

## Metabolic Requirements of Farmers/Ranchers Performing Simulated Occupational Tasks: Recommendations for Cardiovascular Rehabilitation

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### ABSTRACT

Current ACSM guidelines for cardiac rehabilitation (rehab) return to work state that exercise training should mimic the muscle groups, movements, and energy systems utilized in a patient's occupational tasks. The aims of this study were to evaluate the metabolic costs of typical farming/ranching tasks, determine the pattern of movement and muscle groups involved in these tasks, and determine the approximate duration of these tasks. **Methods:** Participants (n=29) were employed in the farming/ranching field and ranged in aged from 18-57 years. The participants performed four tasks: loading 10 hay bales, digging a fence post hole, filling eight seed hoppers, and shoveling grain. **Results:** Ranges for mean metabolic equivalent (MET) levels of the tasks were 5.9-7.6 while respiratory exchange ratio (RER) values ranged from .85-.93. Mean times (min:sec) for task duration were 1:42-3:34.

**Conclusion:** MET levels recorded in this study are in agreement with the Compendium of Physical Activities for farming tasks and meet the standard requirements for cardiovascular training in cardiac rehab (~ 8 METS). However, these tasks are of high intensity and require an exercise prescription based on specificity of training for the muscle groups and energy systems involved. In accordance to ACSM guidelines, this study includes recommendations for exercise prescription specific to supervised resistance training appropriate for a farmer/rancher population in cardiac rehab settings.