Increased resistance training does not benefit cardiac rehabilitation patients: study

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For patients undergoing rehabilitation following cardiac events, aerobic exercise training (AT) is widely recommended. Resistance training (RT) has also been shown to be beneficial because it enhances muscular strength and endurance, functional capacity and independence, and quality of life, while reducing disability. In a study scheduled for publication in the October issue of the Archives of Physical Medicine and Rehabilitation, researchers compared two RT regimens of different intensity in combination with AT. They determined that higher volume of RT in combination with AT does not yield any additional benefits.

"Our data demonstrate that for cardiac patients, women and men engaged in combined AT and RT, a twice-per-week 3 set x 15 reps volume of resistance exercise performed on 10 different lifts resulted in no training advantage over 2 set x 12 reps," commented Serge P. von Duvillard, PhD, FACSM, FECSS, Director, Applied Physiology Laboratory, Department of Kinesiology-Exercise Science and Biology, The College of Idaho. "Furthermore, combining resistance protocol with more traditional AT in cardiac rehabilitation programs resulted in substantial physical fitness benefits, as well as reductions in cardiovascular risk markers. In the interest of supervision time, exercise duration, and equipment usage, applying the 2 set x 12 reps model of resistance exercise appears effective and efficient."

Investigators compared the effectiveness of RT combined with aerobic training in a residential cardiac rehabilitation setting. 295 patients were randomly divided into 2 groups that performed two levels of RT. Each

RT session consisted of 10 different resistance exercises and the 2 groups performed either 2 sets of 12 repetitions or 3 sets of 15 repetitions, twice per week. Patients at the higher repetition level were performing about twice the exercise of the other group. Patients all completed moderate AT composed of cycling 6 times per week and walking 5 times per week during the 26-day rehabilitation.

Both groups showed equivalent improvement in exercise capacity, muscular strength, hemodynamics and blood chemistries regardless of RT volume. Blood lipids and other cardiovascular risk indicators were generally improved. Maximal oxygen uptake increased by 11%. There were modest but significant reductions in resting heart rate and resting systolic and diastolic blood pressure. Collectively, these results point to a reduction in overall cardiac risk, along with improvement in physiologic performance variables that should result in an improvement in quality of life. Patients enrolled in the study did not exhibit adverse effects like increased blood pressure or heart rate or cardiac events as the result of RT.

More information: The article is "Resistance Training Dose Response in Combined Endurance-Resistance Training in Patients With Cardiovascular Disease: A Randomized Trial" by Robert Berent, MD, Serge P. von Duvillard, PhD, Stephen F. Crouse, PhD, Helmut Sinzinger, MD, John S. Green, PhD, and Peter Schmid, MD. It will appear in *Archives of Physical Medicine and Rehabilitation*, Volume 92, Issue 10 (October 2011) doi: 10.1016/j.apmr.2011.04.021

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