PROTECTIVE ROLE OF ALCOHOL AND AQUEOUS EXTRACTS OF NORTH AMERICAN GINSENG AGAINST ECCENTRIC EXERCISE-INDUCED MUSCULAR DAMAGE

(Spine title: Ginseng protection against exercise-induced muscular damage)

(Thesis format: Integrated article)

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A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science

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ABSTRACT

The potential anti-inflammatory properties of North American ginseng (NAG) have not been previously examined in rat skeletal muscles. Hence, we tested the hypothesis that intervention with NAG would reduce eccentric exercise-induced muscular damage and inflammation. Male Wistar rats were fed (300 mg/kg/d) of either an alcohol (Al) or aqueous (Aq) extract of NAG for 14 days before a single bout of downhill running (Ex) and were compared to matching non-exercised (C) groups. Blood creatine kinase (CK) levels were significantly reduced in both NAG treated groups compared to the placebo (P) groups ($P<0.002$). Further, the Aq but not Al group also showed attenuated morphological signs of damage (H&E) as well as reduced levels of infiltrated neutrophils (HIS48) in the soleus muscle ($P<0.001$). In summary, Aq but not Al NAG reduced eccentric exercise-induced muscle damage at 24 h post-exercise, but it was not demonstrated that this protection was associated with changes in the NF-κB inflammatory regulatory pathway.

Keywords: North American ginseng, exercise, inflammation, creatine kinase, neutrophils, muscular damage, NF-κB