



## J. David Creswell

### Award for Distinguished Scientific Early Career Contributions to Psychology

#### Citation

“For outstanding and innovative research on mechanisms linking stress management strategies to disease. J. David Creswell’s work integrates neuroimaging, endocrinological, immunological, and behavioral methods to understand basic processes of stress regulation. Guided by his training in health psychology and health neuroscience, he has used experimental methods to uncover fundamental mechanisms involved in coping and stress resilience. His research examines neural mechanisms that underlie the link between active stress regulation and adaptation, with special emphases on the roles of mindful awareness, self-affirmation, cognitive reappraisal, and rewards as stress management strategies.”

#### Biography

J. David Creswell was born on July 5, 1977, in Stillwater, Oklahoma, amidst a post-Independence Day haze of fireworks and apple pie. His parents John and Karen moved to Lincoln, Nebraska, when Creswell was one year old, and his only sibling Johanna was born two years later. Many might be surprised to learn that it was not Creswell’s Dad (a world-renowned research methodologist in the social sciences) who initiated most of the scientific conversations at home. Rather, it was more often Creswell’s mother—a clinical dietitian and avid reader across all scientific disci-

plines—who engaged the kids in scientific thinking. Creswell can recall many mealtime conversations with his Mom about the latest scientific findings (ranging from molecular biology to sociology), and to this day he still remembers the details of her graduate school food science experiments.

It was in his senior year of high school that Creswell first became interested in psychology. Through classes in world religion and psychology (both taught by a sharp, young teacher, Mr. Mac), he learned both how scientific methods could be used to understand human behavior and how meditation could transform the human experience. Creswell found the practice of meditation especially fascinating and puzzling—how could this simple psychological practice of paying attention to the present moment translate into improvements in physical health and well-being? This curiosity led him to conduct his first scientific experiment for his high school psychology course, which consisted of using a finger pulse monitor (purchased at Walgreens) to measure the heart rate of a local Zen meditator as he practiced meditation. When the data indicated that the meditator’s heart rate slowed by only 15 beats per minute, Creswell was devastated because he had grandly assumed meditation would almost stop the heart entirely. Thankfully, his Dad, as he has done many times in Creswell’s career, stepped in to help him think about how to interpret and report these new findings.

Creswell spent his undergraduate years at Colorado College in Colorado Springs. Colorado College was the summer camp experience Creswell had always dreamed about: He could take thought-provoking classes with excellent faculty, play collegiate tennis, and ski during weekends and block breaks. Creswell was certain at this time of his life that he wanted to become a sport psychologist, so during his junior year he found his way into a two-year position as an assistant coach and resident advisor with the U.S. Short Track Speedskating Team at the nearby Olympic Training Center. The job was perhaps his first real laboratory, as it gave him the opportunity to test out mental training techniques with the team, with real-world performance consequences! Creswell remains grateful that head coach Patrick Wentland and skater Apolo Ohno allowed him to experiment on the things they held most dear (i.e., the coach’s team and the skater’s psyche).

After college graduation, Creswell had the good fortune of spending a year learning rigorous qualitative data collection and analysis skills in Mike Csikszentmihalyi’s lab in Claremont, California. Csikszentmihalyi had pioneered new theory and research on the psychology of optimal experience (“flow”), and Creswell learned a great deal from the many brilliant people in his lab. During this time, Creswell moonlighted in Tara Scanlan’s sport psychology lab at the University of California, Los Angeles (UCLA) and was soon admitted to the UCLA doctoral program in

social psychology. The first two years in the PhD program were difficult; Creswell struggled with finding his academic research identity, and he felt like a black sheep in the program. This was a time when failure offered valuable life lessons, pushing Creswell to explore his self and identity with meditation retreats and psychotherapy. Two UCLA faculty members stepped in to provide compassion, advice, and opportunities during this difficult time. Traci Mann took Creswell under her wings and showed him how to conduct rigorous experimental studies of attention and self-regulation, with a healthy dose of good humor. Hector Myers gave him the opportunity to work on a meditation review paper and provided some excellent guidance on how to rigorously study mindfulness meditation training. Myers also reassured Creswell that he could land a faculty job with a meditation research portfolio (he was right!). Shelley Taylor and David Sherman were also wonderful mentors at this time. Under their collective guidance, Creswell's research took off. He developed new studies of self-affirmation processes, stress, and health, and he received a National Research Service Award from the National Institutes of Health. Creswell collaborated with just about every health psychology faculty member at UCLA (including health psychology affiliate members in psychiatry) during his graduate school years. Shelley Taylor had a particularly formative influence on Creswell's thinking and scientific approach—she taught him how to write a persuasive scientific paper, and her weekly lab meetings always generated bold new interdisciplinary hypotheses. Creswell credits most of his career success to these mentors and to the many wonderful collaborators and undergraduate students he worked with at UCLA.

In his fourth year of graduate school, Creswell had the pleasure of writing a grant with Myers to conduct a randomized controlled trial of mindfulness meditation training in stressed HIV + community adults. The grant was funded, and Creswell spent two years sprinting around HIV/AIDS clinics in Los Angeles coordinating a research team and collecting data for what would ultimately become his dissertation project. Toward the end of graduate school, Creswell had the good fortune of attending a positive psychology conference, where he met a bright postdoctoral fellow from the University of Rochester, Kirk Brown. Brown was a like-minded social psychologist interested in mindfulness processes. They immediately hit it off and began writing theoretical and empirical papers on mindfulness that same year. (Creswell continues to collaborate with Brown on interesting studies of mindfulness, stress, and health.)

As Creswell was completing his dissertation research, he went on the academic job market; he landed exactly one job interview, at Carnegie Mellon University, and exactly one (dream) job offer. He deferred this job for a year so that he could obtain additional postdoctoral training in psychoneuroimmunology and functional neuroimaging with Michael Irwin and Matt Lieberman at the UCLA School of Medicine.

Irwin and Lieberman not only helped Creswell learn the nuts and bolts of these fields, but they helped him land funding to conduct the first neuroimaging study of mindfulness meditation training in older adults (an amazing postdoctoral project).

Creswell's faculty life began with a bang. Three days after moving to Pittsburgh, he met a beautiful, smart, and funny University of Pittsburgh graduate student named Kasey Griffin. She enriched Creswell's life in every imaginable way, and he asked her to marry him a year and a half later. Creswell says their six years together have been the best of his life, and he assures everyone who thinks about moving to Pittsburgh that the Pittsburgh dating scene is awesome. Over the past six years, Creswell has deeply enjoyed building new relationships with the world-class psychology faculty at Carnegie Mellon University—especially his social and health psychology group, who enhance every aspect of his research. He is particularly grateful to Sheldon Cohen, Michael Scheier, Vicki Helgeson, Brooke Feeney, and Chante Cox-Boyd for their support and feedback. In addition to Carnegie Mellon faculty, Creswell has had the pleasure of working with many other talented health psychologists in Pittsburgh. Although there are too many names to mention, he would like to especially thank Pete Gianaros for his collaboration, wisdom, and friendship. Creswell believes the best part of his job, though, is working with his many talented graduate and undergraduate students, who are a major source of pride for him.

At Carnegie Mellon University, Creswell has built a research program focused on understanding what makes people resilient under stress. His experimental approach consists of using neuroimaging and health psychology methods to explore how a broad range of factors (mindfulness meditation, self-affirmation, rewards, cognitive reappraisal, rumination) affect stress regulation and resilience in healthy and at-risk stressed patient populations. When looking back over his early career experiences, Creswell concedes that, now almost 20 years after his first high school experiment, he is still strapping meditators to physiological monitors in his studies. He's going to need at least another 20 years to figure out how it works, so stay tuned.

### **Selected Bibliography**

- Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*, 211–237.
- Brown, K. W., Weinstein, N., & Creswell, J. D. (2012). Trait mindfulness modulates neuroendocrine and affective responses to social evaluative threat. *Psychoneuroendocrinology, 37*, 2037–2041. doi:10.1016/j.psyneuen.2012.04.003
- Creswell, J. D., Welch, W. T., Taylor, S. E., Sherman, D. K., Greunewald, T. L., & Mann, T. (2005). Affirmation of personal values buffers neuroendocrine and psychological stress responses. *Psychological Science, 16*, 846–851. doi:10.1111/j.1467-9280.2005.01624.x
- Creswell, J. D., Lam, S., Stanton, A. L., Taylor, S. E., Bower, J. E., & Sherman, D. K. (2007). Does self-affirmation, cognitive processing, or discovery of meaning explain the cancer-related health benefits of ex-

- pressive writing? *Personality and Social Psychology Bulletin*, 33, 238–250. doi:10.1177/0146167206294412
- Creswell, J. D., Way, B. M., Eisenberger, N. I., & Lieberman, M. D. (2007). Neural correlates of dispositional mindfulness during affect labeling. *Psychosomatic Medicine*, 69, 560–565. doi:10.1097/PSY.0b013e3180f6171f
- Creswell, J. D., Myers, H. F., Cole, S. W., & Irwin, M. R. (2009). Mindfulness meditation training effects on CD4 + T lymphocytes in HIV-1 infected adults: A small randomized controlled trial. *Brain, Behavior, and Immunity*, 23, 184–188. doi:10.1016/j.bbi.2008.07.004
- Creswell, J. D., Irwin, M. R., Burklund, L. J., Lieberman, M. D., Arevalo, J., Ma, J., . . . Cole, S. (2012). Mindfulness-based stress reduction training reduces loneliness and pro-inflammatory gene expression in older adults: A small randomized controlled trial. *Brain, Behavior, & Immunity*, 26, 1095–1101. doi:10.1016/j.bbi.2012.07.006
- Creswell, J. D., Dutcher, J. M., Klein, W. M. P., Harris, P. R., & Levine, J. M. (2013). Self-affirmation improves problem-solving under stress. *PLOS ONE*, 8, Article e62593. doi:10.1371/journal.pone.0062593
- Creswell, J. D., Pacilio, L. E., Denson, T. F., & Satyshur, M. (2013). The effect of a primary sexual reward manipulation on cortisol responses to psychosocial stress in men. *Psychosomatic Medicine*, 75, 397–403. doi:10.1097/PSY.0b013e31828c4524
- Creswell, J. D., Bursley, J. K., & Satpute, A. B. (2013). Neural reactivation links unconscious thought to improved decision making. *Social, Cognitive, and Affective Neuroscience*, 8, 863–869. doi:10.1093/scan/nst004
- Creswell, J. D., Pacilio, L. E., Lindsay, E. K., & Brown, K. W. (2014). Brief mindfulness meditation training alters psychological and neuroendocrine responses to social evaluative stress. *Psychoneuroendocrinology*, 44, 1–12. doi:10.1016/j.psyneuen.2014.02.007
- Denson, T. F., Creswell, J. D., & Granville-Smith, I. (2012). Self-focus and social evaluative threat increase salivary cortisol responses to acute stress in men. *Journal of Behavioral Medicine*, 35, 624–633. doi:10.1007/s10865-011-9393-x
- Holzel, B. K., Hoge, E. A., Greve, D. N., Gard, T., Creswell, J. D., Brown, K. W., . . . Lazar, S. (2013). Neural mechanisms of symptom improvements in generalized anxiety disorder following mindfulness training. *NeuroImage: Clinical*, 2, 448–458. doi:10.1016/j.nicl.2013.03.011
- Kilpatrick, L. A., Suyenobu, B. Y., Smith, S. R., Bueller, J. A., Goodman, T., Creswell, J. D., . . . Naliboff, B. D. (2011). Impact of mindfulness-based stress reduction training on intrinsic brain connectivity. *NeuroImage*, 56, 290–298. doi:10.1016/j.neuroimage.2011.02.034
- Klatzky, R. L., & Creswell, J. D. (2014). An intersensory interaction account of priming effects—and their absence. *Perspectives on Psychological Science*, 9, 49–58. doi:10.1177/1745691613513468
- Sherman, D. K., Bunyan, D. P., Creswell, J. D., & Jaremka, L. M. (2009). Psychological vulnerability and stress: The effects of self-affirmation on sympathetic nervous system responses to naturalistic stressors. *Health Psychology*, 28, 554–562. doi:10.1037/a0014663
- Tabibnia, G., Creswell, J. D., Kraynack, T. E., Westbrook, C., Julson, E., & Tindle, H. A. (2014). Common prefrontal regions activate during self-control of craving, emotion, and motor impulses in smokers. *Clinical Psychological Science*. Advance online publication. doi:10.1177/2167702614522037
- Taren, A. A., Creswell, J. D., & Gianaros, P. J. (2013). Dispositional mindfulness co-varies with smaller amygdala and caudate volumes in community adults. *PLOS ONE*, 8, Article e64574. doi:10.1371/journal.pone.0064574
- Way, B. M., Creswell, J. D., Eisenberger, N. I., & Lieberman, M. D. (2010). Dispositional mindfulness and depressive symptomatology: Correlations with limbic and self-referential neural activity at rest. *Emotion*, 10, 12–24. doi:10.1037/a0018312
- Westbrook, C., Creswell, J. D., Tabibnia, G., Julson, E., Kober, H., & Tindle, H. A. (2013). Mindful attention reduces neural and self-reported cue-induced craving in smokers. *Social, Cognitive, and Affective Neuroscience*, 8, 73–84. doi:10.1093/scan/nsr076