Supplemental Material

Table S1. Composition of HFHS and control diets. D09071702 is HFHS diet and D09071703 is control diet.

	D09071702		D09071703	
Product #				
	gm%	kcal%	gm%	kcal%
Protein	20.5	15	15.0	15
Carbohydrate	38.2	28	76.3	75
Fat	35.5	58	4.5	10
Total		100.0		100.0
kcal/gm	5.54		4.05	
Ingredient	gm	kcal	gm	kcal
Casein	182	728	182	728
DL-Methionine	3	12	3	12
Maltodextrin 10	170	680	170	680
Corn starch	0	0	760	3040
Sucrose	164	656	0	0
Lard	320	2880	55	495
Salt Mix, S10026B	50	0	50	0
Vitamin Mix, V10001	10	40	10	40
Choline Bitartrate	2	0	2	0
Total	901	4996	1232.0	4995

Table S2. Expression of informative subunits from each of the 5 electron transport chain complexes as measured by immunoblot.

	WT / CD	WT / HFHS	mCAT / CD	mCAT / HFHS
Protein (ETC complex)				
NDUFB8 (Complex I)	1.00 ± 0.03	0.90 ± 0.04	1.0 ± 0.09	0.82 ± 0.07
SDHB (Complex II)	1.00 ± 0.05	0.84 ± 0.04	0.79 ± 0.05	0.83 ± 0.09
UQCRC2 (Complex III)	1.00 ± 0.14	0.95 ± 0.07	1.10 ± 0.05	1.00 ± 0.09
MTCO1 (Complex IV)	1.00 ± 0.09	0.90 ± 0.07	0.84 ± 0.07	0.91 ± 0.18
ATP5A (Complex V)	1.00 ± 0.07	0.94 ± 0.04	0.90 ± 0.03	0.84 ± 0.09

Values are normalized to VDAC and reported relative to WT / CD. Values are mean ± SEM. For all subunits, P = NS for WT / HFHS vs WT / CD and for mCAT / HFHS vs mCAT / CD.

Figure S1. Both WT and mCAT mice on HFHS diet exhibit the same degree of total body weight gain. (n=4-5 per group).

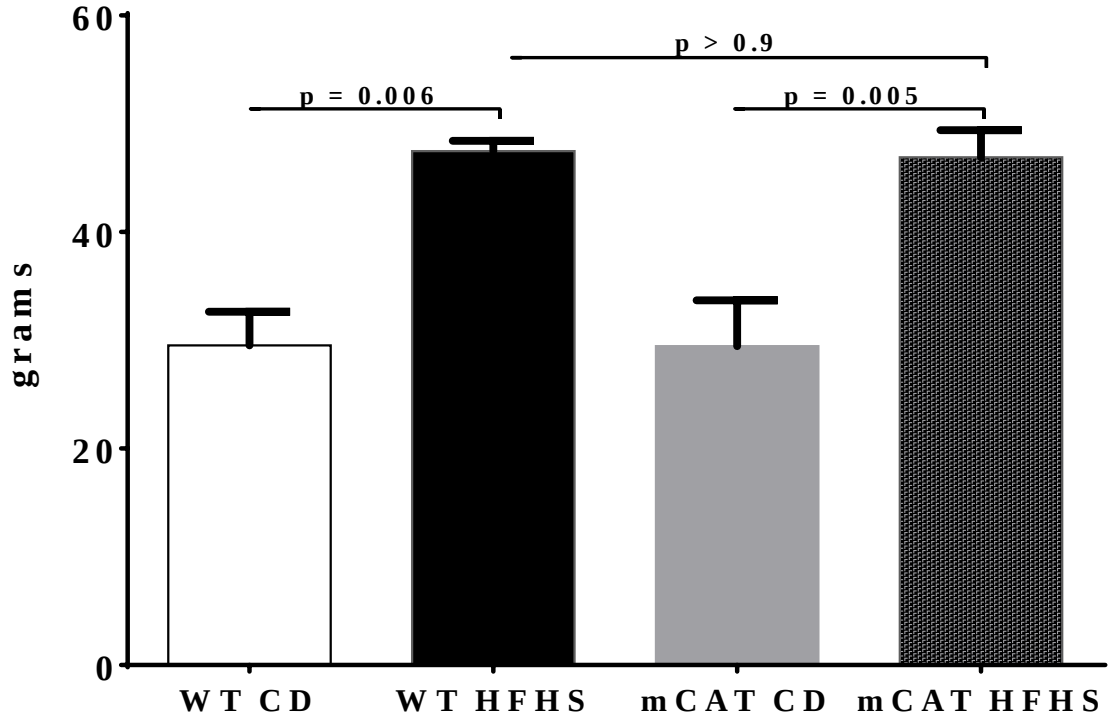


Figure S2. Respiratory control ratios (RCR) obtained during oxygen consumption measurements. HFHS diet had no effect on RCR values (obtained by dividing State III by State IV oxygen consumption).

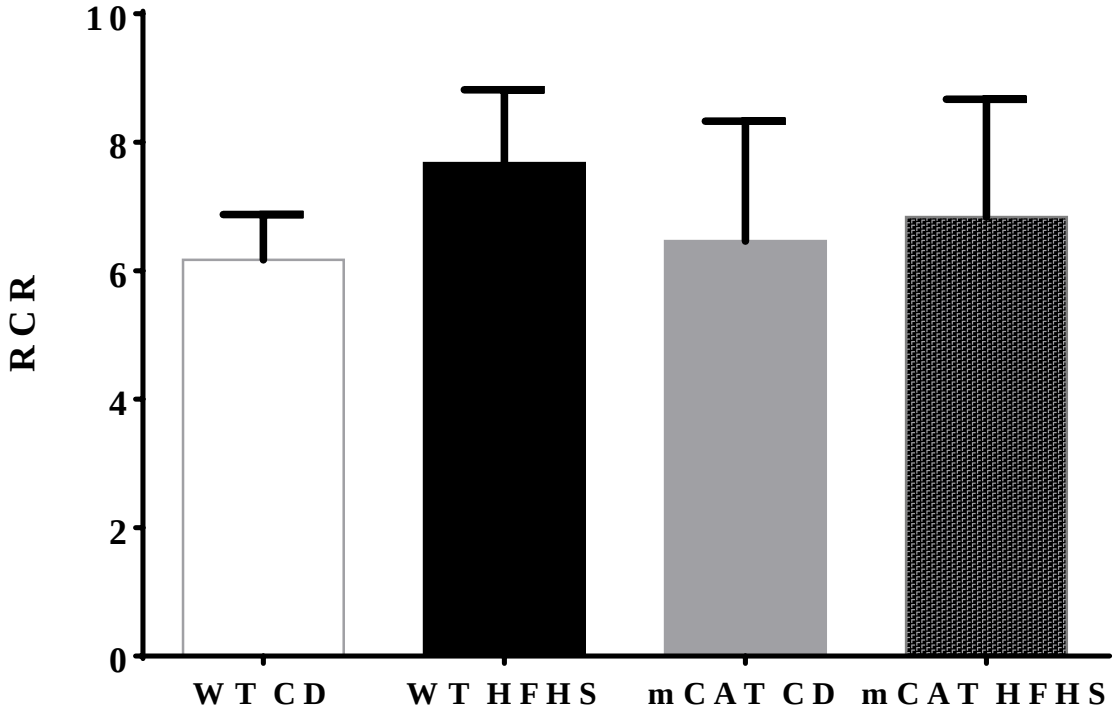
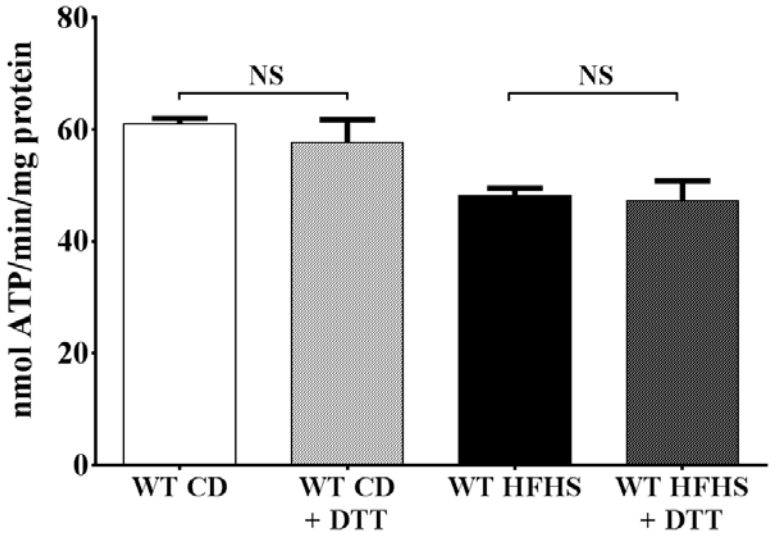


Figure S3. Exposure to the reducing agent dithiothreitol (DTT, 5 mM) *ex vivo* corrects ATP synthesis for complex II, but not complex I, substrates. Panel A. Complex I substrate-driven ATP synthesis rate (5 mM pyruvate + 5mM malate); **Panel B.** Complex II substrate-driven ATP synthesis rate (5 mM succinate + 2μM rotenone). Values are mean ± SEM; n=4-5; # P<0.05 vs WT HFHS.

A.



B.

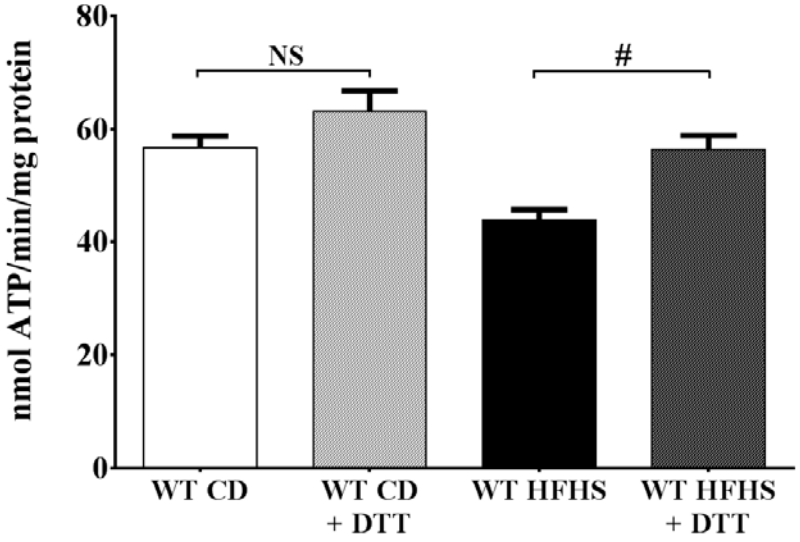
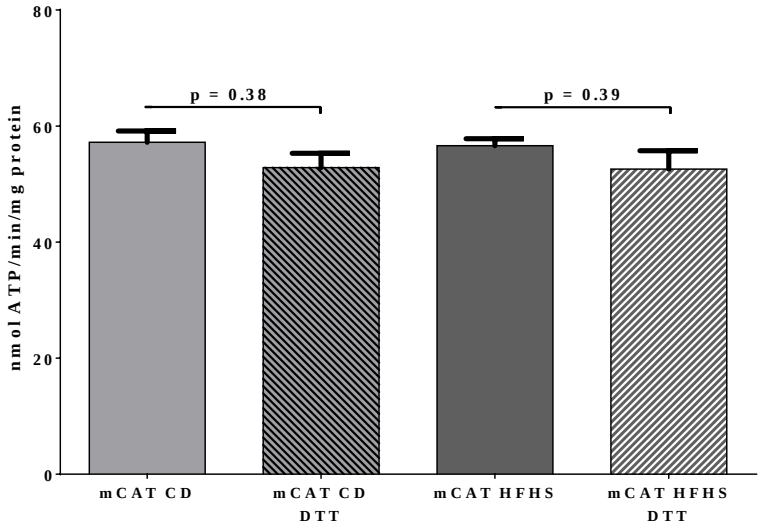


Figure S4. Neither complex I nor Complex II substrate-driven ATP synthesis rates in cardiac mitochondria from mCAT mice fed a HFHS are effected *ex-vivo* by DTT (5 mM). **A**) Complex I substrate-driven ATP synthesis rate (5 mM pyruvate + 5mM malate); **B**) Complex II substrate-driven ATP synthesis rate (5 mM succinate + 2µM rotenone).

A)



B)