# BORN TO BE DIFFERENT

*Does the athlete has the innate "talent" to respond to training.*

The Genetic Brain Organisation Profile of a candidate predetermines already at conception the innate hand-eye-ear-foot coordination and operational functioning under normal circumstances and predicted compensations needed during stress. Our Russian competitors in sport has known this secret for selection purposes for most of the last century and has illustrated again and again in highly competitive situations that their athletes and Olympians had some subtle qualities that the west is still envious about. Each person is programmed with a Genetic Dominance Blueprint at conception which is important for two reasons:

a. to assist the body to intuitively step out of a problem when needed; and

b. to distinguish each person from the other regarding preferred cognitive and intellectual ability

The fact of the matter is that each person is born with some potential to excel in a sport of some sort, but can also with conscious effort achieve in those not genetically aligned with their profile. If one can understand the physiology of stress and how performance will be affected when learned techniques and skills come under pressure, potential risk can be minimised.

The purpose of Genetic Organisation Profiling and the interpretation thereof related to sport is never to interfere in the rules, coaching and management of the sport, but to pre-determine areas for functional adaptation needed and how stress is relevant to the present sport and/or position.

Talent identification (TI) is a popular and hugely important topic within sports performance, with an ever-increasing amount of resources dedicated to unveiling the next sporting star. However, at present, most TI processes appear to select high-performing individuals at the present point in time, as opposed to identifying those individuals with the greatest capacity to improve. This

represents a potential inefficiency within the TI process, reducing its effectiveness.

## Points to consider

1. Talent identification programmes often identify those with the greatest current ability, as opposed to the greatest capacity to improve.
2. This capacity to improve is linked to physical adaptation to exercise, which is partially genetically mediated.
3. Genetic profiling holds promise in being able to identify those individuals with the greatest capacity to improve, as well as the best methods through which to yield these improvements.

The accurate identification of youth sporting talent has, in recent decades, emerged as a hugely important and yet controversial topic [1, 2]. One fundamental limiting factor is that physical performance tests employed to discern between those who have the talent to excel in the future, and those who do not, actually only provide a snapshot of current abilities. The subsequent logical leap is the presumption that those who perform well at that given time are most likely to be successful as adults. Yet, due to the inherently non-linear complex nature of biological maturation, these performance snapshots offer inherently poor predictive value. As an illustration, within athletes competing in the 2012 Olympic 100 m final, personal bests at age 18 ranged from 10.27–10.48 s. In comparison, one other athlete ran 10.22 s at this age, faster than all the finalists. Yet, whilst these athletes progressed to achieve multiple sub-10s 100 m times, the other athlete peaked at 10.14 s.

The reasons why this athlete along with countless other high-performing juniors, did not maintain their relative world standings are obviously complex, varied and multifactorial [4, 5]. This illustrates the gross inaccuracies associated with current approaches to predicting future senior potential based on youthful performance.

A clear limitation of the TI process is that, during maturation, current performance is not directly indicative of future potential. No standard physical assessment provides insight into how an individual is likely to respond to future training. In this article, we explore the possibility that the utilisation of genetic markers associated with the capacity to favourably respond to imposed training stress may provide valuable, and currently missing, insights relating to future trainability, rather than current ability, thus providing clues as to whether the athlete has the innate "talent" to respond to training.

Whilst traditional TI programmes attempt to identify future elite performers through the application of physical, psychological and subjective evaluations, it is not clear whether this is the best approach. *One issue with the use of such performance tests is that they measure the current status of the athlete, as opposed to the potential for that athlete to improve and develop.* Consider the use of a 60-m sprint test in order to identify talented sprinters in a cohort of 15-year-olds. Whilst the test is valid and will accurately identify the quickest athletes, it is not clear that the fastest athletes at age 15 will be fastest at age 25. There is, therefore, a mismatch between what the test measures—current ability—and the TI processes goal—identifying future ability [7]. Instead, the focus of the TI process should be to find individuals with the potential to develop their skills and physiology in order to become successful senior athletes [7], commonly referred to as ***talent development (TD).***

TI programmes, therefore, should attempt to identify those with the greatest ability to develop, provided that their maximal ability is sufficient to be an elite athlete. This fits into a model proposed by Tucker and Collins [4], detailed in Fig. 1, whereby athletes have different baseline abilities that reflect the untrained state, but also different maximal abilities, which represent the performance ceiling for each athlete. There is not necessarily a relationship between the two; an athlete with a high start point might have a low ceiling. Conversely, an athlete with a low start point might have a higher ceiling. In this model, what becomes key is the potential of the athlete to improve with training—and whether they maximise this potential. For exercise adaptation to be considered a talent, it

needs to fit the following five criteria proposed by Howe and colleagues [6].

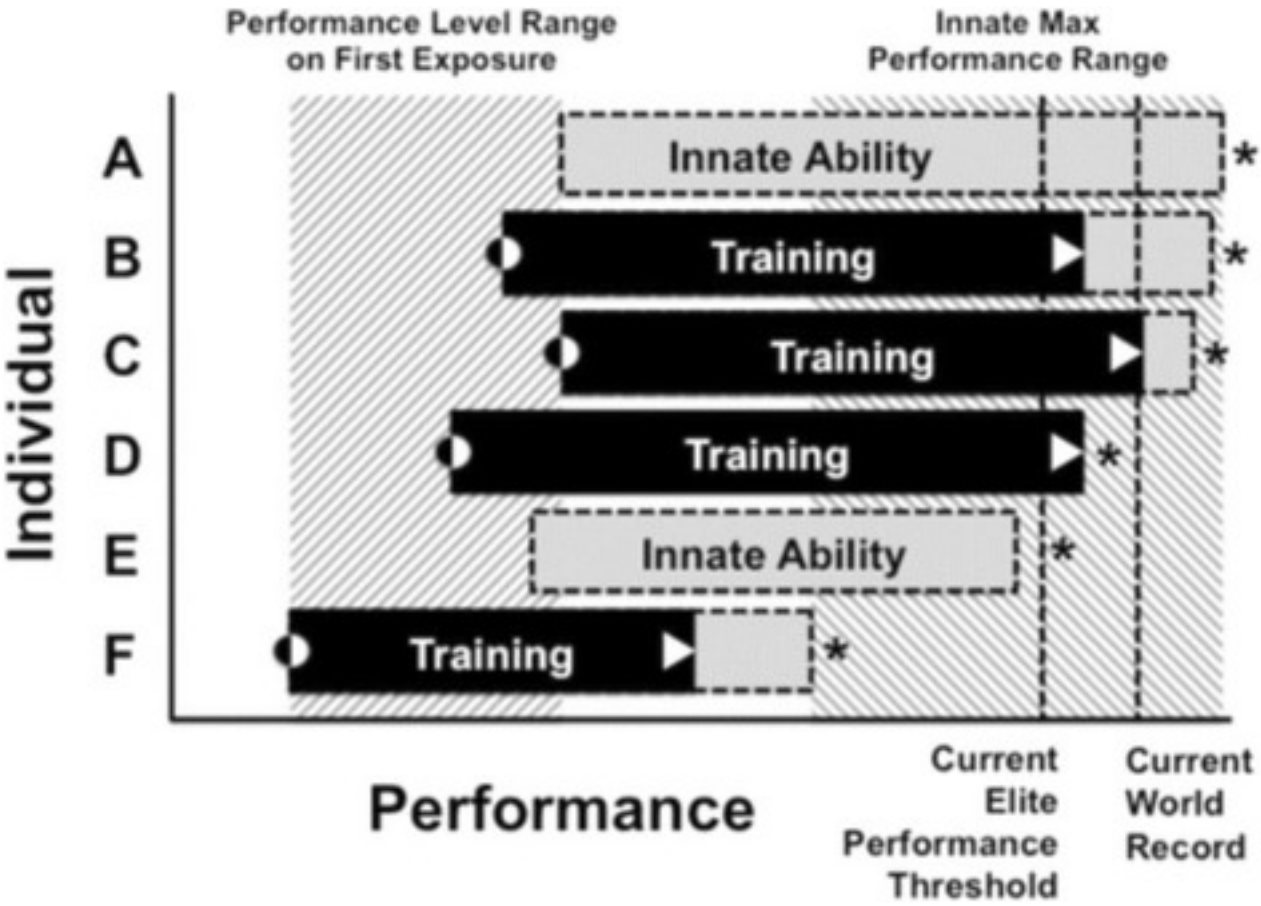


Fig. 1

A theoretical model illustrating inter-individual variation in performance and potential (reproduced from [4]). Here, six individuals (A–F) have differing initial performance levels (performance level range on first exposure); F has the lowest, and C has the highest. The individuals also have different ceilings to his/her performance (innate max performance range), with A having the highest potential. However, training represents the journey from baseline potential to final potential; A and E do not train, and so will never reach their ceiling. Whilst C is the current world record holder, B has the potential to outperform them—but only if B can maximize their training to drive the required response. Legend: Max = maximum; asterisk = maximum performance threshold for each individual; triangle = current performance level; black-white circle = initial performance level. Reproduced from [4]. Permission has been granted for reproduction

The ability to exhibit large adaptations to exercise is also potentially masked by maturation effects. So far, there is a paucity of evidence examining whether those athletes who are highly adaptable during their youth remain so during their adult years. Nevertheless, based on the evidence available, it does appear that the ability to respond favourably, and with a large magnitude, to exercise can be considered a talent.

Traditional TI processes appear to identify athletes who are already more able than their peer group, as opposed to those who represent the greatest ability to improve. The ability to test for this latter trait would therefore enhance the TI process, providing some predictive measure as to the future level of the athlete. As Abbott and Collins [7] state, successful prediction of future accomplishments requires identification of characteristics indicating that an individual has the potential to both develop in sport and become a successful senior athlete. Crucially, recent research suggests that individuals respond optimally to different types of training [8, 9, 10], illustrating that being able to match promising youngsters with the training type most likely to elicit the greatest improvements could be invaluable. This can reduce the trial-and-error process, increasing the time period available for an athlete to maximise their potential by minimising ineffective and inefficient training methods.

## Conclusion

Whilst widespread across sport, traditional TI processes have a number of inherent problems. Perhaps the biggest issue is that they appear to identify current ability, as opposed to future potential, a fact which is not helped by the poor predictive ability of currently used tests of talent. Instead, TI programmes might be better placed to identify youngsters with the greatest capacity to improve, which is partially comprised of the ability to adapt to exercise. As genetic factors account for approximately 50% of the variation in adaptation to exercise, profiling to uncover these genetic underpinnings could be a useful future adjunct to the TI process, and also allow for athletes to undertake training that they are more likely to see favourable adaptations to, creating a personalised training process making athletes more likely to achieve their potential. With the many inefficiencies and high costs

associated with TI, it is clear that we only need to be marginally better at the TI process in order to be disproportionately more effective at developing talent, and genetic testing potentially represents this marginal gain. Sporting prowess is not depending solely on physiology, and a number of psycho-emotional and cognitive traits are also associated with athletic achievement. Such traits include, for example, innate stress resilience, and a host of attitudinal factors, such as motivation, perseverance and personality dispositions [2, 3, 11]. In summary, the ability to positively respond to the training stimuli imposed by physical exercise fulfils the required criteria to be considered a talent. The emergence of genetic testing may enable the more accurate identification of athletes who, thanks to a favourable genetic profile, possess a heightened ability to exhibit the greatest responses to training, thus improving the efficiency and efficacy of the talent identification process.

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***NEED SOME HELP HERE PROF. Yogan Coopoo***

## Assessment -I

An online assessment comprising of questions set to explain the sports physiology.

## Assessment -II

Fitness tests to analyze participants relative score requirement for each activity conducted under this module.

Few fitness tests as a suggestive to the model (assessment -II), shared below.
Requesting expertise guidance and support for further implementation and
execution.