

## **Comparisons Between the WAIS –R & WAIS III**

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According to standard clinical and scientific practice, psychological tests should be revised regularly. Several surveys have indicated that the Wechsler's tests of intelligence are among the most popular of psychological and neuropsychological tests. Thus, a revision of the WAIS-R appeared to be in order and was recently completed. Following is a brief summary of differences between WAIS-R and WAIS-III.

The decision to revise WAIS-R was based on the following issues (WAIS-III, WMS-III Technical Manual, 1997):

- Updating the norms;
- Extension of the age range;
- Modification of items;
- Updating artworks;
- Extension of floor and enhancement of clinical utility;
- Decreased reliance on time performance;
- Enhancement of fluid reasoning measurement;
- Strengthening the theoretical basis;
- Statistical linkage to other measures of cognitive functioning and achievement;
- Extensive testing of reliability and validity.

### ***Changes in the subtests***

Although the basic structure of the test was not changed comparing to WAIS-R, there are a few modifications in the subtests. Several WAIS-III subtests have more items

than it was in correspondent subtests of WAIS-R. However, the number of core items – those that are administered to majority of examinees – remains generally unchanged. The increased number of items reflects the incorporation of reversal items, which are to be administered if the subject fails to meet the basal criterion, i.e., to give correct responses for the first two core items. Besides, for many of the subtests the number of sample responses was increased significantly. However, overall more than 68% of the WAIS-R items were retained in either the original or slightly modified form. The changes in the subtest items from WAIS-R to WAIS-III are summarized in Table 1.

**Table 1. Summary of Subtest Changes from the WAIS-R to the WAIS-III**

| Subtest                  | Total items WAIS-R | Unchanged or Slightly Modified | Substantially Modified | New Items    | Total Items WAIS-III |
|--------------------------|--------------------|--------------------------------|------------------------|--------------|----------------------|
|                          |                    | <b>Verbal</b>                  |                        | <b>Scale</b> |                      |
| Vocabulary               | 35                 | 25                             | 0                      | 8            | 33                   |
| Similarities             | 14                 | 11                             | 0                      | 8            | 19                   |
| Arithmetic               | 14                 | 13                             | 1                      | 6            | 20                   |
| Digit Span               | 14                 | 14                             | 0                      | 1            | 15                   |
| Information              | 29                 | 18                             | 1                      | 9            | 28                   |
| Comprehension            | 16                 | 12                             | 0                      | 6            | 18                   |
| Letter-Number Sequencing | -                  | -                              | -                      | 7            | 7                    |
|                          |                    | <b>Performance</b>             |                        | <b>Scale</b> |                      |
| Picture Completion       | 20                 | 8                              | 2                      | 15           | 25                   |
| Digit Symbol-Coding      | 93                 | 93                             | 0                      | 40           | 133                  |
| Block Design             | 9                  | 9                              | 0                      | 5            | 14                   |
| Matrix Reasoning         | -                  | -                              | -                      | 26           | 26                   |
| Picture Arrangement      | 10                 | 5                              | 0                      | 6            | 11                   |
| Symbol Search            | -                  | -                              | -                      | 60           | 60                   |
| Object Assembly          | 4                  | 2                              | 1                      | 2            | 5                    |

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There are some changes in the content and administration of the subtests. Thus, in the *Vocabulary* subtest items are presented in written form in the Stimulus Booklet. *Picture Completion* subtest has been improved so the stimulus pictures became larger and in color. *Arithmetic* subtest undergone certain changes to reflect contemporary subjects

and prices. Besides, emphasis on speed has been decreased from that in WAIS-R, so time bonus points are given only on the two most difficult items.

There are two new subtests designed to help in assessing working memory and attention such as *Letter-Number Sequencing* and *Symbol Search*. In *Symbol Search* subtest each item has two target symbols; for each item the examinee is to determine whether either of the target symbols appears in the search group by marking “yes” or “no”.

Supplementary procedures were added to *Digit Symbol* subtest. The first part of the subtest is the same as it was in WAIS-R but has been renamed *Digit Symbol- Coding*. In a case the examinee performs poorly on this part of the subtest two optional subtests can be administrated:

- 1) *Digit Symbol – Incidental Learning*; measures the examinee’s ability to recall shapes from memory;
- 2) *Digit Symbol – Copy*; measures perceptual and graphomotor speed.

Time of administration has been increased from 90 to 120 seconds. If *Digit Symbol- Incidental learning* is to be administrated, it is administrated immediately after *Digit Symbol- Coding*. *Digit Symbol- Copy* is administrated after all the other subtests of the WAIS-III have been administrated to reduce writing fatigue.

*Block Design* task and stimulus materials remain the same as those in the WAIS-III. There were no or subtle changes in administering such subtests as *Similarities*, *Digit Span*, *Information*, and the *Picture Arrangement* subtests. In the latter the pictures were enlarged and printed on card stock to facilitate manipulation.

*Matrix Reasoning* is a new subtest to WAIS-III. It measures visual information processing and abstract reasoning skills. *Matrix reasoning* replaces *Object Assembly*, which has been made an optional subtest to the WAIS-III, in the calculation of the Performance IQ score. Each item of *Matrix Reasoning* subtest consists of a stimulus matrix from which a section is missing and five response choices. The examinee is to choose the completing response by saying or pointing to the number of the response.

### *Differences in Scores*

Subtest raw scores for the WAIS-II are transformed to age corrected subtest scaled scores with mean of 10 and standard deviation of 3. Compare to WAIS-R, the age range for the WAIS-III has been extended. Hence the method used to transform subtests raw scores into scaled scores differs from that used in the WAIS-R and based on age-appropriate comparison norms rather than on a reference group scores (as it is in the WAIS-R).

The IQ and Index scores are scaled to a metric with a mean of 100 and a standard deviation of 15 for each age group. The descriptive classification of IQ and Index scores is represented in Table 2.

**Table 2. Qualitative Description of IQ and Index Scores**

| <b>Score</b>  | <b>Classification</b> | <b>Percent Included in Theoretical Normal Curve</b> |
|---------------|-----------------------|---|
| 130 and above | Very Superior         | 2.2   |
| 120-129       | Superior              | 6.7   |
| 110-119       | High Average          | 16.1  |
| 90-109        | Average               | 50.0  |
| 80-89         | Low Average           | 16.1  |
| 70-79         | Borderline            | 6.7   |
| 69 and below  | Extremely Low         | 2.2   |

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The Verbal IQ (VIQ) score is relatively unchanged from the VIQ score in the WAIS-R and is a measure of acquired knowledge, verbal reasoning, and attention to verbal materials.

The Performance IQ (PIQ) score - that is a measure of fluid reasoning, spatial processing, attentiveness to detail, and visual motor integration - apart from some changes of the scale at the item level, is similar to the PIQ score of the WAIS-R. However, in the WAIS-III the impact of bonus points has been reduced, and with the

introduction of Matrix Reasoning subtest, the PIQ score is less speed-dependent, but emphasizes abstract, nonverbal reasoning (WAIS-III, WMS-III Technical Manual, 1997).

Unlike its predecessors, the WAIS-III provides options for two sets of scores. Depending on the aim of the assessment, the examiner can choose which subtests to administer. In a case when all the 13 subtests are to be administered, the testing time increases by approximately 5 minutes comparing to WAIS-R. On the other hand, this allows computation of both IQ and Index scores.

### ***Summary***

Overall, the WAIS-III is currently being used consistently through out the United States. The new revision is both better designed and includes better norms. The items were developed with the specific intent to minimize ethnic variations. Currently, the WAIS-III is both actively being used to determine overall intellectual levels (to determine mental retardation) and to determine cognitive abilities in brain injured individuals (essentially for the 12.02 listing of the mental impairments). However, it is important to note that intelligence testing alone is insufficient for the accurate estimate of neuropsychological impairments. Finally, the new test is robust and provides a variety of summary measures as well as several additional scores. The inclusion of all these measures and scores along with a narrative will provide the most comprehensive information available when the Social Security applicant is applying for disability benefits and attempting to meet or equal a mental impairments listing.

### ***Reference***

Wechsler, D. (1997). WAIS-III: Administration and scoring manual (1997) San Antonio, Texas: The Psychological Corporation.  
WAIS-III, WMS-III Technical Manual (1997) San Antonio, Texas: The psychological corporation.