

Hand Holding

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One hand I extend into myself, the other toward others.

-Dejan Stojanovic, "The Shape"

God loves to feel things through our hands.

-Elizabeth Gilbert, "Eat, Pray, Love"

We hold hands to send each other's brain a signal.

-James Coan



Hand holding is a way to show affection, demonstrate a relational connection, hang on to our kids, and even manage brain function and diminish arousal. Really. Ask James Coan. He is the author of a series of studies on hand holding as well the author of Social Baseline Theory (SBT).

Dr. Coan did a very interesting (if not shocking) thing. He put women in an fMRI machine and threatened to shock them. Part of the time they were alone in the fMRI machine, part of the time they had the opportunity to hold the hand of a stranger, and part of the time they got to hold their spouses hand. The fMRI machine then measured how the women's brain responded in each of those conditions. He had also examined, prior to this stressful experiment, the quality of the relationship between the partners.

In areas of the brain that detect threat, such as the hypothalamus, he found some interesting results. First of all, he found that there were many areas of the brain that became activated when the women anticipated shock. Here are some of them.

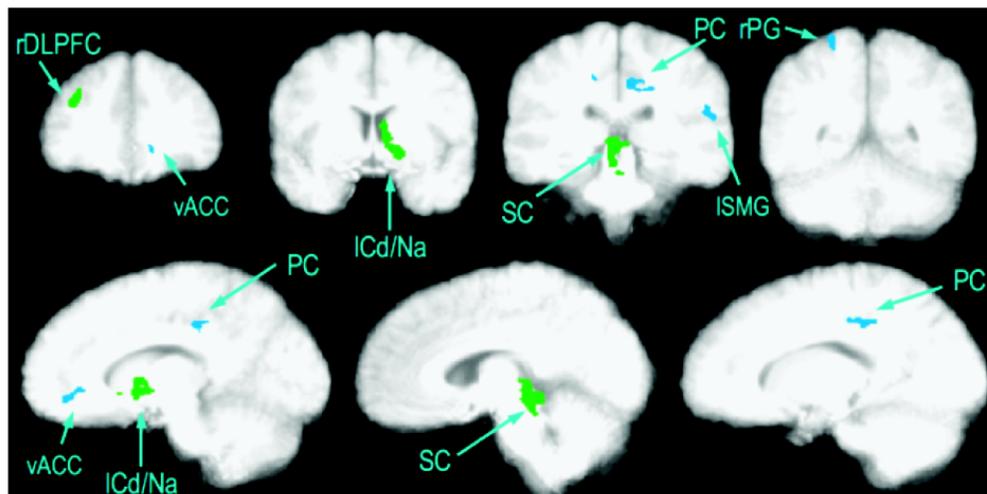
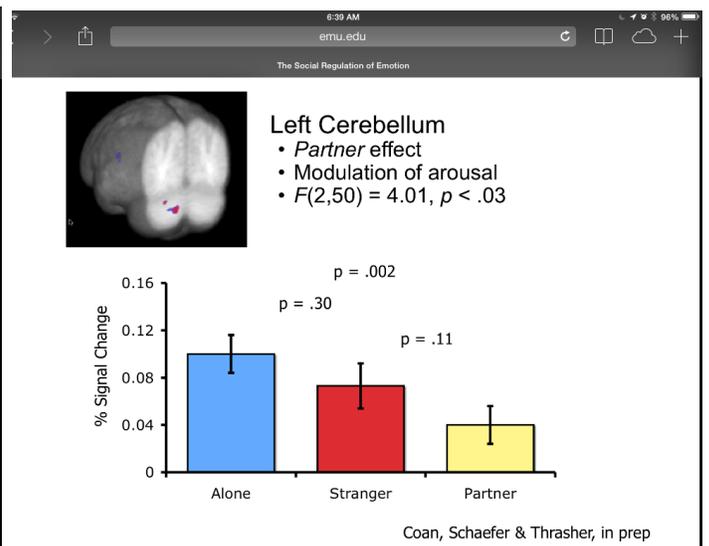
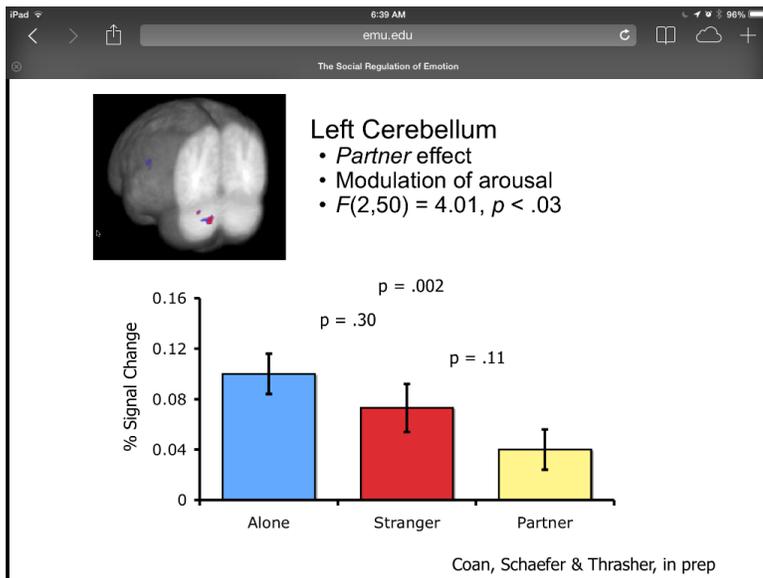
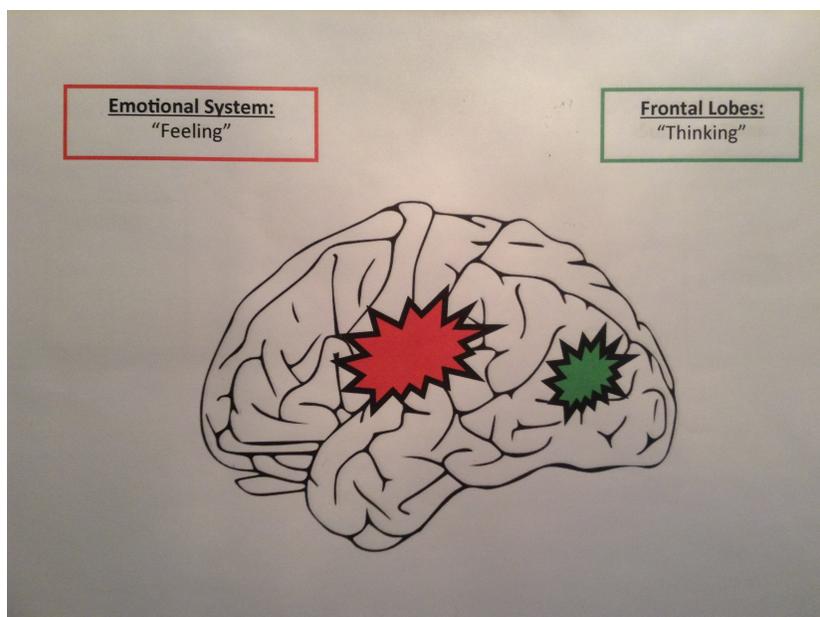


Fig. 3. Threat-responsive regions of interest affected by hand-holding condition. Green clusters highlighting right dorsolateral prefrontal cortex (rDLPFC), left caudate–nucleus accumbens (ICd/Na), and superior colliculus (SC) indicate spouse-related attenuation. Blue clusters highlighting the ventral anterior cingulate cortex (vACC), posterior cingulate (PC), right postcentral gyrus (rPG), and left supramarginal gyrus (ISMG) indicate attenuation associated with both spouse and stranger hand-holding. Section plane coordinates are as follows (from left to right): $y = +34$ mm, $+3$ mm, -29 mm, and -49 mm for the top row and $x = -10$ mm, $+2$ mm, and $+14$ mm for the bottom row.

He found that hand holding, or the lack of it, and whose hand was held, made a highly significant difference in how the brain reacted. If people were left alone in fMRI and threatened with the mild shock, their brain felt the most threatened. It lit right up and their arousal went up. No surprise. He also found that when people held their spouses' hand they felt the least threat. In fact their brains calmed and even their frontal lobes showed little activity. They weren't more able to manage themselves, they were less aroused. When the women held the hand of a stranger their sense of threat was less than with the spouse, but more than when they were alone. To me this is the most interesting finding. Hand holding with a loved one inhibited the experience of threat in the brain.



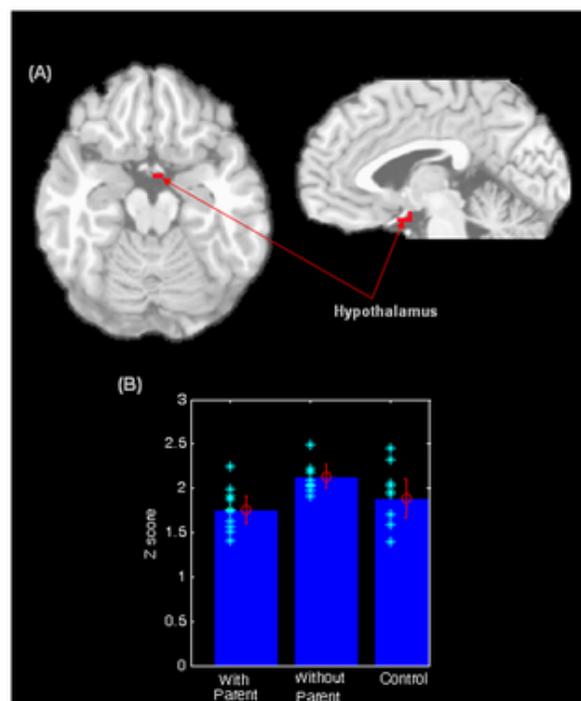
The simple act of hand holding with a spouse shut down not only the perception of threat, but also the frontal lobes, and the need to self regulate. Dr. Coan initially anticipated that the frontal lobes would become involved in the regulation of the feelings generated by the threat of shock but they did not. It was simply that the act of hand holding diminished the arousal and threat associated with the potential shock, and so the feelings were not generated and didn't need to be managed. Wow. Hand holding.



One of the things that Dr. Coan expected to find and did not was that as the threat response was dampened down, the frontal lobes would come on line and account for the persons' capacity to self regulate. Makes sense. However, this is not what he found. The regulation was not dependent on the frontal lobe and mediated by reason. It was a physiological reaction caused by proximity and touch. Just think of the efficiency and effectiveness of going directly to the physiological source of the problem and changing the brain rather than trying to convince the brain to change itself.

The effects on the brain and in particular on the hypothalamus are interesting. The hypothalamus is the master gland. It controls many of the organs in the body and regulates everything from body temperature to thyroid function. It is also where the stress response is initiated. It activates a chain of events that stimulates the adrenal gland and controls the output of adrenaline and cortisol, the stress hormones. When it is calm it dampens down the stress response.

Dr. Coan's study showed that hand holding, particularly with a close partner, modulated the activation of the hypothalamus. This has been replicated with anxious kids who were able to bring a parent along for a medical procedure. In that study they found profound effects on the hypothalamus when anxious kids were able to have a parent accompany them versus when they went through the procedure alone (parent in waiting room). The anxious kids with parents were actually less anxious than the control group, or non-anxious kids.



Another part of the hand holding study that is worthy to note is the effect on the quality of the relationship on the dampening of arousal and the stress response. The couples in the hand holding study reported on the quality of their relationships, using a standard measure. The higher the quality of their relationship the less arousal their brain scan showed in response to the threat. The couples were initially screened and selected for high satisfaction in their marriages. So there were differences in arousal modulation, based on satisfaction in the marriage, even in a sample of highly satisfied couples.

People, especially in the helping fields, are often reticent about using or allowing physical touch with their clients, patients, and consumers. For good reason. It can blur boundaries, cause role and relationship confusion, and overly activate people. For these reasons and more, touch is often prohibited. However since it can be such a powerful tool I suggest it should be used therapeutically, carefully, and strategically. It isn't wise to ban something that can have the most primal, efficient and effective impact on arousal and behavior because of the potential downside.

I say that hand holding should be used strategically because it really depends on the effect it has on the person you are engaged with. If it has a calming effect then it would be wise to make it a part of your physiological relationship with the person. They will come to anticipate being in that state with you, and even when they just see you, their brain, body, and autonomic nervous system will calm, and their behavior will represent their internal state. Good, calm, rational behavior. Just what we want.

There are other studies to examine as well, all in the wake of Dr. Coan's study. Perhaps the most interesting is the one which examines the effects of an Attachment based therapy (Emotionally Focused Therapy) on brain function, specifically as it relates to the effects of hand holding on brain activation. In this study a course of "attachment therapy", focused on alleviating distress between partners by examining and changing attachment patterns established early in life, led to statistically different patterns of the brains response to threat, while holding hands. In other words, as couples relationships improved the effect of holding hands also increased and kept their brains from becoming activated. The worse the initial state of the relationship the more people improved and the greater the the impact hand holding had on brain arousal.

In simple terms, if partners improved their attachment relationships through the therapy, their brains also responded differently in the hand holding experiment. If they engaged in therapy, and held hands, their brains reacted as if they weren't threatened when they were inserted in the fMRI and threatened with shock. The simple act of hand holding, which had previously not modulated the effects of threat on their brain calmed them, lowered their arousal, and mitigated the need to self regulate. Yikes!

Here's how to use this data therapeutically and practically. My rules.

1. Keep in mind that holding someone's hand, or allowing someone to hold your hand, can have a very powerful effect on brain function and therefore behavior. It is a powerful tool.
2. Don't ever force anyone to hold your hand!
3. Make your hands available should anyone want to hold them.
4. Don't feel insecure about hand holding or it may not work.
5. Create opportunities for people to have access to your hands, like with tapping. (Read the chapter on another powerful and effective way to use the body to change the mind.)
6. Remember that the power will grow and become part of your "physiological relationship" if it is effective.
7. Use the power wisely.

Recently a young lady who I have seen for a few months in therapy came in for a session. She is fairly activated, has a very traumatic history, and has Autism. She often talks about "size". Shoe size more often than not, but also clothes size, height, and other things relating to stature. I was trying to understand and explore the metaphor she was presenting, which I thought had to do with power. As we were talking about why size was important to her she mentioned that she was born prematurely and was small for her age. I felt that for her, size meant power.

Most of our sessions we have included various "grounding techniques" that have included tapping, power posing, singing, and most recently walking meditation. Most of our sessions have included her holding my hands. Hand holding was initiated with tapping and has clearly been very grounding for her. Mostly I just make my hands available to her. She often takes them, especially when difficult topics (which she initiates) come up.

In one of our last sessions we (maybe me) pursued her feelings of powerlessness as expressed in her need to examine size. This led to her disclosure about an event of sexual abuse she had experienced many years earlier. She had a behavioral re-enactment of the experience, including difficulties breathing as if something were blocking her airway, which fit with her recounted experience of the event. It was a disclosure that had not been reported in the record and had occurred at a residential school she had lived in over 10 years ago.

When she recounted the experience she had her hands so tightly wrapped around mine that no part of her hand did not seek a link with mine. As I have said we have held hands many times. However at that moment our hands were a physical representation of safety and our connection. They had never been as connected as they were in that moment. I firmly believe that our hands were the connection that made it possible for her to share that experience. Without that physical calming and trusting connection she would not have been able to share that experience.

In no way am I suggesting that untrained professionals use hand holding to do "therapy". However I am suggesting that in moments when the world becomes overwhelming for people, and threat becomes more than they can manage, the simple act of hand holding can be a miraculous way to help people tolerate their distress. Use it wisely.

References:

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Johnson, S., et al, (2013) Soothing the Threatened Brain: Leveraging Contact Comfort with Emotionally Focused Therapy. PLOS
Conner, L., et al, Mom-- It Helps When You're Right Here! Attenuation of Neural Stress Markers in Anxious Youth Whose Caregivers Are Present during fMRI. PLOS

Videos:

James Coan Ted Talk
James Coan You Tube