

Continuous exercise training after MI beneficial in mice

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(HealthDay)—Continuous exercise training before and after myocardial infarction (MI) is associated with improved adverse left ventricular (LV) remodeling in mice, according to a study published in the July 15 issue of the *American Journal of Physiology-Heart and Circulatory Physiology*.

Sarah-Lena Puhl, Ph.D., from Universitätsklinikum des Saarlandes in Germany, and colleagues examined the effects of exercise before and reinitiated early after MI. Male C57BL/6N mice were housed sedentary or with the opportunity to exercise for six weeks prior to MI induction or sham operation. Mice were allowed to re-exercise for four weeks after a five-day post-MI exercise-free phase.

The researchers found that pre-MI exercise induced adaptive hypertrophy with moderate increases in heart weight, cardiomyocyte diameter, and LV end-diastolic volume, with no fibrosis. MI induced

eccentric LV hypertrophy with massive fibrosis in sedentary mice, but they maintained systolic LV function. Exercised mice did not differ from sedentary mice in gross LV end-diastolic volumes and systolic function, but there was a reduction of LV collagen content and thinning of the infarcted area after MI. This correlated with improved inflammation activation, mediated by [tumor necrosis factor \$\alpha\$](#) , interleukin (IL)-1 β , and IL-6, as well as reduced activation of matrix metalloproteinase 9. In sedentary or exercised [mice](#), there were no differences in the activation patterns of various mitogen-activated protein kinases or adenosine receptor expressions at five weeks after MI.

"An early re-onset of [exercise](#) after MI can be encouraged," the authors write.

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