



Exercise Biochemistry Review

Proceedings of IBEC 2018, Beijing, China, October 23-25
PO-007

Association of six gene polymorphism with tendon injuries in Chinese athletes

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Objective In recent years, more and more studies have shown that gene polymorphism is associated with susceptibility and recovery of sports injury. We select Collagen type I alpha 1 gene (COL1A1), Collagen type V alpha 1 gene (COL5A1), Collagen type XII alpha 1 gene (COL12A1), Collagen type XIV alpha 1 gene (COL14A1), Tenascin C gene (TNC), Growth/differentiation factor-5 gene (GDF-5) polymorphic loci to study their relationship with tendon injuries in Chinese athletes.

Methods A case-control experiment was designed to analyze the distribution characteristics of six gene polymorphism loci in 65 Chinese athlete injured group and 115 control group. These six polymorphic loci were detected by PCR-RFLP.

Results The distributions of COL1A1 TT genotype, COL5A1 CC genotype and GDF-5 CC genotype were decreased in injured group compared with the control group. The COL12A1, COL14A1, TNC gene polymorphic loci showed no significant difference between two groups. The COL1A1, COL5A1 and GDF-5 genes were involved in encoding for collagen, matrix metalloproteinase, tenascin and growth factors which protect the athlete from the musculoskeletal injuries, particularly in tendon and ligament tissues.

Conclusions The genetic loci will help to identify individuals with advantageous physical performance and a lower chance of suffering from injuries.