

## Can Attention Filters for Spatial Frequency Be Sharpened through Training?

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It is well documented that people are able to distribute their attention broadly across space to extract information about the spatial distribution of particular visual features, which is called feature-based attention. This experiment investigated whether or not training could enable observers to sharpen the tuning of attention filter for spatial frequency. Stimuli were spatially random displays of vertically oriented Gabor patterns. On each trial, the subject strove to mouse-click the centroid of 3 Gabor patterns while ignoring 12 other “distractor” Gabor patterns, 6 each with frequencies higher and lower than the target frequency. The mean absolute difference between the frequencies of the distractors vs. the target (called the “spread” of the stimulus) determined the difficulty level of the trials. The smaller the spread, the harder a trial is. Spread was controlled by a three-up one-down staircase. The experiment had eight days, and at the beginning of each day, the subject had a testing session to establish the baseline of their attention filter before having the training session. The hypothesis was that threshold spread would show a decrease with training. No such effect was observed. This suggests that the tuning of a subject’s attention filter for spatial frequency cannot be sharpened with training.