

Zarzeczny R, JJ Brault, KA Abraham, CR Hancock, RL Terjung. Influence of ribose on adenine salvage after intense muscle contractions. *J Appl Physiol* 2001;91:1775-1781.

The influence of ribose supplementation on skeletal muscle adenine salvage rates during recovery from intense contractions and subsequent muscle performance was evaluated using an adult rat perfused hindquarter preparation. Three minutes of tetanic contractions (60 tetani/min) decreased ATP content in the calf muscles by approximately 50% and produced an equimolar increase in IMP. Effective recovery of muscle ATP 1 h after contractions was due to reamination of IMP via the purine nucleotide cycle and was complete in the red gastrocnemius but incomplete in the white gastrocnemius muscle section. Adenine salvage rates in recovering muscle averaged 45 ± 4 , 49 ± 5 , and 30 ± 3 nmol. h⁻¹. g⁻¹ for plantaris, red gastrocnemius, and white gastrocnemius muscle, respectively, which were not different from values in corresponding nonstimulated muscle sections. Adenine salvage rates increased five- to sevenfold by perfusion with approximately 4 mM ribose (212 ± 17 , 192 ± 9 , and 215 ± 14 nmol. h⁻¹. g⁻¹ in resting muscle sections, respectively). These high rates were sustained in recovering muscle, except for a small (approximately 20%) but significant ($P < 0.001$) decrease in the white gastrocnemius muscle. Ribose supplementation did not affect subsequent muscle force production after 60 min of recovery. These data indicate that adenine salvage rates were essentially unaltered during recovery from intense contractions.

