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Increased Mechano-growth Factor Gene Expression Following Stretch-shortening Contraction Loading: Impact Of Glutathione And Age: 2450: Board #95 May 29 9:00 AM - 10:30 AM

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Specific genes regulating multiple pathways in the adaptive response in skeletal muscle following glutathione modulation and repetitive mechanical loading are not known.

PURPOSE: The purpose of this study was to characterize gene transcripts influenced by dietary supplementation with a glutathione antagonist (L-Buthionine Sulfoximine (BSO)) following chronic high-intensity mechanical loading via stretch-shortening contractions (SSCs) in young and old rats.

METHODS: Left dorsiflexor muscles of young (12 weeks, N= 32) and old (30 months, N = 30), vehicle- (VEH) and BSO-treated rats were exposed 3 times per week for 4.5-weeks to a protocol of 80 maximal SSCs per exposure *in vivo*, while cage, age-matched rats served as controls (CON). Messenger levels for MyoD, Bax, Bcl2, Caspase-9, IL-15, IL-1-b, MCP-1, TGF-b1, IL-10, mechano-growth factor (MGF), and 18s (control) genes were characterized by RT-PCR analysis following the SSC-exposure period.

RESULTS: Following 4.5 weeks of SSC loading only MGF mRNA levels were significantly altered by treatment (young BSO increased versus young VEH; $p < 0.05$) and age (young BSO increased versus old BSO; $p < 0.05$).

CONCLUSIONS: Even though MGF mRNA was the only transcript influenced by glutathione modulation and/or aging, further investigation is needed to evaluate changes in protein levels. However, the present study clearly demonstrates that MGF mRNA is influenced by both glutathione modulation and aging.

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