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Titel des Beitrags: Genetic polymorphisms and left ventricular mass in elite endurance athletes
Abstract: Regular physical exercise leads to specific cardiac adaptation. Twin studies have shown that left ventricular mass (LVM) in the untrained state, as well as the adaptation of heart size to exercise is influenced by genetic factors. The aim of our study was to investigate the influence of three genetic polymorphisms from the renin-angiotensin-system (RAS) on LVM in highly-trained endurance athletes. 150 male athletes from different endurance sports with a training history of 5 years or more and a maximum oxygen uptake > 75 mL/(.kg(-1.)min(-1)) were recruited. Cardiac dimensions were measured by echocardiography, LVM was calculated using Devereux's formula. Polymerase chain reaction (PCR) was used to analyze three different polymorphisms in the genes encoding the angioterrsin-converting-enzyme (ACE), the angiotensin II-type I-receptor (AT1) and the angiotensin II-type 2-receptor (AT2). No significant association was found between a single variant of the three tested polymorphisms and LVM. Analyzing different genotype combinations we found a significantly higher LVM in athletes carrying the combination ACE/II-genotype and AT2 G-allele. In conclusion, we found no evidence for an association between anyone of the investigated polymorphisms and LVM in our study group. Nevertheless, we found some evidence that a specific combination of ACE genotype and AT2 genotype may play a role in cardiac adaptation in endurance athletes.
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