SUPPLEMENTARY DATA

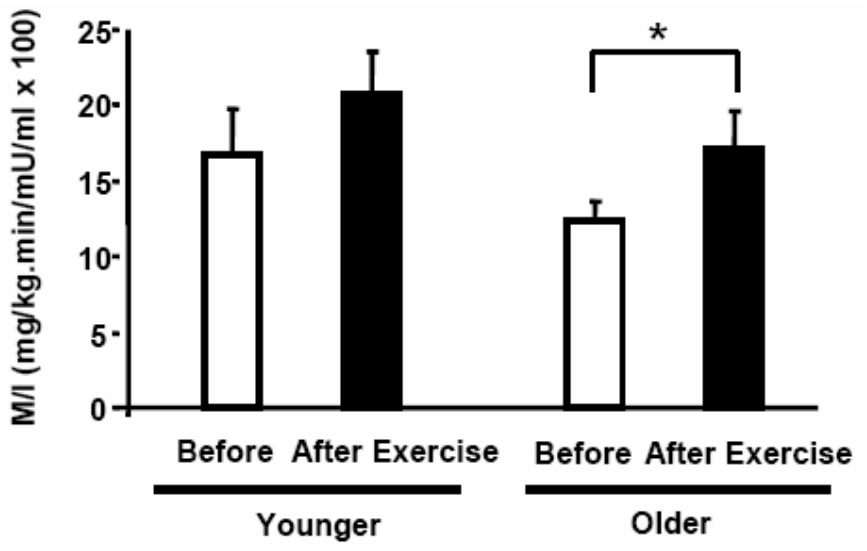
The primers/probe utilized for Quantitative RT-PCR.

One-step quantitative RT-PCR was carried on an ABI-Prism 7900HT System (Applied Biosystems, Foster City, CA) using the following assay-on-demand primers /probes: PGC-1α:Hs00173304_m1; NRF1:Hs00602161_m1; GPX1:Hs00829989_gH; MnSOD: Hs00167309_m1: and Cu-ZnSOD: Hs00533490_m1. TFAM gene expression was determined using the following primer/probe; forward primer: TGTGCACCGGCTGTGG, reverse primer: TGGACAACTTGCCAAGACAGAT, probe: AGTCGACTGCGCTCCCCCTT (1).

SUPPLEMENTARY REFERENCE:

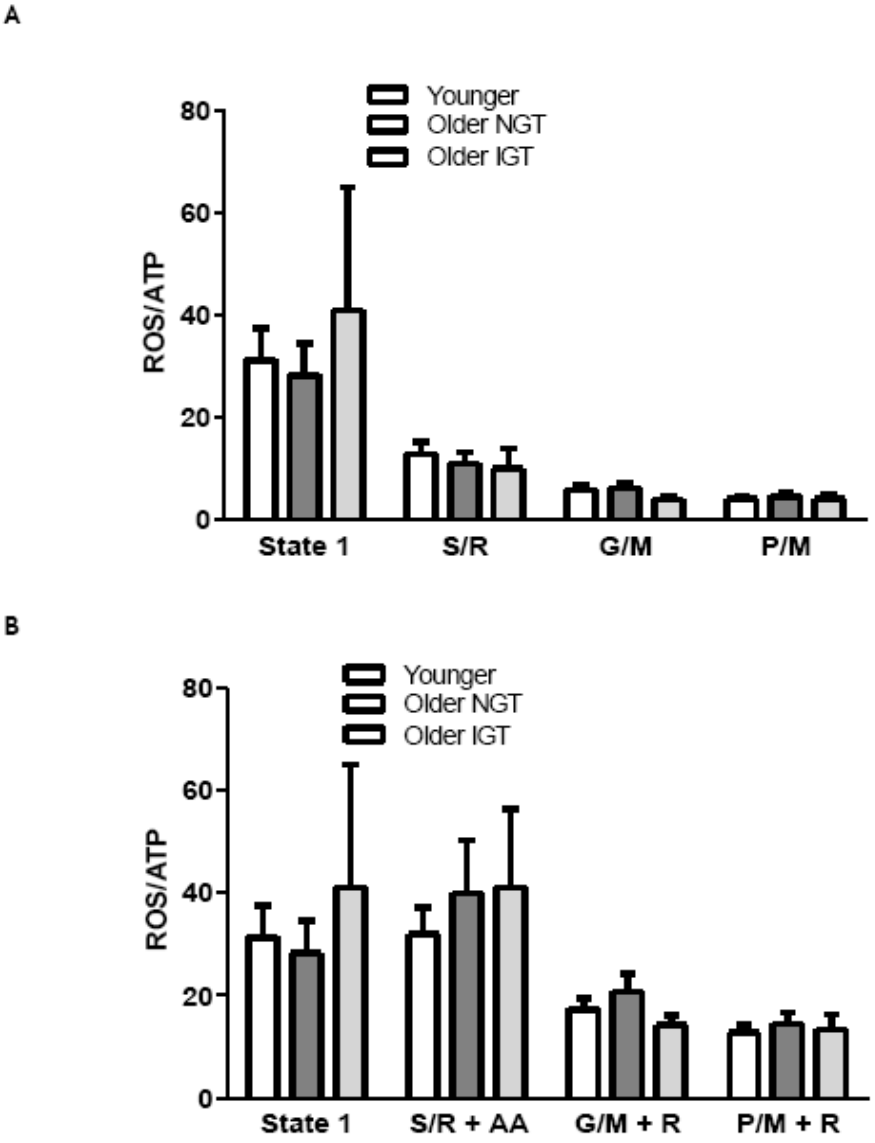
1. Short KR, Vittone JL, Bigelow ML, Proctor DN, Rizza RA, Coenen-Schimke JM, Nair KS. Impact of aerobic exercise training on age-related changes in insulin sensitivity and muscle oxidative capacity. Diabetes 2003;52:1888-1896.

Supplementary Figure 1. Peripheral insulin sensitivity. Insulin-stimulated glucose metabolism (M) was determined based on the average glucose infusion rate during the last 30 min of the clamp and adjusted to the plasma insulin concentration (M/I). Data are means ± SE. n=10 younger and 17 older. **P*<0.05.



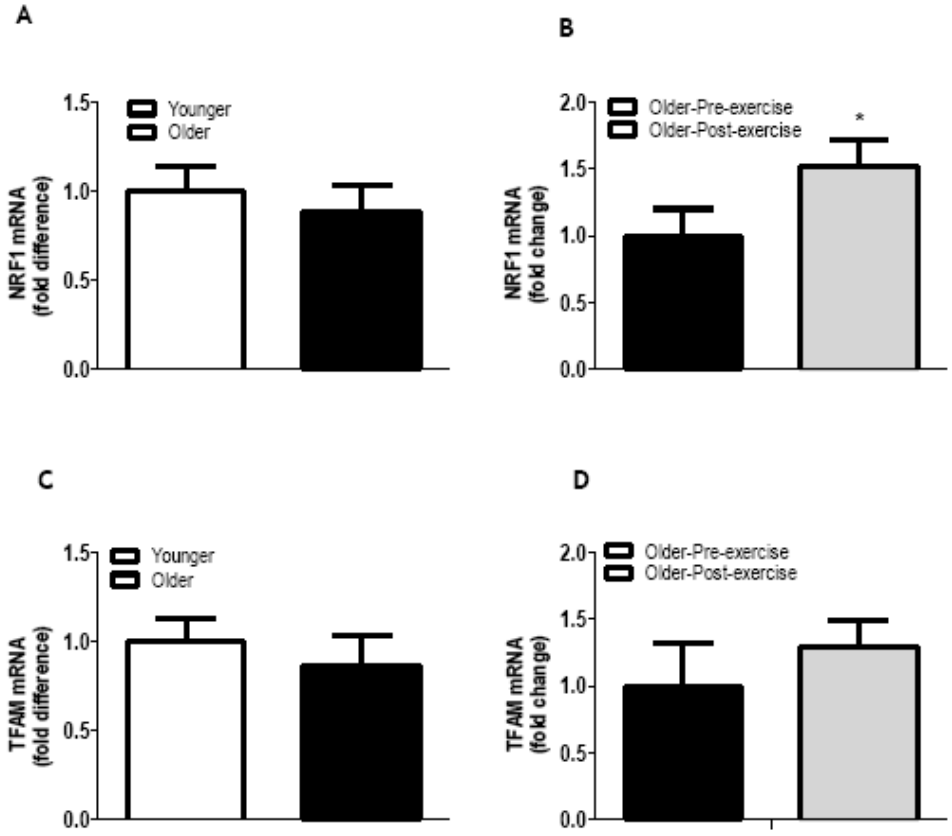
SUPPLEMENTARY DATA

Supplementary Figure 2. ROS/ATP production ratio. ROS/ATP production in (A) younger and older (NGT + IGT) subjects; and (B) younger, older NGT, and older IGT subjects using the different mitochondrial substrates and inhibitors. Data are means ± SE.



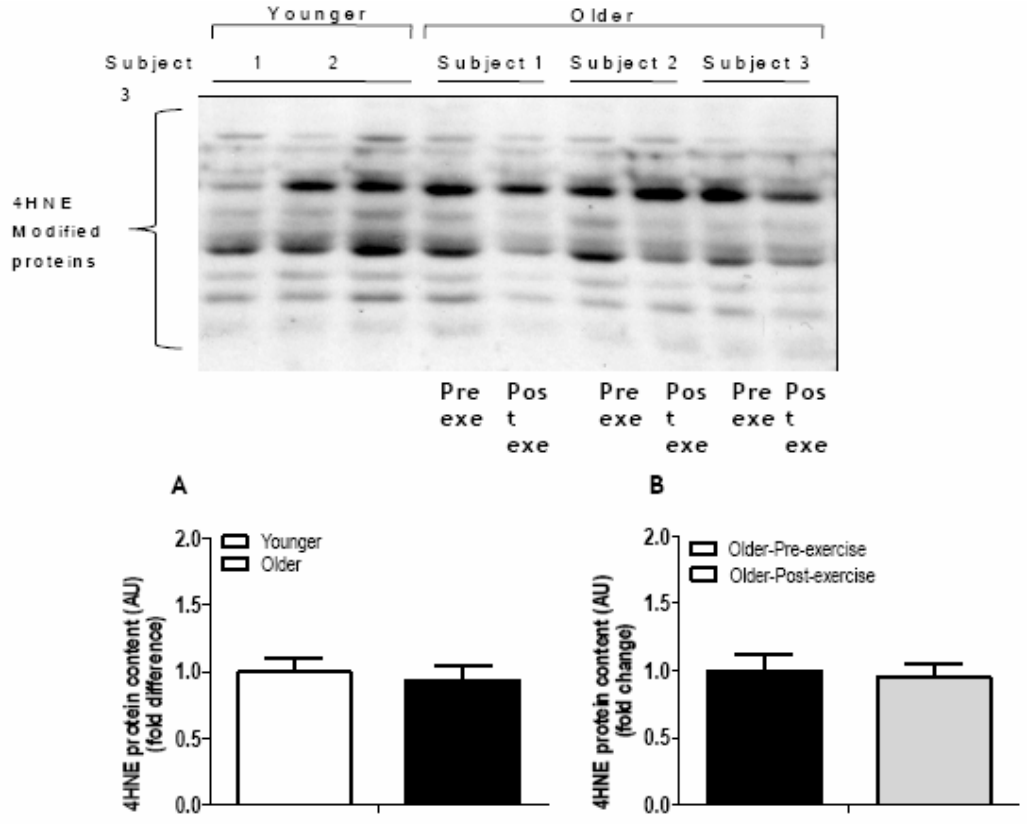
SUPPLEMENTARY DATA

Supplementary Figure 3. Gene expression of mitochondrial transcription factors. NRF-1 (A and B), and TFAM (C and D) mRNA levels was measured at baseline in (A and C) younger vs. older subjects, and (B and D) in older subjects before and after exercise. Data are means ± SE; n=9-13 per group. *****P<0.05.



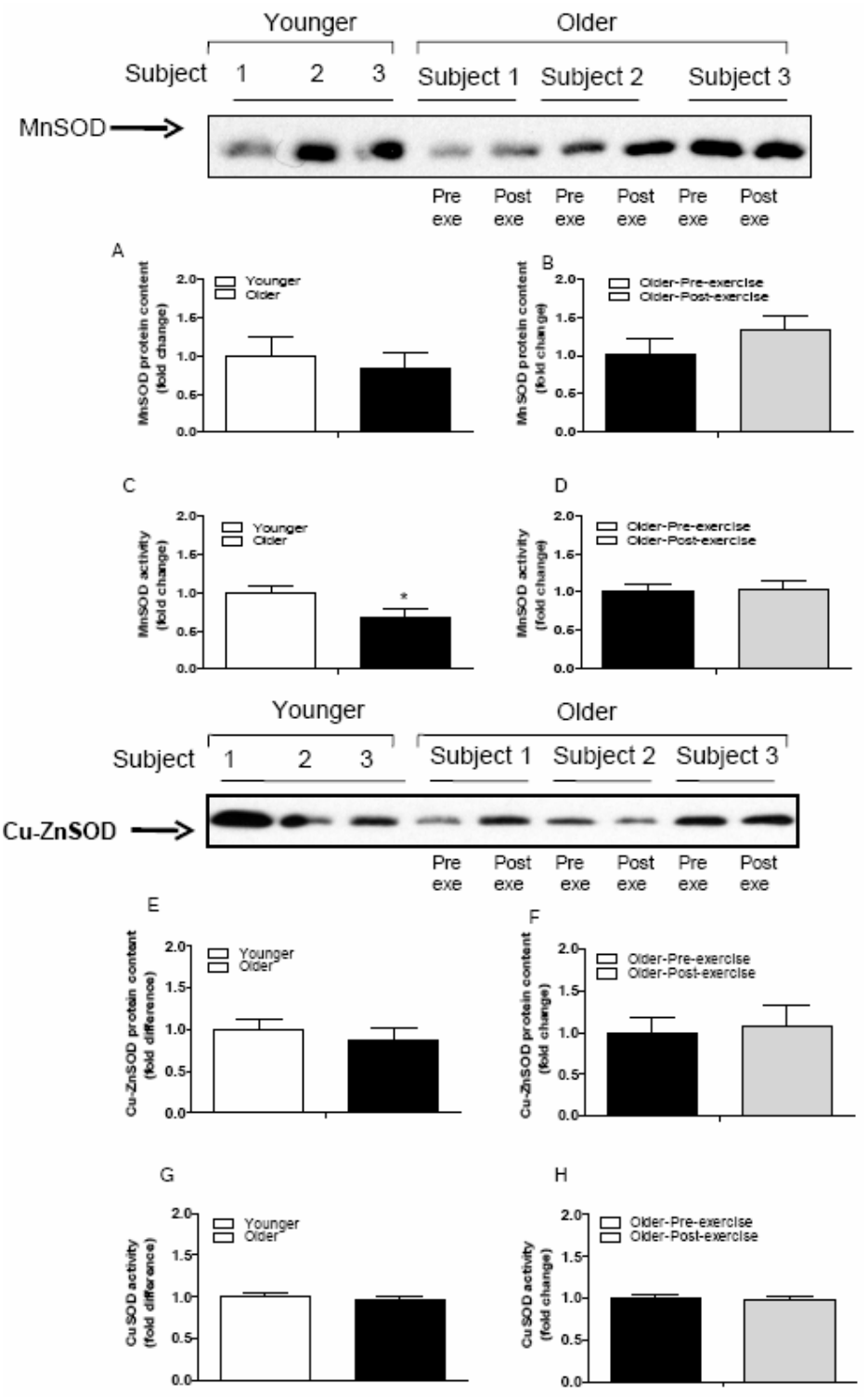
SUPPLEMENTARY DATA

Supplementary Figure 4. 4HNE-modified protein expression. HNE modified proteins was measured in muscle from (A) younger vs. subjects at baseline; and (B) older subjects before and after exercise. Data are means ± SE; n=11-13 per group.



SUPPLEMENTARY DATA

Supplementary Figure 5. MnSOD and Cu-ZnSOD protein content and activity. MnSOD protein (A and B) and enzyme activity (C and D) was measured at baseline in (A and C) in younger vs. older subjects, and (B and D) in older subjects before and after exercise. Cu-ZnSOD protein (E and F) and enzyme activity (G and H) was measured at baseline in (E and G) in younger vs. older subjects, and (F and H) in older subjects before and after exercise. Data are means ± SE; n=11-13 per group. **P*<0.05.



SUPPLEMENTARY DATA

Supplementary Figure 6. Gene expression of antioxidant enzymes. (A) GPX1 and (B) MnSOD and (C) Cu-ZnSOD gene expression was measured in younger, older subjects before and after exercise. Data are means ± SE; n=9-13 per group.