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Genetic association between *ACTN3* polymorphism and risk of non-acute ankle sprain

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ABSTRACT. In this study, we investigated the association between *ACTN3* R577X polymorphism and non-acute ankle sprain by measuring the allele frequency and genotype distribution of *ACTN3* in a Chinese Han population. We recruited 100 patients with non-acute ankle sprain and 100 healthy controls with no history of ankle injuries. Mass spectrometric analysis of single nucleotide polymorphism was used to analyze the genotype and allele frequencies of *ACTN3*. Results showed that the genotype frequency of RR in patients was 12.0%, which was significantly lower than that of the controls (24.0%) (OR = 1.7; 95%CI = 1.5-2.7; P = 0.001). The frequency distribution of the R allele in patients and controls were 68.5 and 56.7%, respectively (P = 0.002). Moreover, frequency of the RR genotype exhibited a downward linear trend with increased incidences of ankle sprain. Our results suggest that *ACTN3* R577X polymorphism is associated with non-acute ankle sprain in the Chinese Han population.

Key words: *ACTN3*; Gene; Polymorphism; Non-acute ankle sprain