

Luria-Nebraska Neuropsychological Battery (LNNB-C) Children's Revision

A WPS TEST REPORT by Western Psychological Services
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Los Angeles, California 90025-1251
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Answer Sheet: sample
Sex: FEMALE
Grade: 04
Processing Date: 04/04/06

ID Number: sample
Age: 9 Years 11 Months
Ethnicity: White

***** LNNB-C TEST REPORT *****

This summary is based on a systematic comparison of the child's scores with data obtained from the evaluation of individuals with suspected or documented neurological difficulties. These results may be useful in forming clinical hypotheses about the nature and extent of disruption in various functional systems and possible localization of brain damage. However, the relative elevations of the various summary scores are only one factor in interpreting the LNNB-C. They need to be integrated with scores across the different types of scales and with individual item responses. In addition, the LNNB-C should never be used simplistically or in isolation. The hypotheses suggested by the test should be corroborated by other methods, including clinical interviews, behavioral observations, detailed clinical history, and other neurodiagnostic procedures.

The LNNB-C TEST REPORT is designed as a scoring aid for users who have an advanced background in neuropsychology and in the use of the

LNNB-C. In addition to automatically computing and profiling T-scores for each of the three major groups of scales, the program also produces ipsative tables showing significant deviations of individual scale scores from the overall scale means. These tables may be especially useful in assessing children's individual patterns of strengths and weaknesses given their general level of functioning. The key to the labeling of the various scales is presented on the last page of this report, and may be torn off and used in interpreting the individual tables. However, users should bear in mind that these labels are intended solely as convenient mnemonic devices. Appropriate interpretation of the scales assumes a thorough familiarity with the content and psychometric properties of the individual scales, as presented in the Manual. Studies underlying the LNNB-C TEST REPORT are discussed in the "Luria-Nebraska Neuropsychological Battery Children's Revision: Manual" (WPS Product Number W-216B) published by Western Psychological Services.

***** INTERPRETATION *****

This report is a result of clinical and experimental experience with the LNNB. The information presented here must be regarded as suggestions for hypothesis testing and not definitive diagnostic statements. Information regarding medical and social history, motivation, and the results of other evaluative procedures must be integrated with the results presented in this report, along with the examiner's qualitative observations and knowledge of neuropsychology. It is especially important to consider possible confounding issues involving development and neuroplasticity when analyzing test results of children. This report is not a substitute for adequate training of the user, but, instead, provides an aid to the prepared clinician. This computerized interpretive report was developed by Charles J. Golden, Ph.D.

This 9-year-old white female has a calculated critical level of 65.0. This critical level is 16.3 points above the lowest clinical or S1 T-score on the profile.

The Four General Indicators of Brain Dysfunction (Organicity)

1. The number of clinical and S1 (Pathognomonic) scales above the critical level is 7. This finding is abnormal.
2. The baseline is defined as 10 T-score points below the critical level. Therefore, this person's baseline is 55.0. The number of clinical and S1 scales above the baseline is 10. This is an unusual number of scales above the baseline, and would classify the profile as abnormal.
3. The number of factor scales

elevated above the critical level is 8. This is in the abnormal range.

4. The range of clinical and S1 T-scores is 48.2. This finding is abnormal, because the difference between the highest and lowest T-scores is expected to be 25 or less.

Overall, among the four general indicators of brain dysfunction, 4 of the 4 fall within the abnormal range. This indicates a very high likelihood of brain dysfunction, unless confounding factors such as drugs or poor motivation can account for the scores.

Clinical Scale Pattern Analysis

The most elevated scale on this profile is C7 (Writing).

Elevations on C7 (Writing) are the most common on the LNNB. Interpretation must be cautious because many individuals have never learned to spell properly. When assessing the possibility of brain dysfunction, it is important to examine the nature of the errors on this scale qualitatively. If spelling errors are responsible for the elevation, then those errors must reflect a loss of preexisting phonetic skills. These errors take on more significance if the person was previously able to spell. The second type of error represents the inability to properly execute the motor act of writing. Errors reflecting poor motor coordination, tremors, slowness, and so on may indicate motor deficits. In the absence of evidence of a general motor problem, such findings could reflect a subtle and early sign of fine motor disorganization. Deficits on the Writing scale, if they are not preexisting, reflect dysfunction of the dominant

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hemisphere in most cases. However, such a diagnosis is stronger if accompanied by deficits on Receptive Speech, which are not present in this case.

The C6 (Expressive Speech) scale examines the ability of the individual to repeat words, read words aloud, name objects, and generate complex speech. As with the Receptive Speech scale, major deficits are almost always associated with the dominant hemisphere but more minor elevations can be associated with the nondominant hemisphere. In the current profile, the elevations are high enough to suggest dominant hemisphere involvement. The ability to repeat words but not to read them properly suggests a difficulty in reading rather than a problem with expressive speech.

Analysis of secondary clinical scale elevations is also important in understanding the overall profile. However, the user must take into account the possibility that abilities that have been found impaired on other scales are affecting the elevation on a particular scale, especially abilities represented by more elevated scores. This level of integration may rely on qualitative rather than quantitative observations.

While scores on C9 (Arithmetic) are frequently elevated, interpreting such scores is difficult. Errors on Arithmetic may be associated with problems in any of the four quadrants of the brain as well as deficits in attention and concentration. It must be noted that poor performance on Arithmetic may be attributable to test anxiety rather than some skill deficit. Thus, it would be inappropriate to make any direct inferences regarding impairment based solely on this

score. Qualitatively, there are several problems to be examined that can give clues to impairment. First, the inability to recognize numbers and to write simple numbers is statistically rare but quite important if it can be established that the individual had these skills at one time. Other qualitative signs include difficulties in carrying, borrowing, and understanding the spatial meaning of the arrangements of numbers. In cases like this where the elevation is greater than 70, there is a greater chance of a brain deficit being discovered through qualitative analysis of these items.

On this profile, C3 (Tactile Functions) is a secondary elevation. The pattern of verbal losses combined with the elevation on C3 (Tactile Functions) suggests involvement of the posterior left hemisphere, although the profile cannot specify how long this disorder has existed. It may be seen in relatively recent injuries or in cases of long-term learning disabilities. Because of the high score on C3 (Tactile Functions), this impairment appears to be fairly substantial.

Elevations on C8 (Reading) are rare because reading is generally an overlearned skill. Only very specific disorders will affect reading more than other skills.

Because of the sensitivity of the C2 (Rhythm) scale to attention and concentration factors, it is not unusual to see elevations on this scale. In the current profile, the elevation on Rhythm is associated with verbal losses most commonly associated with the involvement of the dominant hemisphere (if the loss in verbal skills was recent), or a learning disability if the history suggests that the child never adequately developed verbal

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skills.

Important new and confirming information may be obtained through examination of the factor scales. In the present case, the number of factor scales elevated above the critical level is 8.

F1 (Academic Achievement) represents an overall academic factor, measuring the retention of basic academic skills. The elevation on F1 suggests general impairment of academic skills, although it is possible that a specific skill area, such as writing, may be more impaired than others. However, none of the specific ability scores on this profile are substantially elevated compared with this general factor.

The elevation on F8 (Tactile Sensation) indicates problems with basic interpretation of tactile stimuli, a finding consistent with the overall deficit on C3 (Tactile Functions).

F9 (Receptive Language) elevations suggest deficits in the ability to understand and discriminate basic phonemes and words. Such a basic deficit is often associated with problems in school related achievement.

Elevations on F7 (Rhythm Perception and Production) are associated with deficits in reproducing rhythms and tones. In a case like this, the problem appears to be a more basic inability to accurately discriminate pitches and tones. This deficit may underlie difficulties in acquiring language or understanding the nonverbal emotional communication of others.

An elevation on F3 (Spatial-Based Movement) reflects an impairment in spatial-based motor skills when visual feedback is

minimal. This is not associated with a loss in general motor skills in this case. However, it is associated with losses in tactile feedback.

F10 (Expressive Language) elevations are associated with problems in basic speech. These problems range from an inability to repeat simple sounds and words to difficulties in counting or simple reading aloud. Deficits in these skills are often associated with poor school achievement, a tendency to withdraw, dislike of the school situation, and general problems in verbal achievement.

F2 (Integrative Functions) is an important cross-scale factor measuring integrative functions. It is composed of items measuring spatial organization in different ways along with complex arithmetic processes. Deficits in these areas generally reflect poor integration of skills in both hemispheres as well as possible impairment of higher abstract abilities. In children under 10, these deficits are less important statistically than they are in older children.

F4 (Motor Speed & Accuracy) deficits reflect difficulty maintaining motor accuracy under speeded conditions. It is the most sensitive measure of motor speed in the battery. In many cases, however, deficits in this area may be associated with other motor problems. In this case, there is no difficulty in motor speed during drawing tasks, and the child is able to maintain normal quality on the simple LNNB-C figures. It should be noted that consistent deficits in tactile feedback are present, because of the role of kinesthetic monitoring in speeded behavior.

The foregoing interpretations and suggestions are not to be

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regarded as definitive or diagnostic
in any manner except to suggest
areas of concern and investigation
for the clinician. This report is
not to be substituted for a report
by a trained clinician.

LNNB-C FACTOR SCALES

Critical Level: 65
 Factor scales at or above critical level: 8

SCALES	SCORES		T SCORES										
	RAW	T	20	30	40	50	60	70	80	90	100	110	120
F1	(29)	110	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F2	(10)	79	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F3	(4)	79	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F4	(6)	65	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F5	(1)	46	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F6	(4)	54	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F7	(5)	88	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F8	(5)	89	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F9	(4)	89	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F10	(3)	79	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
F11	(2)	63	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
SCALES	RAW	T	I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I++++I					*					I
	SCORES		20	30	40	50	60	70	80	90	100	110	120

NOTE. The critical level, which corrects for differences in age, is indicated by the vertical row of

asterisks (*) on the profile. T-scores above 120 are truncated.

BACKGROUND INFORMATION

Sex: FEMALE
Age: 9 Years 11 Months
Grade: 04
Ethnicity: White
Dominant Hand: Right
Age of Onset (in years): 00
Special Education: Not Provided
Reason for Evaluation: Unknown

RESULTS OF NEUROLOGICAL PROCEDURES

Neurological Exam:	Unknown	Postsurgical Lesion:	Unknown
Angiogram:	Unknown	Brain Scan:	Unknown
EEG:	Unknown	Myelogram:	Unknown
CAT Scan:	Unknown	X-Ray:	Unknown
Pneumoencephalogram:	Unknown	Cerebral Blood Flow:	Unknown

LNNB-C ITEM RESPONSES

1(1)	11(2)	21(1)	31(0)	41(1)	51(0)	61(0)	71(1)	81(0)	91(2)	101(0)
2(0)	12(2)	22(0)	32(2)	42(0)	52(0)	62(0)	72(0)	82(0)	92(2)	102(1)
3(2)	13(0)	23(0)	33(1)	43(1)	53(1)	63(0)	73(0)	83(0)	93(1)	103(0)
4(0)	14(0)	24(1)	34(0)	44(0)	54(0)	64(1)	74(0)	84(0)	94(0)	104(2)
5(0)	15(1)	25(0)	35(1)	45(1)	55(2)	65(2)	75(0)	85(0)	95(0)	105(1)
6(2)	16(1)	26(1)	36(1)	46(2)	56(2)	66(0)	76(0)	86(2)	96(2)	106(2)
7(2)	17(1)	27(0)	37(1)	47(0)	57(1)	67(0)	77(0)	87(0)	97(0)	107(2)
8(0)	18(0)	28(0)	38(0)	48(1)	58(1)	68(2)	78(1)	88(1)	98(0)	108(0)
9(0)	19(0)	29(0)	39(2)	49(0)	59(0)	69(1)	79(0)	89(0)	99(0)	109(0)
10(0)	20(0)	30(0)	40(2)	50(0)	60(0)	70(0)	80(0)	90(2)	100(1)	110(2)
111(2)	121(0)	131(1)	141(0)		105S()		107M()			
112(2)	122(0)	132(0)	142(1)		106S()		108M()			
113(0)	123(0)	133(1)	143(0)		107S()		109M()			
114(0)	124(2)	134(0)	144(1)		108S()		110M()			
115(1)	125(2)	135(0)	145(0)		109S()		111M()			
116(2)	126(2)	136(0)	146(0)		110S()					
117(1)	127(2)	137(0)	147(0)		111S()					
118(2)	128(2)	138(0)	148(0)							
119(2)	129(0)	139(0)	149(2)							
120(2)	130(0)	140(0)								

NOTE. Missing responses are denoted by a blank () and invalid responses by an asterisk (*). Number of missing and/or invalid responses: 12

For these items, the median response value from the standardization sample was substituted so that the test could be scored.

KEY TO THE LABELING OF THE LURIA-NEBRASKA SCALES

CLINICAL SCALES

C1 -- Motor Functions	O1 -- Spelling
C2 -- Rhythm	O2 -- Motor Writing
C3 -- Tactile Functions	C8 -- Reading
C4 -- Visual Functions	C9 -- Arithmetic
C5 -- Receptive Speech	C10 -- Memory
C6 -- Expressive Speech	C11 -- Intellectual Processes
C7 -- Writing	

SUMMARY SCALES

S1 -- Pathognomonic
S2 -- Left Sensorimotor
S3 -- Right Sensorimotor

FACTOR SCALES

F1 -- Academic Achievement	F7 -- Rhythm Perception & Production
F2 -- Integrative Functions	F8 -- Tactile Sensation
F3 -- Spatial-Based Movement	F9 -- Receptive Language
F4 -- Motor Speed & Accuracy	F10 -- Expressive Language
F5 -- Drawing Quality	F11 -- Word & Phrase Repetition
F6 -- Drawing Speed	

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Data was received for processing via WPS TEST REPORT FAX Service

*** End of Report ***