

Exercise Before and During Pregnancy Does Not Alter Myosin Heavy Chain Isoforms in Pregnant Mice

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ABSTRACT

The myosin heavy chain isoforms (β -MHC and α -MHC) determine shortening velocity and power output properties of the heart. There are two types of cardiac hypertrophy, pathological and physiological. Pathological cardiac hypertrophy is often accompanied by re-expression of β -MHC with decreases in kinetic properties of the heart. High fat diet is known to lead to cardiac dysfunction seen through the expression of β -MHC in the heart. However, little is known about the effects of high fat diet and exercises during pregnancy on MHC isoform content. The purpose of this study is to determine whether exercise in combination with high fat diet consumption before and during pregnancy would alter MHC isoforms. Our model consisted of C57BL/6 virgin female mice whom were first split into high fat diet (HFD, 45% kcal) and low fat diet (LFD 10% kcal) groups. Four weeks before pregnancy initiation, the HFD mice were split into two sub groups, sedentary (HFD) or exercised (HFD+Ex). The HFD+Ex participated in voluntary wheel running through gestation. All mice were sacrificed at 19 days gestation. The MHC isoform content of ventricular homogenates was determined using a 6% SDS-Polyacrylamide gel electrophoresis. We found, there were no differences in MHC isoform expression between the HFD, HFD+Ex group, and the LFD animals. We conclude that exercise before and during pregnancy does not alter MHC isoform content in pregnant mice fed by high fat diet.