

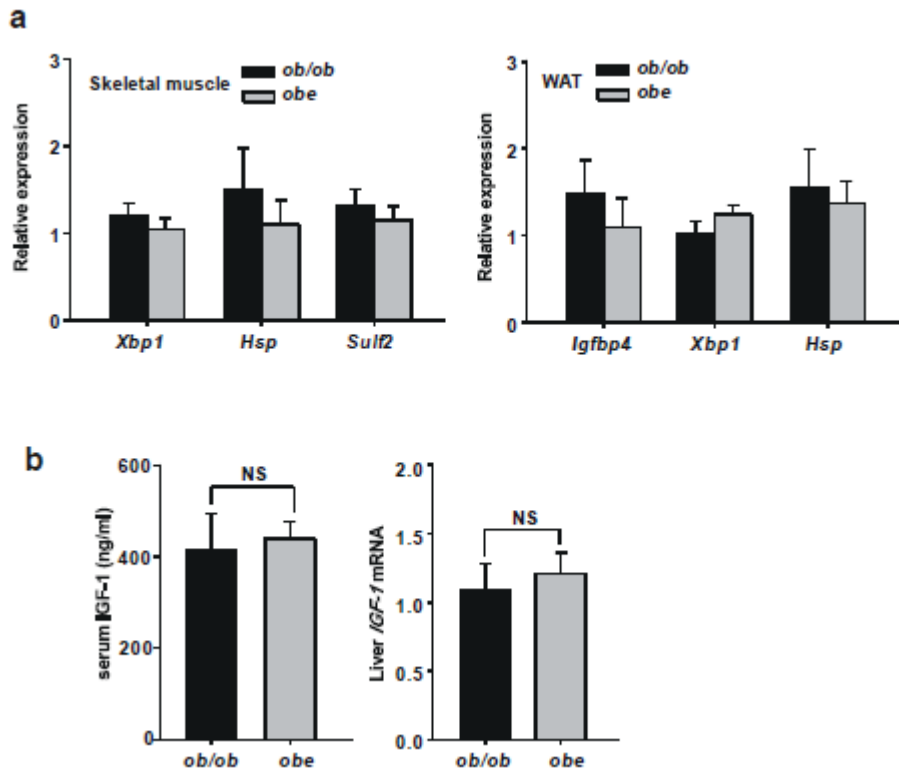
SUPPLEMENTARY DATA

Supplementary Table 1. Metabolic parameters of female *ob/ob* and *obe* mice

	<i>ob/ob</i>	<i>obe</i>
Food intake (g/day/mice)	5.69±0.48	6.02±0.33
Food intake (g/day/kg lean mass)	317.6±22.6	310.3±18.1
Physical activity (X-total counts/day)	25079.3±3872.4	30037.5±5186.8
Gastrocnemius and soleus muscles weight (g)	0.20±0.02	0.27±0.04*
Gastrocnemius and soleus muscles index (% body weight)	0.35±0.04	0.53±0.08**

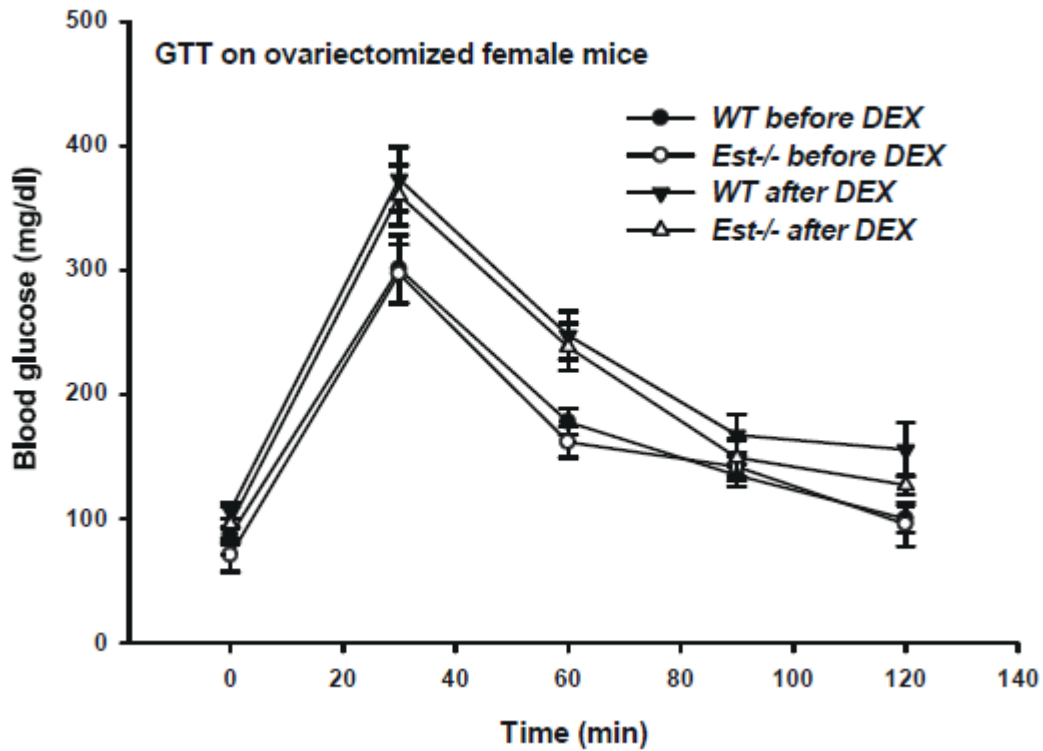
obe, ob/ob-Est null; *, $P < 0.05$; **, $P < 0.01$

Supplementary Figure 1. *Obe* female mice showed an unchanged expression of estrogen responsive genes in skeletal muscle and white adipose tissue (WAT), and ovariectomy abolished the effect of loss of *Est* on the expression of *IGF-1*. (a) Expression of estrogen responsive genes was measured by real-time PCR analysis. (b) Serum IGF-1 and hepatic *IGF-1* mRNA levels in ovariectomized mice. **, $P < 0.01$; NS, statistically not significant; *ob/ob* versus *obe*.

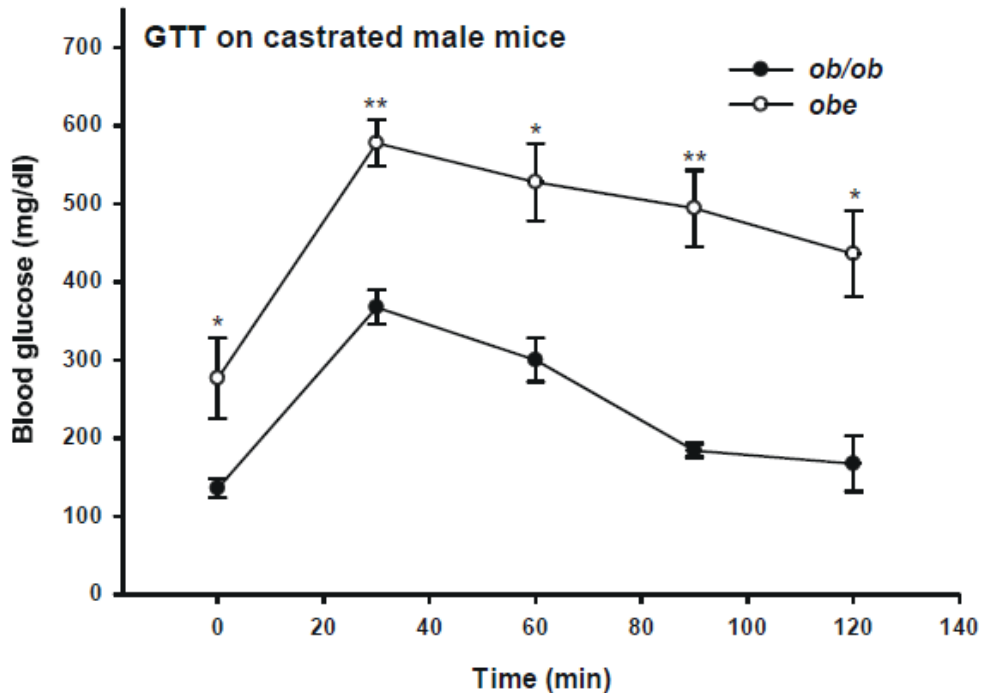


SUPPLEMENTARY DATA

Supplementary Figure 2. Ovariectomy abolished the protective effect of *Est* ablation on DEX-induced hyperglycemia. GTT tests were performed on ovariectomized mice before and after two weeks of DEX treatment.

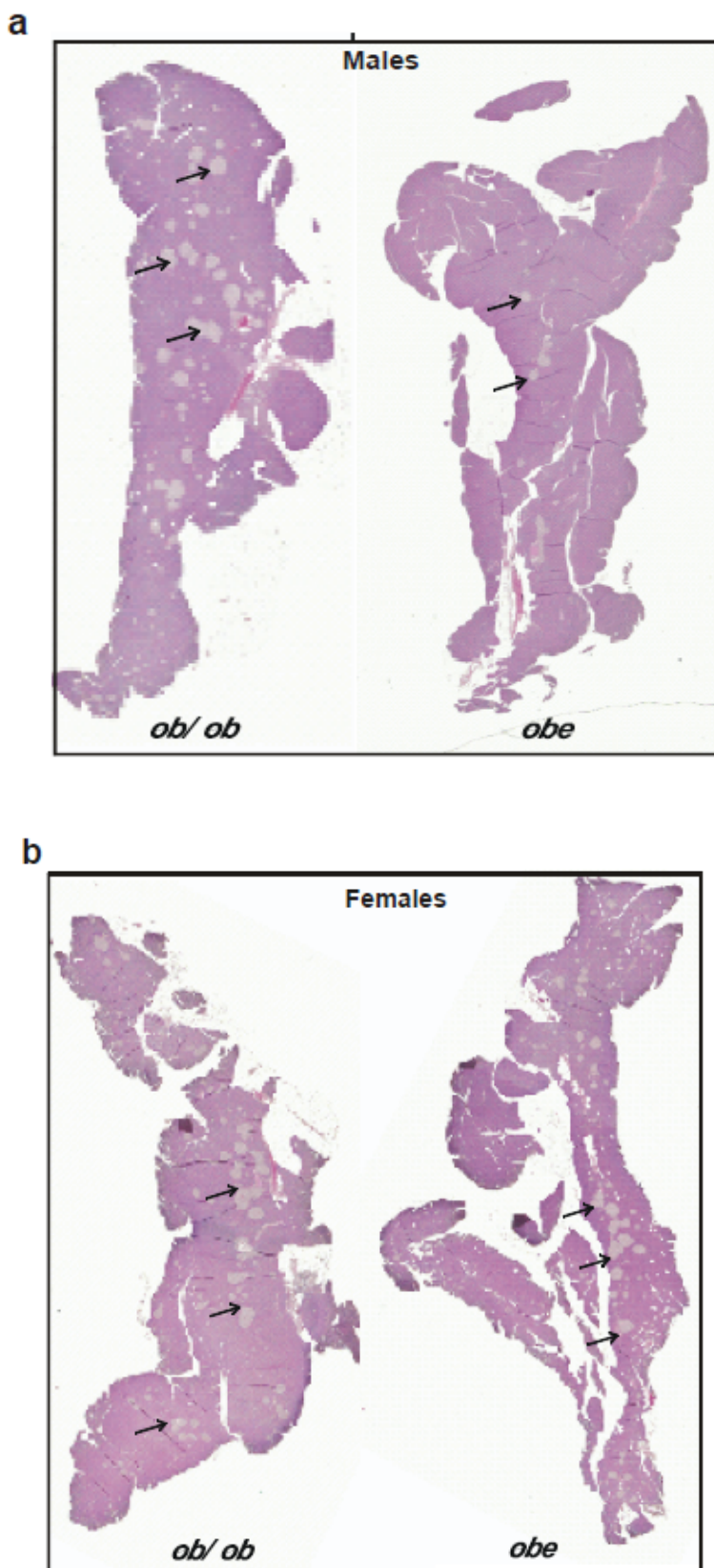


Supplementary Figure 3. Castration failed to improve metabolic function in *obe* males. GTT tests were performed on castrated male mice. *, $P < 0.05$; **, $P < 0.01$; *ob/ob* versus *obe*.



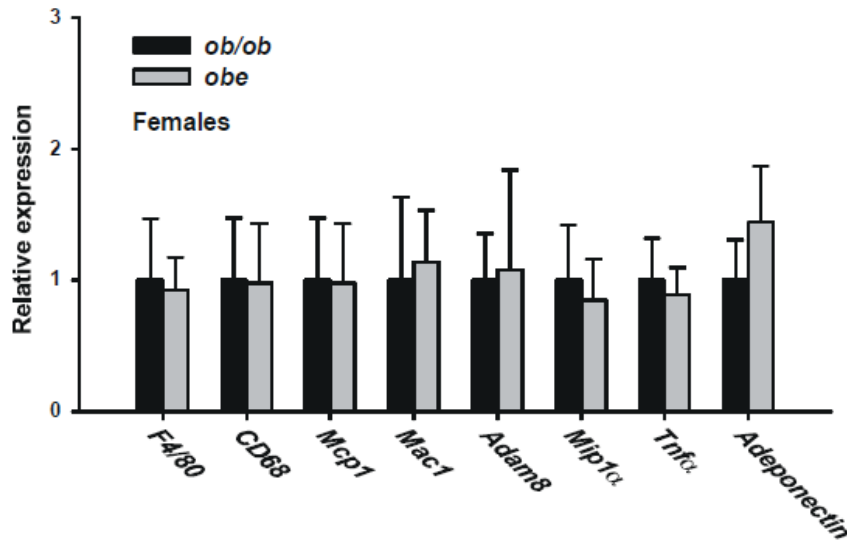
SUPPLEMENTARY DATA

Supplementary Figure 4. H&E staining of the whole pancreas section of male (a) and female (b) *ob/ob* and *obe* mice. Arrows indicate islets.



SUPPLEMENTARY DATA

Supplementary Figure 5. *Est* ablation had little effect on the expression of macrophage markers and inflammatory genes in the WAT of *obe* females. The gene expression in the abdomen fat was measured by real-time PCR analysis. Mcp1, cationic peptide 1; Mac1, macrophage antigen 1; Adam8, Adam metalloproteinase domain 8; Mip1, macrophage inflammatory protein-1, Tnf, tumor necrosis factor



Supplementary Figure 6. Worsened insulin sensitivity in *obe* male mice. Twelve-week old males were subject to ITT test. *, $P < 0.05$, *ob/ob* versus *obe*.

