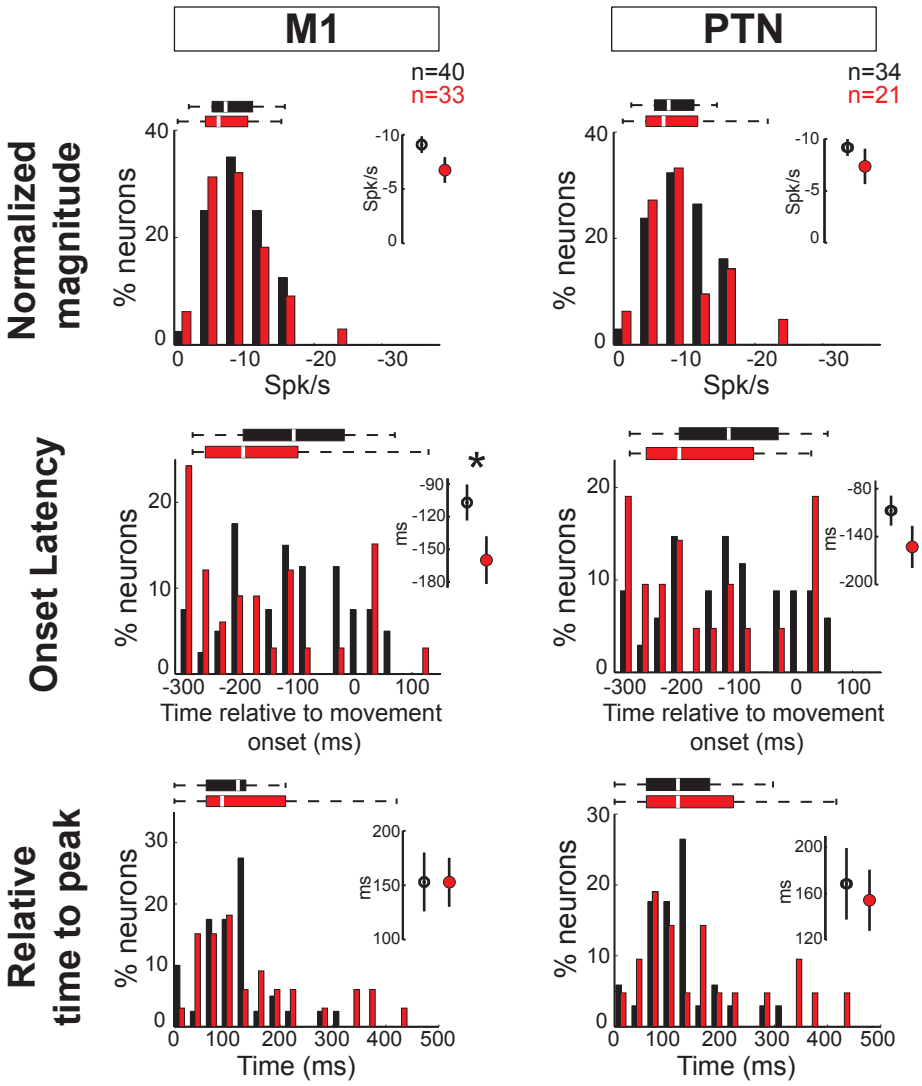
		Monkey V			Monkey L			V & L
		Flexion		Extension	Flexion		Extension	Both directions
RT (msec)	pre-MPTP	280±36		301±41	252±27		278±24	+30.6%
	post-MPTP	324±86	*** ###	376±87	328±39	*** ###	421±106	
MD (msec)	pre-MPTP	382±52		353±53	334±39		428±67	+23.2%
	post-MPTP	550±140	*** ###	490±59	381±57	*** ###	411±72	
Vel_{max} (deg/s)	pre-MPTP	137±15		140±17	128±17		104±12	-23.4%
	post-MPTP	62±13	*** ###	92±15	138±28	###	91±19	
Ampl (cm)	pre-MPTP	19.6±0.7		19.7±0.6	20.1±0.9		19.7±0.7	-0.6%
	post-MPTP	14.4±2.8	*** ###	2288±4	22.6±3.4	*** ###	18.9±4.7	

Supplementary Table 1. Task performance was impaired following MPTP administration. Kinematic measures (cross-session means ± s.e.m.) from pre-MPTP and post-MPTP periods for flexion and extension movements in the visuomotor step-tracking task. Reaction times (RT), movement durations (MD), peak velocities (Vel_{max}), and movement amplitudes (Ampl) were compared between states (two-way ANOVA, MPTP x direction). The right column summarizes the size of the effect of MPTP on each performance measure averaged across animals and movement directions. *** Main effect of MPTP at $P<0.001$. ### MPTP x direction interaction at $P<0.001$.



Supplementary Figure 1. MPTP effects on kinematic-independent ("residual") decreases in firing. The distributions of response magnitude (top), onset latency (middle) and relative time to peak (bottom) are plotted for decrease-type response residuals sampled before (black) and after (red) MPTP administration. The figure is formatted following the conventions outlined for Figure 7. A small number (n=2) of decreases were detected in CSNs, preventing a comparison between MPTP states. The only significant result for decrease-type residuals was a shift to earlier onset times within the general population of M1 neurons (*P<0.05, Mann-Whitney U-test).