



# Our Nature is to Nurture - A Journey into the Origins of Compassion

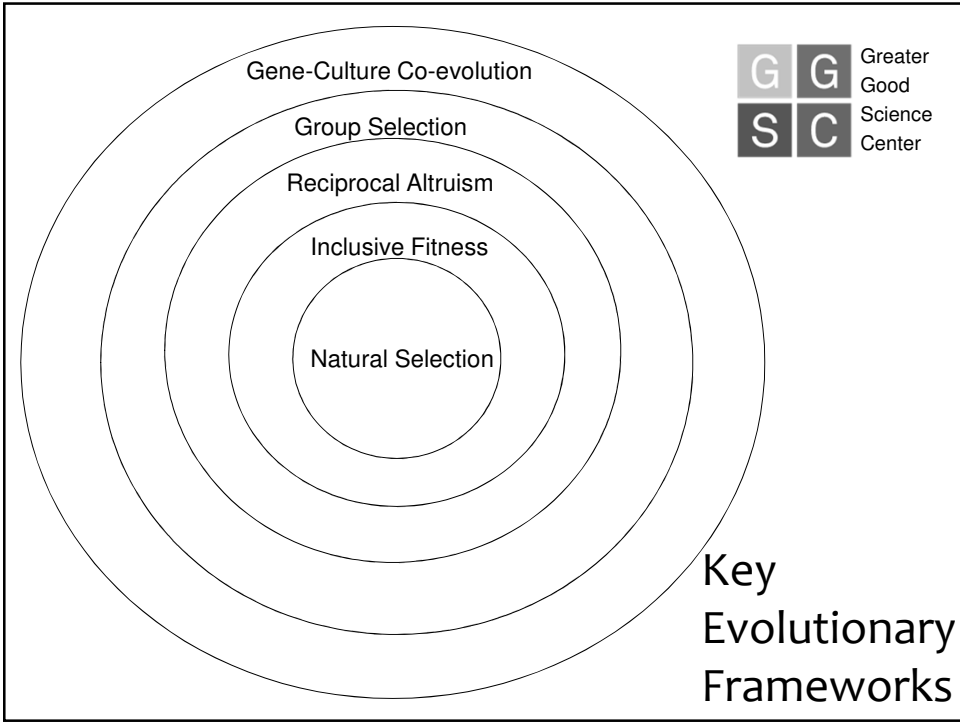
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Science Director, Greater Good Science Center



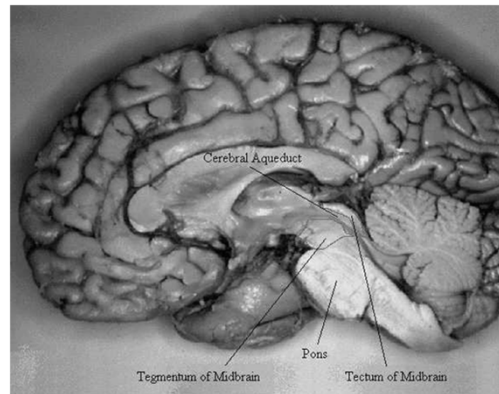
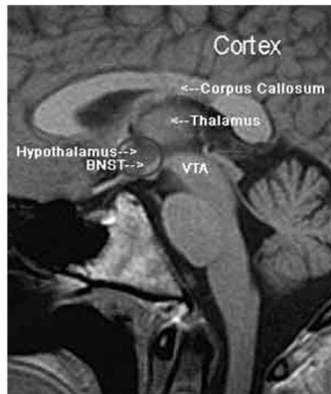
## ..Backing up a bit

For 98% of human evolutionary history, conditions were ideal for the emergence of altruism

Cooperative groups were the primary “survival strategy” of early humans



## Caregiving structures are deep in the Brain



## Secure Attachment boosts Lifelong Well-Being



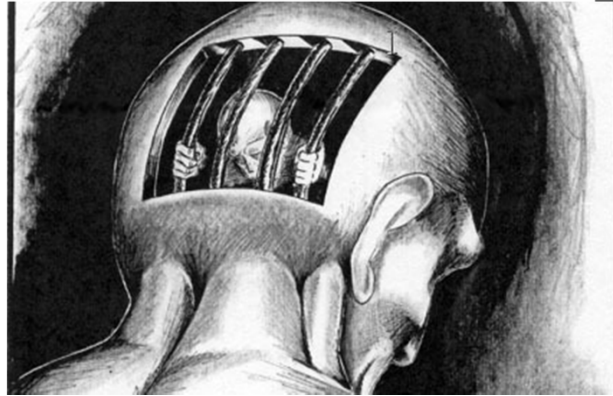
Table 2  
Associations (Odds Ratios and 95% Confidence Intervals)  
Between Attachment Ratings and Three Types of Lifetime  
Psychiatric Disorders

Attachment ratings	Type of psychiatric disorder		
	Depressive	Anxiety	Alcohol and substance
Secure	0.86 [0.80–0.93]	0.80 [0.74–0.86]	0.82 [0.74–0.91]
Avoidant	1.48 [1.38–1.58]	1.68 [1.56–1.81]	1.51 [1.41–1.63]
Anxious	1.49 [1.33–1.66]	1.67 [1.49–1.88]	1.54 [1.41–1.68]

Note. All odds ratios were significant at  $p < .001$ .

(McWilliams LA, Bailey SJ., Associations between adult attachment ratings and health conditions: evidence from the National Comorbidity Survey Replication, Health Psychol. 2010)

... and Isolation hurts



...the torturous conditions of solitary confinement  
...loneliness & hyperinflammation

Oxytocin: Our Caregiving  
Neuropeptide

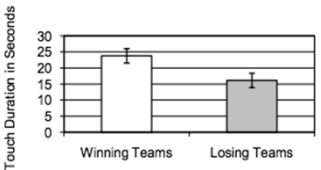


(Wang et. al., *Histone deacetylase inhibitors facilitate partner preference formation in female prairie voles*, Nature Neuroscience, July 2013)

# Touch communicates Trust & Safety



Touch for Teams with Winning and Losing Records



(Kraus, *Tactile Communication*, cooperation, and performance: an ethological study of the NBA Emotion, 2010)

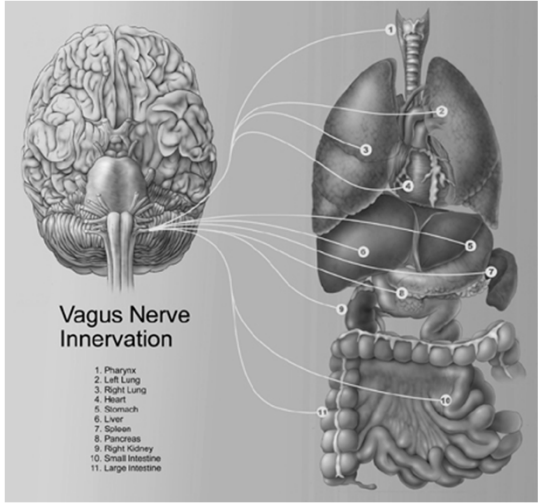
Table 1. Rate of students who volunteered to correct the exercise on the blackboard

	Touched	No touched	Mean
Male-students	N=29	N=35	
Volunteered	31.0%	11.4%	20.3%
Did not volunteer	69.0	88.6%	79.7%
Female-students	N=17	N=21	
Volunteered	23.6%	4.8%	13.2%
Did not volunteer	76.4%	95.2%	86.8%
Mean	28.3%	8.9%	17.7%

N: size of the group.

(Gueguen, *Nonverbal Encouragement of Participation in a Course: the Effect of Touching*, Social Psychology of Education 2004)

# Our Affiliation-Regulation Cranial Nerve



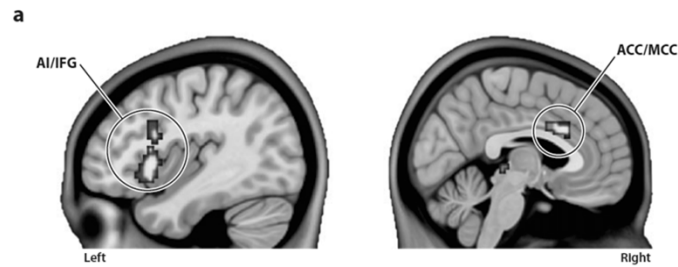
## Engaging the Vagus Nerve



## Empathy

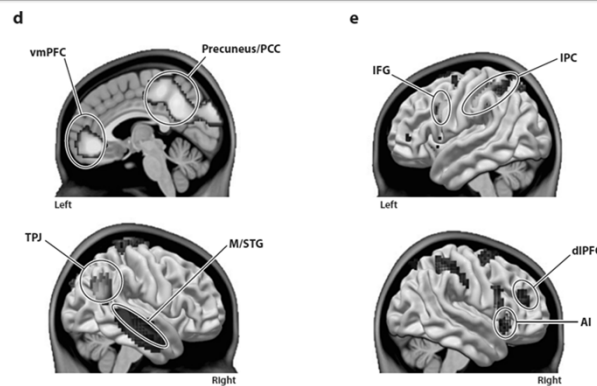


## Social Neuroscience: affective empathy (mirroring, resonance, contagion)



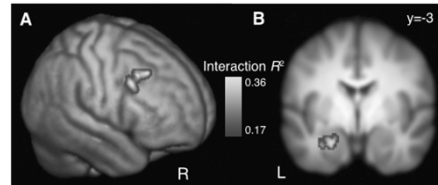
(Bernhardt & Singer, The Neural Basis of Empathy, Annual Review of Neuroscience, 2012)

## Social Neuroscience: cognitive empathy (perspective taking, theory of mind, simulation)



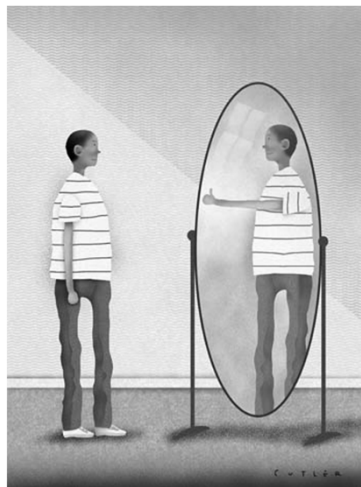
(Bernhardt & Singer, The Neural Basis of Empathy, Annual Review of Neuroscience, 2012)

## Challenge: relate to your emotions in a healthy way



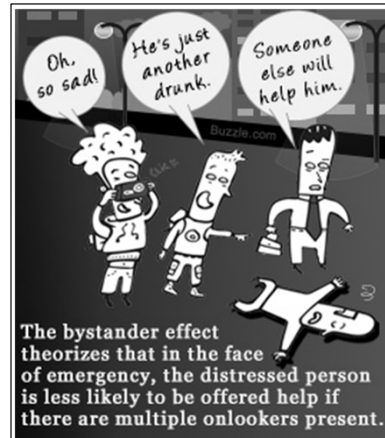
Helen Y. Weng, Andrew S. Fox, Alexander J. Shackman, Diane E. Stodola, Jessica Z. K. Caldwell, Matthew C. Olson, Gregory M. Rogers, Richard J. Davidson, Compassion Training Alters Altruism and Neural Responses to Suffering, *Psychological Science*, 2013

## Challenge: self-kindness





## Challenge: pro-social cognitive habits



## Challenge: channel your inner hero



### Gauge Your Hero Potential

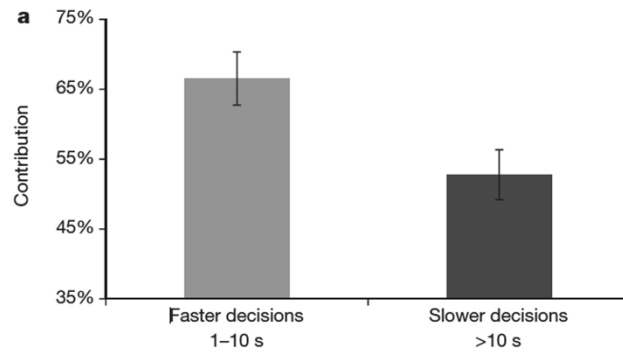
Answer each on a six-point scale, with 1 being 'strongly disagree' and 6 being 'strongly agree':

- ◆ I often have tender, concerned feelings for people less fortunate than me.
- ◆ Fear does not keep me from pursuing my goals.
- ◆ I try to understand my friends better by imagining how things look from their perspective.
- ◆ Despite numerous setbacks, I usually succeed at getting what I want.
- ◆ Fear does not stop me from doing the right thing.
- ◆ I want to be competent, and I believe I can be.
- ◆ Being truthful is extremely important to me.

**Results:** Heroism is linked to traits such as bravery, empathy, helpfulness and coping ability. The higher your score, the more heroic you are likely to be in an emergency.

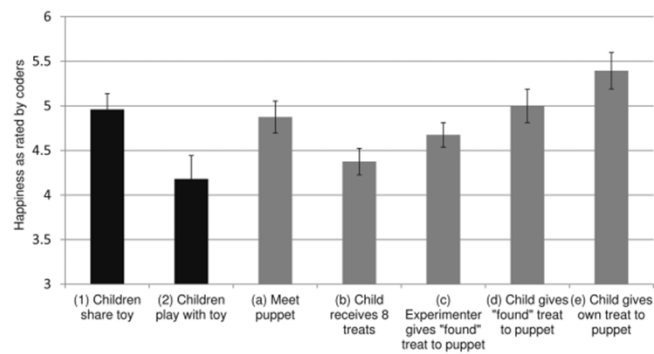
Source: WSJ reporting based on scales used by researchers

## Follow your instinct to give



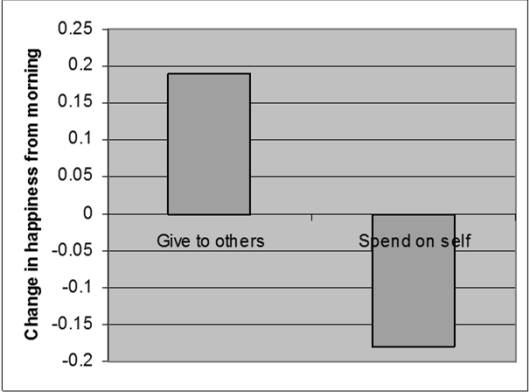
(Rand, D., Greene, J., Nowak, M., Spontaneous Giving and Calculated Greed, *Nature*, 2012)

## Giving makes you smile



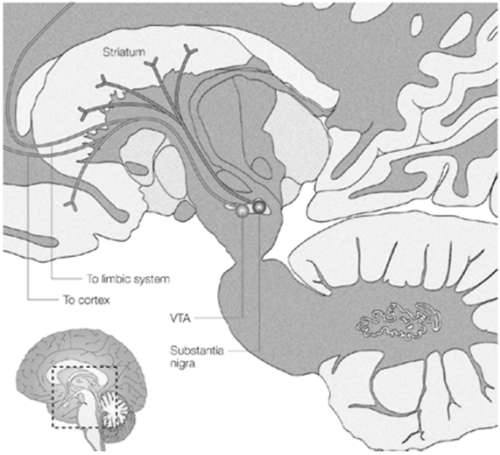
(Lara B. Aknin, J. Kiley Hamlin, Elizabeth W. Dunn. Giving Leads to Happiness in Young Children. *PLoS ONE*, 2012)

# Giving makes you happy

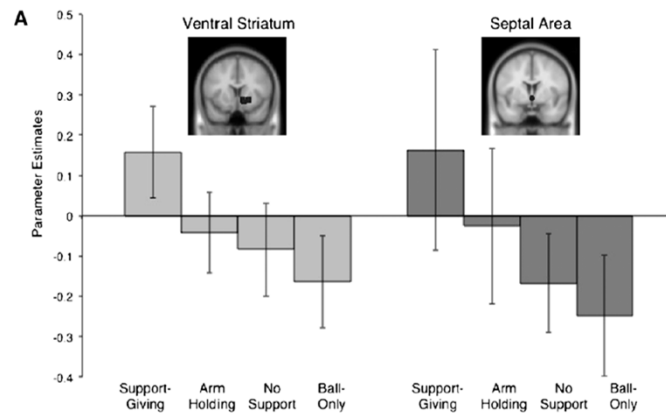


(Elizabeth W. Dunn, et al. Spending Money on Others Promotes Happiness Science, 2008)

# Pleasure in the Brain



## Supporting others taps pleasure centers in the brain



(Inagaki & Eisenberger., Neural Correlates of Giving Support to a Loved One, Psychosomatic Medicine, 2012)

## Helping taps pleasure centers in the brain



"Reward circuitry" activation:

Yellow: \$ to Self  
Blue: \$ to Charity  
Green: Overlap

Mandatory taxation to pay for a public good activates the same neural "reward circuitry" as does \$ to the self



(William Harbaugh et. al., Neural Responses to Taxation and Voluntary Giving Reveal Motives for Charitable Donations, Science, 2007)

## The bio-psycho-social synergy of social connection, happiness & health



(Kok & Fredrickson., *Upward spirals of the heart: Autonomic flexibility, as indexed by vagal tone, reciprocally and prospectively predicts positive emotions and social connectedness*, Biological Psychology, 2010)

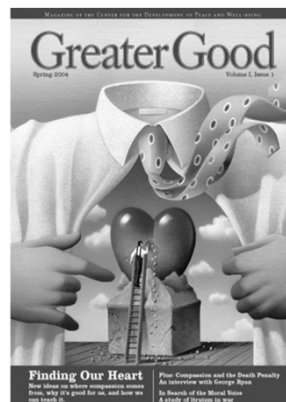
## You are a part of the **Greater Good**...



### Participate!

- ✓ Sign up on the site for our monthly e-newsletter. It's FREE.
- ✓ Volunteer ... we appreciate virtual help. Got an hour a week? We need you.
- ✓ Become a member to support our work, and enjoy benefits!
- ✓ Follow us on Facebook and Twitter
- ✓ Consider a tax-deductible donation

Write to us at [greater@berkeley.edu](mailto:greater@berkeley.edu)





Thank you.