

Science AMA Series: I'm James Doty, a Clinical Professor of neurosurgery at Stanford University. I do research on compassion and altruism, and I'm here today to talk about it. AMA!

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Abstract

Hi Reddit! As director of the Center for Compassion and Altruism Research and Education (CCARE) at Stanford University, I've collaborated on a number of research projects focused on compassion and altruism. We've looked at the use of neuro-economic models to assess altruism, and even the assessment of compassionate and altruistic judgment utilizing implanted brain electrodes and the use of optogenetic techniques to assess nurturing pathways in rodents. My book, *Into the Magic Shop: A Neurosurgeon's Quest to Discover the Mysteries of the Brain and the Secrets of the Heart* was recently released, and is part memoir, part science, part inspiration, and part practical instruction. It shows how we can fundamentally change our lives by first changing our brains and our hearts. You can learn more here: <http://intothemagicshop.com/> I look forward to a great conversation this afternoon, so let's get started. AMA! I'll be back at 1 pm EST (10 am PST, 6 pm UTC) to answer your questions, ask me anything! Thanks for the excellent questions. I enjoyed the conversation and hope that you got something out of it as well. Time for me to sign out. Until next time!

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JAMES_DOTY [R/SCIENCE](#)

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How do you define altruism in a scientific context? My understanding is that there is some debate about whether altruism exists at all in a human context.

[nallen](#)

Generally, altruism is defined as the doing a selfless action to benefit another that potentially has a cost to the individual associated with it and which the giver receives no benefit. Pure or true altruism has been addressed by Dan Batson via his empathy-altruism hypothesis and he would postulate there is no true or pure altruism because the giver receives the warm glow of his action.

We have an adolescent family member who is severely lacking in empathy, causing lots of social problems. Can altruism be taught? Is there a "window" of when empathy and altruism must be established or can humans acquire these tendencies throughout life?

[ohyesiam1234](#)

There is a significant amount of evidence that increasing one's compassion or empathy can be taught. That being said, there is also evidence that some individuals have defects in brain circuitry or even defects in certain neurotransmitter receptors that limit their ability even with "training". For most, one's capacity can be increased by training which is analogous to increasing muscle size through exercise.

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If we look at the last 10,000 years of human history, can we observe a tangible change in altruism?

Is there a genetic basis to traits such as altruism and compassion?

[JediLibrarian](#)

As a species characterized by theory of mind, abstract thinking and complex language there is a requirement that our offspring are nurtured, cared for and taught through modeling behavior via the mirror neuron system for 15-20 years. As a result, there is deeply ingrained or hardwired mechanisms in the brain that reward us for such care and nurturing via hormones such as oxytocin resulting in our pleasure and reward centers being stimulated and also by increasing vagal tone resulting in our physiology working at its best.

How much of our compassion is learned?

Do we have a default level? How much can we improve upon it by things like meditation?

What sort of environments foster compassion and altruism?

Such a fascinating and important topic! Looking forward to the book.

Can you recommend any other popular science books on this topic?

Thanks!

[tomatolizard](#)

I believe our default mode is to be compassionate but this can be hijacked by components of our evolution that in the modern world are not beneficial which are excessive response to appearance of threat leading to engagement of the amygdala and the "flight or fight" response leading to release of various hormones deleterious to our long-term health. Additionally, there is within us a desire toward tribalism as this gives a sense of safety. Both of these types of behaviors can lead to one not being altruistic or compassionate. And both can be manipulated. I would recommend the Compassionate Instinct by Dacher Keltner and A Fearless Heart by Thupten Jinpa Langri...both good friends.

I've had many discussions with people about certain behaviours that are destructive to keeping society healthy, what differences (if you have done scans), have you seen in what would be considered a good brain as opposed to someone with a lack of any real compassion?

[piugattuk](#)

One has to understand the concept of cognitive bias to understand how "normal" people can promote negative behavior toward others. The individuals do not necessarily have structural defects but may have different metabolic responses in areas of the brain related to empathy or compassion in certain defined scenarios. If one makes an effort to understand this reality, it makes this less likely. This is in contrast to some psychopaths or sociopaths who have structural abnormalities that limit their ability to be empathic.

Thanks for doing the AMA!

Could you expand on (or point me to published research regarding) your work on Neuro-economic

models. Does that work primarily focus on teasing out how much seemingly altruistic actions are based on economic incentives v. a person's innate personal qualities?

[Yankee Gunner](#)

There is an entire field now of neuroeconomics. Brian Knutson at Stanford who is one of my collaborators, as well as, Bill Harbaugh at U. of Oregon, Jim Andreoni at UCSD and Ernst Fehr at U. of Zurich have done a great deal of work as have many others.

And yes, it works to "tease" out the incentives for altruism behavior in the context of economic reward.

Professor Doty, thanks for doing this AMA. I was wondering if you have done any work with altruistic organ donors that have donated kidneys, parts of their liver, etc. and if there is any difference in the type (or quality?) of their altruistic decision to do that versus someone who may just make a small donation to charity for example. Also, what is the most altruistic action you've experienced or observed? Thanks!

[MagneticlonTrap](#)

There has been some work in the area of organ donation and the concept of altruism especially in the context of living donors. One person's "small donation" can't be compared to, as an example, a living organ donation and, frankly, shouldn't. Altruism comes in many forms and must be viewed in the context of the giver and the recipient. Any behavior that offers benefit to one who is suffering or in pain is meaningful. Each of us can offer such to another every day. Clearly, one sacrificing themselves for another or a group is the highest level of altruism. I think you would appreciate some insights found in my book, *Into the Magic Shop*.

How do we increase altruism in ourselves and others?

[Diogenes-of-Synapse](#)

Modeling our behavior after those who demonstrate such behaviors and do it more and more with clarity of intention.

I think you would enjoy my book, *Into the Magic Shop*.

Hi Professor Doty! Thanks so much for doing this AMA. I'm a student studying neuroscience and psychology, and I'm currently working on a paper that discusses the neural basis of empathy. Can you discuss the connections and overlap in neural function between empathy and altruism? Are the same brain regions involved in both? Are there some that are seen to function more/less or entirely different between the two ideas?

Also do you think we could use optogenetics or in the future less invasive methods, like drugs, to increase the empathy and frequency of altruism throughout society? Do you think that's morally okay?

Lastly, what do you look for most in deciding what undergrads/grads you pick to work with you in the lab? Thanks so much again!! :D

[ProfessionalGeek](#)

As you know there is an ever growing body of literature that is too long to list in this answer but is easily search relating to the neural basis of empathy which is present in many species and most certainly deeply embedded within the human species based on the requirement that we care for our offspring

for a 15-20 years after birth. One must have the capacity to recognize the suffering, pain, hungry of our offspring. Empathy is simply the taking on of the emotional state of another and is not related specifically to suffering although often used in this context. Altruism is a selfless act toward another who typically is suffering, in need or in danger and which puts the giver at potential risk.

You are correct we are seeing and will continue to see tools, drugs, etc. that will allow individuals to be more empathic and potentially compassionate. Is it morally correct. One could argue that it is no different than using such tools to cure a disease such as diabetes or heart disease.

In every endeavor regarding choosing individuals to work with it is kindness, empathy, curiosity and lastly intelligence. Remember, intelligence also isn't just a good GPA.

I tell my own story of "being chosen" for medical school acceptance in my book, Into the Magic Shop, that I think you would appreciate.

What's the neuroscientific mechanism by which intelligence and compassion are associated?

[idster](#)

I don't know if there is. We see individually, including even presidential candidates who nominally have the best education and are highly intelligent be divisive, mean spirited and completely lacking in compassion and we see individuals with no education, average to below average intelligence be the most humble, giving and thoughtful individuals. Additionally, wealth does not correlate with being more kind, giving or compassionate.

I believe you would enjoy my book, Into the Magic Shop, which discusses this issue and my own situation of having made and lost millions and what ultimately made me see how wealth doesn't make one kinder or happier.

Is compassion something that can be directly manipulated via diet or drugs?

What about physical activity?

[MeltedTwix](#)

There is no question that diet can adversely affect behavior and also benefit behavior. Certainly, if one is starving the survival mechanism for self becomes the imperative. If there is plenty sharing is much easier even with those who are not like you. We are seeing how certain drugs, i.e. MDMA, can positively effect one's ability to "connect". Physical activity releases endorphins that result in a pleasurable state and as a result makes one more open and connected.

Does your research imply any conclusions about compassion and altruism as partially transcendental or conversely, entirely existential?

[circular_file](#)

I think that clearly there is overlap but transcendence in my mind is an outward journey of connection which one recognizes that each of us is connected to the other and that our family is not our mother, father, sister or brother but is the entire human family and that our home is not where we live but the earth. When one recognizes this fact then they are truly transcendent.

What do you think of the idea that gifted children have above normal capacity for empathy? Do intelligent people tend to care more about others?

[geshikhte](#)

I don't believe there is any evidence that "gifted children" are more empathic. In fact, the very nature of defining a child as gifted can make them feel more entitled than another. I have seen many "gifted children" exhibit ruthless behavior to the disadvantage of another. When a child is made to feel that his worth is entirely related to quantitative assessments (GPA) they oftentimes they will do anything to achieve that metric and engage in negative behavior towards others. I have seen some of the most compassionate acts by those who are in the most humble of circumstance and have average to below average intelligence. No intelligent people do not care more about others.

Do altruism and compassion have a negative correlation with wealth as I always claim?

[gotr3kt](#)

Not necessarily but oftentimes the behaviors that have allowed someone to accumulate such wealth is associated with ruthlessness and pure self-interest and once the wealth is accumulated such patterns of behavior don't change. It is simply another way to take advantage of others. I also don't believe it is appropriate to have behaved in such a manner where lives are destroyed and ruined through one's actions and suddenly seek attention because now you are a "philanthropist". All being said though, I have also had the pleasure of meeting and working with some of the kindest and compassionate people who are of great wealth.

I haven't read your book, but the title of your post and your profession really caught my eye, so I will pick myself up a copy. I have always hypothesized that compassion is built by experience and exposure and one of the best ways to gain this 'right' type of exposure is through cultural education, similarly, with travel. My question to you is; have you done any research or found any patterns of altruistic tendencies with those that have had exposure to more cultures as a whole? If so, or not, what are your thoughts on the impact cultural education may have on altruism?

[jcjava](#)

I hope you enjoy my book. There are some individuals who are naturally very compassionate and kind. Certainly, education demonstrating that regardless of culture, religion, ethnicity or sexuality we are similar in more ways than not and fundamentally all want the same things is the basis for learning compassion. There are a number of programs doing such education. The Institute of Noetic Sciences has one such program for children.

Has any research looked into environmental factors that affects the compassion and altruism shown? Could those be changed in several areas, be it the workplace or in public?

[NullAshton](#)

There is an ever-growing body of work demonstrating how the work environment can effect one's levels of stress and anxiety which can lead to being less productive and creative. Conversely, how organization can be structured such that they are "compassionate" resulting in the employees feeling valued and doing meaningful work.

Society is online and it seems like there are less physical interactions between people than there has been in a while. How does this (social media) affect our levels of compassion and altruism? If at all.

[fuadmins](#)

For many such lack of physical interaction and anonymity brings out negative behaviors that are not compassionate or kind. As a species we are wired to function at our best interacting with other especially those with whom we feel safe. As we get more and more aware from this situation one feels less connected. This is why 25% of people in one survey felt that they had no one to talk to when they were in pain or suffering. It is also why there is an epidemic of stress, anxiety, loneliness and depression in the West. That being said such technology can also empower and energize a movement that can have a huge positive impact on the world and make individuals feel engaged and connected to others.

Do you think the trend of Random Acts of Kindness make a person better, or just makes them better to others?

[All Your Base](#)

I had a conversation with the Dalai Lama on this topic...his answer..."does it matter".

That being said, most RAK do make the individual feel better and as a result they are more likely to do more such acts and the same is true for the recipient and those observing the action.

Do you view altruism as an effect of compassion/empathy or as a separate characteristic altogether?

[Keshaluvr887](#)

Compassion is not empathy. Compassion is recognizing the suffering of another. Empathy is the ability to take on the emotional state of another...not necessarily suffering. One can't be altruistic unless one has some empathy for the other