In the anesthetized cat, the neurons comprising the uncrossed pathway are tonically active and pause for the presentation of moving visual stimuli. In contrast, the crossed pathway neurons are transiently active at the onset of a moving visual stimulus. Based on their data, the authors concluded that the crossed pathway suppressed unwanted movements while the uncrossed pathway simultaneously released a desired orienting movement (Jiang et al. 2003). In our sample of SNr sites, some neurons had gradual increases in activity during the delay-period of the delayed-saccade task like those reported previously (Sato and Hikosaka 2002), but we did not often see transient increases in SNr neuronal activity with visual stimuli. Further, we did not explore the responses of our sample to moving visual stimuli so a direct comparison with the results obtained in cats is not possible. Finally, since we used trains of electrical stimuli rather than single pulses, we think it is unlikely that we would selectively alter the behavior of individual neurons, precluding a comparison of the effects of stimulation on different neuronal response types. Further work will be required to determine whether a similar, functional organization of the crossed and uncrossed pathway appears in monkeys as it does in cats.

SNr Stimulation Alters Saccade Direction and Amplitude.

Based on the previous work showing that reducing SNr activity with muscimol the GABA agonist, results in irrepressible saccades, we expected that electrical stimulation would activate SNr neuronal output pathways and result in a profound suppression of saccades. That we did not see a complete suppression of eye movements may indicate that stimulation had effects other than that shown in