



**Supplementary Figure S3.** Common-mode noise in EMG. All wings were fixed and a reference electrode was inserted into the abdomen. The butterfly activated the flight muscles and moved the abdomen although the wings were fixed. **(A)** EMGs from the DLM with monopolar electrodes. The signal from each electrode (top and middle traces) inserted into the left DLM and the difference (electrode 1 – electrode 2, bottom trace) are shown. **(B)** EMGs of bilateral DLM with monopolar electrodes. The signal from the DLM on each side (top and middle traces) and the difference (left DLM – right DLM, bottom trace) are shown. The common noises (red arrows in **[A]**) and spike-like signals (red arrows in **[B]**) that were observed at both electrodes disappeared as a result of calculating the difference between the two signals. Vertical scale bars, 0.2 V (amplified signals). Signals were filtered with a bandpass of 100–3000 Hz.