Genetic testing: A good use of resource in talent identification and development? – Comment on McAuley et al.

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COMMENT

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ABSTRACT

In this short commentary, I provide considerations for whether genetic testing is a worthwhile investment within sporting talent identification and development systems based upon the recent paper by McAuley and colleagues. In summary, these reflections suggest that genetic testing may not be a good use of resource within talent identification and development. This is because of the cost of genetic testing, the limited evidence for it's use but more importantly the complexities of talent identification and development in sport that in reality cannot be solved by genetic testing.

Keywords

talent identification, talent development, genetics, sports performance, health

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Introduction

Professional sport organisations seek 1% (or even 0.1%) advantages over their competitors in the pursuit of sporting success. The target article by McAuley et al. (2023) explores one of these advantages in the form of genetic testing, specifically for talent identification and development in sport. It is interesting that McAuley et al. (2023) provide a set of best practice guidelines after presenting their overall suggestion for genetic testing is "Don't do it, but if you do". This recommendation is based upon the current scientific evidence not supporting genetic testing to enhance the processes of talent identification and development within sport. However, McAuley et al. (2023) suggest that genetic testing is likely to continue and therefore offer several considerations and best practice recommendations for implementing genetic testing. This commentary will explain the complexities of talent identification and development within sport and help organisations and practitioners consider whether genetic testing is a worthwhile resource investment.

Talent identification and development: It's complex!

Over the last 20 years, research on talent identification and development has exponentially increased (Baker et al., 2020). Alongside this, many sports organisations and professional clubs have also implemented talent identification and development systems (Till & Baker, 2020). In practice, these talent identification and development systems aim to identify and develop individuals with the potential to achieve long-term sporting success. These programmes usually work on a pyramidal basis whereby the number of opportunities available decreases and the support and provision (e.g., high quality coaching, facilities, sport science support, training and competition intensification) increases towards the professional level. This approach aims for sports to use limited resources in the most efficient way possible, often resulting in a limited number of athletes obtaining these opportunities.

The application of a talent identification and development systems is complex and not a straightforward process, which can vary across sports. For example, within soccer, talent identification can occur from seven years of age (Noon et al., 2015) compared to rugby which occurs at 15 years of age (Till et al., 2021). Regardless of the talent identification and development system employed across sports, there are numerous challenges that sport organisations must overcome and understand (see Till & Baker, 2020 for a detailed review). These include:

1. Understanding "What is talent" – definitions of talent are unclear, inconsistent, and often misunderstood. It has been recommended that practitioners develop clear philosophies of talent and consider both current performance and future potential of individuals to help support the prediction of future performance (Baker et al., 2018).
2. Understanding sports performance – regardless of the sport, it is important that the sport demands are clearly understood within any talent identification decision. However, sports change and evolve over time making early talent identification decisions difficult to predict future performance.
3. Understanding children and youth – many talent identification decisions occur within children and youth. However, the biopsychosocial development processes (e.g., maturity) during this timepoint are complex making talent identification decisions a less than straightforward process.
4. Profiling athletes – practitioners are required to make talent identification decisions based on the data available to them. This can include a combination of objective (e.g., fitness testing) and subjective (e.g., coach rating) data obtained through multiple practitioners.
5. Understanding development – athlete development includes a combination of technical, tactical, physical, and psychosocial skills and characteristics. The practitioner's role is to create development opportunities to support every individual athlete in each area to support the development of their potential.
6. Maximising health – talent identification and development programmes have been questioned on their healthiness (Rongen et al., 2018). Therefore, whilst ensuring athlete development, practitioners also need to consider the healthiness of their athletes (e.g., injury, mental health, burnout) to ensure appropriate development towards long-term goals.
7. Efficient use of system resources – the success of a talent system will be affected by the amount and allocation of resources available. Therefore, being able to achieve all of the points above is influenced by the resource available to support the athletes within a tal-

ent system alongside the practitioners delivering this.

These seven challenges highlight the complexities and realities of talent identification and development. There are multiple interconnections between an athlete's genetics, predispositions, experiences and the development environment that influence talent development. Failing to understand and acknowledge this complexity, may result in some looking for simplistic answers.

Genetic testing – An attractive solution?

McAuley et al. (2023) stated that previous research (McAuley et al., 2022; Pickering & Kiely, 2021) reported approximately 10% of athletes and support staff have used genetic testing. Whilst this was reported in professional soccer, I was surprised at the prevalence of its use! As suggested by McAuley et al. (2023), my perceptions were that this use of genetic testing is practitioners searching for an attractive (or even some kind of magical) solution. However, when we consider the complexities of talent identification and development, as highlighted by the seven challenges above, it raises concerns that genetic markers may be able to inform such a complex phenomenon. A possible explanation may be due to popular media or an overemphasis on genetic markers for sports performance (Johnston & Baker, 2022) but considering athletic performance is a complex combination of multiple technical, tactical, physical and psychosocial characteristics it is not surprising the evidence base for use for genetic testing is limited.

Effective use of resource

If we consider that talent identification and development systems need to use limited resources in the most efficient way possible, this opens up the question – is genetic testing a good use of resource in talent identification and development?

Whilst some benefits have been highlighted, including reducing the early exclusion of some athletes based upon genetic testing, it appears three points should be considered to answer this question:

1. Genetic testing, although reducing, is costly to implement
2. The evidence base for genetic testing is limited, and practitioners should be striving towards evidence-informed practices
3. Talent identification and development systems are complex with many more unanswered questions and opportunities to invest resource to identify and develop athletes.

So, is genetic testing a good use of resource in talent identification and development? Based on the three points above – my suggestion would be NO!

Conclusion

To conclude, talent identification and development is a challenging process involving practitioners making future predictions on the potential of young athletes. Whilst it is important that innovative ways are explored to enhance the talent identification and development process this commentary questions whether genetic testing is a good use of resource within talent identification and development. Whilst there may be some potential benefits, based upon the limited scientific evidence and the costs associated with this, combined with the complexities of talent identification and development, it is recommended that sports organisations and practitioners would be better served to invest their resources in more effective athlete profiling, enhancing coach education or providing more opportunities to more individuals within the talent system.

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Data availability statement

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