

**Association between Sport Performance and  
Alpha-Actinin-3 Gene R577X Polymorphism**Bade Yamak<sup>1</sup>, Melek Yuce<sup>2</sup>, Hasan Bagci<sup>2</sup> and Osman Imamoglu<sup>1</sup><sup>1</sup>*Ondokuz Mayıs University, Yasar Dogu Faculty of Sport Sciences, Samsun, Turkey*<sup>2</sup>*Ondokuz Mayıs University, Department of Medical Biology, Samsun, Turkey***KEYWORDS** ACTN3. SNP. Turkey. Athletic performance. Association. Elite Athletes

**ABSTRACT** Physical performance has been associated with many gene variants including the alpha-actinin-3 gene (*ACTN3*) R577X polymorphism. The purpose of the present study is to investigate whether there is an association between sport performance of Turkish elite athletes and alpha-actinin-3 gene R577X polymorphism. A total of 300 individuals (150 elite athletes and 150 sedentary individuals) participated in the study voluntarily. A 291-bp long region spanning the R577X polymorphic site of the alpha-actinin-3 gene was amplified and tested with polymerase chain reaction (PCR) and restriction fragment length polymorphism (RFLP) method. The statistical analyses were done by using SPSS 15.0 package program. Although, no significant difference was found between the distributions of the three genotypes of elite athletes and sedentary individuals, the frequency of XX genotype in sedentary individuals was lower than that of the elite athletes ( $p > 0.05$ ). The RX and XX frequencies were significantly different ( $P < 0.05$ ) between the two groups. To the best of the researchers' knowledge, there are no reports that examined the ACTN3 polymorphism in the Athletes who live in Black sea region of Turkey