Speed is a Skill

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Many people believe genetics determine whether or not someone is capable of becoming fast and there is not much that can be done to alter what you have been given. Sometimes a young athlete is told by his or her parents that they are not likely to be fast or be able to jump very high because the parents themselves have never been fast or able to jump high. This can then become a self-fulfilling prophecy destroying any chances a young athlete might have in reaching a high level of performance in sports that require speed and power. During the last 15 years, some interesting research has shown how these beliefs are completely unfounded. Very few physical traits are fixed while many are highly alterable. Recent research on genetic expression has revealed that the activities you participate in and the way you choose to live your life determines which genes will be expressed. I will present two compelling cases that demonstrate why getting young athletes involved in a sport performance program designed to develop speed and power can have a major impact on athletic success later.

Alberto Salazar and Molly Morton

Alberto was a two time world record holder in the marathon and Molly Morton was a highly successful long distance runner who participated in 5k and 10k races. Obviously the muscle fiber composition of these two endurance athletes must be predominately slow twitch or red muscle fibers. Slow twitch muscle fibers produce a low peak force at a low rate of force development while fast twitch muscle fibers produce a high peak force at a much faster rate. The slow twitch muscle fibers are much more suited for endurance activities such as long distance running. These two endurance athletes actually got married and had two sons. Most people would believe their two sons should avoid speed and power based sports because of the two parents' background. Alberto knew better and realized the science behind genetic expression. He had both sons participate in a sport performance program starting at an early age. The program was designed to develop the speed and power characteristic of the two boys. Something very interesting happed in the development of these two athletes and the athletic career paths they took. One son ended up playing wide receiver for the University of Oregon. The other son ended up in an Olympic developmental program for soccer players and later signed a six-figure contract with a professional Australian soccer team.

Identical Twins with Different Athletic Career Paths

Another interesting case involves two identical twins who were the subjects of a study conducted at the Miami Medical Center. These two identical twins were of interest because one had followed a life-long pursuit of endurance based sports while the other twin participated in speed and power sports. A muscle biopsy was conducted on the vastus lateralis muscle of their legs. Most people would expect to see identical results when testing homozygous twins regardless of their chosen activities. What the researchers actually found was a significantly greater number of fast twitch muscle fibers in the twin who chose strength and power sports. An important distinction here is that a greater number of fast twitch fibers were found and not a greater cross sectional area. In other words, strength and power activities did not simply develop existing fast twitch fibers but created a significantly greater number of fast twitch fibers.

The fact is that everybody is born with a high number of fast twitch muscle fibers. The activities you choose to participate in will determine how many muscle fibers convert into slow twitch muscle fibers. Becoming involved in training that will target the coordination and the development of fast twitch muscle fibers will ultimately determine your chance for developing into an elite athlete in strength and power based sports. However, athletes need to be exposed to the proper training stimulus at a young enough age to have the greatest impact (the nervous system is most plastic between 7-12 years of age). To use an analogy, no athlete is completely limited by the hand they have been dealt ,but instead has the option to replace some cards or play an entirely different hand.