

----- Summary -----

Practical procedures for assessing peripheral visual awareness, esp for driving. REACT and SDSST parallel formal visual field assessment procedures. SOSH & SEARCH increase information density, eliciting hemi-inattention ('neglect').

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Brain injuries can cause insidious gaps in the visual "fields" - insidious because, more often than not, a person with visual field losses is unaware of the problem. Just as people with hearing losses sometimes feel that others are mumbling, people with visual field losses may actually feel that the world has changed, e.g., why are they making clocks that way?

People without brain injuries, who think they are seeing everything, may be shocked to learn that they too have gaps in their vision. Known as "physiological blind spots" these gaps are caused by the lack of sensory receptors where the nerve leaves the eye to carry visual information to the brain. You have one in each eye, about the size of a fist at arm's length. Close one eye and try to locate yours. Is it on the inside or the outside? In each eye it is located a little to the outside and slightly down from where you are looking. If -- like most people -- you don't feel this blindness, try the demonstration below.

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Blind Spot Demonstration  
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L

R

----- Instructions for Blind Spot Demonstration -----

1. Hold at arm's length.
2. Close your left eye and
3. Look at the L with your right eye.
4. Slowly bring the sheet towards you,.
5. Keep looking at the L, but notice what happens to the R.
6. At some point you will realize that the R is no longer visible.
7. Keep moving the paper closer and the R will reappear.
8. Repeat the process with the other eye.

Notice: Although the letter disappears, the paper does not. This phenomenon is known as the completion effect. The brain fills in gaps in the visual field with predictable patterns or surfaces.

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People with gaps in the visual fields caused by brain injury,

therefore, may have a double disability: the loss of vision and the loss of awareness. Normally, the nervous system tends to fill in the background

and to lose the figure. So if such a person were to attempt to drive (not recommended!), they might see the road, but not a pedestrian or child running into the street.

Brain injury can cause different patterns of loss, including blind spots and tunnel vision. However, most common is a pattern called "homonymous hemianopia" in which corresponding halves of the fields are lost in each eye. For instance, in left homonymous hemianopia the blindness affects the left side of each eye. The blindness may be absolute (complete) or relative (reduced sensitivity).

It is not easy to test for visual field losses, especially if there are cognitive problems caused by the brain injury. And since people are often unaware of the loss, it is quite possible that the losses will remain undiagnosed. Fortunately, our computerized methods have been developed to check for visual field impairment. Because these techniques offer immediate feedback, they can be used to build awareness and to lay a foundation for treatment.