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The Nature and Nurture of Sports Performance, Blog 4

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THE NATURE AND NURTURE OF SPORTS PERFORMANCE (UNIV 291)

<https://rampages.us/naturenurture/author/rahmanf2/>

Faria Rahman

Nurture wins again.

by [Rahmanf2](#) on September 25, 2015 in [Say Again?](#)



by faungg's photos.

I recently spoke to a relation of mine who played soccer, since high school till now, and asked him what he could attribute his success in the sport to: nature or nurture. His answer was a resolute "Nurture." Since high school, his dad would wake him up at six in the morning to practice and train, would drag him to the gym every day as well. He says that of course he enjoys the sport immensely and that he loves to play, but he wouldn't have done so well without the help of his dad. At times he might've felt slightly resentful for how much he was pushed, but then would appreciate it all the more because if it wasn't for the push, he might not have done as well in the sport as he does now.



by Health Gauge

This intense training reminded me of the NPR segment of [“How Likely Is It, Really, That Your Athletic Kid Will Turn Pro?”](#), in which the idea of such helicopter parenting seemed absurd. Though it’s true that my interviewee did not turn pro, he attributes much of his success still to his dad and the amount of training he had to endure. He believes that all of the practice taught him an endurance and determination to achieve his dreams that has helped him throughout his life and within all disciplines.

I also asked if he thought he obtained any of his skill through his genes, as his dad did help train him every morning. He replied that perhaps his physical fitness is attributed to his genes, as it wasn’t very difficult for him to maintain his fitness even without heading to the gym, but the majority of his skill can still be attributed to nurture. He also mentioned that his dad never really played when he was younger, but wanted to make a lifestyle change and pass on a healthier and more active life within his family. I like to think that because of this lifestyle change, his dad changed the expression of his genes and passed it on to him – making him slightly more naturally fit to an active lifestyle. There’s been some evidence in a [recent study](#) that “endurance training in a coordination fashion affects thousands of DNA methylation sites and genes associated to improvement in muscle function and health”. This gives me hope that with proper lifestyle changes, future generations will grow up with healthier lifestyles as well.



Word on the Street

by [Rahmanf2](#) on September 22, 2015 in [Word on the Street](#)

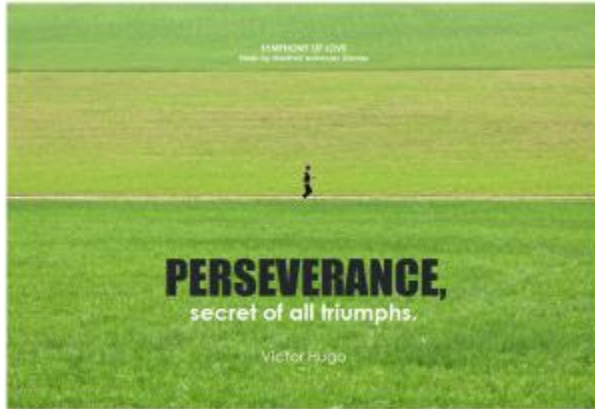


Image taken from BK

"Talent isn't everything. Determination is key as well."

This was the main idea of a dear friend of mine during our interview about the UCI Bike Race. After asking her if people are born great athletes or if any of us can race if enough work was put in, she continued on to say, "With hard work, any of us could be competing in this race. However, some people may have greater physical capabilities like height and strength." She mentioned the odd nature on the relationship of nature and nurture, in which "...if you care about something or if it interests you enough that you can discipline yourself to be good at, but then on the other hand it seems that there are some people who can quickly become good at anything". She believes it's really a combination of both, you have to have a love of something to persevere in it.

I wholeheartedly agree with her. Talent can only get us so far, but without the training and determination to complete our goals, we would never be able to become our most amazing selves. And much like the [Tarhumara](#) in Christopher McDougall's "Born to Run", a love of the sport will motivate you to consistently hone the discipline into a skill.

Another Look

by [Rahmanf2](#) on September 21, 2015 in [Another Look](#)



Image taken from *Zoe Goes Running*.

An “unforgettable life experience”, says Diana Nyad in her TedTalk to “Never, ever give up”. I’m instantly reminded of [Zoe Goes Running](#), where I’m sure she would’ve said the same. Around August 2013, Zoe Romano, from our very own Richmond, VA, ran the entire route of the Tour de France. She became the first person in the world to run the entire route, a grueling experience that runs over 2,000 miles with elevation changes that amounts to about 3 Mt. Everest’s. This is quite the unforgettable experience. And when she spoke to the VCU Class of 2019 at the 2015 VCU Convocation, you could hear the determination and strength in her voice. This determination is what got her through, not only all her days of running this pass, but the years she spent training for it.

Training is so much of the journey. Nyad speaks of her journey and mentions that 15 hours is a very long swim for most swimmers, but that we have no idea how many 15 hour swims she had already done. It’s this “mental grit”, this determination and strength to push forwards even if it seems impossible that got her and Romano through. Romano mentions on her [blog](#) that when she finally finished her run, “[her] knees and elbows were crusted with blood, and [her] palms dotted with blood blisters from falling down, [her] skin pickled and covered in a sun rash, [her] ankles swollen red and hot, dirt everywhere, and [her] face completely flushed with fever”. But she had finished. It’s a story to brag about.



And obviously mental strength isn’t the only thing needed to get you through. In an excerpt of “Born to Run”, Christopher McDougall definitely didn’t lack the determination to run. In fact it was the will to do

so that led him to his doctor, asking why his foot hurt from a few miles of running every other day. It led him to his search for Caballo Blanco and the near mythical tribe of Tarahumara, a group of super athletes and the “greatest runners of all time”. He mentions that perhaps if we hadn’t forgotten to run, we could be like the Tarahumara who had “never forgotten to love running... [and] that running was mankind’s first fine art,”. This constant training of running is perhaps what has built their reputation as amazing athletes. The love of running, as well as the love of training. Physical strength is just as necessary as the mental for these feats.

However, I’m not quite sure there’s a way to disentangle the aspects of these two strengths, other than within our genetic code. Perhaps we can use a combination of allelic association and linkage (tracing the inheritance of a DNA marker and a disorder within families) as well as separating subjects who have mental toughness and physical toughness to separate these “sports” genes. In fact, a recent study suggests that there are several inherited genes that contribute to cardiorespiratory fitness improvement with regular exercise. Maybe there are other genes that specifically contribute to mental determination and grit that are separate from these oligogenes.

I think the possession of both physical and mental strengths can be in our genes, but can also be something nurtured through motivation. Nyad says “You can chase your dreams at any age; you’re never too old”. She’s sixty-four. She swam from Cuba to Florida. Finding out if we possess any of these genes for athleticism would probably motivate us to move even more and harder. I, personally, would love the motivation it would give me that I can do anything I dream for, no matter the age. A quote by Marianne Williamson that runs through Zoe Romano’s [trailer](#) enunciated this motivational factor: “Our deepest fear is not that we’re inadequate. Our deepest fear is that we are powerful beyond measure.”



Image taken from Tobias Zils.

Initial Impressions

by [Rahmanf2](#) on September 14, 2015 in [Initial Impressions](#)



Nature versus Nurture – which is it that molds greatness? Are we genetically engineered to become who we are or does our environment inspire our choices? From the beginning of this course, my hypothesis for most of these questions stemmed on some form of epigenetics; in which environmental factors shaped our gene’s expressions and therefore shaping the probability of who we become. With this idea, it’s not only our genetic code or environment that drives us, but rather the combination of the two that creates a large impact on who we are.

An [article](#) I’ve read earlier this year further illustrates the importance of the interplay of genes and environment, in which, on average, both contribute equally to traits. Author Aamna Mohdin mentions that for most twin studies for the last 50 years, “49% of the average variation for human traits and diseases were down to genetics, and the other 51% were due to environmental factors”. Studies also suggest that while environmental factors play a large role for social factors, skeletal traits have a greater genetic influence. So perhaps in the world of sports, we can look slightly more to how our genes have influenced us.



Image by Vladimir Pustovit.

Related to sports however, maybe our genes don't only affect our talent, but how willing we are to become great in that particular discipline. Malcolm Gladwell, in his moderated panel "Birth to Stardom: Developing the Modern Athlete in 10,000 hours", describes talent as more the willingness to train and practice a discipline until it is honed into greatness. The panel refers to 10,000 hours as an amount of time of training until that greatness is achieved. Now training may imply the idea of environmental influence, but what if trainability in itself is genetically influenced? In fact, another study based on monozygotic twins recently found that sensitivity to training is genetically dependent (Prud'Homme et al. 1984). Our ability to train well and hard can possibly be an inherited trait from our parents. Maybe it is also a love for the sports that is inherited. Being pushed into a certain sport didn't always create athletes and didn't actually work for a vast majority of professional athletes, but rather a love of the sport was grown. It's this love that drove individuals to hone their talent and become as great as they could be. The interaction between both influences again relates to my hypothesis of [epigenetic inheritance](#), in which organisms adjust gene expression to fit environments.

I believe with this bike race, we will see an interrelationship of both these influences at play. A combination of blood, sweat, and tears as well as the affinity for the training in our genes.



Image taken from Jamie Williams.

Faria Rahman

by [Rahmanf2](#) on September 4, 2015 in [What brought you here?](#)

Hi! My name's Faria and I'm currently a Biology major. I was really excited to hear about the Bike Race courses because it gives students an opportunity to become even more involved in such a large event happening in our own backyard. This class is especially interesting to me, as a Biology major, to see how far our genetics get us in life versus how the environment has shaped us as a whole. Can't wait to find out!

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