Supplemental Data
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Activation of the PPAR/PGC-1α Pathway Prevents a Bioenergetic Deficit and Effectively Improves a Mitochondrial Myopathy Phenotype

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Supplemental data, figure S1

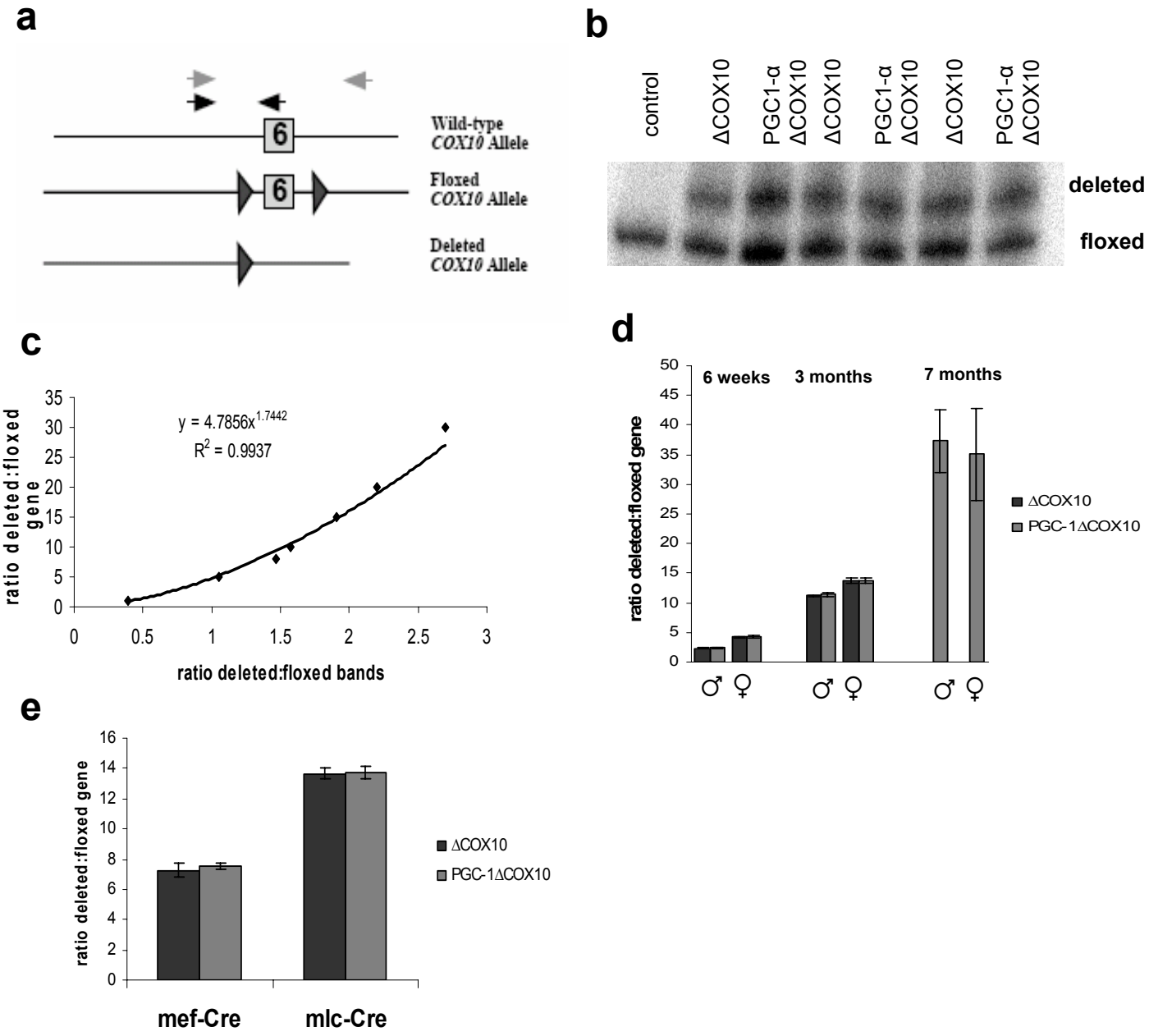


Figure S1: Relative quantification of the deletion of the floxed COX10 gene by the Cre transgene in PGC-1αΔCOX10 and ΔCOX10 mice

(**a**) Diagram of the *COX10* gene showing the exon 6 wild-type allele, the floxed *COX10* allele (triangles represent the loxP sites flanking the exon) and the deleted *COX10* allele resulting from Cre recombination. Arrows indicate the primer sets used to amplify the floxed (black arrows) and the deleted allele (grey arrows) . (**b**) Last cycle hot multiplex PCR showing amplification of the deletion and floxed *COX10* alleles. (**c**) Calibration curve for PCR quantification of the deleted and and the floxed *COX10* alleles. (**d**) Course of deletion of the floxed *COX10* allele in skeletal muscle comparing PGC-1αΔCOX10 and ΔCOX10 mice. (**e)** Deletion of the floxed *COX10* allele in skeletal muscle of 3 months old PGC-1αΔCOX10 and ΔCOX10 mice comparing the mlc- and mef-Cre recombinase transgene.

Supplemental data, figure S2

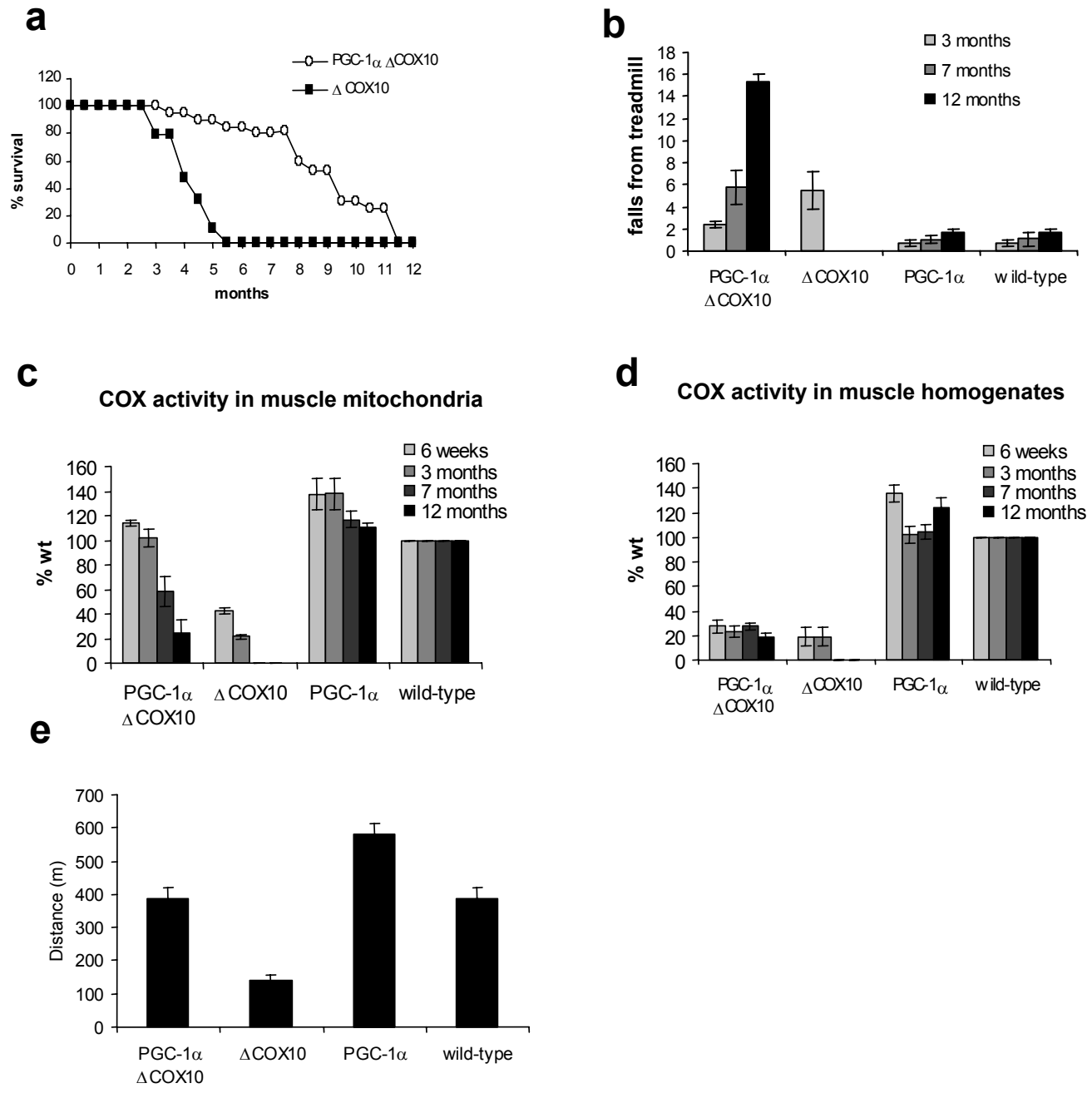
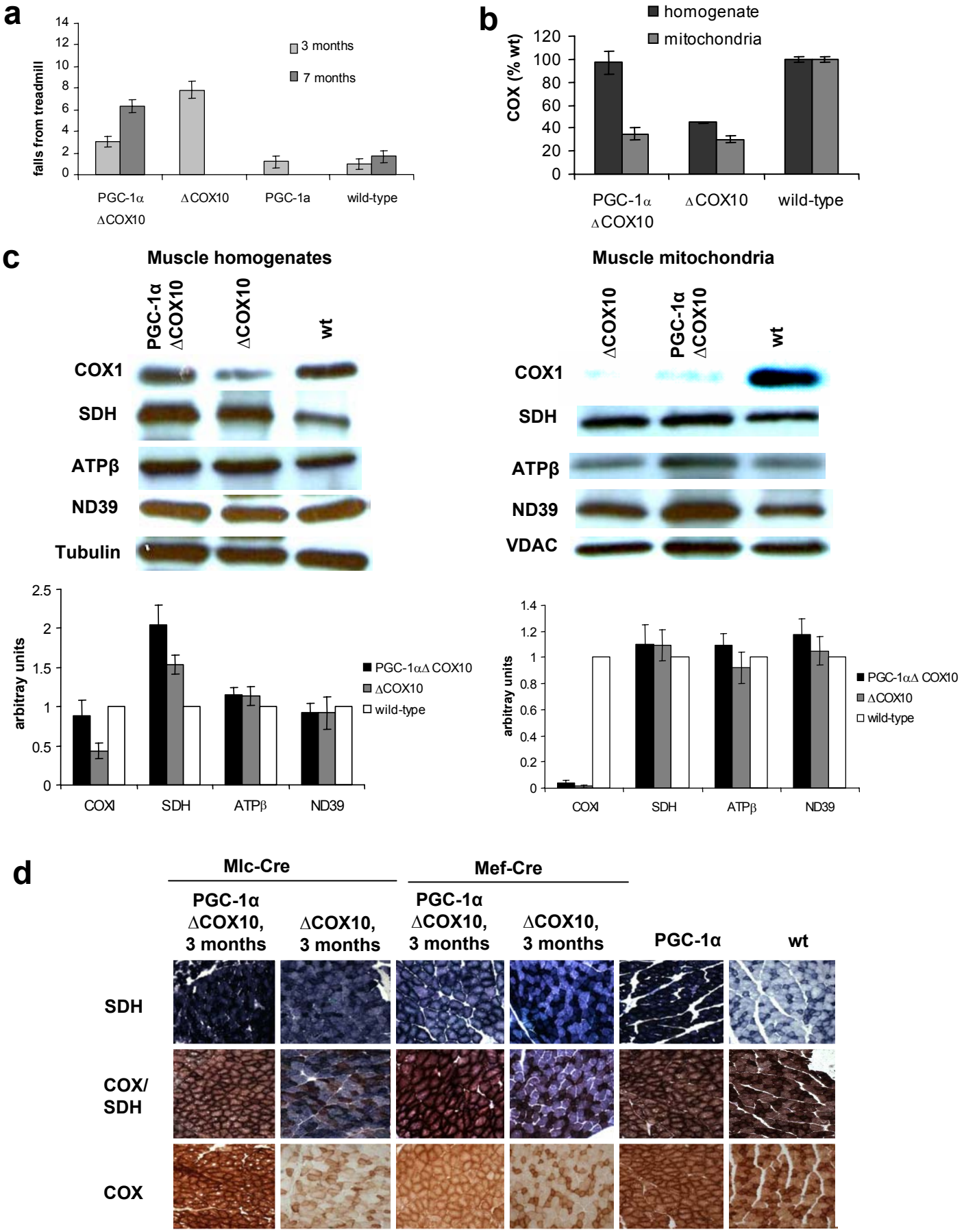


Figure S2: Data for male PGC-1αΔCOX10 mice, mlc-Cre recombinase transgene
(**a**) Survival curve of male PGC-1αΔCOX10 mice in comparison to ΔCOX10 mice (N=20 for each group). (**b**) Treadmill performance test at different ages for male PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice (N= 6 for each group). Statistical significance was reached for the pairwise comparison between ΔCOX10 and each of the other groups. Comparison between other pairs did not reach statistical significance. (**c**) + (**d**) Cytochrome *c* oxidase (COX) activity of male PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice at different ages comparing muscle homogenates and muscle mitochondria (N=3 for each group). (**e**) Average total distance traveled in an endurance test for 3 month old male PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice is shown (N=6 for each group).

Supplemental data, figure S3 (mef-Cre)



Supplemental data, figure 3 (mef-Cre)

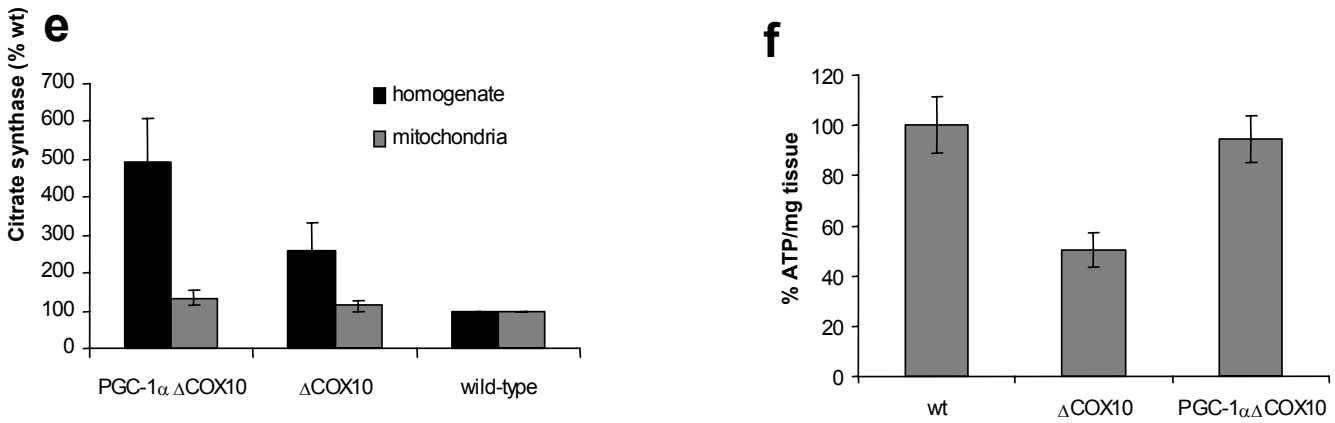


Figure S3: Data for female PGC-1αΔCOX10 mice, mef-Ce recombinase transgene
(**a**) Treadmill performance test at different ages for female PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice (N= 6 for each group) (**b**) Cytochrome *c* oxidase (COX) activity of 3 months old female PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice at different ages comparing muscle homogenates and muscle mitochondria (N=3 for each group). (**c**) Quantification of mitochondrial proteins and loading control in muscle homogenates and muscle mitochondria of 3 months old female PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice by western blot and densiometry (N=3 for each group). (**d**) Histology of the biceps femoris muscle from 3 months old female PGC-1αΔCOX10 and ΔCOX10 comparing the effect of the different Cre-transgene. (**e**) Citrate synthase activity of 3 months old female PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice at different ages comparing muscle homogenates and muscle mitochondria (N=3 for each group). (**f**) Quantification of ATP in the biceps femoris muscle from 3 months old female PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice (N=4 for each group).

Supplemental data, figure S4

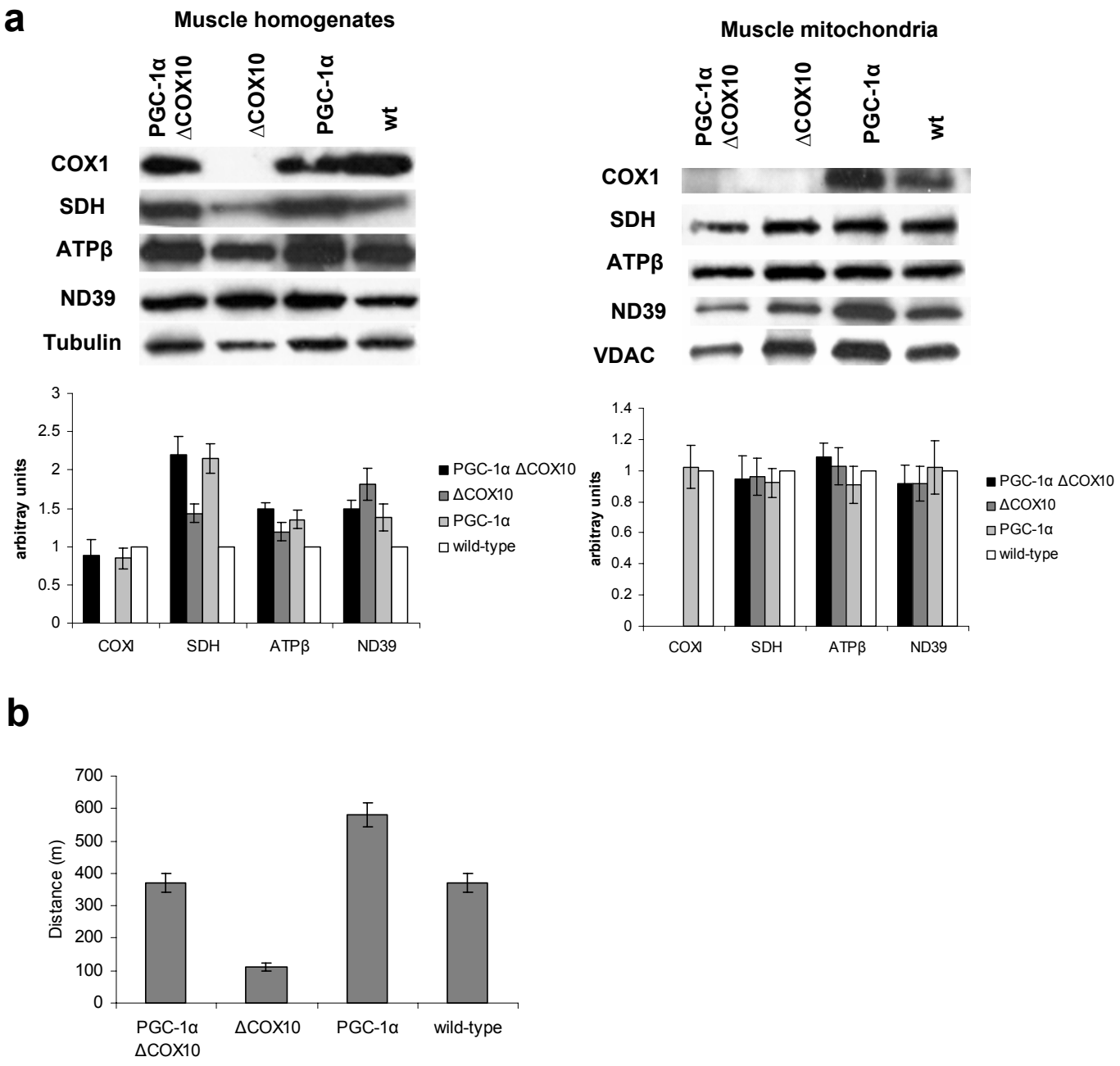
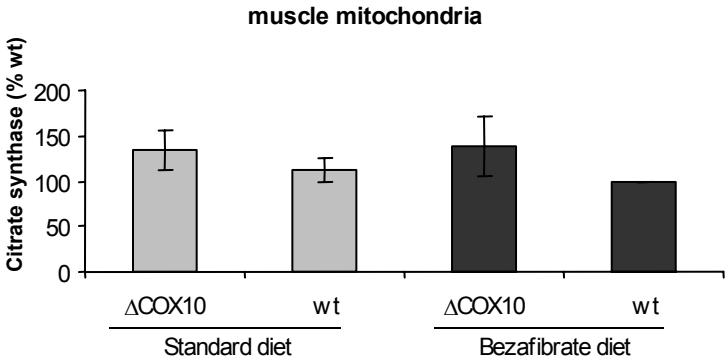


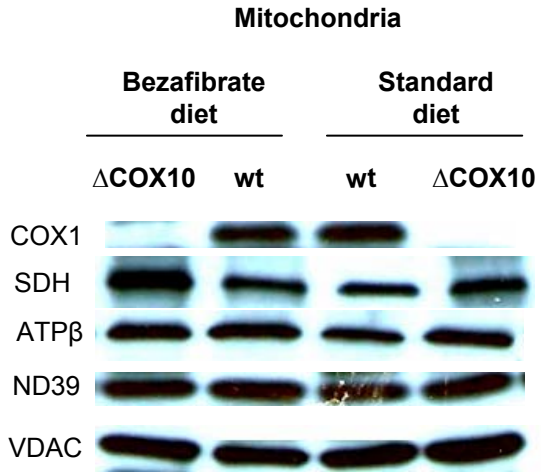
Figure S4: Data for female PGC-1αΔCOX10 mice, mlc-Cre recombinase transgene
(**a**) Quantification of mitochondrial proteins and loading control in muscle homogenates and muscle mitochondria of 3 months old female PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice by western blot and densiometry (n=3 for each group). (**b**) Schematic representation of the treadmill protocol used to determine the ability to perform endurance exercise. The average total distance traveled for 3 month old female PGC-1αΔCOX10, ΔCOX10, PGC-1α and wild-type mice is shown (n=6 for each group).The average weight is shown for better clarity. The range was between 4-6 g.

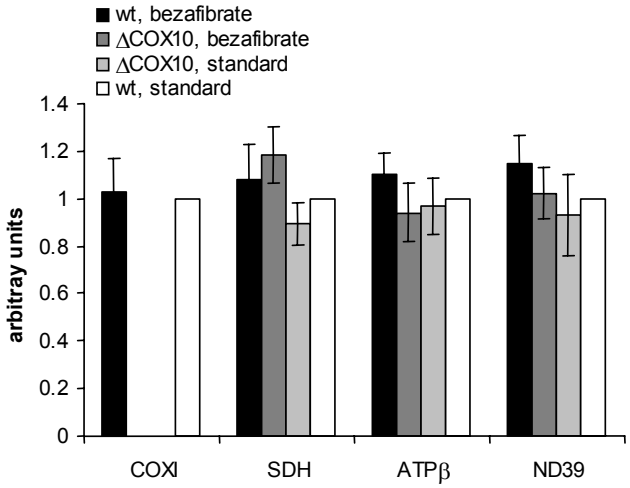
Supplemental data, figure S5 (bezafibrate)

a

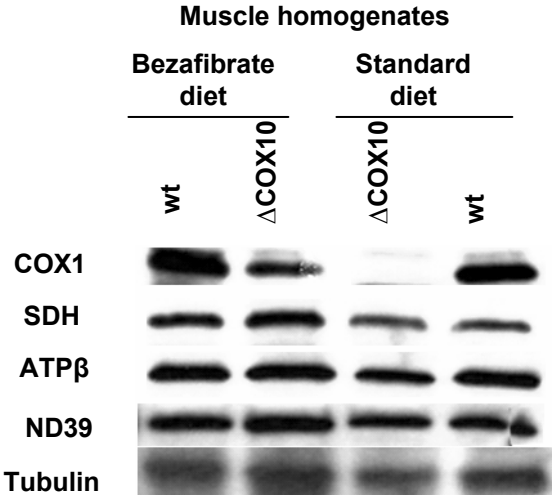


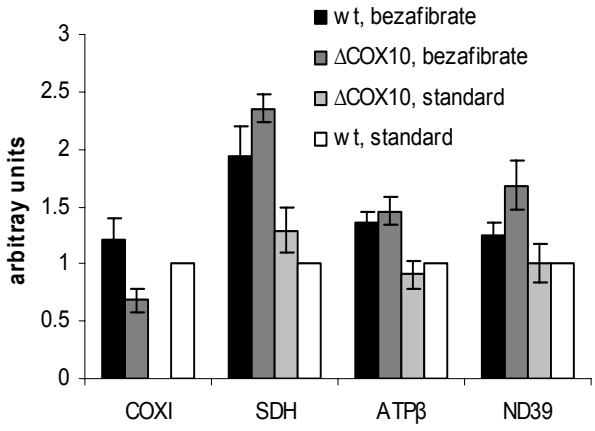
b





c





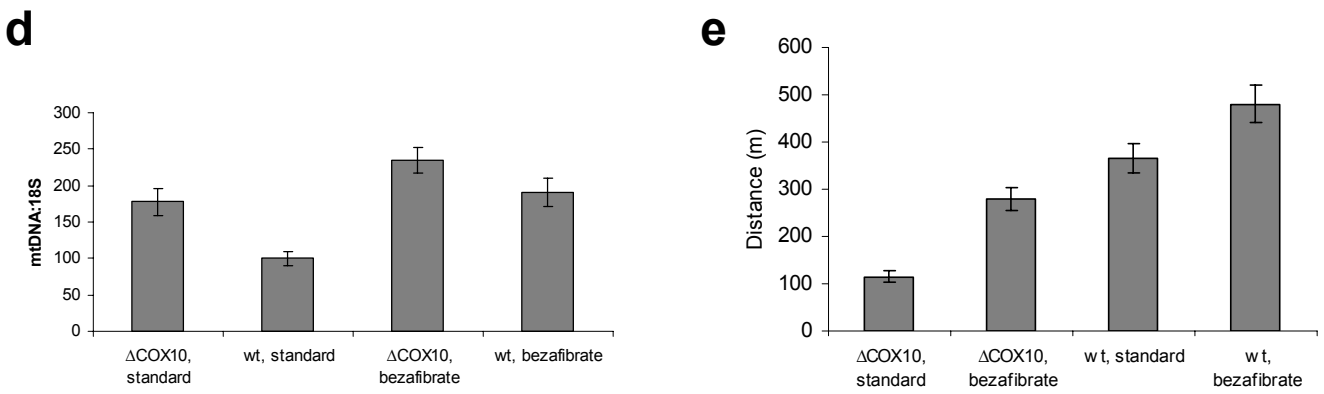


Figure S5: Data of mitochondrial fractions from bezafibrate mice

(**a**) Cytochrome *c* oxidase (COX) and citrate synthase in muscle mitochondria of 3 months old female ΔCOX10 and wildtype mice on a bezafibrate and regular diet (N=3 for each group). (**b+c**) Quantification of mitochondrial proteins and loading control in muscle homogenates (**d**) Relative quantification of mitochondrial DNA versus nuclear DNA by signal intensity of mtDNA and 18S bands in a southern blot of DNA isolated from skeletal muscle from 3 months old female ΔCOX10 and wild-type mice on a standard diet or on the bezafibrate diet (n=3 for each group). (**e**)Average total distance traveled in an endurance test for 3 month old female ΔCOX10 and wild-type mice on the bezafibrate diet comparison to animals on a regular diet (n=3 for each group).