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Changes of muscle FGF-6 expression at different time points after exercise-induced muscle damage

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Abstract

Objective: The aim of this study was to investigate the expression of muscle fibroblast growth factor-6 (FGF-6) and explore the relationship with skeletal muscle regeneration and repair after exercise-induced muscle damage (EIMD)

Methods: Reverse transcription-PCR and immunohistochemistry staining was utilized to examine FGF-6 mRNA and protein expression in rat at different time points(0h, 6h, 12h, 1d, 2d, 3d, 1w, 2w) after a bout of downhill treadmill running(90min, -16m/min speed and -16°slope,). The status of muscular injury and regeneration was assessed by HE (hematoxylin-eosin staining) staining.

Results: Skeletal muscle appeared the worst damage 3d post-running with a profusion of inflammatory cells. After 2w the regenerated myofibers could be distinguished. The FGF-6 protein expression showed an initially elevation, then followed by a gradual reduction, while the expression of FGF-6 mRNA remained elevation after exercise.

Conclusion: Our results point out that FGF-6 is closely related to skeletal muscle regeneration and repair, probably implying a dual function in muscle regeneration.