Supplemental Table 1

Body and muscle masses of control and DEX-treated female and male WT and MAFbx KO mice

Females	**WT Con** (n=3)	**WT DEX** (n=4)	**KO Con** (n=7)	**KO DEX** (n=7)
Starting BW(g)	23.2 ± 0.5	23.8 ± 1.7	23.5 ± 1.5	23.3 ± 1.97
Final BW (g)	24.4 ± 1.4	20.8 ± 0.95*	24.8 ± 1.95	20.9 ± 1.5*
Heart (mg)	121.0 ± 5.0	117.8 ± 6.9	121.4 ± 3.0	114.4 ± 5.4¶
Spleen (mg)	104.0 ± 13.1	46.5 ± 9.7¥	111.4 ± 22.5	48.4 ± 8.3¶
Males	**WT Con** (n=7)	**WT DEX** (n=8)	**KO Con** (n=8)	**KO DEX** (n=8)
Starting BW (g)	28.7 ± 1.6	30.2 ± 2.9	30.6 ± 3.3	28.0 ± 2.7
Final BW (g)	29.4 ± 1.5	27.7 ± 1.2*	31.5 ± 3.1	26.6 ± 2.97*
Heart (mg)	139.6 ± 7.5	138.6 ± 14.3	146.4 ± 10.4	130.3 ± 11.9¶
Spleen (mg)	85.0 ± 9.7	56.3 ± 7.9¥	103.6 ± 10.1¥	58.3 ± 8.97¶

Data are mean ± SD. BW, body wt. *P<0.05 vs. Starting BW, ¥P<0.05 vs. WT Con, ¶P<0.05 vs. KO Con

Supplemental Table 2

Body and muscle masses of control and ND female WT and MuRF1 KO mice

Females	**WT Con** (n=3)	**WT ND** (n=6)	**KO Con** (n=4)	**KO ND** (n=7)
Starting BW (g)	NA	27.4 ± 3.8	NA	24.1 ± 1.8
Final BW (g)	26.2 ± 3.5	24.2 ± 3.6*	26.1 ± 3.7	21.3 ± 1.7*
Heart (mg)	111.0 ± 3.0	108.2 ± 9.0	136.5 ± 11.4¥	120.6 ± 9.8¶

Data are mean ± SD. BW, body wt. *P<0.05 vs. Starting BW, ¥P<0.05 vs. WT Con, ¶P<0.05 vs. KO Con

Supplemental Figure 1

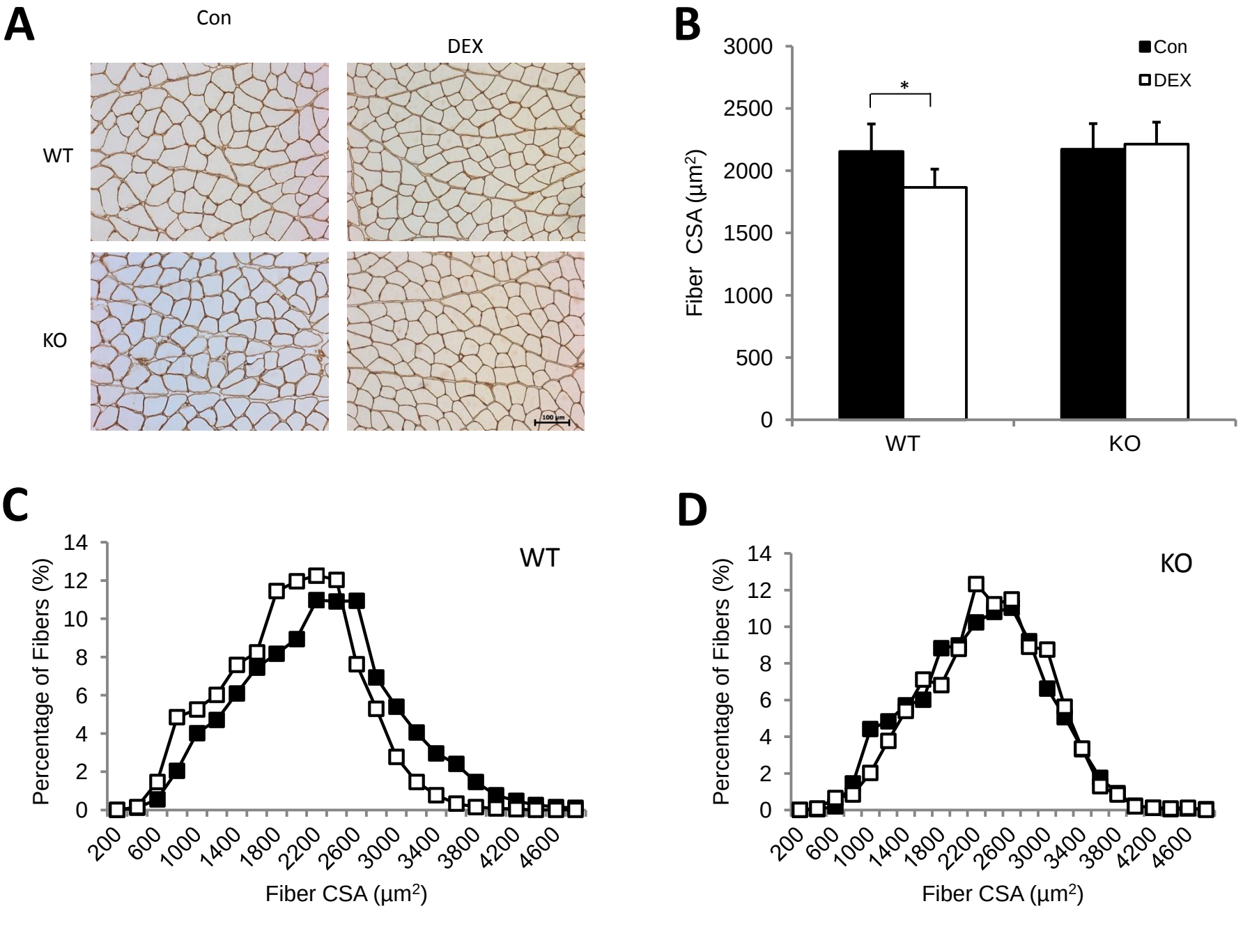


Figure S1: Sparing of muscle fiber size in MuRF1 null (KO) mice following 14 days of dexamethasone (DEX) treatment. The fiber-cross-sectional area (CSA) of muscle fibers in the gastrocnemius muscle (GA) of male wild type (WT) and MuRF1 KO mice were determined from laminin-stained cross-sections. **(A)** Representative laminin-stained cross-sections of the same region within the GA muscle for each experimental group. Original magnification x200, scale bar: 100 μm. **(B)** Histogram of the mean ± SD fiber CSA from the GA of control (*solid bars*) and 14 day DEX-treated (*solid bars*) WT and MuRF1 KO mice (n=3-5/group). *P<0.01. **(C, D)** Distributions of fiber cross-sectional areas of fibers in the GA of WT **(C)** and KO **(D)** mice following no treatment (Con, ■) or 14 days of DEX treatment (DEX, □).

Supplemental Figure 2

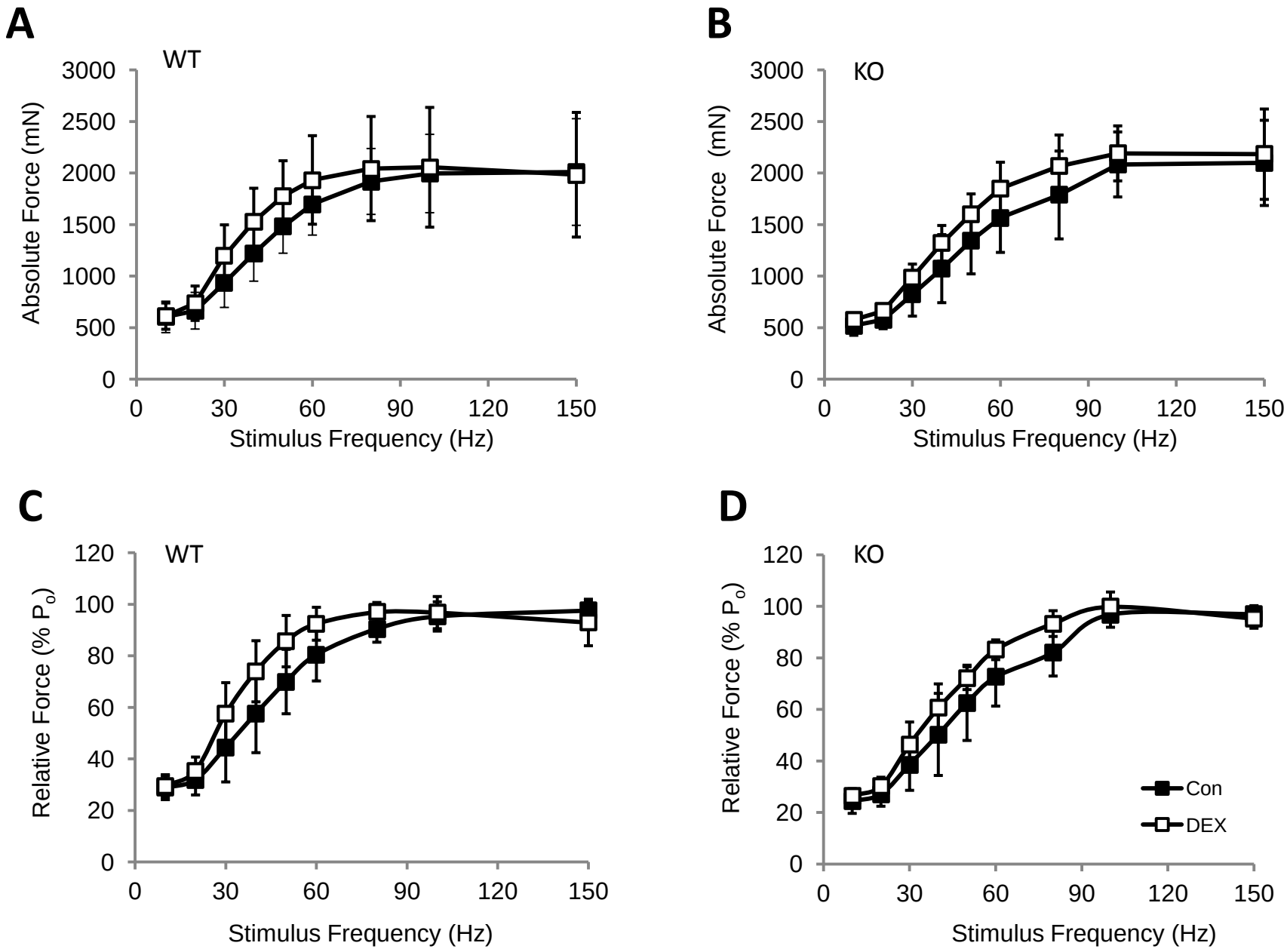
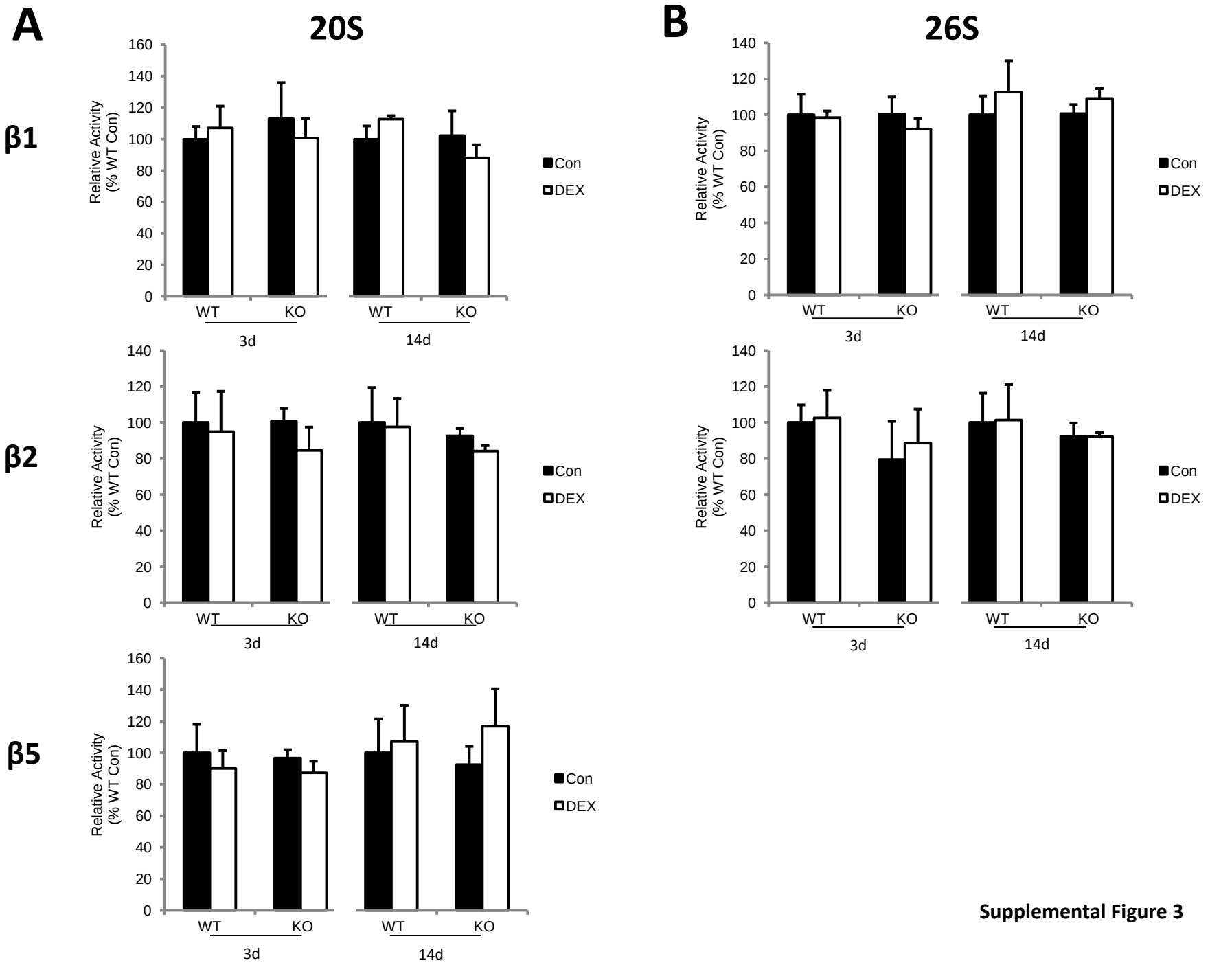
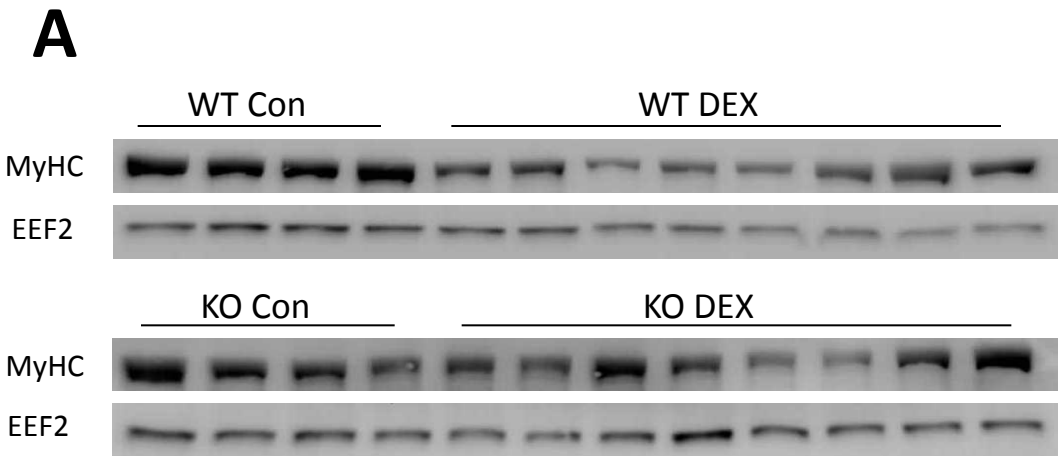


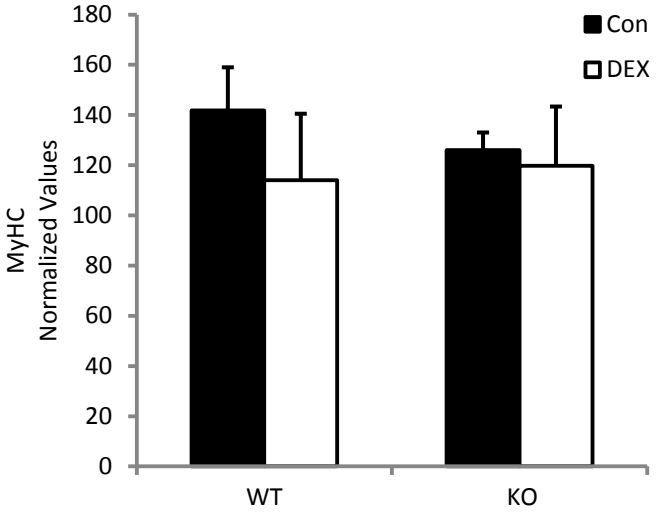
Figure S2: Force-frequency relationship in the gastrocnemius of wild type (WT) and MuRF1 null (KO) mice following 14 days of dexamethasone (DEX) treatment. Isometric force production at frequencies ranging from 10 to 150 Hz was measured in the gastrocnemius muscle (GA) of WT **(A, C)** and MuRF1 KO **(B, D)** mice following no treatment (■) or 14 days of DEX treatment (□). The force-frequency relationship is plotted as frequency versus both absolute force (mN, **A, B**) and relative force (percent of maximum isometric force, **C, D**) production. Data are mean ± SD for n=5-8/group**.**

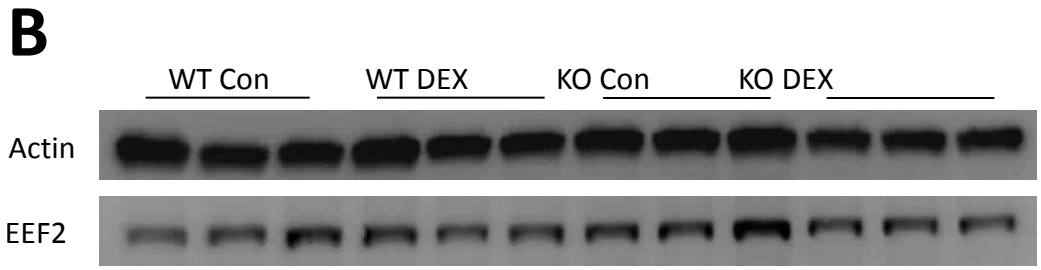


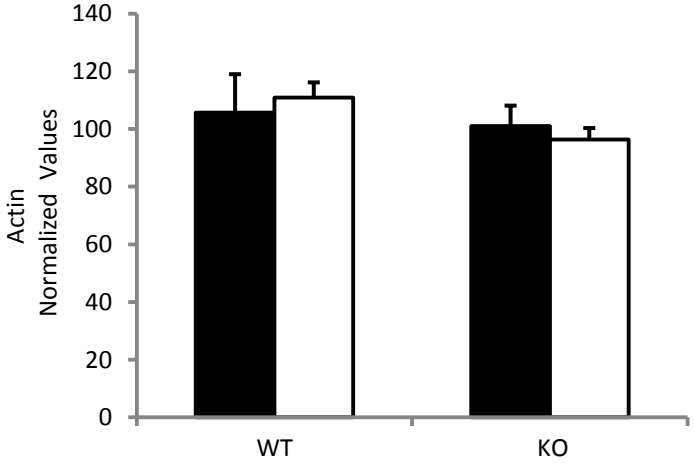
Supplemental Figure 3

Figure S3: Proteolytic activity of the 20S and 26S proteasome subunits in wild type (WT) and MuRF1 null (KO) mice after dexamethasone (DEX) treatment. (A) Proteolytic activity of the β1, β2, and β5 subunits of the 20S proteasome was measured by fluorometric assay after either three or 14 days in WT and MuRF1 KO mice following no treatment (Con, *solid bars*) or DEX treatment (DEX, *open bars*). **(B)** Proteolytic activity of the β1 and β2 subunits of the 26S proteasome was measured by fluorometric assay after either three or 14 days in WT and MuRF1 KO mice following no treatment (Con, *solid bars*) or DEX treatment (DEX, *open bars*). Data is expressed as a percent of WT control (n=3-4/group). *P<0.05.









Supplemental Figure 4

Figure S4: Expression of the fast isoform of myosin heavy chain and actin protein is not altered after 14 days of dexamethasone (DEX) treatment. Western blots of myosin heavy chain (fast) **(A)** and actin **(B)** protein expression in wild type (WT) and MuRF1 null (KO) mice after 14 days of DEX treatment. Protein expression was quantified by densitometry and normalized to EEF2 (*control, solid bars; DEX, open bars*).