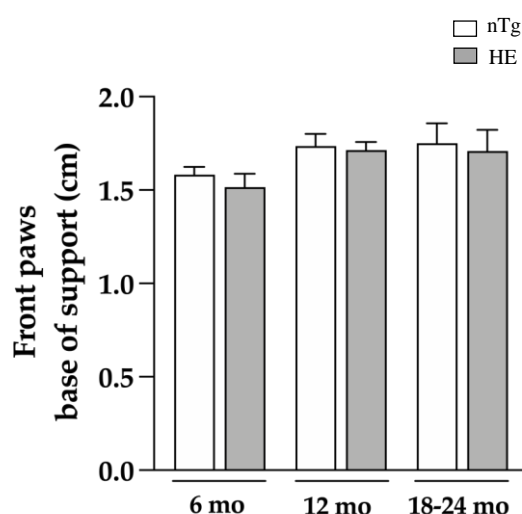
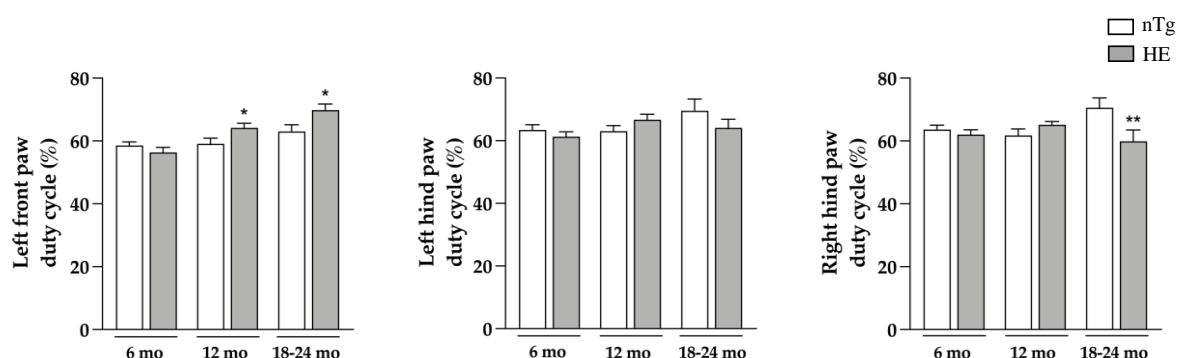


Supplementary Materials



Supplementary Figure S1. The front paws spacing is not altered in HE mice compared to age-matched nTg mice. Gait was analyzed with the Catwalk software as described in the « material and methods » section.

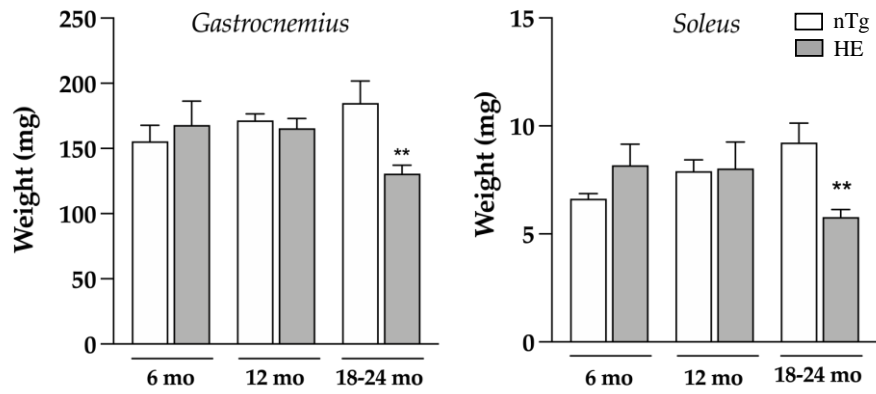
Histograms represent means \pm SEM; $n = 9-16$ /group.



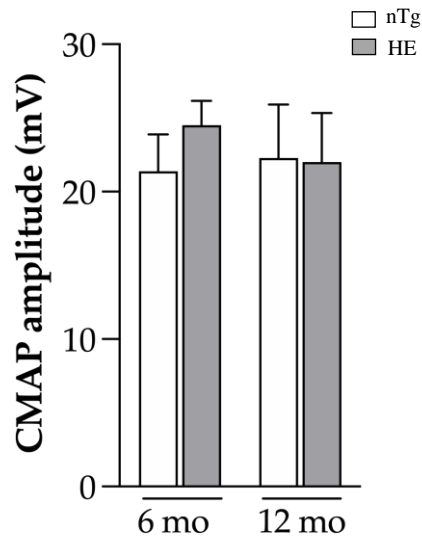
Supplementary Figure S2. The duty cycle of left paws is asymmetrically altered.

The duty cycle of the left front paw (left) increases gradually from 12 months of age in HE mice compared to age-matched nTg mice whereas the duty cycle of the left hind paw (middle) is similar between genotypes. The right hind paw duty cycle (right) decreases at 18–24 months.

Histograms represent means \pm SEM; $n = 9-16$ /group. * $p < 0.05$, Student's t test.

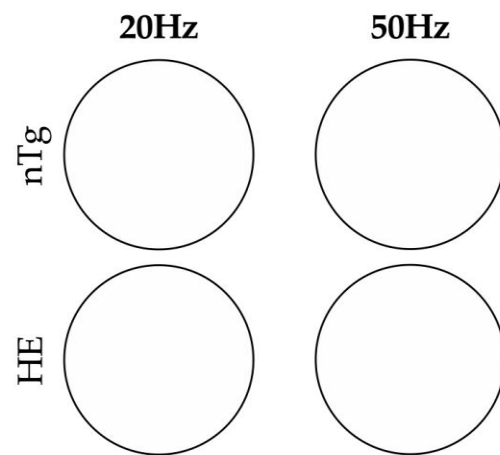
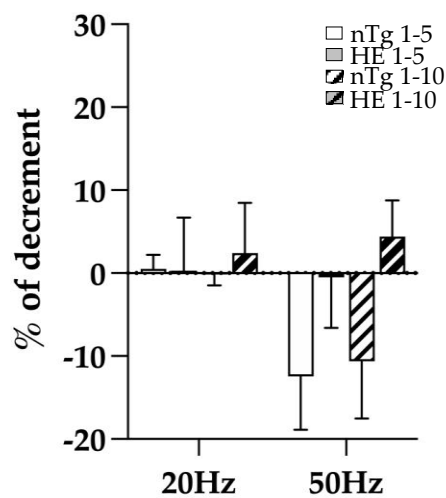


Supplementary Figure S3. Evolution of *gastrocnemius* (left) and *soleus* (right) muscles mass with age. HE mice are compared to age-matched nTg mice. Histograms represent means \pm SEM; $n = 4-6/\text{group}$; ** $p < 0.01$, Student's t test.

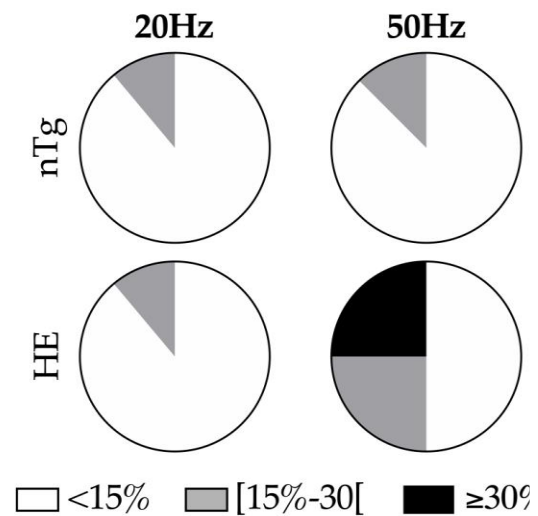
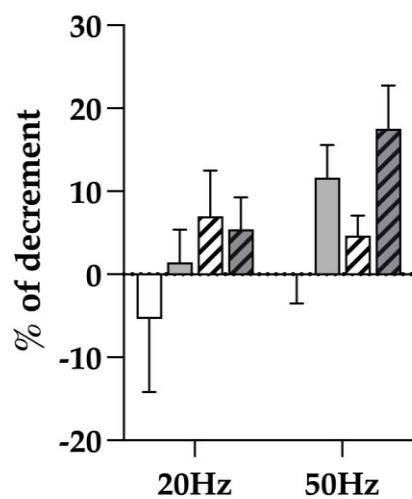


Supplementary Figure S4. CMAP amplitude in nTg and HE mice after a single stimulation of the sciatic nerve at supramaximal intensity at 6 and 12 months. No difference is seen between genotypes. Histograms represent means \pm SEM; $n = 4-7/\text{group}$.

(A) 6 months



(B) 12 months

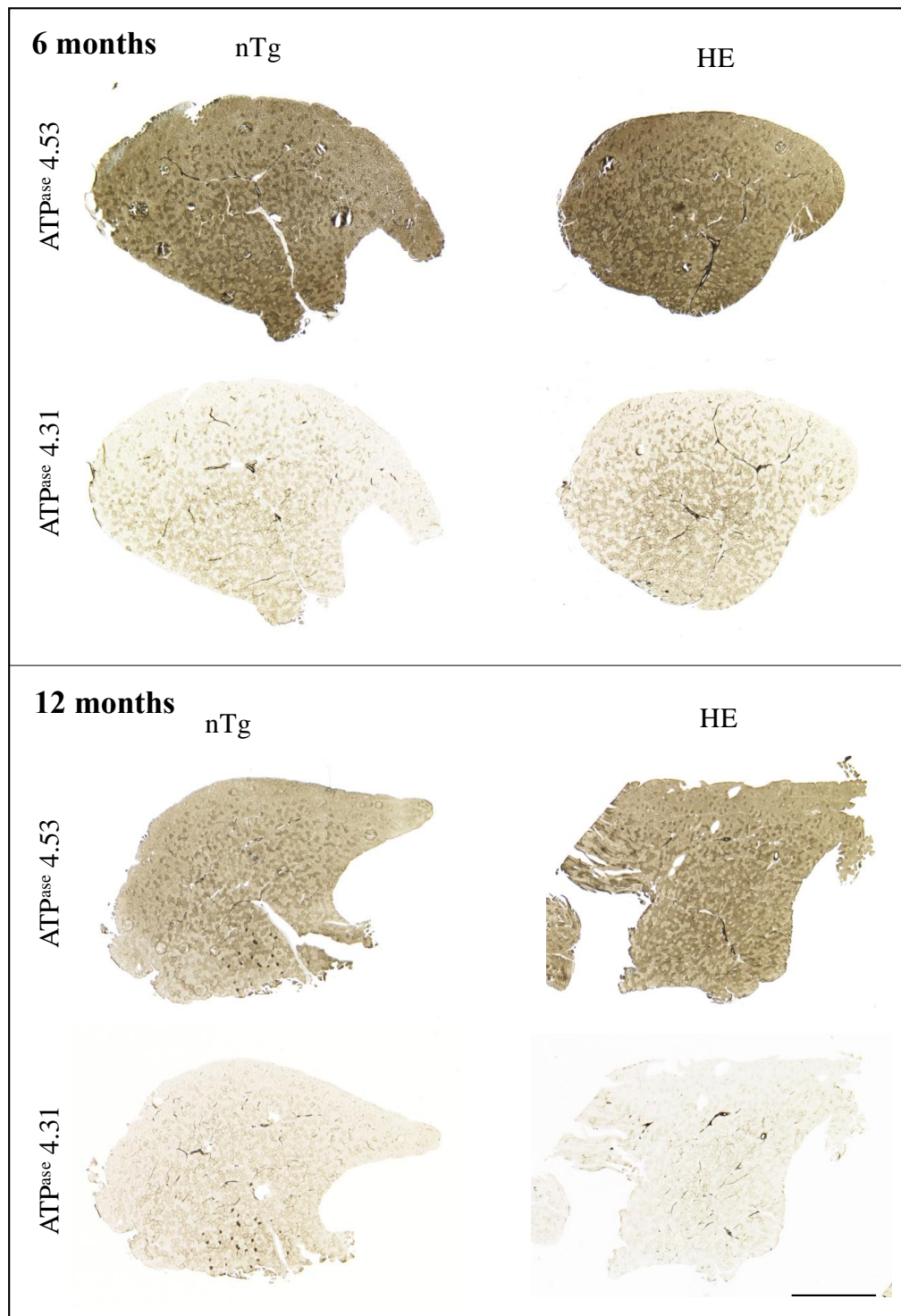


Supplementary Figure S5. CMAP response to repetitive nerve stimulations in mice aged of 6 (A) and 12 (B) months.

Left: Quantification of CMAP decrement between the first and fifth stimulations (plain histograms) or the first and the tenth stimulation (dashed histograms) after electrical stimulations of the sciatic nerve at 20Hz and 50Hz.

Right: Proportion of mice with less than 15% decrement (white), between 15 and 30% decrement (grey) and more than 30% decrement (black) in the nTg and HE mice for each frequency of stimulation.

Histograms represent means \pm SEM; n = 4–9/group.



Supplementary Figure S6. Representative micrographs of serial sections of TA after myofibrillar ATPase histochemistry.

Sections were either preincubated at pH 4.53 or at pH 4.31. At pH 4.53 type 1 fibers are the darkest, type 2A fibers are the lightest, type 2B fibers are brown and type 2X fibers appear dark brown. At pH 4.31 type 1 fibers are the darkest, type 2X fibers are intermediate and type 2A and 2B fibers are the lightest. Same magnification is used. Scale bar: 500 μ m.

Supplementary Table S1. Sequences of primers used for qPCR studies.

Gene	5' – 3' (Forward)	3' – 5' (Reverse)
<i>AchR α</i>	CCACAGACTCAGGGGAGAAG	AACGGTGGTGTGTGTTGATG
<i>AchR ε</i>	CAATGCCAATCCAGACACTG	CCCTGCTTCTCCTGACACTC
<i>AchR γ</i>	TGAGTGTGCTCTTGGGGAAA	GACCATACCCATCACCAACCA
<i>Atp5g3</i>	CGCACCCCCGCTCTG	TAGAGCCCTCTCCAGTCCTAGTC
<i>Atrogin-1</i>	AGTGAGGACCGGCTACTGTG	GATCAAACGCTTGCGAATCT
<i>Cox5A</i>	GCTGTCTGTTCCATTGCTG	AATATGTCACCCAGCGAGCA
<i>H1H2BC</i>	AGTGAGGACCGGCTACTGTG	GATCAAACGCTTGCGAATCT
<i>H2AC</i>	CAACGACGAGGAGCTCAACAAG	GAAGTTTCCGCAGATTCTGTTGC
<i>Lcad</i>	TGGGGACTTGCTCTCAACA	GGCCTGTGCAATTGGAGTA
<i>Musk</i>	GCTGGAAGTGGAGGAAGACA	GATTCAGGAGCACGCAGGAT
<i>MyHC1</i>	GCATCCCTAAAGGCAGGCTC	ACTCCGGAGGTAAGGAGCA
<i>MyHC2</i>	CGAAGCGAGGCACAAAATGT	TTGCTTGCAAAGGAACTTGGG
<i>MyHC4</i>	ACAGGACAGTGACAAAGAACG	GGTGAAGAGCCGAGAGGTTT
<i>MyHC7</i>	CAAGAGCCGGGACATTGGT	TGTTGCAAAGGCTCCAGGTC
<i>Myoglobin</i>	CAAGCACAAGATCCCGGTCA	TCCAAAGTCCCCGGAATGTC
<i>Parv</i>	ATCAAGAAGGCGATAGGAGCC	GGCCAGAAGCGTCTTTGTT
<i>Pdk4</i>	GCTGGATGTTTGGTGGTTCT	TGCTTTGATTCTCCCATCC
<i>Pgc1α</i>	TGCTGCTGTTCTGTTTTC	CCCTGCCATTGTAAAGACC
<i>Pparα</i>	CCAGAGAAGAGGGCCTTGA	CCATCCAGGTATGAGGAGTCTT
<i>Pparδ</i>	ATG-GGG-GAC-CAG-AAC-ACA-C	TCTCAATCAGTGTGCGGTCC
<i>RyR1</i>	GCACACAGTCGTATGTACCTG	CCTCCCCTGTTGCGTCTTC
<i>Sdha</i>	GTGTGAAGTAGGGCAGGTCC	ACAAGGCACTGGCTCGATAC
<i>Tbp</i>	CCAATGACTCCTATGACCCCTA	CAGCCAAGATTACGGTAGAT
<i>Tfam</i>	GGGAATGTGGAGCGTGCTAA	TGATAGACGAGGGGATGCGA
<i>TnnC1</i>	GGCACAGTGGACTTCGATGA	TTCCCTTTGCTGTCGTCCTT
<i>TnnC2</i>	AAAGAGTTGGGCACCGTGAT	GGCATCCAATTCCTCTTTGG
<i>Uqcrc2</i>	AACTGCTAGAGCCATGAAGC	AAGTTTTAACCTTCGGGGCAAC