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Sports Nutrigenomics – Caffeine: A Review

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Abstract

Aim: The aim of this article is to review the research studies related to sports nutrigenomics-caffeine. **Conclusion:** The research in the field of genetics and sports nutrition (i.e. gene-diet interaction) is linking genetic variation to nutritional or supplemental needs of athletes with a focus on sport performance.

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Nutrigenomics is also known as nutritional genomics. Nutrigenomics is well-defined as the association among nutrients, diet, and gene expression (Chadwick 2004). The mapping of human DNA sequencing after the success of Human Genome Project in the 1990s, starting the field of nutrigenomics that we see today (Mathers 2017). In addition to the effect of genes on the phenotype (i.e. the physical expression of genetic traits), genes can also respond to environmental influences (stimuli) – of which nutrition is one such influence. The general dietary patterns such as diets with a high Glycemic Index (GI) load have also been associated with gene expression, for example the association between a high GI diet and exaggerated polymorphism of the Adiponectin gene, contributing to insulin resistance and diabetes type II. Nutrigenomics as a research field very much depends on the modern development of cutting-edge technologies that allow to process a large amount of data relating to gene variants. These so-called '-omic' technologies like proteomic, metabolomics, genomic, and transcriptomic, allow to identify and measure several different types