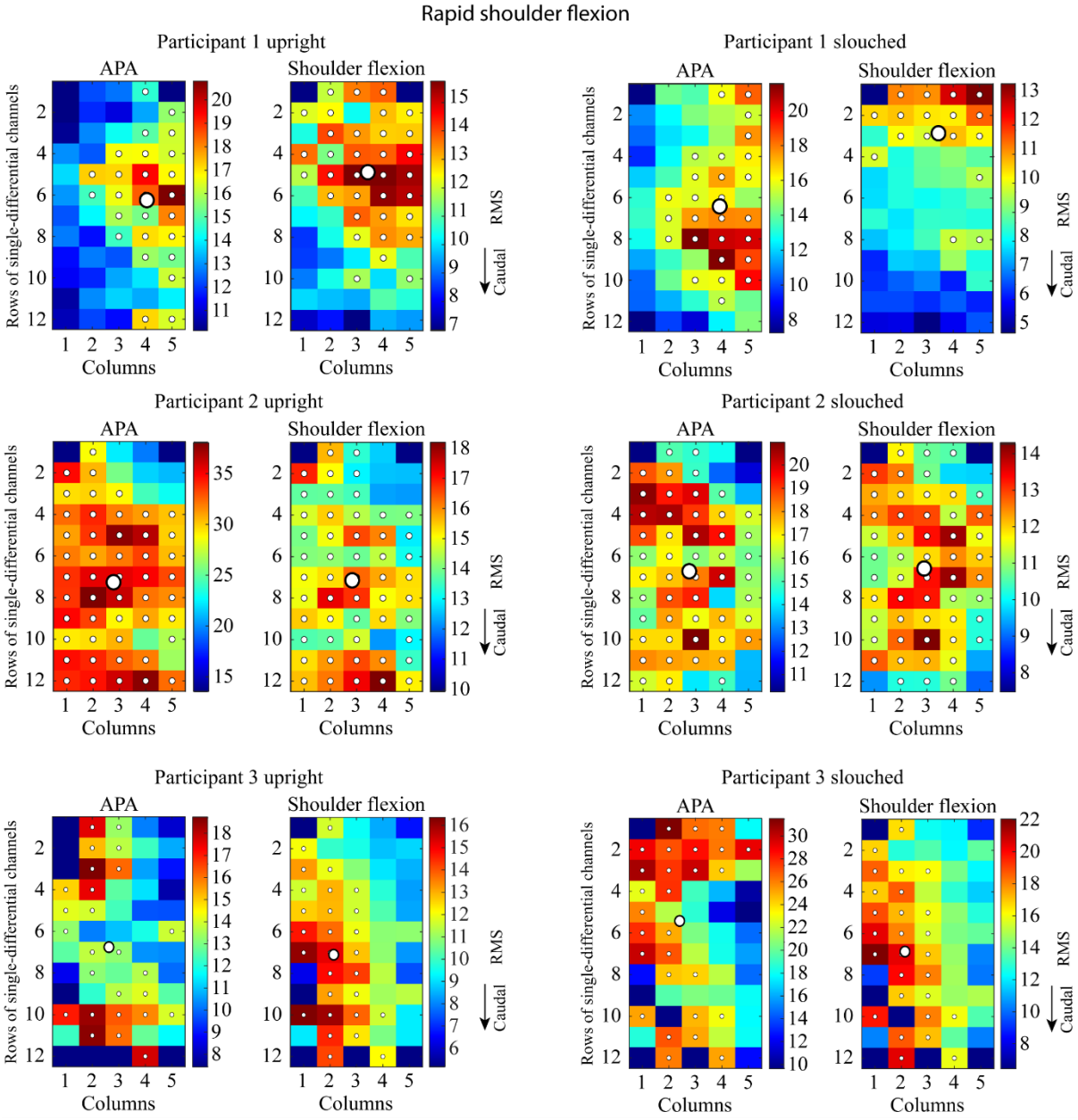
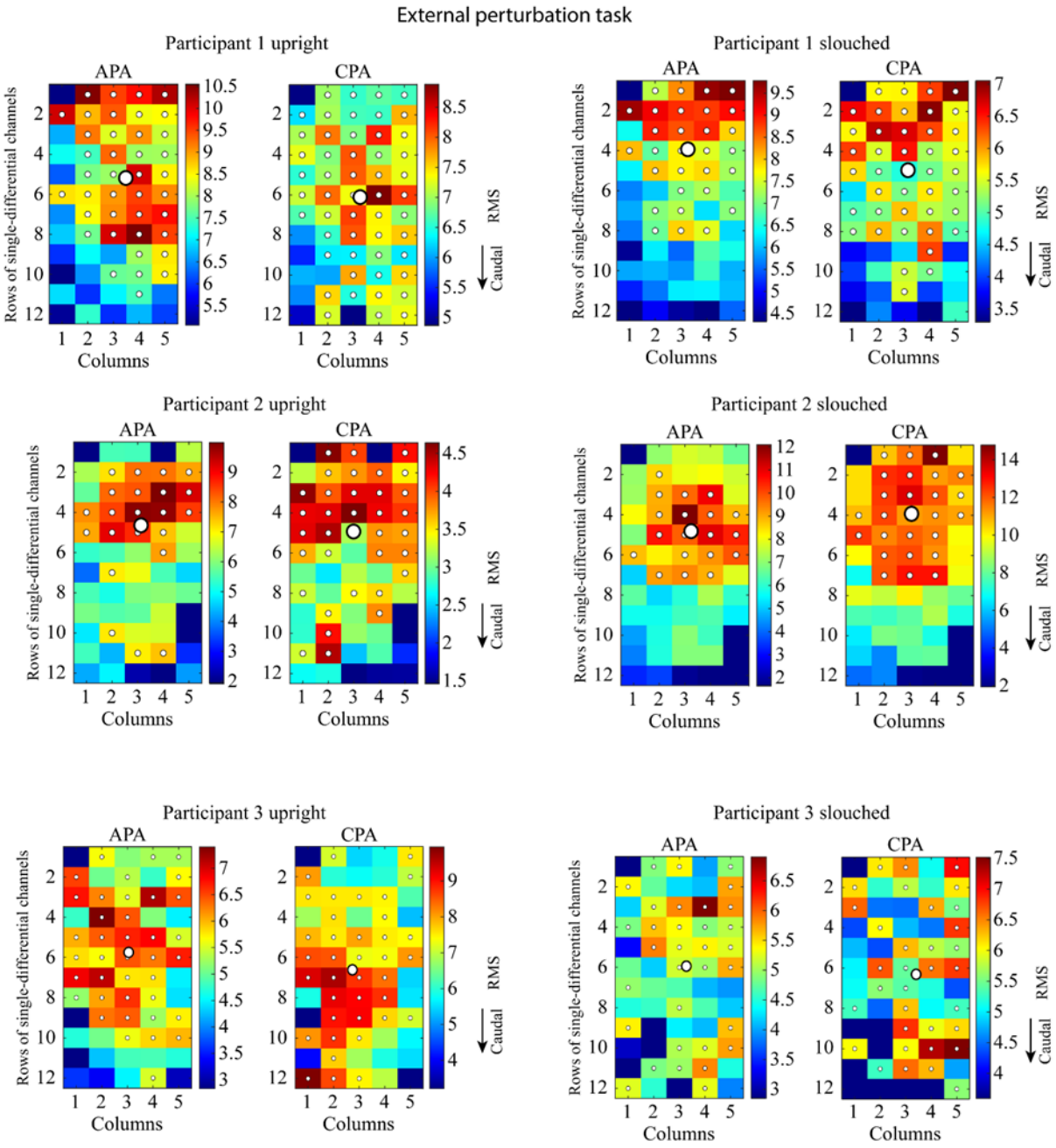
Supplementary materials 2

2. The influence of increased thoraco-lumbar flexion on regional distribution of the erector spinae (ES) activity during postural tasks in control participants

To determine whether a more caudally distributed activation of the ES seen in individuals with SCI during the rapid shoulder flexion task and during the external predicted perturbation task was related to an adapted posterior pelvic tilt posture when seated. Three control participants were instructed to sit with an upright posture and consequently with an increased thoraco-lumbar flexion, i.e., a slouching seated posture, to simulate the posture of individuals with spinal cord injury and performed the tasks as described in the methods. The heatmaps and the y-axis of the centroid of these three participants were calculated and are presented below. Overall, the location of the y-axis centroid remains to be in the cranial part of the ES, suggesting that the change in the regional distribution of activation seen in the participants with SCI was unlikely caused by their seated posture.



Supplementary figure 3. HDEMG of the rapid shoulder flexion task. Differential EMG amplitude maps of the ES based on the APA (left two columns) and shoulder flexion (right two columns) analysis windows in rapid shoulder flexion, obtained from three able-bodied participants who sat in an upright posture (left), and a slouched posture (right) to simulate the posture of individuals with SCI. The deep-blue squares are removed channels after the visual inspection for noisy channels. The large white circle represents the y-axis centroid, while the smaller white circles represent the active channels, meaning those with an RMS amplitude higher than 70% of the maximum RMS amplitude across the grid.



Supplementary figure 4. HDEMG of the external perturbation task. Differential EMG amplitude maps of the ES based on the APA (left) and CPA (right) analysis windows in the external perturbation task, obtained from three able-bodied participants who sat in an upright posture (left two columns), and a slouched posture (right two columns) to simulate the posture of individuals with SCI. The deep-blue squares are removed channels after the visual inspection for noisy channels. The large white circle represents the y-axis centroid, while the smaller white circles represent the active channels, meaning those with an RMS amplitude higher than 70% of the maximum RMS amplitude across the grid.