



## Hiding Heidi Low Contrast Test: 253500

Contrast sensitivity needs to be assessed in children and adult persons who are unable to respond verbally or by pointing. If the person can follow a moving target or shift gaze to or turn head to peripherally presented visual stimuli, preferential looking test situations can be used when testing with Hiding Heidi pictures.

Present the test within the distance within which the person visually responds using the highest contrast (100%) first. If you expect normal function in a baby, you may shorten the test situation by showing next the 2.5% picture and then the 1.2% picture. If you do not get a response to the 2.5% picture, show the 25% or 10% picture next and then the 5% picture. The picture is presented by moving both the picture and the white card with the same speed, usually horizontally. If the person has horizontal nystagmus, the pictures are best presented vertically.

The visibility of facial features can be tested also in older children by using the Hiding Heidi test. Then it is more fun to ask the child point to Heidi when she becomes visible. In testing of difficult-to-test children we have sometimes used the following technique: The test is on a table. One of the two persons testing takes the picture of Heidi, the other tester takes the blank card. The testers move to the testing distance and ask "who has the Heidi card?" Some children like to wave "bye-bye" to Heidi.

Whenever contrast sensitivity has decreased, it is advisable to measure visibility of facial features at different distances. Surprises are common. Since the area of the Heidi picture - and that of a face - is so much larger than the area of a symbol or even a grating stimulus, the low contrast pictures may be discernible at unexpectedly long distances. However, it is important not to force children to function at their threshold. If the function of a healthy child at the same luminance level is demonstrated, the teachers and therapists will better understand the requirements of the visually impaired child's communication.

The ability to detect objects of low contrast is an important component of the visual system. Determining the levels of contrast that an infant can detect, helps planning information for intervention and provides a baseline to evaluate future changes. Deviations from usual behavior may indicate disorders that leave vision at high contrast levels unaffected.

Visual communication is the most important way of communicating during the first year of life. Expressions on faces are mediated by faint shadows and changes of the contours of the mouth and eyes. Most facial expressions are in low contrast, so an infant's reaction to the *Hiding Heidi Low Contrast Cards* offers useful information. The cards can also be used with multihandicapped people.

If an infant only responds to high contrasts, the people in his or her life should be aware of this problem and make their faces more visible. This can be done by wearing lip and eye liners, bright lipstick and eyeglasses with dark frames.

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## Instructions

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Even though “infant” is referenced in the following instructions, the directions also apply for young children and multihandicapped people.

1. Stack the *Hiding Heidi Low Contrast Cards* sequentially with the 2.5%, 10% and 100% faces downward, in that order. Since the 25%, 5% and 1.25% faces are on the opposite side, they will face up.
2. Position the infant so he or she faces the examiner and in the optimal position for best visual performance. Support his or her head so involuntary motor movements least affect the infant’s performance. The infant can look over the parent’s shoulder while being held, sit in their lap or in the child’s buggy. Consider the infant’s most comfortable position. If possible, select the best time of day when the infant is most alert. Note any differences in performance when not taking the above into consideration.
3. Before observation of the infant’s responses to the *Hiding Heidi* faces, familiarize yourself with the infant’s usual response pattern and look for: the head turning toward an interesting visual object, eye widening, breathing, quieting, eyebrow arching, smiling, babbling to or reaching for an object. This will help detect if there are variations of these patterns as the infant fixates on the *Hiding Heidi* faces. Familiarize and prepare the infant for locating *Hiding Heidi* in whatever way is appropriate to his or her level.
4. During your communication with the infant, notice how far you can back away from the infant without losing his or her attention to your face. Record this distance, so you can later document changes in the infant’s visual sphere.
5. Leave the stack of cards within your reach, out of the infant’s sight. When presenting the cards, place them in front of your chest. Present the face cards, one at a time, with the blank card in front of the face card. Encourage the infant to look toward the midline by talking to him or her just above the cards, or play Peek-A-Boo with the blank card in front of your face in an attempt to get the infant’s attention.
6. Use two cards for each presentation. One card is always the blank card, the other, one of the six *Hiding Heidi* faces. Hide the stimulus card behind the blank card. Then ask the child “Where is Heidi hiding?”, while moving the blank card off to one side and the stimulus card off to the other side. Both cards should leave the midline at the same speed. Stimulus cards should be moved to the right and/or left in a random order.

The cards are presented in the following order: 100%, 10%, 2.5% and 1.25%. If the infant does not react to the 10% card, present the 25% card. If the infant then reacts to the 25% card, proceed with the 10% card and lower the contrast cards until a threshold level is reached. If the infant does not react to the 2.5% card, present the 5% and other cards, as above, until a threshold level is reached. If the child responds to the 1.25% face, the contrast threshold at that distance is below 1.25%. Record that as <1.25%.

The purpose of this order of presentation is to find the infant’s contrast threshold as quickly and as accurately as possible. Avoid repeated presentation of the same stimulus card, as this causes habituation.

The tester may notice that an infant does not follow the movement of the Heidi-picture with eye movements or with combined eye-head movements but makes a quick shift of gaze to the picture when it stops. Another child may follow the movement but looks puzzled when the movement stops and looks at the tester as if asking “Where did the picture disappear to?” These observations need to be reported to the child’s neurologist because they may mean that the child has problems in motion perception (= perception of movement or perception of objects that stand still).

In the examination of older children the child may prefer waving to Heidi “bye-bye” instead of simply pointing. Also, the presentation may be varied by letting the parents show the cards: They hold the cards behind their back while moving to the testing distance. There they present the Heidi card and the blank card at the same time and ask “Who has the Heidi picture?”.

7. If the infant does not respond to the low contrast cards, bring them closer. Note the distance. If the infant still does not respond to a horizontal presentation of the face cards, slide the cards in a vertical presentation.
8. Initially present the cards in usual illumination level (average room lighting). If the infant does not respond, increase or decrease the luminance level by utilizing a lamp with controlled lighting that allows you to vary the luminance level. Record the optimal luminance level for communication repeatedly during the first year of life.
9. Since infants rely on near and far visual communication, try to obtain at least two separate thresholds. First, measure at the near communication distance, using the methods described above; record the distance from the child to the cards, the luminance level, and the threshold contrast level reached.

If the infant responds to low contrast face stimulus at near distance, use one of the cards with higher contrast and the blank card, backing away from the infant to the distance where he or she lost response to your face. Record this distance, the luminance level and the threshold contrast level reached at this distance. This will demonstrate to the child’s parents/therapist/teacher the distance at which the infant still responds to visual information at low/intermediate contrast levels.