

How to Succeed as an Athlete: What We Know, What We Need to Know

When I (C. Foster) was in my teens, I was a runner. While any objective observer would have known that my prospects for Olympic medals or world records were low, I had “delusions of grandeur” and believed that I might find the right combination of knowledge and effort to succeed. That never happened. However, that passion and quest for success led to my professional career. For many of us, the same quest to achieve “the impossible dream” drove our professional careers (only 2 of us [A. Casado and K. Chamari] were Olympians, so we are better as scientists than athletes). This same mindset is, to some degree, the underlying rationale for *IJSPP*. I asked several of my friends to identify factors necessary for success. In other words, what do we know and what do we need to know? Later, in a more detailed referenced manuscript, we can treat this topic more fully.

In the interest of simplicity, we have tried to keep the list of things required to succeed as an athlete short. There are overlapping elements and probably important elements that we have not articulated, but for the most part they can be subsumed as follows.

Talent

In the 1981 movie *Chariots of Fire*, Sam Mussabini, coach of 1924 Olympic 100-m champion Harold Abrahams, said “you can’t put in what God has left out.” Swedish physiologist P.O. Åstrand said “if you want to be a champion, choose your parents wisely.” Although there have been studies of the genetics of sport, a single “champion gene” has not been identified. The best estimate is that champions have combinations of multiple genes, which may not even be perfectly overlapping within the same event (eg, you may need any 20 out of a 30-gene menu to achieve success). In any case, you have to have enough predisposition for an event to have the early success that “lights the fire.” The exercise science literature is replete with evidence of both categorical and correlative characteristics of different types of athletes. It is also replete with evidence of responses during competition and of adaptive responses to training, but over shorter time frames than relevant to athletes.

Health

Sport is demanding. While success has been achieved by individuals with illnesses and disabilities, it’s easier for healthy people to succeed. Further, the need to deal with setbacks, the hypercompetitiveness of top sport, and the level of “cheating” that goes on in sport require excellent mental health. Elite athletes have to be able to tolerate large physical loads and recover in a timely way.

Development

Athletes require development. While there are sports where success is achieved early, most athletes reach peak performance in their late

20s. There is broad agreement that in the early and mid-teens, most athletes should have a “diverse” sporting profile, and only specialize in their late teens. However, a diverse sporting profile is hard to achieve, as the allure of early success is attractive to athletes, parents, and coaches.

Consistency

With the exception of truly age-group sports, most elite athletes have devoted years to systematic preparation before reaching the top. Most top performers can be characterized as full-time, year-round athletes. Successful development programs take years, and there is a clear difference between 15-year-old talents and 30-year-old top performers. The sequence of development depends on the experience of coaches directing the program and accounting for different individual characteristics of top athletes, even within the same event.

Coaching

Very few elite athletes are self-coached. Experience suggests that an external, objective observer with a deep background and knowledge in the physical, technical, and competitive aspects of a sport is necessary to guide athletes from promising to elite, someone to “put the puzzle together.” However, the world of coaching is polarized in that for many coaches the only qualification is having been an elite performer themselves. Efforts to educate and professionalize coaching are one of the largest needs as sport develops. In this regard, sport scientists often make their greatest contributions as members of coach-led teams.

Opportunities

If an athlete has trouble getting to a training venue, finding a coach, or finding other athletes to train with, it is very hard to achieve top performances. I have often thought about the American speed skater Eric Heiden, a candidate for the “GOAT” (greatest of all time) in speed skating. What if he had been my neighbor in Dallas, TX, where ice speed skating is not very popular. He probably would have found some success in sports, but he needed the opportunity provided in Madison, WI, with a local PE teacher, and former Olympian, as his coach. The ability to defer regular work and to organize educational/professional development to give time for training and competition is critical.

Goal Setting

Athletes are goal-oriented people. They want to go faster, lift more, and play better. Typically, they work toward intermediate goals. While a reasonable early standard of performance is necessary, their goals need to be SMART (specific, measurable, achievable, relevant, and timely). Sport science is partially about identifying and tracking progress toward these SMART goals.

Luck

While sport is a creature of preparation, both in training and in competitive tactics, a certain amount of pure luck is necessary. Did you get into the right training group? Did your parents live near an appropriate venue and have the economic wherewithal to support training, equipment, and travel? Did you find the right coach at the right time in your career? Did you avoid catastrophic injuries that might have ended your career? Severe injuries early in a sporting career might prevent achieving high-level performance. Incurring the same injury after one has already become established might be more of a nuisance.

Conclusion

The odds of reaching the very top level in sport are low. Athletes have to inherit the right propensity, be “hungry,” be prepared to work very hard, organize their lives around sport, and have more than a little luck on their side. Perhaps the biggest roles of sport science are to

- Give athletes better, more-informed coaches.
- Help preparation programs evolve to be more efficient and evidence-based.
- Minimize the risk of injuries that might foreshorten their careers.

IJSP, by serving as a clearinghouse of the body of knowledge about the applications of scientifically developed knowledge, can hopefully optimize the implementation of these 3 roles.

*Carl Foster, IJSP Editor-in-Chief Emeritus,
Department of Exercise and Sport Science,
University of Wisconsin-La Crosse, USA*

*Renato Barroso,
Department of Sports Sciences, University of Campinas, Brazil*

*Ralph Beneke, IJSP Editor-in-Chief Emeritus,
Institut für Sportwissenschaft und Methodologie,
Phillips–University Marburg, Germany*

*Daniel Bok,
Faculty of Kinesiology, University of Zagreb, Croatia*

*Daniel Boulosa, IJSP Associate Editor,
Integrated Institute of Health,
Federal University of Mato Grosso do Sul, Brazil*

*Arturo Casado,
Center for Sports Studies, Ray Juan Carlos University, Spain*

*Karim Chamari, IJSP Associate Editor,
Aspetar, Orthopedic and Sports Medicine,
FIFA Medical Center of Excellence, Qatar*

*Cristina Cortis,
Department of Sport Sciences and Health,
University of Cassino and Lazio Meridionale, Italy*

*Jos de Koning, IJSP Editor-in-Chief Emeritus,
Faculty of Behavioral and Movement Sciences,
Vrije Universiteit-Amsterdam, the Netherlands,
and Department of Exercise and Sport Science,
University of Wisconsin-La Crosse, USA*

*Andrea Fusco,
Department of Sport Sciences and Health,
University of Cassino and Lazio Meridionale, Italy*

*Thomas Haugen, IJSP Associate Editor,
School of Health Sciences, Kristiana University College, Norway*

*Alejandro Lucía,
Center for Research in Sport and Physical Activity,
European University of Madrid, Spain*

*Iñigo Mujika, IJSP Associate Editor,
University of the Basque Country, Spain*

*David Pyne, IJSP Editor-in-Chief Emeritus,
Research Institute for Sports and Exercise,
University of Canberra, Australia*

*José A. Rodríguez-Marroyo,
Institute of Biomedicine, University of Leon, Spain*

*Oyvind Sandbakk, IJSP Editor-in-Chief,
Department of Neuromedicine and Movement Science,
Norwegian University of Science and Technology, Norway*

*Stephen Seiler,
Faculty of Health and Sport Sciences, Agder University, Norway*