



Opinion

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A Quick Glance at Novel Aspects in Sports- Gender-Specifics, Innate Tendencies, Healthcare Brands, Personalizing Recommendations...

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A sport is universal, as it unites people regardless of language or culture. The sportive spirit witnesses celebration for its achievements, irrespective of the gender or ethnicity. According to Nolan, et al., 2024, [1] "Male athletes play well to feel good, and female athletes feel good to play well".

As a Nutrigenetic expert, I believe healthcare brands are crucial in a female athlete's fitness management program. On an average, a female athlete's performance differs from her male counterpart by around 30% with regard to endurance or muscular power. While male athletes benefit from their testosterone influence on muscle architecture, female athletes enjoy fatigue-resistance with their advantageous adiponectin levels. Hence healthcare brands should effectively address such unique physiological aspects. In a sport like long-distance running, women exhibit greater adduction and internal rotation at the hip, as well as abduction at the knee and ankle eversion during the stance phase of running (regardless of varied incline or speed). Catering to this concern, healthcare brands should potentially consider footwear that reduces ankle eversion.

I would also advocate that let's refrain from the ideology of gender-appropriate sports. Anybody can achieve big in their preferred sport, provided they understand their innate tendencies for training adaptation. And accordingly, the healthcare brands should support personalized training and nutritional requirements.

These differences can be attributed to various factors like anatomical (physical features such as height), physiological

(functional factors like the body's ability to deliver oxygen to muscles), psychological, and socioeconomic (such as access to equipment and training knowledge).

Sports nutrigenomics is occupying the center stage as a practical tool for assessing elite sports performance, and this is applicable for women athletes as well. Healthcare brands that offer non-invasive genetic tests on fitness parameters should be considered early on, and here is why I say this... Which kind of sport one can comfortably carry out is a million dollar question. And a clue to its answer lies in our genes. Genetic variations regulate vital athletic requisites like aerobic capacity, nature of energy release, predominance of slow or fast twitch muscle fibres and muscle fatigue resistance. For instance, genetic factors explain inter-individual variations in baseline aerobic capacity by 60%, in anaerobic power by 70-90% and muscular strength by 50-70%. And hence, alongside preference, the choice of a sport can convincingly be supported by innate abilities to enhance performance. Genetic insights has potential benefits in elite athletes as the training team is better equipped with their innate tendencies on aspects like adaptation to a sport, injury propensity and recovery pace. This is a much-needed practical tool for personalizing training and nutritional requirements. Citing a practical scenario, the TNC gene encodes tenascin-C which modulates the elastic & biomechanical properties of tendons & ligaments. Its expression is altered in the presence of a single nucleotide polymorphism, rs2104772, which makes its 'A' allele carriers more susceptible for rotator cuff injury. A young tennis aspirant can benefit from this genetic insight as

their training sessions can emphasize on strengthening the rotator cuff by performing specific exercises like shoulder external rotation with a resistance band, and positioning the wrist/forearm slightly upward to maintain an exact 90 degrees angle of bend at their elbow throughout the movement, amongst other expert techniques. Additionally, such pre-participation screening can guide their sports nutritionist to focus on nutrients like genestein (from soya products) to improve their tissue elasticity [2-5].

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Conflict of Interest

None.

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