

Coma Recovery Scale – Revised (CRS-R): Ten Guiding Principles for Administration and Scoring

The CRS-R is a standardized, validated neurobehavioral assessment measure used to establish diagnosis and prognosis, monitor rate of recovery and evaluate treatment interventions in patients with disturbance in consciousness caused by acquired brain injury. The CRS-R consists of 23 items comprised of six subscales designed to assess audition, receptive and expressive language, communication ability, visuoception, motor functions and arousal level. Subscale items are hierarchically-organized such that the lowest-scoring item on each subscale represents reflexive activity while the highest item reflects cognitively-mediated behavior. Administration time usually ranges from 15-30 minutes.

Below we present 10 guiding principles for administering and scoring the CRS-R:

1. The CRS-R must be administered directly to the patient based on the instructions in the administration and scoring manual. The CRS-R scores should not be based on information in the medical chart or caregiver interview.
2. To ensure standardized administration and scoring across and within examiners, the instructions in the CRS-R manual should be closely followed. During CRS-R assessment, there may be instances in which examiner judgement is required (e.g., type of commands to administer on the auditory subscale), however, decision-making should always be informed by the instructions in the manual. Additional standardization may be required when the CRS-R is employed for research purposes (eg., number of commands to administer, whether to administer the Arousal Facilitation Protocol prior to conducting the exam).
3. Always start by administering the highest-scoring item on each subscale before progressing to lower items. Once a scorable response is obtained, the examiner should advance to the next subscale.
4. Guidelines are provided for the number of trials to administer for each item. All trials should be administered regardless of performance on the first trials (i.e., if a patient does not look up to command on the first two trials, the remaining trials should still be administered).
5. The response window is 10 seconds, unless otherwise specified. Behaviors that occur outside the 10-second window can be documented but should not be scored. If the examiner suspects that response latencies are significantly delayed, an additional 10-second window can be added to enable both standard and modified scoring.
6. Score only clearly-discernible responses. A general rule-of-thumb: *If 10 people observed the same response, 9 of 10 would agree that the response criteria were met.*

7. For items requiring motor responses, choose the best limb (e.g., least paretic), unless specified otherwise. This can be accomplished during the 1-minute behavioral observation period or by consulting caregivers and family members, if available.
8. If a patient is unable to lift a limb against gravity, physical assistance can be provided by supporting the limb at the elbow. Care should be taken to avoid provision of any other assistance with movement.
9. When sensory, perceptual, or motor impairments are suspected, some accommodations may be made. For example, if hearing impairment is suspected, commands may be presented in written form. Similarly, if there is limited range of motion, commands should be avoided that require reaching.
10. Use the CRS-R Test Completion Codes (TCC) to establish the validity of the examination and to document reasons for invalid or incomplete scores. For example, if injury to both hands prevents the patient from being able to hold an object, the motor subscale should not be scored and the remainder of the motor subscale should not be attempted. In this case, the motor subscale should be assigned a TCC of 3.3 (physical injury [e.g., fracture, brachial plexus, hemiparesis]). Other examples include, premorbid blindness or eyes sutured shut. In these cases, the visual subscale should not be scored and a TCC of 3.1 (impaired sensory function [cortical or peripheral]) should be assigned. When one or more subscales cannot be validly administered, a total score should not be calculated, although the valid subscores may still be useful for establishing a diagnosis. All deviations from standard administration guidelines and notes describing the circumstances around invalid or incomplete scores should be recorded.