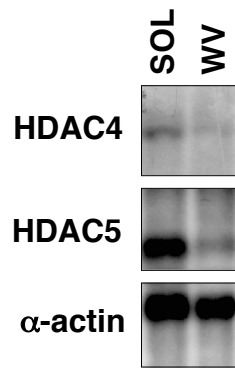
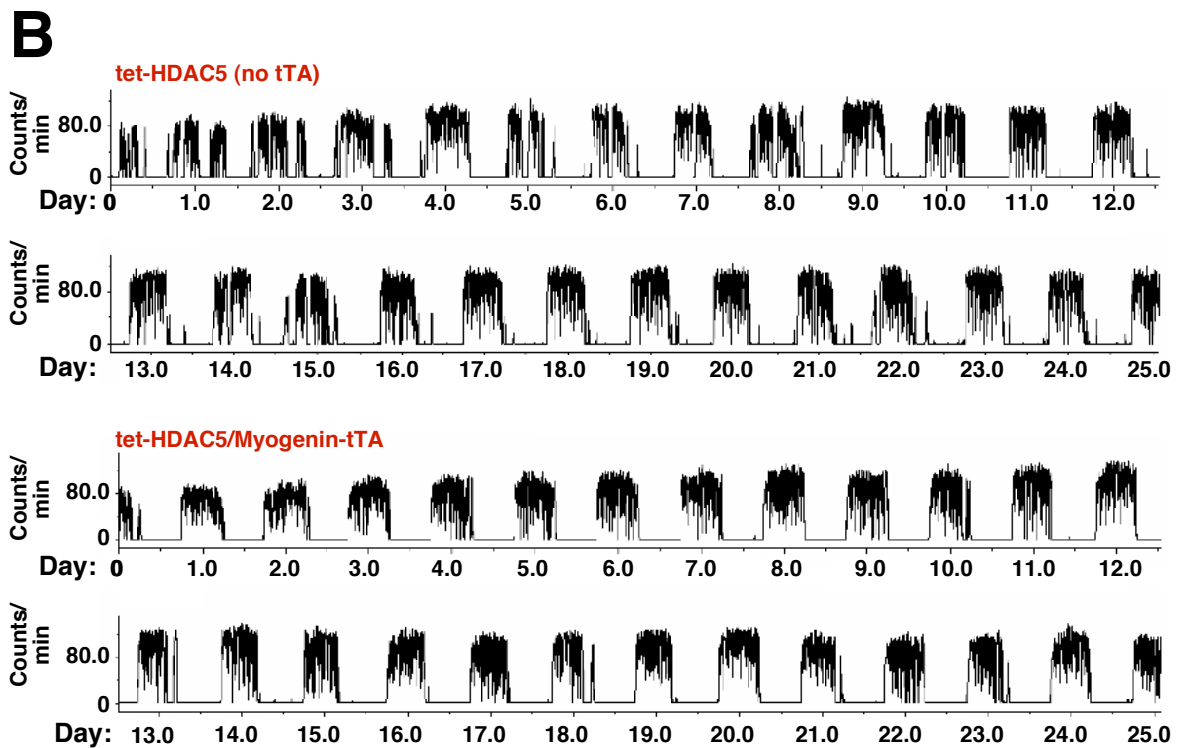
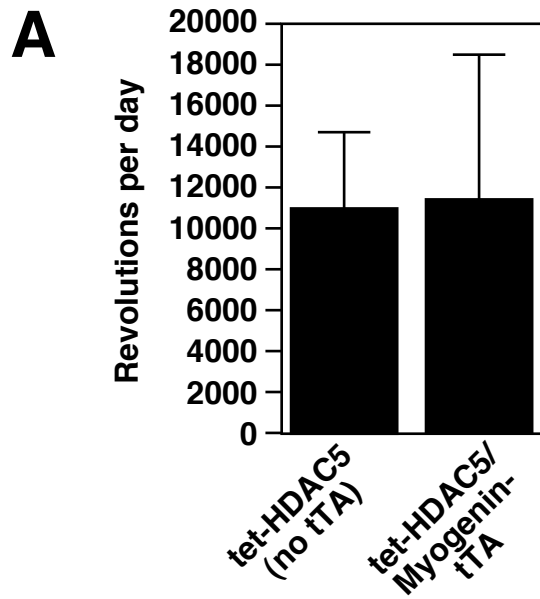


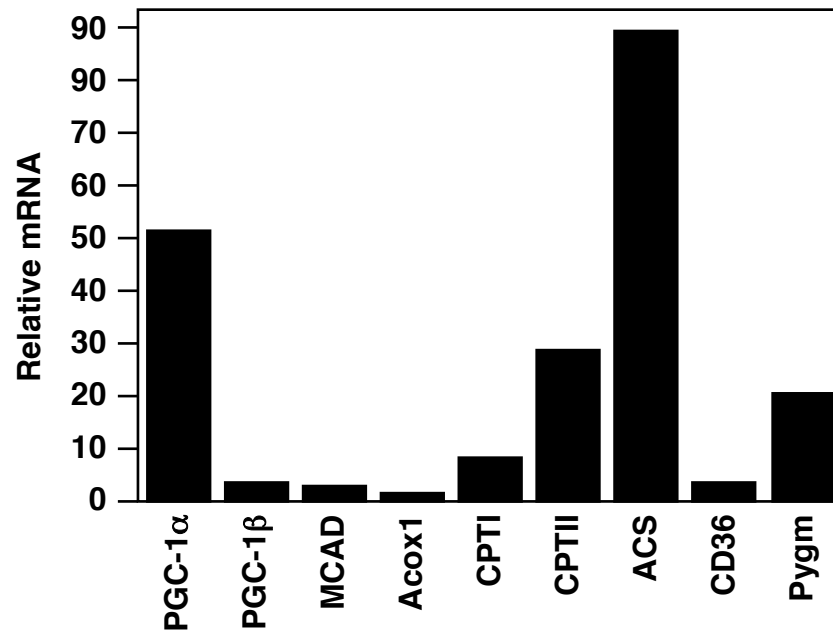
Supplemental Figure 1



Supplemental Figure 2



Supplemental Figure 3



Supplemental Figure 4

Supplemental Figure 1

Protein expression of MEF2 proteins is similar in different muscle groups. Expression of Mef2a, c, and d proteins was analyzed in soleus (SOL), gastrocnemius-plantaris (GP), tibialis anterior (TA), and extensor-digitorum skeletal muscles (EDL). Tubulin serves as a loading control. Arrows indicate MEF2 proteins.

Supplemental Figure 2

RNA expression of *Hdac4* and *Hdac5* in soleus (SOL) and white vastus lateralis (WV) was determined by Northern blot analysis with cDNA probes of HDAC4 and 5. β -actin is a loading control.

Supplemental Figure 3

A. Total revolutions per day for control (tet-HDAC5 (no tTA)) or HDAC5 transgenic mice (tet-HDAC5/myogenin-tTA) during four-weeks of voluntary running. B.

Representative recordings of 25 days of wheel running activity of control and HDAC5 transgenic mice, recorded as revolutions per minute and depicted by the height of the vertical bars. The recording is continuous and reads from left to right. All animals ran throughout most of the nocturnal phase of each 12:12 hr light:dark cycle.

Supplemental Figure 4

Oxidative and metabolic genes are upregulated in Myo-MEF2C-VP16 transgenic skeletal muscles (gastrocnemius-plantaris). CPTI, muscle-type carnitine palmitoyltransferase I; CPTII, carnitine palmitoyltransferase II; MCAD, medium chain acyl-CoA dehydrogenase; ACS, acyl-CoA synthetase; OH-AcCoA; FAT/CD36, fatty acid translocase; Acox1, acyl-CoA oxidase; Pygm, Phosphor, glycogen phosphorylase.