

Genetics and Football: Current Insights and Future Directions

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Abstract

Genetic research in football is still considered to be relatively new but the growing interest in this field is reflected by the increasing number of genetic association studies being published. Football is a complex, intermittent sport that requires the execution of many technical and tactical actions that also vary in form and intensity throughout a 90-minute game. Attaining the elite status in football is a multifactorial process with genetics being one of the contributing factors. In fact, genetic markers that showed significant associations with footballer status and specific performance-related phenotypes have been reported. These exciting discoveries provide a glimpse of the future on how genetic information can potentially be used to optimize footballing performance by personalizing training and nutrition strategies. Furthermore, genetic markers that were associated with injury susceptibility are of particular interest given that the injury incidence rate in footballers was reported to be 6.6 per 1000 hours of exposure with injury incidence during matches being even higher (23.8/1000 hours). In addition to affecting player availability and team performance, football-related injuries were cited as the major reason for the career end of professional footballers. More importantly, the prior injuries sustained were found to exert a detrimental impact on footballers' overall health status and quality of life even after their retirement. Therefore, genetic markers associated with injury susceptibility could potentially be incorporated as part of an injury-risk assessment battery for early warning, risk reduction and management of risk in line with SDG Target 3.D.

Keywords : Sports Genomics, Footballers, Precision Medicine