HOW RESILIENCE BEATS TALENT

The key attribute that all champions share is mental, not physical. And you can have it too.

By Matt Fitzgerald

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Here's a conversation between a champion endurance athlete and a reporter that, to my knowledge, has never taken place:

Reporter: What is it that gives you an edge on your competition?

Champion endurance athlete: Talent. I'm just more talented than they are.

When asked to identify their special advantage, champion endurance athletes invariably point to their mind, not their body. In a 1996 interview, for example, six-time Ironman world champion Dave Scott said, "As the race lingers on, I've always felt that the psychological part becomes a huge factor. I seem to thrive on that, even though I'm fatigued just as everyone else is."

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When mere mortals like us hear such remarks, we are inclined to dismiss them. After all, there is obviously an immense difference between the talent level of a Dave Scott and that of the average age grouper–or even a very successful age grouper. So why wouldn't a much smaller difference in talent also separate the champions from the athletes who stand just one or two steps below them on the podium?

Until recently, exercise scientists tended to take our side on the question of what distinguishes champions from lesser athletes. The body was everything, the mind merely a passenger. The fittest racer–the man or woman with the highest VO2 max or lactate threshold or whatever–won every race. It was simply not possible for an athlete to overcome lesser physical capacity with greater mental capacity and win.

Except that it is possible, and recent discoveries prove it. There is growing evidence that

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particular mental abilities can be as beneficial to endurance performance as a strong heart or efficient muscles. One of these mental abilities is inhibitory control, which comes into play whenever you want two contradictory things at the same time. Inhibitory control allows weight-loss seekers to stay focused on their goal of losing weight when the presence of high-calorie foods tempts them to break their diet. It also enables triathletes to stay focused on their goal of reaching the finish line as quickly as possible when pain tempts them to slow down.

In a 2015 study, Italian researchers subjected 30 ultra-runners to computer tests designed to assess inhibitory control right before they competed in an 80-kilometer trail race. Amazingly, performance in these computer tests was found to be highly predictive of performance in the race. Think about that for a moment: A set of tests that people completed at rest while wearing street clothes was able to judge running ability almost as well as a treadmill test for VO2 max. The reason is that inhibitory control is as important to endurance performance as physical fitness. And it's not the only mental ability that matters on the race course. Additional studies have demonstrated that pain tolerance, optimism and other psychological tools are performance enhancing as well.

THE WORKAROUND EFFECT. Different mental abilities affect performance in different ways. Inhibitory control may work by directing an athlete's attentional focus externally–away from internal discomfort and doubts and toward the task at hand. But it's impossible to distract oneself entirely from one's suffering during a race, and the most successful athletes don't even try. There is evidence that athletes who accept the unpleasant feelings they experience when working hard are less bothered by them than are athletes who resist those feelings, and perform better as a result. In a 2014 study, Elena Ivanova of McGill University found that teaching beginner exercisers to accept the discomfort of exercise resulted in a 55 percent increase in time to exhaustion in a high-intensity endurance test.

The mother of all performance-enhancing mental traits and abilities is resilience. Defined as a general capacity to respond to adversity, resilience is the attribute that allows athletes to stay engaged long enough to develop more specific solutions to the obstacles and setbacks they encounter. Among athletes who aim not just to improve their performance but to actually win races, the greatest obstacle encountered is inferior talent. After all, only one athlete in the world at any given time is the most talented. But that athlete does not automatically win every race. Through resilience, athletes who have less talent–or even the "wrong body" for their sport–may overcome their limitations to become champions.

In my new book, *How Bad Do You Want It?*, I share the stories of a number of such athletes. American swimmer Janet Evans is 5 foot 5 and wears size 6 shoes–tiny for an elite swimmer–but she overcame her diminutive stature to win eight Olympic and world championship

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gold medals and set seven world records. New Zealand rowers Nathan Cohen and Joseph Sullivan were the two smallest athletes entered in the men's double sculls at the 2012 Olympics in London, and yet they won the gold medal. Australian runner Derek Clayton had a VO2 max of 69.7–unusually low for an elite runner–but this disadvantage did not stop him from breaking the marathon world record twice.

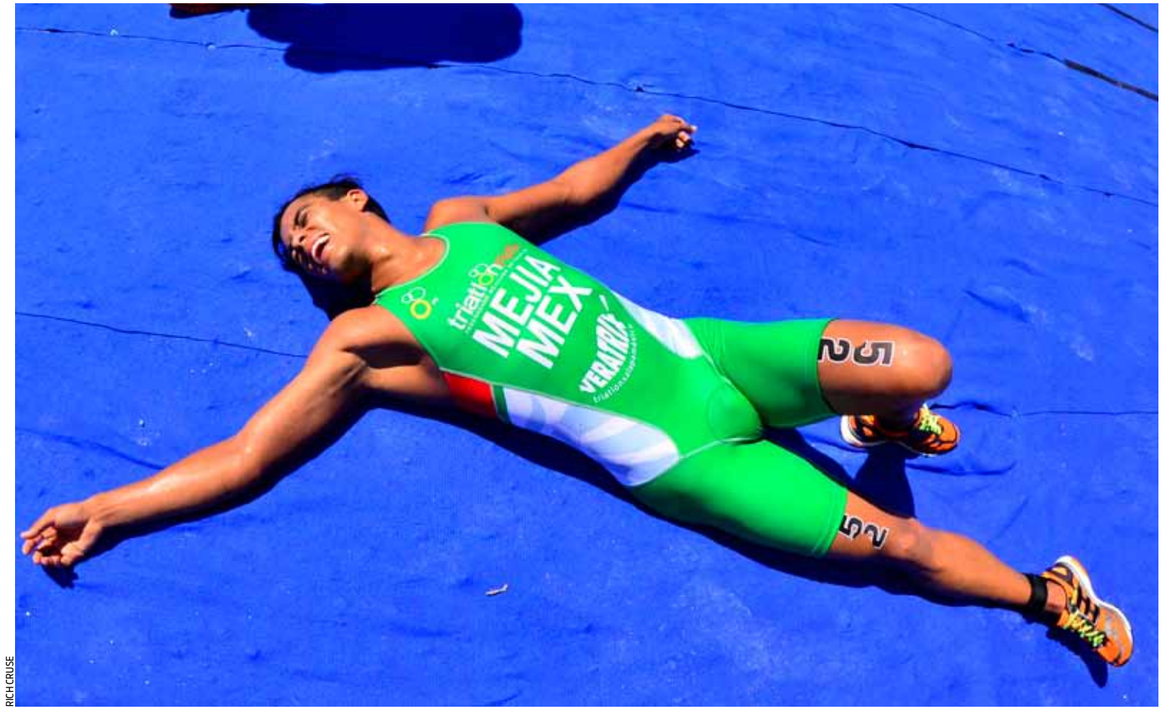
Resilience enables such athletes to do more with less. Specifically, it helps the brain discover more efficient ways for the body to move–ways it would never find if the athlete had more talent and less resilience. Janet Evans developed an unusual freestyle stroke that became known as the windmill. At her peak, she was one of the most efficient swimmers ever tested. Similarly, Cohen and Sullivan adopted a high-turnover sculling technique that made them more efficient on the water than their bigger and stronger rivals. Derek Clayton came up with a scooting style of running that allowed him to glide over pavement with minimal energy.

None of these biomechanical workarounds to physical limitations was developed consciously, however. Each of them came about instead through a process known as neuroplasticity. During any type of exercise, the brain continuously tinkers with the blueprint it uses to generate the action of swimming or pedaling or running or whatever. Its aim is to produce the same level of work output with less and less brain and muscle activity. Through this process, all athletes become more efficient as they gain experience.

Constraints play a key role in this process. The brain is more likely to come up with a new and better way to make the body move when the body is pushing up against a limit such as fatigue or high intensity. The stimulative effect of constraints on neuroplasticity has been demonstrated in studies in which some type of artificial constraint is imposed on athletes, provoking a creative workaround.

In a 2014 study, Anita Haudum of the University of Salzburg stretched a length of elastic tubing between the hip and the ankle in a group of volunteers and instructed them to run. As you would expect, they found it rather awkward in the beginning to run with this constraint. Electromyograms showed that running with the elastic tubing required far more muscle activation than unconstrained running. But after seven weeks of training with the elastic tubing, the volunteers exhibited much improved efficiency. Through the magic of neuroplasticity, their brains had found a new way to run that required scarcely more muscle activation than did their unfettered stride. This unconsciously learned new stride was not, in fact, visibly different from the subjects' natural stride, yet it was achieved through different patterns of brain and muscle activation. In effect, the subjects had found a new way to run the old way.

Athletes who try routinely to keep up with more talented athletes in training and competition spend more time pushing up against performance-limiting constraints than the most talented athletes do. This is why the most efficient athletes are seldom the most gifted ones.



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Among the most economical runners ever tested was a male Kenyan middle-distance specialist who had a personal best time of 3:35 for 1500 meters despite having a pedestrian VO2 max of 63 mL/kg/min. It is quite likely that this runner developed his efficient running style through neuroplasticity, as a workaround to his low aerobic capacity, which initially would have made it hard for him to keep up with his more talented peers.

Obviously, not all athletes with inferior physical talent become champions. This is where resilience comes in. When you look into the background of those special athletes who reach the top despite having something other than the perfect body for their sport, you will invariably find an utter determination to excel regardless of being too big or too small or having a relatively low aerobic capacity.

When Janet Evans was 12 years old, an official at one competition tried to force her to race with the 10-year-olds. She was 4 feet, 10 inches tall and 68 pounds, after all. But Evans insisted on racing against her peers and, when the official relented, she beat them all. Her unique windmill swim stroke evolved directly through such efforts to defeat bigger, stronger swimmers. "I developed it when I was a kid, and I wanted to get down the pool the fastest," she said in one interview. "I figured the fastest way to get to the other end was to turn my arms over as fast as I could."

Workarounds like this one don't occur overnight. They require that an athlete try and try again to keep up with more talented rivals despite repeatedly failing to do so, until the brain figures out a way to do more with less. In other words, they require that an athlete use failure to succeed, which is the essence of resilience.

THE GIFT OF FAILURE. Many great endurance athletes had difficult childhoods. Mark Allen, who trained and even lived with many of the top triathletes on the 1980s, once observed, "If you dig deep enough into the life of any of the top athletes who are pushing their bodies to the absolute limits, you're going to find a story. You're going to find something that those athletes are trying to make up for that they didn't get when they were younger. Something that hurt them."

Sports psychologists more or less agree. In a 2012 paper titled "The rocky road to the top: Why talent needs trauma," sports psychologists Dave Collins and Aine MacNamara argued that "the knowledge and skills [that] athletes accrue from 'life' traumas and their ability to carry over what they learn in that context to novel situations certainly appears to affect their subsequent development and performance in sport."

Does this mean that only athletes who have faced significant adversity in life have the necessary resilience to get the very most out of their body? Fortunately it does not. At the 2012 Olympics, psychologist Mustafa Sarkar and colleagues at the University of Gloucestershire interviewed eight gold medalists and then looked for themes in their remarks. Sarkar reported that "the participants encountered a range of sport- and non-sport adversities that they considered were essential for winning their gold medals, including repeated non-selection, significant sporting failure, serious injury, political unrest, and the death of a family member. The participants described the role that these experiences played in their psychological and performance development, specifically focusing on their resultant trauma, motivation, and learning."

Notably, a number of the adversities the athletes cited were setbacks that occurred within the sporting context. This finding suggests that athletes need not experience exceptional trauma in everyday life to become resilient. Sport itself has a way of cultivating mental toughness. And it does this through failure.

There are many interesting examples of athletes who achieved highly coveted goals only after failing to achieve those same goals many times. In some cases, it is evident that these failures were required to supply the athlete with the last ingredient–resilience–that he or she needed to finally succeed.

Mark Allen lost the Ironman World Championship six times before winning it six times. Like many other champions, he needed to gain resilience through failure in order to realize his full potential. In a 1998 interview, Allen told T.J. Murphy, "Had I not had those bad experiences, and learned those lessons about how to hold it together when it's not going well, I wouldn't have won the other six. That experience of having to drag yourself across the finish line when there's a thousand and one times you want to quit, when you don't feel you can make it, but somehow you do, it gives you a perspective within which to always have a shred of hope that somehow it will turn around for you. And when you have that inside, no matter how bad it looks, there is always a part of you that will continue to give it what you have."

As an athlete, you cannot go out of your way to fail for the sake of gaining resilience. But what you can do is pursue success in a way that guarantees a certain amount of failure. Champions tend to pursue two types of goals: breaking records and winning. Both are difficult to achieve. In fact, they could not be more difficult to achieve without being impossible. But regardless of whether these goals are ever achieved, they serve their true purpose of eliciting the best performances an athlete is capable of.

You will never try harder in a race than when you realize your goal is within reach, but barely. This was shown in a 1997 study conducted by researchers at Israel's Ben-Gurion University. Subjects completed an endurance test and were then separated into four groups. Each group was given a different goal. After eight weeks of identical training, all of the subjects repeated the original endurance test. Those who had been given a "difficult/realistic" goal were found to have improved the most even though many in this group failed to actually achieve the goal.

Winning races qualifies as an "impossible/unrealistic" goal for most athletes, but any athlete can choose a rival and try to beat that rival in races, and doing so serves the same purpose that trying to win does for professional athletes. In a 2014 study, Gavin Kilduff of New York University found that club runners ran on average 4.92 seconds per kilometer faster in races in which a personal rival was also competing. Again, the point of having a rival is not to always beat him or her. The point is to exploit this type of goal to harness a greater measure of your mind's latent power.

In the long run, your failures will be even more valuable than your successes. It's one thing to try hard in a given race, and another thing to cultivate the capacity to try harder generally–to be more resilient. And the most resilient athletes are those who fail often because they aim high, and whose response to failure is always the same: to try again.