guided saccades. Qualitatively similar results were obtained using 75 and 125Hz (Figure 8e,f).

For visually-guided saccades we found that saccade latency was also affected bilaterally (Figure 8c,d,g,h). Electrical stimulation of the SNr reduced the latency of all visually-guided saccades. Interestingly, in our monkeys, the latency of visually-guided saccades was most often <200ms.

Frequency of Saccades. The current conceptual model of the SNr in eye movements predicts that increasing SNr neuronal activity should enhance inhibition of saccade-related SC neurons and decrease the occurrence of saccades. Consistent with this, we found that electrical stimulation of the SNr reduced the occurrence of saccades (Figure 9). Although this effect was not always as profound as we expected. In fact, the suppression of saccades with stimulation often subsided with repeated experiments in the same monkey. We saw this phenomenon in all 3 monkeys. To quantify the influence of SNr stimulation on saccade occurrence, we counted the number of saccades made to each target in the stimulation and control conditions. We then summed the number of saccades made in the stimulation and no stimulation conditions across contralateral and ipsilateral directions. These sums were then divided by the number of saccades made in the no stimulation condition. Multiplying this ratio by 100 yields the percent of saccades made. The no stimulation condition in both memory-guided and visually-guided trials had a percentage of 100 (Figure 9a and b, black bars). Despite the reduced magnitude of the effect of stimulation with repeated experiments, we found that the occurrence of contralateral