



# Use of genetic information in sport

DNA testing can be used for a number of purposes not related to health. One area of interest is the potential for DNA testing and genetic profiles in sport applications such as talent identification, individualised training programs and avoidance of sport-related injury.

## Can DNA testing be used in talent identification?

While there is evidence that genes contribute to athletic performance, there is no evidence that genetic variations can predict athletic performance.

At this stage, DNA testing is unlikely to provide athletes, talent scouts or coaches with any additional information beyond that which can already be learned through traditional talent-identification programs.

## Have studies shown any direct links between genes and sporting prowess?

Australian researchers have identified that a variation in a gene called *ACTN3* might affect elite athletic performance. It is unclear whether testing for this gene would be useful in making decisions about talent identification or even personalised training. Attempts by some football clubs in Australia to use genetic information for selection or training have not produced any reported benefits and were abandoned.



## Can genetic screening be used to determine predisposition to illness or injury?

The use of genetic testing to determine whether an individual has a predisposition to sports-related illnesses or injuries is still experimental. It is known that some genetic disorders can present a serious health risk in someone undertaking strenuous activity.

As an example, Marfan syndrome is associated with tallness and an abnormality of the aorta that can cause aortic rupture and death. Professional basketball associations could examine professional athletes for the physical appearances of Marfan syndrome or for heart abnormalities using tests such as an echocardiogram.

## Are there any legal concerns about genetic testing in sports?

The use of genetic testing and genetic information to exclude people from participation in sport, directly or indirectly, will become a bigger issue in the future. There could be concern especially if only a genetic predisposition to a condition is found rather than evidence of an actual existing disease.

The Australian Law Reform Commission and the NHMRC through the 2003 *Essentially Yours* report<sup>1</sup>, recommended that, as a general rule, predictive genetic information should not be used to make decisions affecting employment. This would extend to sport.

## What are the ethical concerns about genetic testing in sport?

There are concerns about the effect of genetic testing on individual athletes, especially when this involves children or young people. Inappropriate interpretation of test results could at best lead to incorrect advice about placement in sporting activities, and at worst could be detrimental to the physical or psychological health of an individual.

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<sup>1</sup> *Essentially Yours: The Protection of Human Genetic Information in Australia* (2003). Australian Law Reform Commission/Australian Health Ethics Committee. ALRC Report 96.