

Supplemental Figure Legends

Figure S1. Experiment 1: Individual Control Subject Responses.

As in Main Figure 1, yellow regions responded more to moving (ILD) vs. stationary auditory white noise. Statistical activation maps are the result of a fixed-effects general linear model analysis (GLM) [$q(\text{FDR}) < 0.01$]. Green and blue regions show MT+ location as determined by *visual* MT+ localizer scans run in the same subjects (green = the part of MT+ overlapped by auditory ILD motion responses, blue = the part of MT+ not overlapped by auditory ILD motion responses). Note that individual control subjects consistently showed little or no overlap (very little green). In contrast sight recovery subjects MM and MM (See Main Figure 1) showed near-complete overlap (very little blue).

Figure S2. Experiment 1: MT+ ROI responses are consistent over a range a thresholds used to select the MT+ ROI.

As in Main Figure 2, responses (% fMRI signal change) to visual motion and to auditory ILD motion within visually-defined MT+ ROIs. Here, auditory motion responses are plotted over a range of thresholds used to define the MT+ ROIs ($q(\text{FDR}) < 0.01$, $q(\text{FDR}) < 0.05$, $q(\text{FDR}) < 0.1$). Results are plotted for each subject individually. Visual motion responses were highly significant for all subjects ($p < 0.001$ each bar). Auditory (ILD) motion responses were highly significant for both MM and MS at all thresholds ($p < 0.001$ each bar). In contrast, MT+ did not respond have a positive response to auditory (ILD) motion in any of the individual control subject at any threshold ($p > 0.07$ minimum). Only MM and MS had no significant difference between their own response to visual motion and auditory ILD motion. Error bars denote s.e.m.

Three of the control subjects (C4,C5,C6) had substantially larger MT+ ROIs than the sight-recovery subjects at any given threshold (See Supplementary Table 2 for ROI volumes). To better equate for size, thresholds were further restricted in those 3 control subjects to limit the MT+ ROI size to be no larger than the average MT+ ROI size in sight-recovery subjects (877 mm³). The results were robust to this restriction (black bars) – there was still no significant response to ILD motion in these subjects. ($p > 0.15$ minimum).

Figure S3: Experiment 2: MT+ ROI responses are consistent over a range of thresholds used to select the MT+ ROI

As in Main Fig. 3, response amplitudes (% fMRI signal change) from MM and MS to auditory ITD motion, auditory ILD motion, stationary volume changes, frequency sweeps, and human speech within the MT+ ROI. MT+ ROIs were selected at the following thresholds: $q(\text{FDR}) < 0.01$, $q(\text{FDR}) < 0.05$, $q(\text{FDR}) < 0.1$.

MT+ responded to both types of auditory motion at all thresholds ($p < 0.01$ each bar). MT+ did not respond to the other auditory stimuli which did not induce the percept of motion ($p > 0.2$ each bar). Error bars denote s.e.m.