

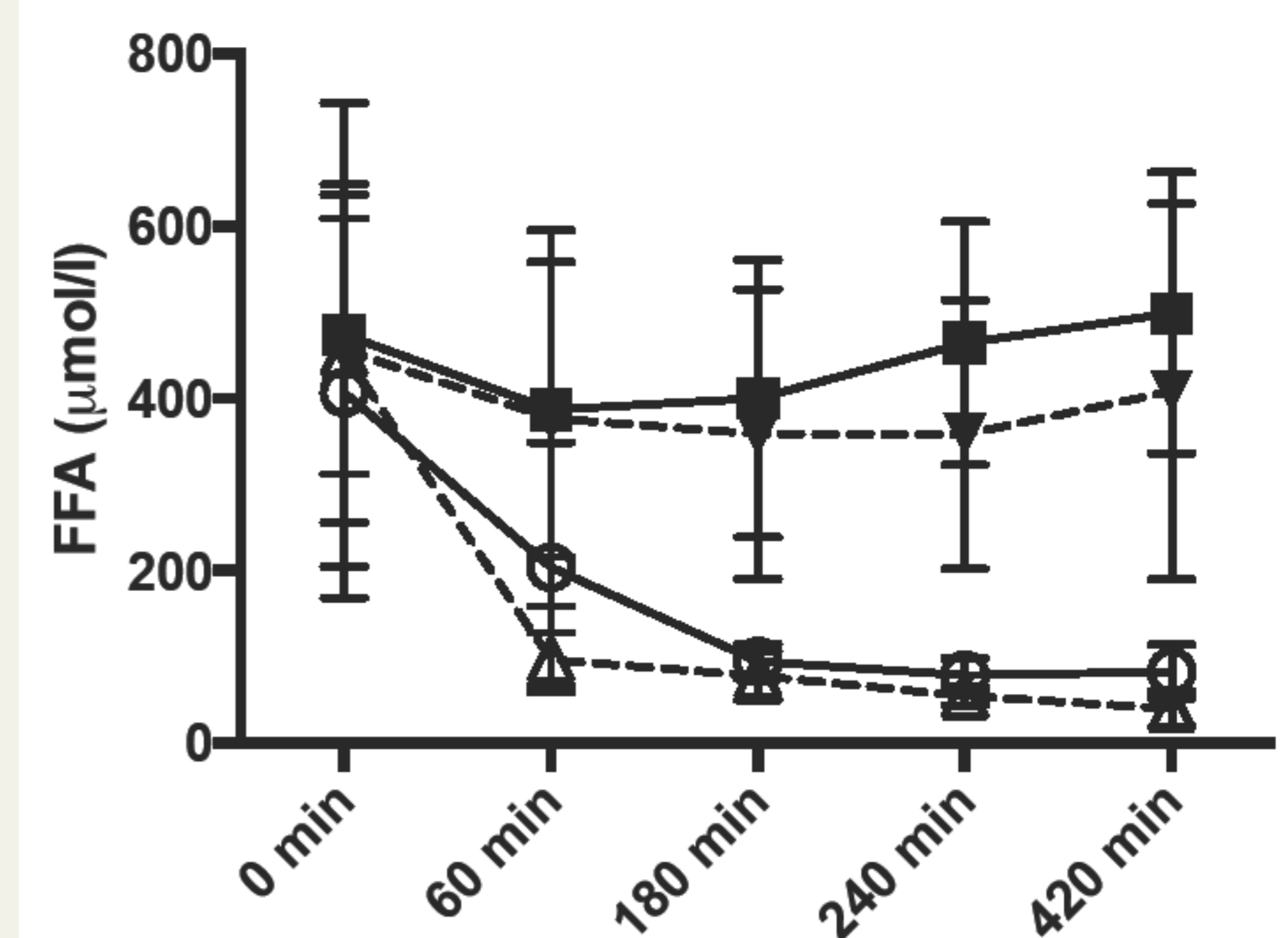
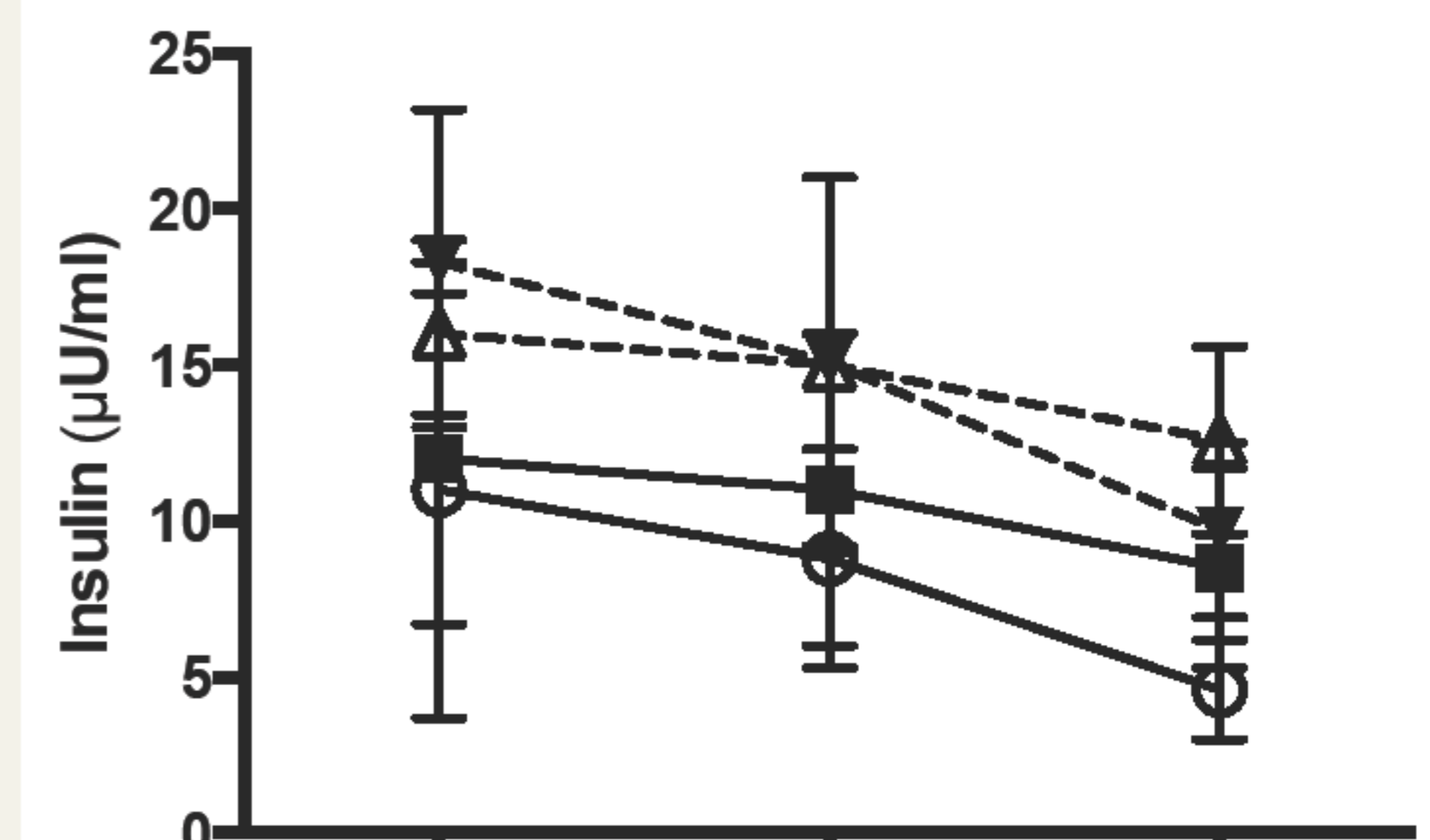
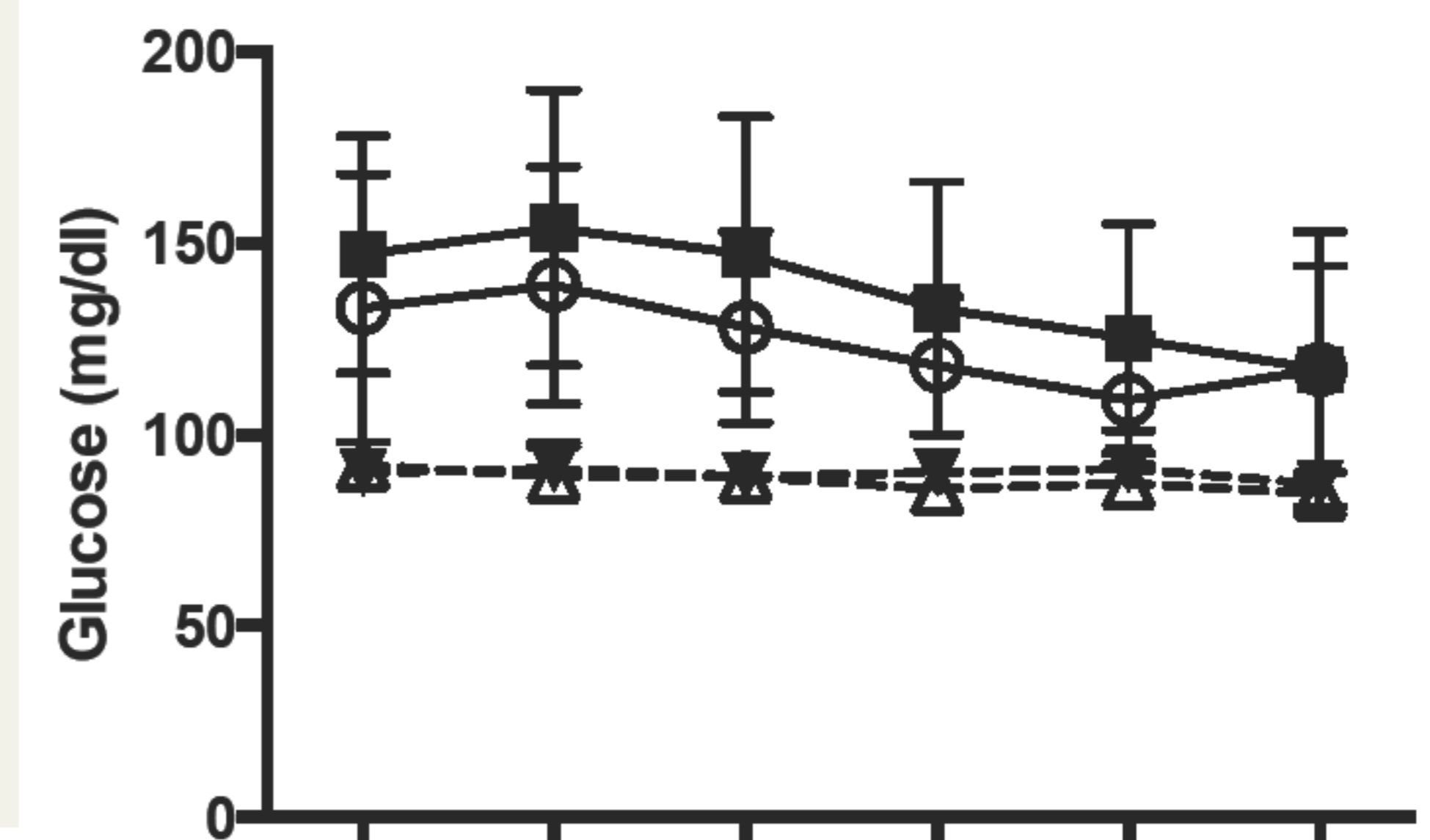
# Suppression of plasma free fatty acid concentration similarly reduces myocardial lipid content and systolic heart function in type 2 diabetic patients and healthy controls

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**Introduction:** Metabolic inflexibility in T2DM might result in reliance on free fatty acids (FFA) as substrate to maintain myocardial energy metabolism compared to lean and healthy controls. Thus, we investigated the effects of an acute suppression of circulating FFA on myocardial lipid content and left ventricular function in extreme phenotypes.

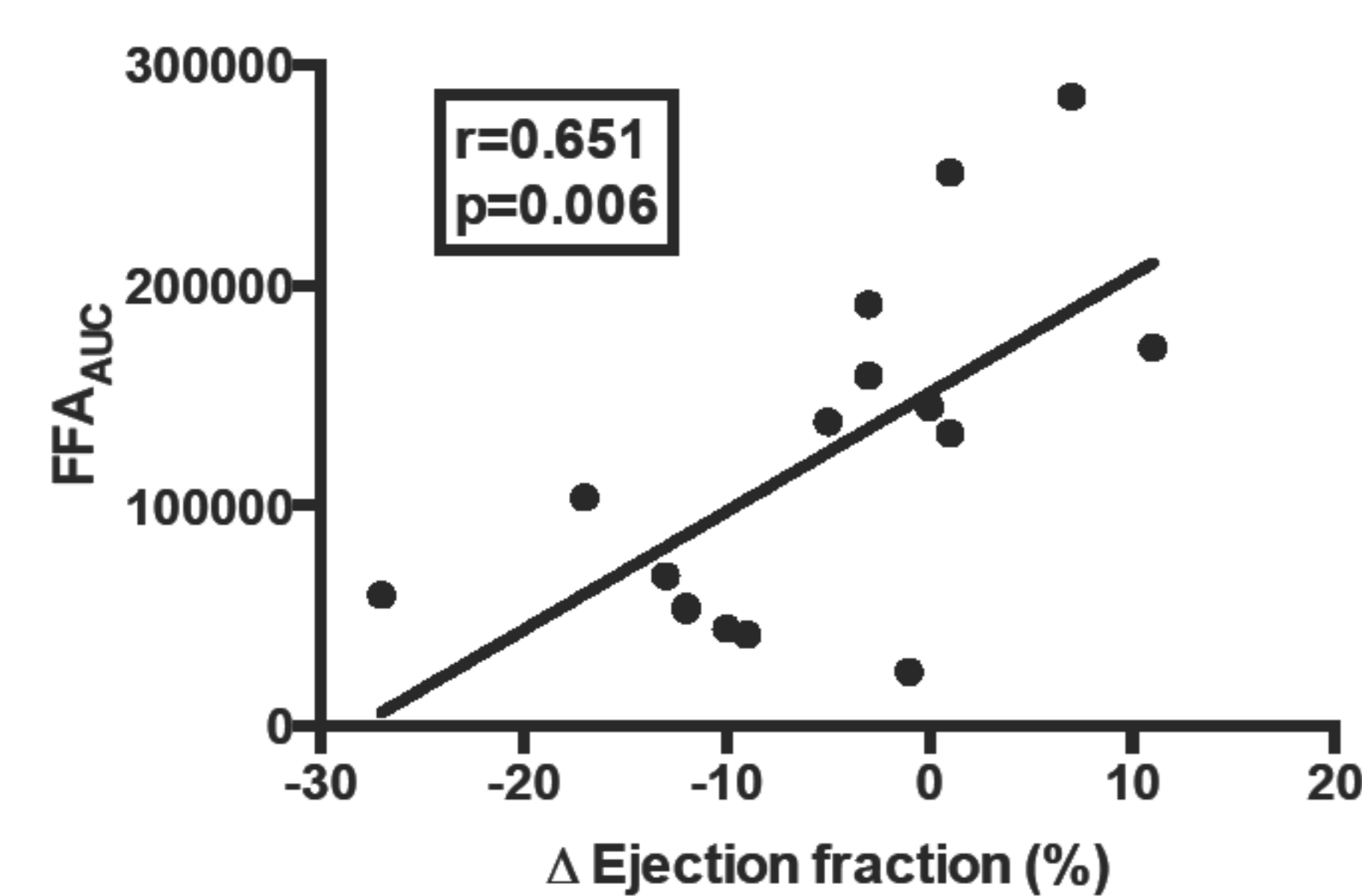
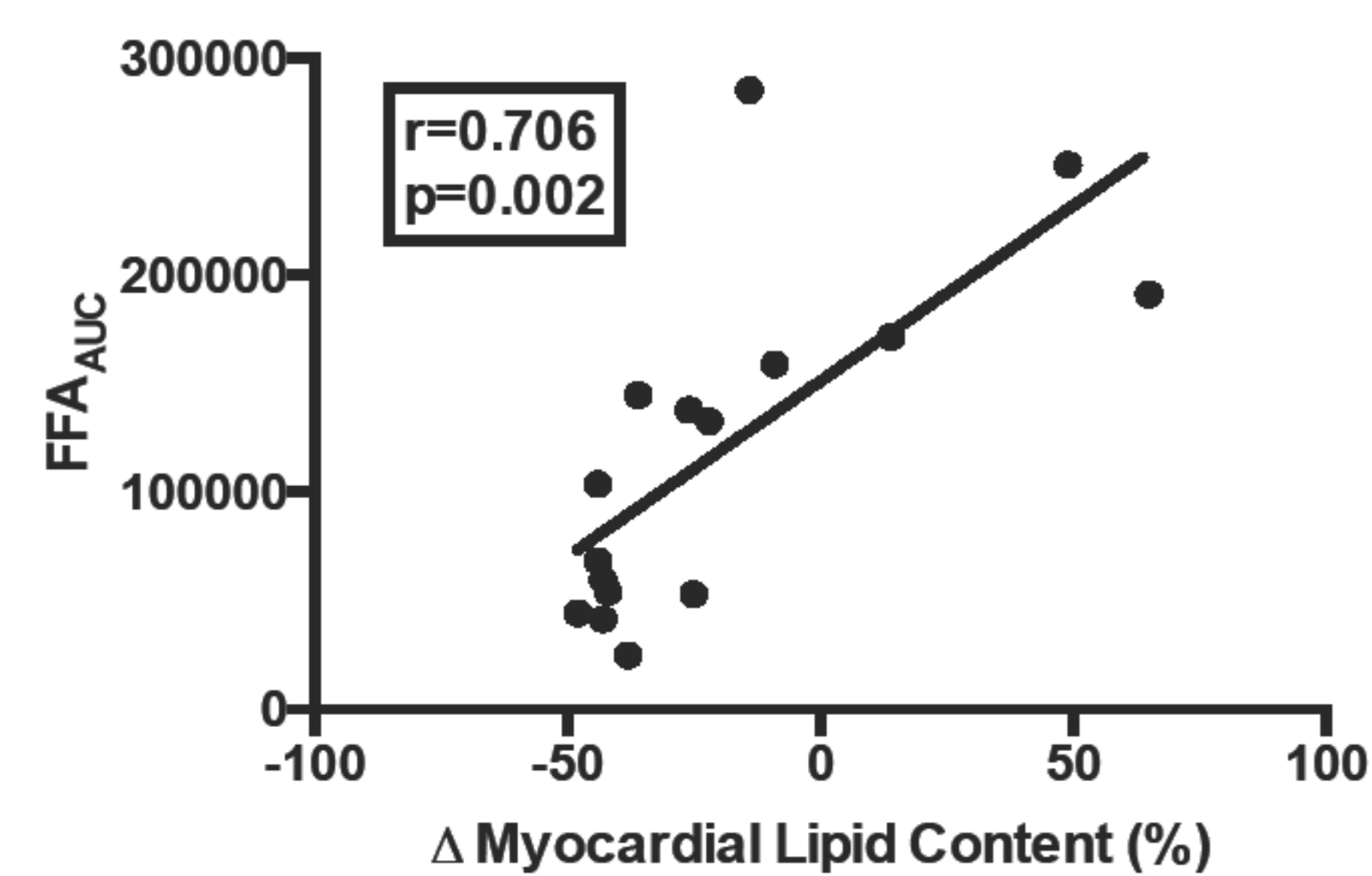
## Methods:

- 8 T2DM patients (56±11a;BMI:28±3.5kg/m<sup>2</sup>;HbA1c:7.29±0.88%)
- 9 healthy controls (CON) (Age:24±3a;BMI:24±3.5kg/m<sup>2</sup>)
- 2 study days: Acipimox vs Placebo
- MR imaging &-spectroscopy: Cardiac lipids & heart function



## Results:

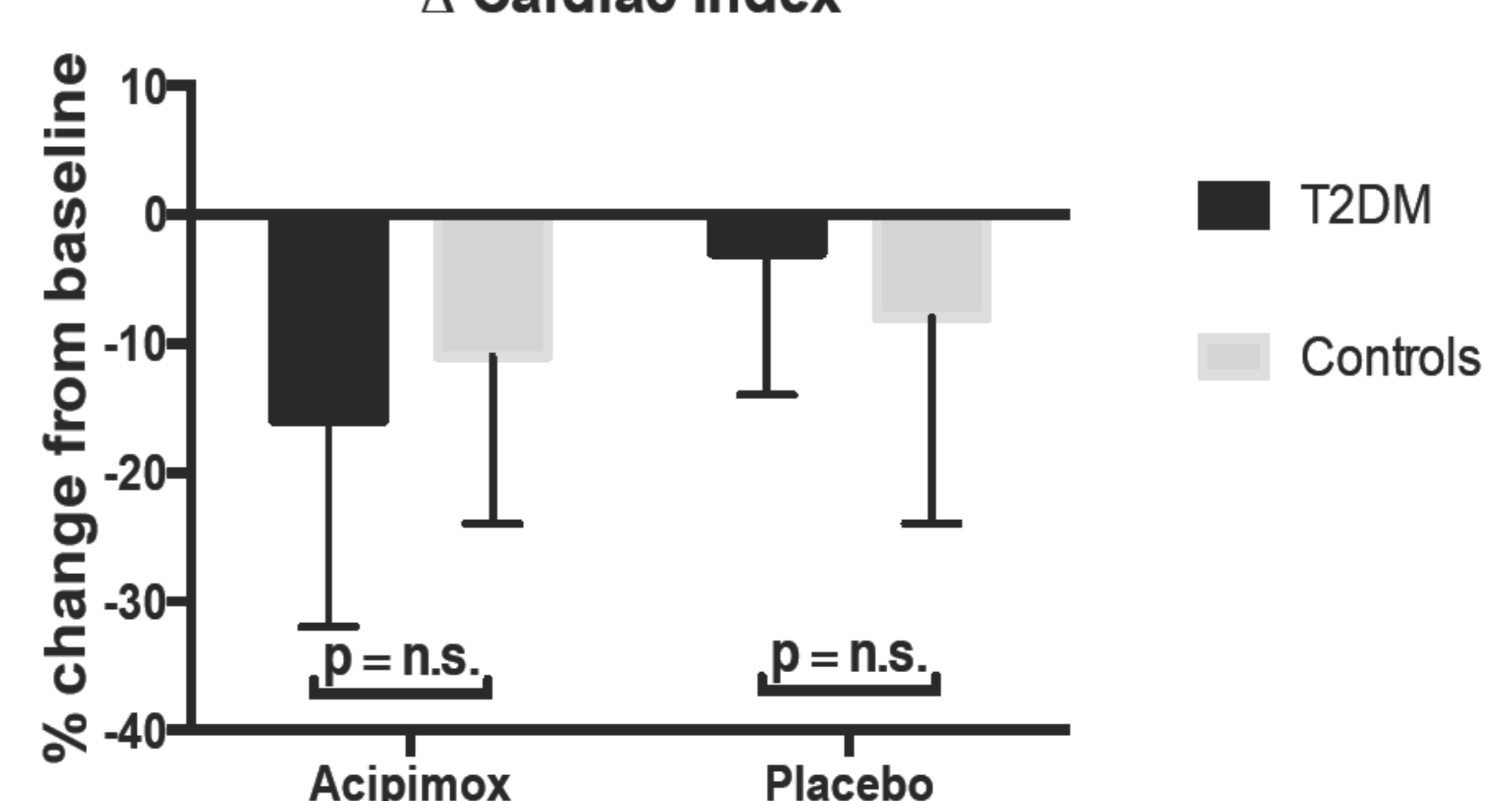
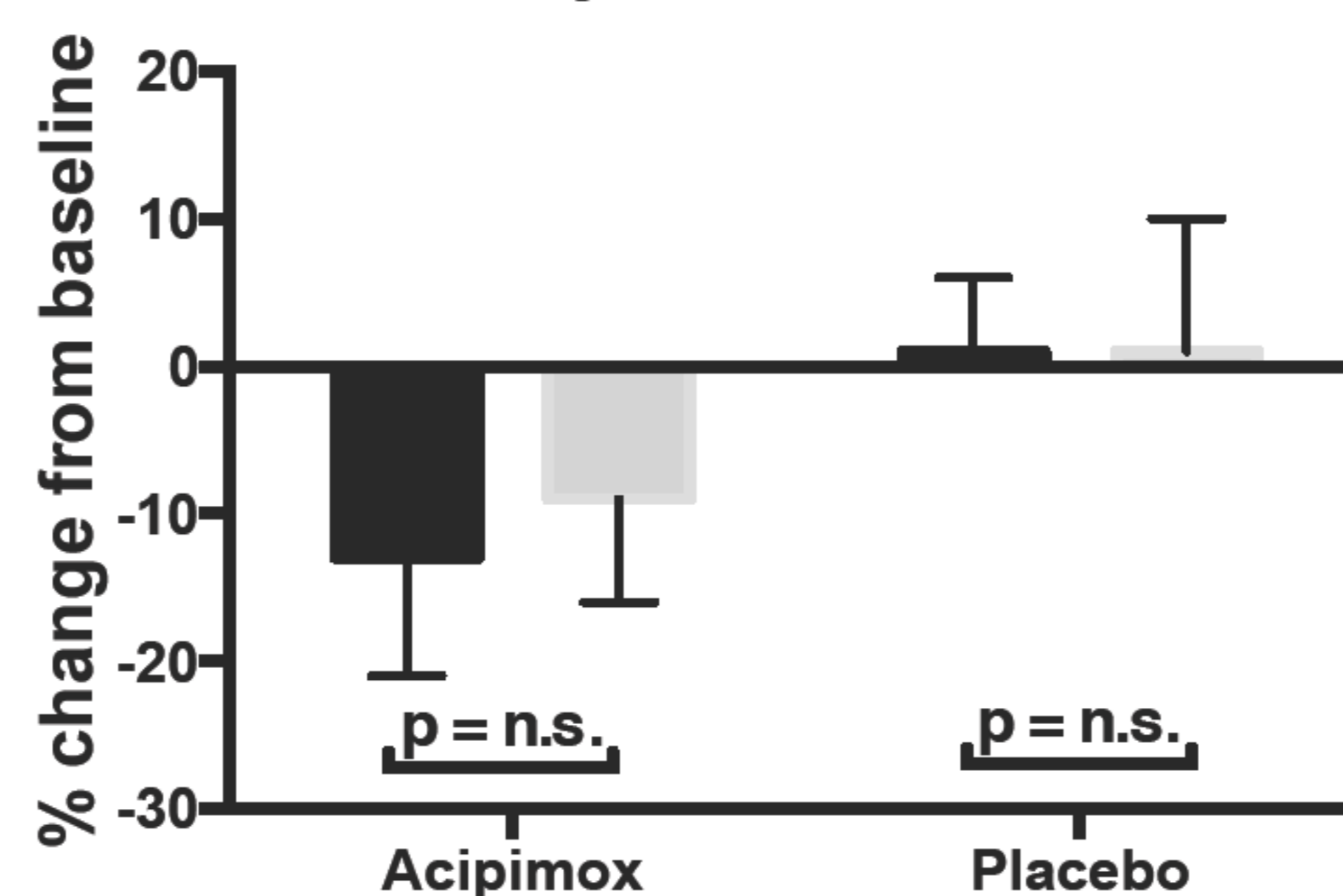
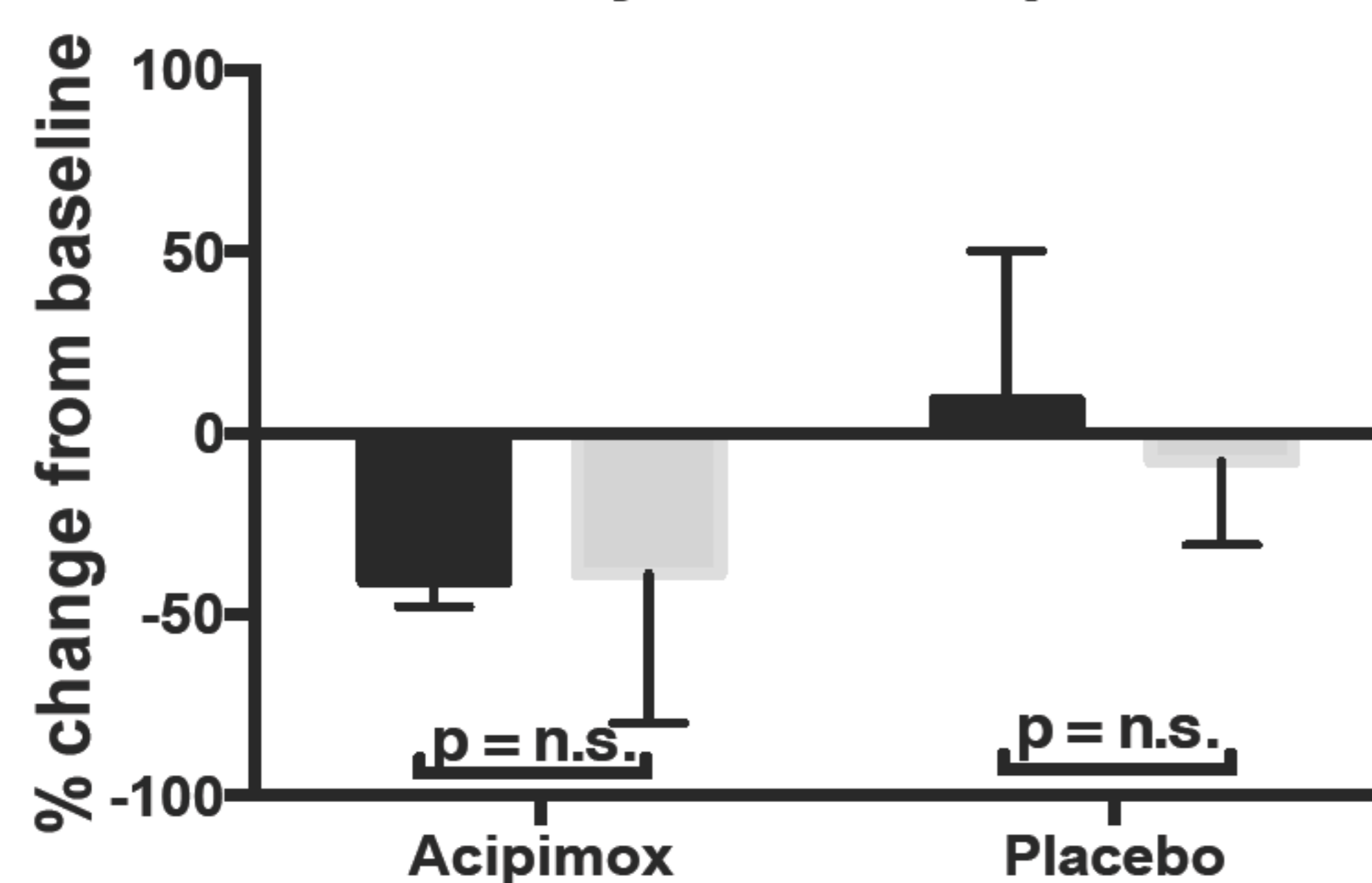
- Acipimox reduced MYCL in T2DM -39±7;p<0.01 & CON -39±4%; p<0.01 compared to baseline
- This drop was associated with decreased parameters of systolic heart function in both groups (EF:-13±8vs-9±7%;CI:-16±15vs-11±13%)
- Circulating FFAs strongly correlated with MYCL and systolic heart function



Δ Myocardial Lipids

Δ Ejection Fraction

Δ Cardiac Index



**Conclusion:** Pharmacological inhibition of adipose tissue lipolysis reduces MYCL and EF similarly in T2DM and healthy controls. Thus, cardiac lipid stores might be essential for maintaining systolic heart function. These results are of clinical interest, since lipolysis-inhibiting drugs are frequently used in routine care in T2DM (insulin, nicotinic-acids).