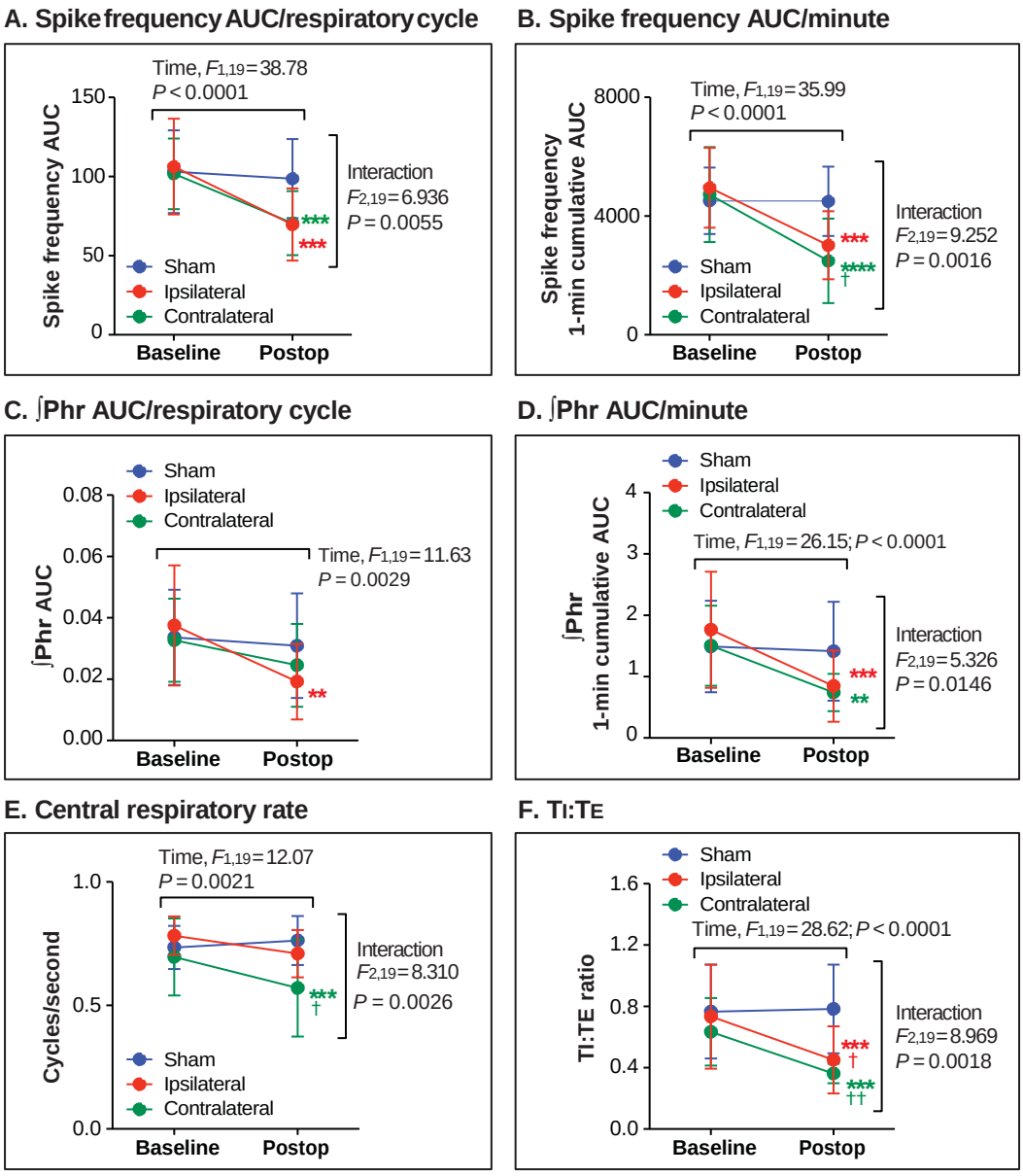

Figure S1. Raw (non- normalized) data for the Protocol A, the short-term effect of upper abdominal incision vs. sham incision on efferent phrenic nerve activity. (A) One hour after the upper abdominal incision (Postop), spike frequency area-under-the-curve (AUC)/respiratory cycle was significantly lower compared with baseline in the Ipsilateral (P = 0.0001) and the Contralateral groups (P = 0.0006), but not in the Sham group (P = 0.8767). (B) The spike frequency AUC/minute after the incision was significantly lower than baseline only in the Ipsilateral (P = 0.0005) and the Contralateral groups (P < 0.0001), but not in the Sham group (P > 0.9999). While there was no difference among the groups at baseline, the mean value of the Contralateral group was significantly lower than that of the Sham group (P = 0.0153) 1 hour after the incision. (C) The integrated phrenic neurogram (∫Phr) AUC/respiratory cycle after the incision was significantly lower compared with baseline in the Ipsilateral group (P = 0.0053). (D) There was a significant decrease in the Phr AUC/minute from baseline after the incision in the Ipsilateral (P = 0.0007) and the Contralateral (P = 0.0038) groups, but not in the Sham group (P = 0.9716). (E) There was a significant decrease in central respiratory rate from baseline after the incision in the Contralateral group (P = 0.0008). The central respiratory rate of the Contralateral group was significantly lower than the Sham group (P = 0.0149) after the incision. (F) There was a significant decrease in inspiratory-to-expiratory duration ratio (TI:TE) from baseline after the incision in the Ipsilateral (P = 0.0004) and the Contralateral groups (P = 0.0006), but not in the Sham group (P = 0.9867). One hour after the incision, TI:TE of the Ipsilateral and the Contralateral groups were significantly lower than that of the Sham group (P = 0.0446 and P = 0.0087, respectively). Data are presented as mean ± SD. The sample size per group was: N = 7 in the Ipsilateral and Contralateral groups; N = 8 in the Sham group. **P < 0.01; ***P < 0.001; ****P < 0.0001 vs. Baseline,

and †P < 0.05; ††P < 0.01 vs. Sham by two-way ANOVA with repeated measured in one factor, followed by Sidak's multiple comparison tests.