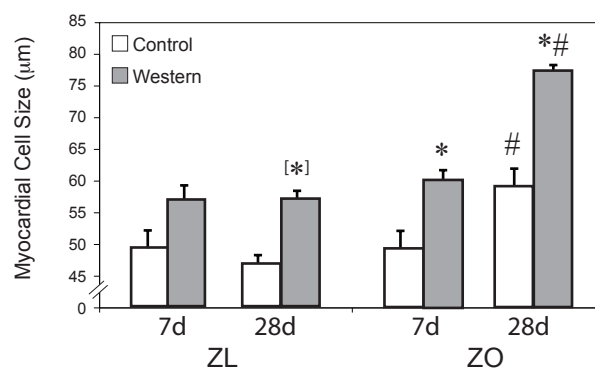
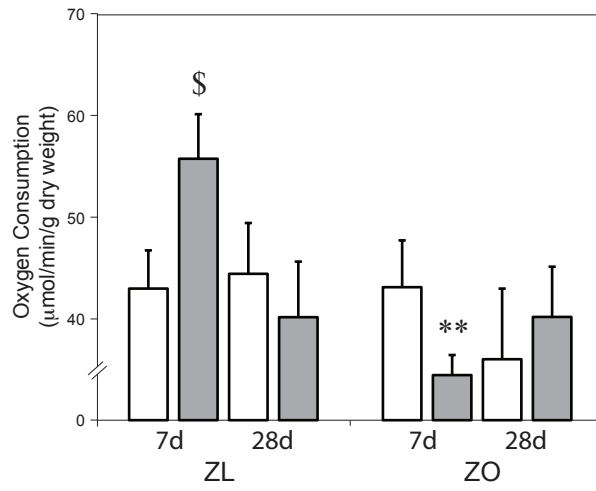


### Supplementary Figure 1

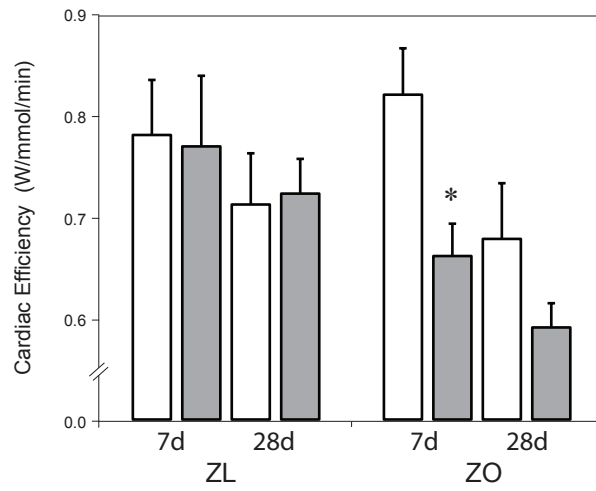


## Supplementary Figure 2

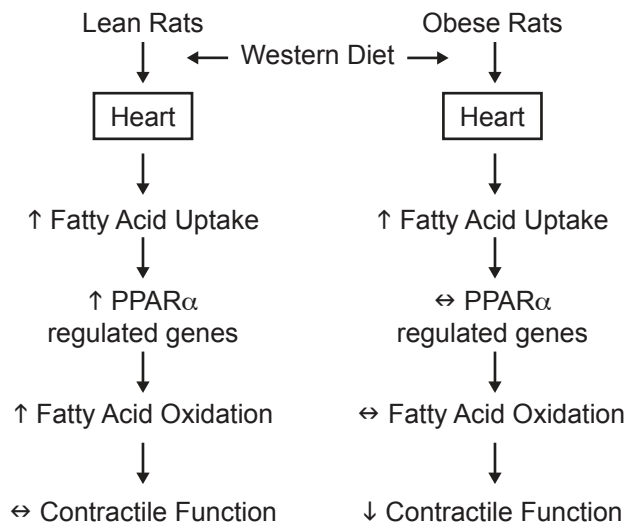
**A**



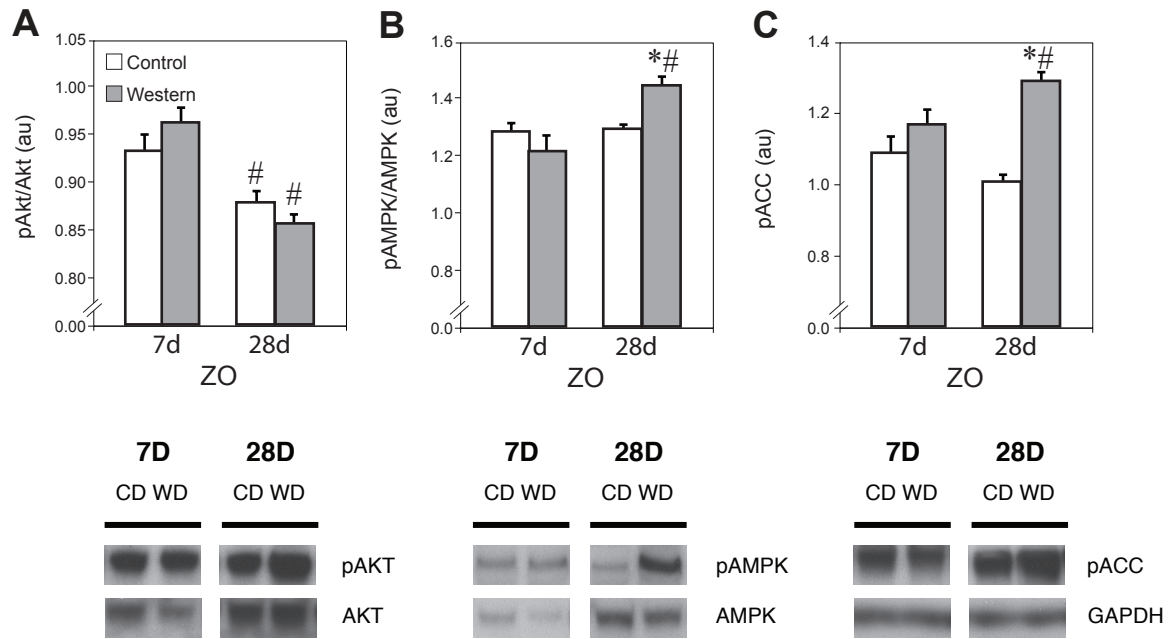
**B**



### Supplementary Figure 3



## Supplementary Figure 4



## **Supplementary Figure Legend**

### **Supplementary Figure 1**

Myocardial Cell Size. Groups: ZL = Zucker lean; ZO = Zucker obese. C = CD; W = HFD; numbers = days on diet; data are means  $\pm$  SE for 8 independent observations. \*  $p < 0.01$  for HFD vs. CD; #  $p < 0.05$  for 7 vs 28 days; [\*]  $p < 0.1$  for HFD vs. CD.

### **Supplementary Figure 2**

Myocardial oxygen consumption (A) and cardiac efficiency (B). Cardiac Efficiency was calculated from the quotient of cardiac power and oxygen consumption. Groups: ZL = Zucker lean; ZO = Zucker obese. C = CD; W = HFD; numbers = days on diet; data are means  $\pm$  SE. \*  $p < 0.05$  for HFD vs. CD; †  $p < 0.05$  for ZL vs. ZO rats fed the same diet for the same time.

### **Supplementary Figure 3**

In the ZO heart, WD leads to cardiac dysfunction in metabolically inflexible hearts.

### **Supplementary Figure 4**

Analysis of insulin and AMPK activation in obese Zucker rat hearts via standard Western-Blotting. Phospho-Akt (A), phospho-AMPK (B), and phospho-ACC (C). Data are means  $\pm$  SE for 5-6 independent observations. #  $p < 0.05$  at 7 vs. 28 days on respective diets; \*  $p < 0.01$  for control vs. high fat diet.