

ACTN3 Genotype Association with Motoric Performance of Roma Children

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Abstract : The paper presents the results of the molecular genetics analysis in sports research, with special emphasis to use genetic information in diagnosing of motoric predispositions in Roma boys from East Slovakia. The ability and move are the basic characteristics of all living organisms. The phenotypes are influenced by a combination of genetic and environmental factors. Genetic tests differ in principle from the traditional motoric tests, because the DNA of an individual does not change during life. The aim of the presented study was to examine motion abilities and to determine the frequency of ACTN3 (R577X) gene in Roma children. Genotype data were obtained from 138 Roma and 155 Slovak boys from 7 to 15 years old. Children were investigated on physical performance level in association with their genotype. Biological material for genetic analyses comprised samples of buccal swabs. Genotypes were determined using Real Time High resolution melting PCR method (Rotor-Gene 6000 Corbett and Light Cycler 480 Roche). The software allows creating reports of any analysis, where information of the specific analysis, normalized and differential graphs and many information of the samples are shown. Roma children of analyzed group legged to non-Romany children at the same age in all the compared tests. The % distribution of R and X alleles in Roma children was different from controls. The frequency of XX genotype was 9.26%, RX 46.33% and RR was 44.41%. The frequency of XX genotype was 9.26% which is comparable to a frequency of an Indian population. Data were analyzed with the ANOVA test.

Keywords : ACTN3 gene, R577X polymorphism, Roma children, sport performance, Slovakia

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