

Chapter 9_Disorders of Attention

Supplemental Material

Dichotic Listening Paradigms

Dichotic listening paradigms, which involve the presentation of different information to the two ears, provide a way of assessing *auditory attentional selection* under different conditions of discriminability and response bias. However, this paradigm also involves divided attention and reflects capacity limitations as well. Dichotic listening has been employed in shadowing paradigms, which require the participant to repeat material being presented auditorily in one ear while processing a competing message in the other ear. Participants have great difficulty extracting information from the nonshadowed ear during dichotic listening, but they can detect physical changes in the stimuli to that ear. Participants also show little memory of material presented to the nonshadowed ear, although they attend better to the nonshadowed channel when different modalities were used and after they have learned to attend to the nonshadowed channel.

Spatial search tasks provide an excellent means of assessing the *spatial distribution for visual attention*. Tachistoscopic or computerized presentation of an array of visual stimuli enables attentional search to be evaluated as a function of the time taken to scan the visual array for a particular target (visual spatial search tasks). By mapping this spatial distribution as a function of attentional parameters, it is possible to determine what factors influence search. Search accuracy tends to be best above the fixation point, whereas extreme vertical points are less likely to be accurately searched. Selection has also been shown to vary greatly along the horizontal axis, and search times are greatest when there is high similarity between targets and distractors. The accuracy of visual search depends on the attentional demands of the task. Accurate detection should occur at an almost perfect rate when the location of the target is

obvious and not difficult to discriminate. Reduced speed and accuracy occur when targets are shifted in the visual field and the location is uncertain.

Spatial cue paradigms, which measure the influence of attentional bias in anticipation of spatial position, provide another important method for assessing *visual selective attention* (Posner et al., 1987). Although a variety of spatial cue paradigms exist, the principles underlying these tasks are generally the same. A neutral cue is presented at some spatial location prior to the onset of a target. On some trials, the cue correctly signals the future position of a target stimulus, whereas on other trials the information provided by the cue is incorrect. The accuracy of detection and reaction times can then be measured as a function of the anticipatory cue to either correct or incorrect spatial position.