

## The agt gene m235t polymorphism and response of power-related variables to aerobic training

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### Abstract

© Journal of Sports Science and Medicine. The C allele of the M235T (rs699) polymorphism of the AGT gene correlates with higher levels of angiotensin II and has been associated with power and strength sport performance. The aim of the study was to investigate whether or not selected power-related variables and their response to a 12-week program of aerobic dance training are modulated by the AGT M235T genotype in healthy participants. Two hundred and one Polish Caucasian women aged  $21 \pm 1$  years met the inclusion criteria and were included in the study. All women completed a 12-week program of low and high impact aerobics. Wingate peak power and total work capacity, 5 m, 10 m, and 30 m running times and jump height and jump power were determined before and after the training programme. All power-related variables improved significantly in response to aerobic dance training. We found a significant association between the M235T polymorphism and jump-based variables (squat jump (SJ) height,  $p = 0.005$ ; SJ power,  $p = 0.015$ ; countermovement jump height,  $p = 0.025$ ; average of 10 countermovement jumps with arm swing (ACMJ) height,  $p = 0.001$ ; ACMJ power,  $p = 0.035$ ). Specifically, greater improvements were observed in the C allele carriers in comparison with TT homozygotes. In conclusion, aerobic dance, one of the most commonly practiced adult fitness activities in the world, provides sufficient training stimuli for augmenting the explosive strength necessary to increase vertical jump performance. The AGT gene M235T polymorphism seems to be not only a candidate gene variant for power/strength related phenotypes, but also a genetic marker for predicting response to training.

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### Keywords

Aerobic dance, Genetic polymorphism, Renin-angiotensin system, Training adaptation