Regd. Office : A- 6, NAND Complex, Near AIMS Oxygen, Juna Padra Road, Baroda 390 020 - INDIA Marketing / Customer Support : 5-6, 3rd Floor, Mrudula Sadan, Pratap Road, Raopura, Baroda 390 001 - INDIA





Frisby StereotestsTM For ed

For easy and natural stereopsis assessment



The Frisby Near Stereotest – 3 plates

- The target is a cluster of randomly arranged arrowheads of differing sizes, as shown alongside.
- It is printed on one side of the plate in one of the four quadrants; on the other side of the plate similar pattern elements are printed around the target and in the other three quadrants.
- An observer with normal binocular stereovision can readily detect the target because it appears to stand out from the background or to recede from the background, depending which way round the plate is shown.
- Such an observer is essentially seeing the thickness of the plate by virtue of the texture elements printed on the two sides.
- An observer lacking normal binocular stereovision (or a normal observer viewing with one eye only) fails to detect the target as it can be distinguished only on the basis of binocular disparity cues to depth, as long as the plate is shown correctly (stationary, viewed square-on, and placed about 5-10cm in front of a clear background).

Stereopsis Screening

- For stereopsis screening the test objective is to discover whether the patient can reliably discriminate the circle-in-depth using the thickest plate.
- Present the 6mm plate with the position of the circle-in-depth chosen randomly. The stud alongside the target has a flat surface, allowing the tester to know discretely by touch where the target is whilst following the observer's eye movements. Hence the position of the target can be selected discretely by feeling for the stud with the flat top.
- Patients with stereopsis usually find the target-in-depth quickly and confidently, perhaps pointing to it if young, or staring at it.
- If necessary, use a sequence of presentations varying the position of the target randomly. Varying plate position can be done while the tester holds the plate behind her or his back. Try making a game of the test saying "Can you find the hidden target?"

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- Use as many trials as needed to be able to make a confident decision. A single very speedy correct response may be sufficient but sometimes 2 or 3 presentations are needed for a cautious patient to decide if stereopsis is or is not demonstrated.
- Patients with defective stereopsis usually make slow hesitant responses with a high frequency of errors.

Checking Test Understanding

- Understanding of the test by patients making hesitant responses can be checked by standing the plate on a corner and twisting it slowly to and fro by about 100 either side of square to the patient's line of sight.
- Twisting the plate in this way introduces the monocular depth cue of motion parallax which makes the target-in-depth readily visible, even for patients without stereopsis (testers can check this for themselves by viewing the moving plate with one eye only).
- Hence, if a patient can find the target-in-depth when the plate is twisted to and fro but not when it is held still, a confident judgement of defective stereopsis can be recorded because the patient has demonstrated understanding of the test.
- Be sure to use a new random position when stereopsis is being assessed.
- Another way of checking test understanding is to lay the 6mm plate flat on the box's fold-down lid. This reveals the target by a shading cue. If the patient can then detect the target they have demonstrated test understanding. BE SURE NOT TO USE THE TEST IN THIS WAY WHEN CHECKING FOR STEREOPSIS – THEN THE PLATE MUST BE HELD A FEW CM ABOUT A PLAIN SURROUND – SEE PHOTOS ABOVE. Beware many YouTube sites that show the test being incorrectly used by holding it flat up against the box. For further details on how to use monocular cues for demonstrating test understanding see the Optician article referred to above.

Testing Precautions

- Note carefully that, once the initial phase of explanation is over and the patient is being called upon to demonstrate stereoscopic ability, the patient should view the plate squarely with head and plate held still, and with the plate held about 5-10cm in front of a clear background.
- It can be helpful, with the permission of the carer, to steady the head of the young and active patient using one outstretched hand, while holding the plate steady with the other.

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Measuring stereoacuity

- There are 3 plates of of differing thickness, 6mm, 3mm and 1.5mm, which present different sizes of disparity cues.
- The plates can be presented at differing distances to further vary the disparity cues.
- The lid of the test box has a table showing disparities for each plate for 30-150cm viewing distances. A measuring tape assists in controlling eye-to-plate distance (see test photo).
- The test objective is to record the smallest disparity which the patient can reliably discriminate.
- Begin by showing the 6mm plate from the usual reading distance of 40cm.
- If the patient makes a confident and correct identification of the target then show the 3mm plate and thereafter the 1.5mm plate. Move quickly to the zone of uncertain judgements to avoid losing the patient's interest.
- Vary plate distance and target position, trying to find the disparity at which they patient becomes hesitant or begins to make errors. Record as the stereoacuity the smallest disparity for which the patient can make 2 or 3 confident and reasonably speedy target identifications.