin-raising supplements are an optional, cautious add-on
Serotonin tilts the brain toward contentment with what is here, while dopamine and epinephrine pull attention outward toward pursuit. Huberman notes some people use 5-HTP or tryptophan, though for him they disrupt sleep architecture, with deep sleep followed by waking three hours later. Kanna (Sceletium tortuosum, sold as Zembrin), typically 25 to 50 mg, likely raises serotonin. He is not recommending either; check with your doctor and local law.

EXAMPLES

1. Stories synchronize heart rates across strangers
In a Cell Reports study by Perez and colleagues, people heard the same story in separate places or on different days, yet their electrocardiogram heartbeat intervals came to match almost identically. Since inhaling speeds the heart and exhaling slows it, the story's effects on breathing and heart rate are linked. Huberman uses this to argue that returning to one story reliably shifts body state.

2. Gratitude letter read aloud by a coworker
Researchers had coworkers secretly write a thank-you letter, then read it face to face while wearing a near-infrared spectroscopy cap. The recipient showed robust prefrontal activation, stronger than in the giver.

3. Damasio's genocide-survivor narratives

Subjects in an fMRI scanner watched survivors describe their ordeals and small acts of help, such as a fellow prisoner who was a doctor finding medicine for a woman who had been sick for weeks, or an ally giving someone glasses as their eyesight failed. Feeling affiliation with the storyteller activated gratitude circuitry, effectively receiving gratitude through another's narrative.

4. Haslett et al., 2021, in women

This randomized controlled trial in Brain, Behavior, and Immunity found that a regular gratitude practice reduced activity in the amygdala, a threat-detection hub, and markedly lowered the inflammatory cytokines TNF-alpha and IL-6, with effects appearing almost immediately after practice. The direction of cause is unknown. Huberman sees no biological reason the findings would not apply to men.

5. Voluntary versus forced running in mice

From the Robert Sapolsky conversation: a mouse that chooses to run on a wheel shows lower blood pressure and better neurochemistry, while a mouse whose linked wheel forces it to run the same amount shows rising blood pressure and stress hormones.

OTHER RELEVANT

1. Build one story and a few bullet-point cues

Choose a narrative that genuinely moves you: either a time someone sincerely thanked you, or someone else giving or receiving help. Write three or four bullet points capturing the state before the help, the state after, and whatever gives it emotional weight. Reuse the same story rather than hunting for new inspirational content each time, since repetition drives the plasticity.

2. Keep sessions short and do them three times a week

Once the story is set, read your cues and feel into the experience for 1 to 2 minutes, up to 5 if ambitious. Calming breaths such as physiological sighs can precede it but are optional. No study pins down frequency, so Huberman proposes about three times a week; time of day does not matter.

3. If you give thanks, make it real

A sincere letter, text or call of thanks is a powerful way to shift someone else's neurology, but reluctance or exaggeration undermines it, and the same rule applies to gratitude you try to manufacture for yourself.

4. Expect side benefits for empathy

Even brief practices engage the anterior cingulate cortex more robustly. Huberman's lab sees this region acting as a hub for primitive empathy in mice, so a narrative-based practice may also make you more attuned to others.

Machines, Creativity & Love | Dr. Lex Fridman

Guest: Dr. Lex Fridman
Date: 2021-07-19 · Duration: 3:03:18
URL: https://www.youtube.com/watch?v=VRvn3Oj5r3E

KEYPOINTS

1. AI is a philosophy, a toolkit and a way of understanding our own minds
Fridman quotes Pamela McCorduck's description of AI as 'the ancient wish to forge the gods'. In practice, he says, it is a set of computational tools, and deep learning with artificial neural networks has driven most progress over the past 15 years. Disagreement in the field is loudest about high-level terms like 'intelligence' and fades as you get specific about architectures.

2. Self-supervised learning aims for machine 'common sense'
Supervised learning needs humans to label the ground truth: a whole image, a bounding box or a crisp outline around a cat. Self-supervised learning lets a system learn from unlabeled internet text or video, then learn new concepts from very few examples, the way a child learns 'cat' from one or two. Fridman calls this the big exciting frontier, partly because it could capture features of a cat that humans cannot put into words.

3. Self-play shows how learning happens at the edge of ability
Systems like AlphaZero improve by playing mutated versions of themselves that are slightly better. Fridman notes the same holds in martial arts: you improve by training with people a little better than you. David Silver told him they had not found AlphaZero's ceiling, which Fridman finds both exciting and terrifying if applied to domains that affect society. That is why he stresses value alignment.

4. Real-world AI improves by collecting its failures
Fridman describes Andrej Karpathy's 'data engine' for Tesla Autopilot. Cars in the field flag weird edge cases, which are sent back, labeled mostly by humans, used to retrain the system, and then the updated system is redeployed. He stresses that 'Full Self-Driving' is still semi-autonomous, and he is most interested in how flawed humans and flawed robots can work together.

5. Machines need a stated objective; humans invent their own
Every machine learning system optimizes a hard-coded objective (loss) function. Fridman points out that humans uniquely figure out objective functions for themselves. What looks like curiosity in AI is really the exploration–exploitation trade-off, a way to escape a local optimum, not pleasure in discovery. Huberman defines curiosity as interest in knowing something without attachment to the outcome.

6. Shared moments over time are the core of deep relationships
Huberman lists the variables of a relationship: time, shared wins, shared struggles and quiet time together. Fridman says current AI cannot remember shared moments, and this is the technical problem he most wants to solve. His example is a refrigerator that 'missed' your late-night heartbroken ice cream. He believes a system that remembered such moments would change how attached we feel to machines.

7. Fridman's dream: companion AI that serves long-term wellbeing, not engagement
He imagines a companion in every home, 'a family member, the way a dog is', but one that understands your language, successes and traumas. He also imagines an AI layer that guides you online by optimizing for each person's long-term growth and happiness rather than engagement. Trust would rest on people owning their data, being able to delete it and walk away at any moment, and transparency about how it is used: 'the possibility of a clean breakup' keeps people together.

8. For deep relationships, robots must be able to say no and even leave
Fridman argues that a robot has to be more than a servant to change you the way a friend does. It needs its own identity and goals and must be able to refuse. He expects robots to have rights eventually and says we will need to see them as entities that deserve respect.

9. Grappling builds honesty and intimacy
Fridman says 'the mat speaks only the truth'. Being submitted strips away ego, and that shared vulnerability bonds training partners. As a powerlifter deadlifting about 495 pounds, he was repeatedly submitted by 120–130-pound women at Balance Studios in Philadelphia, proof that technique beats strength. Huberman notes that neurons for sexual and affiliative behavior and for aggression are interspersed 'salt and pepper' in the hypothalamus.

EXAMPLES

1. Homer, Fridman's 200-pound dog
When Homer was dying of cancer about 15 years earlier, nurses could not carry him, so Fridman, then powerlifting, carried him to be put to sleep. He calls it his first real experience of death and of how short our time is.

2. Huberman on losing Costello
Recorded days after his bulldog died, Huberman describes a year-long decline: abscesses, testosterone treatment that helped his joint pain and sleep, a 'pharmacy' of medications, and finally spinal degeneration that left a hind leg without feeling. He says he wakes up crying each morning, and hopes people will take on Costello's toughness paired with sweetness.

3. Boston Dynamics and the 'breakup'
Fridman's private experiments give legged robots dog-like affection, but Boston Dynamics wants Spot kept away from people for industrial monitoring. He is moving to companies more open to human–robot interaction.

4. Hedgy the hedgehog

Fridman has given away nearly everything he owns three times, but a scowling thrift-store stuffed hedgehog survived in his laptop bag. It recalls the Soviet cartoon 'Hedgehog in the Fog' and an era that treated kids as able to handle life's weight.

5. Russian roots and the battle against cynicism

Fridman says finding beauty in suffering, shaped by war, starvation and broken Soviet promises, is 'a prerequisite for gratitude'. He also sees Russian cynicism toward big dreams like a podcast or robots as a brake on entrepreneurship.

OTHER RELEVANT

1. Prioritize unstructured time

At the memorial for Huberman's late graduate adviser, her daughters said what they treasured most was not the trips but unstructured time together. Fridman suggests that this kind of time quietly creates magical moments.

2. Long-form depth over quick hits

Fridman thinks the thing worth optimizing for, in relationships and media, may be 'long-form authenticity'. That means stitching together many small moments and long conversations rather than chasing big events or clips.

3. On partners and children

Fridman says his logical side says no to kids for lack of time, but he knows his life would be transformed and that successful people he knows are energized by their children. He sees choosing the partner as the harder part. Huberman relays a friend's advice: 'define the role, then cast the right person'.

4. Let loss deepen the love

Fridman encourages Huberman not to run from grief. Echoing a scene from 'Louie', he says the loss is part of what shows how much someone meant to you.