

MCTFR *update*

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RESEARCH
Grip strength
and evolution
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RECENT FINDINGS FROM OUR TWIN STUDIES: Enthusiasm for Hunting Predicts Upper-Body Strength in Children, Young Adults, and Middle-Aged Parents

By Joshua Isen, PhD

Joshua Isen, a former postdoctoral fellow, explored the relationship between self-reported interest in hunting and physical strength in twins and their parents. Until about ten thousand years ago, humans throughout the world lived in hunter-gatherer societies, where men hunted and women typically gathered foodstuff. The gender division of labor (different roles between men and women) practiced by our ancestors could be a major factor contributing to male advantage in physical strength.

We measured physical strength using a hand-held dynamometer. This is a device that participants squeeze as hard as they can in each hand. It measures the force of one's grip, which is highly predictive of overall upper-body strength. Twins in our older cohort were tested at age seventeen, and twins from the younger cohort were tested at age eleven. Parents were tested when their twin offspring were either eleven or seventeen years old. In the early 1990s, we used a survey that contained four questions about enthusiasm for various hunting-related activities: target shooting, hunting small game, hunting big game, and hunting ducks or other game birds. Participants were asked to rate their level of interest in each activity. A shorter survey on leisure interests was given to the younger cohort twins at age eleven. This contained an item about "hunting ducks or pheasants." In both surveys, there were many other questions, including those pertaining to sports and physical activity.

Males scored higher than females on hunting enthusiasm. When we looked at each gender separately, grip strength was associated with hunting enthusiasm in all age groups (except for girls at age eleven). For example, moms with greater grip strength were more interested in hunting relative to moms with lower grip strength. Similarly, stronger dads were more interested in hunting than physically weaker dads. In eleven-year-old boys, those with greater strength were more likely to be excited about hunting ducks and pheasants, as was the case in seventeen-year-olds.

One possible explanation for these findings is that people who appreciate hunting may be the type of people who enjoy the outdoors and engage in physically strenuous activities. However, interest in physical exercise (weightlifting, jogging, cycling, etc.) and outdoor adventures (hiking, canoeing, cross-country skiing, etc.) was not related to physical strength. Direct experience with hunting (e.g., carrying rifles and hauling carcasses) might promote muscle development, but this would seem unlikely in eleven-year-old boys. It is also possible that children from rural backgrounds are physically stronger than "city slickers." This would imply that an environmental effect (such as a child's neighborhood) is driving the association. However, when we looked at the association within members of the same family (siblings tend to differ in strength from one another), we found that the physically stronger brother was more interested in hunting relative to his twin! We believe our results point to a common biological factor (i.e. testosterone exposure) that causes individuals to be both physically strong and enthusiastic about hunting. It may be adaptive for physically strong individuals to prefer to hunt because, prehistorically (before firearms existed), such individuals would have enjoyed the highest likelihood of killing large prey.



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IT'S A SMALL WORLD!

Twin Study Participant James Ondrey "Doubles" as a Videographer for Principal Investigator Matt McGue's Online Course in Behavioral Genetics



What do you like about being involved in the twin study at the Minnesota Center for Twin and Family Research? *At first I did it mostly because my parents dragged me along and it was a fun/easy way to earn a little bit of cash, but now I feel lucky to be in it. I feel it's a rare opportunity for me as a twin to directly help with the research of not just twins, but all people. I hadn't fully realized the impact of the studies until I sat through Professor McGue's MOOC (Massive Open Online Course). I feel like I have a duty to assist with the sort of studies going on in behavioral genetics to help us understand why we are who we are.*

Please describe your role as a MOOC videographer. *With Professor McGue's MOOC, I lead the video production side of the course; everything from setting up the lights and cameras for recording lectures to editing the footage into the fifteen-minute or so chunks before uploading them to the world on the web.*

How did you find your job as a videographer? *My first glimpse of video production came when I was a student here at the University of Minnesota in the School of Journalism. I gravitated towards it more after graduation and was lucky to find a couple jobs that allowed me to grow and refine these skills.*

What do you like about your job as a videographer? *I enjoy delivering a message that can only be done through creatively mixing audio and visuals. One of the most interesting parts of my job here at the University is I am able to essentially take free courses through every recording session. I never expected to take a class in thermodynamics or dog reproduction.*

Please describe your experience or interest in the content of Dr. McGue's course in behavior genetics. *I have not told him this yet, but I've enjoyed his course more than any of the other MOOCs I've worked on. This may be because I am twin, but the discoveries made through twin studies on human behavior and genetic influence sort of puts a new perspective on life. It's shown me how unique we all are.*

What is your favorite thing about being a twin? *I feel lucky that I can share my life with someone so genetically close to me. Because we're so similar I can trust that what he likes or dislikes is something I'll like or dislike as well (food, movies, girls). Even though it's getting less frequent now, growing up it was nice to always have someone to play with.*

Meet the Staff: Postdoctoral Fellows



Pictured left to right: Sylia, Uma, Dan, and Di. Not Pictured: David

Dan Irons, PhD

Dan is in his second year of postdoctoral research with the MCTFR. His work has studied specific genes related to the use of alcohol and other substances. He is currently interested in using twin-based research designs to study the effects of environmental influences on the development of substance use and substance-related problems in adulthood. He is a Minnesota native, and this winter he occasionally enjoyed hanging out in ice fishing houses with friends, despite being not very fond of actual fishing.

Di Samek, PhD

Di studies adolescent and young adult development, particularly in the area of substance use. She is interested in how the dynamics of close relationships offset or increase risk for various problematic behaviors, like substance use disorders or externalizing psychopathology. Di fancies herself a bit of an artist and likes to paint in her spare time.

David Vachon, PhD

David is a first year postdoctoral fellow. He is working with the MCTFR data to (1) understand differences between high-risk and normal trajectories of substance use, (2) predict who will follow these high-risk trajectories,

and (3) to pinpoint features of these people's lives that can be changed before they develop substance use problems. David spends most of his spare time with his wife and their little puppy, Gizmo. He also enjoys exercising, reading, and is feeling anxious about getting a faculty job.

Uma Vaidyanathan, PhD

Uma is a postdoctoral fellow with the MCTFR. She is interested in the understanding of neurobiological and genetic bases of common mental health disorders such as depression and substance use. Last year, she was able to present some her work in Florence, Italy!

Sylia Wilson, PhD

Sylia is in her second year as a postdoctoral fellow at the MCTFR. Her research focuses on depression; the risk factors and life experience that lead a person to become depressed, how depression affects people's lives, and why depression runs in families. When she's not busy doing research at the MCTFR, Sylia enjoys her own mini study of nature versus nurture -- her 6-month-old son, Simon.

EXTRA! EXTRA!

SEE HOW TWINS AND FAMILIES ARE MAKING HEADLINES



Twins in Space

In March 2015, NASA will be sending astronaut Scott Kelly into space while his identical twin Mark, a retired astronaut himself, will be staying home on Earth. This will be the first ever twin experiment of its kind! Because of their identical genetic makeup, NASA scientists will be able to make comparisons to see if there are any genetic changes that occur during spaceflight. Data will be collected from both twins at the same intervals over the course of the year, hopefully aiding in studies that will examine the effects of living in space on the human body. Although this research is observational in nature, data gathered will be able to inform current knowledge of genetics and the impact of diet, stress, weightlessness, and other daily practices of living in space. The main question of many scientists is whether or not space flight speeds the aging process for individuals. These investigations could help in future protection for astronauts during space explorations. [Original article from www.nasa.gov]

1 in 70 million

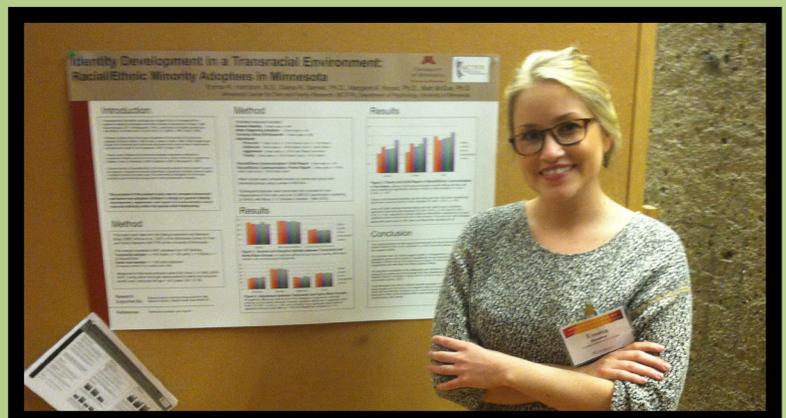
Often the question is asked: "What are the odds?" In this case the answer seems to be: about 1 in 70 million. A couple in Texas, who were looking to grow their family, got quite the unexpected surprise. While looking to provide a sibling for their already two-year-old son, Tressa and Manuel Montalvos planned a pregnancy, and it turned out to be more successful than they had thought. They recently welcomed two pairs of identical twin boys. That's right; they got four babies instead of one. They went with a A-B-C-D naming theme for the new additions and are still planning to try for a girl. Given their luck maybe they should also buy a lottery ticket... or four! [Original article from the *Chicago Tribune*]

An Adoption Gathering

Although many people know us by our twin studies, the MCTFR has a special place in its heart for adoption studies. Our SIBS (Sibling Interaction and Behavior Study) has followed many adoptive families throughout the years, and we enjoy sharing our research at conferences around the U.S. This past April 2014, hundreds of parents, adoptees, social workers, psychologists, educators and policy-makers gathered at the University of Massachusetts, Amherst to talk about all things adoption. UMass houses the Rudd Adoption Research Program, one of the most well-known adoption research programs in the U.S.

The MCTFR and its research was well-represented this year, and we were able to present some of our findings on transracial adoption during a poster presentation session.

The conference is put on annually and registration is open to the public. More information can be found at: www.psych.umass.edu/ruddchair



Emma Hamilton, Principal Family Recruiter

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www.mctfr.psych.umn.edu

We will soon begin sending out our newsletters electronically -- make sure you're kept in the loop!

***Thank you for all that you do!**

