

Medicine & Science in Sports & Exercise

Issue: Volume 33(5) Supplement 1, May 2001, p S121

Copyright: ©2001The American College of Sports Medicine

Publication Type: [C170 FREE COMMUNICATION/POSTER EXERCISE-INDUCED MUSCLE DAMAGE AND SORENESS]

ISSN: 0195-9131

Accession: 00005768-200105001-00686

[C170 FREE COMMUNICATION/POSTER EXERCISE-INDUCED MUSCLE DAMAGE AND SORENESS]

EFFECTS OF VARYING WORK-REST CYCLES OF DOWNHILL RUNNING ON ACUTE MUSCLE INJURY IN RATS

Park, J¹; Robertson, A¹; Garuccio, C¹; Cyphers, D¹; Miller, R¹; Cutlip, R G.¹; Wirth, O FACSM¹

Author Information

¹National Institute for Occupational Safety and Health (NIOSH), Morgantown, WV, USA (Sponsor: Paul Gordon, FACSM)

Four groups of six untrained rats were induced to run by mild electrical stimulation on a motorized treadmill at a speed of 16 m/min for a total 30 min. The treadmill was declined 16 degrees to eccentrically bias contractions of the soleus muscle in the hind limbs. Rats in one group ran continuously for 30 min, while rats in the other three groups ran six 5-min bouts separated by rest periods of various durations. Rest durations of 2 min, 4 min, and 6 min were studied across these groups. One group of six sham-control rats were placed in the treadmill chamber with a nonmoving belt and active shock grid for 30 min. All rats conformed to the running task quickly and received only a few shocks during the first few minutes of the protocol. Rats were sacrificed 48 hr following exercise. Histological and enzyme assay techniques were used to assess acute muscle injury. Results showed that 30 min of continuous downhill running produced visible signs of injury and inflammation in the soleus. Less injury was found in conditions with intermittent rest periods, and no visible signs of injury or inflammation were found with the longer rest durations. Results of the present investigation suggest that intermittent rest periods provide a protective effect against acute muscle injury, and provide evidence that a rodent treadmill model may be a useful model for the study of musculoskeletal injury and the effects of various exercise and work practices.

Copyright (c) 2000-2014 Ovid Technologies, Inc.

[Terms of Use](#) | [Support & Training](#) | [About Us](#) | [Contact Us](#)

Version: OvidSP_UI03.11.00.120, SourceID 59447