Tracking Baseline Cognition Measurements
Portal Dataset Overview

The following document provides high level information pertaining to the cognitive tests performed by the CLSA participants and the CLSA cognitive data available to researchers for the Tracking cohort.

The CLSA Tracking cohort participants were asked to complete the following cognitive tests:

1.0   Rey I (Rey Auditory Verbal Learning Test) - A memory test that required the participant to listen to a list of 15 common words and recall them within 90 seconds (immediate recall).

2.0   AFT (Verbal Fluency (Category) - Animal Fluency Test) - Required the participant to name as many animals as they could in 60 seconds.

3.0   MAT (Mental Alternation Test) - Broken into 3 sub-tasks. Each of the three tasks was to be performed, each sub-task was allowed 30 seconds.

   i.   Count from 1 to 20

   ii.   Recite the letters of the alphabet

   iii.   Alternate between numbers and letters (i.e., 1, A, 2, B, 3, C, etc.)

4.0   Rey II Recall (Delayed Rey Auditory Verbal Learning Test) - The participant had 60 seconds to recall as many of the 15 words as they could from Rey I (delayed recall).

The purpose of the cognition module is to assess the cognitive functioning of participants and identify changes in function over time. Progressive decline in cognitive functioning may occur throughout late middle age and later life. Such decline may be associated with social withdrawal, limitations and depression. Below is a brief description of the tests performed and the data available. More detailed information is available in the CLSA Tracking Cognition Process Document (Baseline).

1.0 Rey I

1.1 (REYI_SCORE_TRM = Variable name)

The participant was played a list of 15 recorded words and asked to recall as many words as possible in any order, with a 90-second time limit. The participant's response was audio-recorded and entered into a database by two different typists that are blinded to each other. Data entry conflicts were identified electronically and resolved by a supervisor. The electronic algorithm was applied to the cleaned data with the following rules:

- 1 point was awarded for each word correctly recalled (primary word).

- 1 point was awarded for any approved variant word, defined as a permitted word that sounded similar to the recorded word being recited (i.e., for the primary word "colour", collar was accepted as a variant, based on variability in participants' accents and the possibility that participants misheard the original recording).

- 0 points were awarded for any words provided that was not a primary or variant word (intrusion words).

Validation of the algorithm was performed by manually scoring 200 tests and comparing them to the electronic score to ensure accuracy.

The data available to researchers are: each participant's test score, meta data containing the quality of the recording, if the participant refused to complete the test and any notes regarding anomalies with the test.

2.0 AFT

2.1 Algorithm 1 (AFT_SCORE_1_TRM = Variable name)

The participant was asked to name as many animals as possible in 60 seconds. The participant's response was recorded and the recordings were double data entered into a database. Data entry conflicts were identified electronically and resolved by a supervisor. Specific rules and guidelines were developed by the CLSA to ensure consistent scoring. Two AFT scores were determined from the data and details of the differences between the two scores are described below.

Animal names provided by the participants that met the CLSA animal definition were considered primary and coded based on their scientific taxonomic classification. The codes are 7 digits long, 1 digit was provided for each of the following: category (fish, arthropod, mammal, bird, etc.); scientific taxonomic class; scientific taxonomic order; scientific taxonomic family; scientific taxonomic genus; scientific taxonomic species; breed/scientific taxonomic sub-species. The high level rules for coding animals were as follows: animals with the same scientific taxonomic classification with variant names (e.g., cougar and puma or, basa and basa fish) received the same code; animals with different scientific taxonomic classifications received a unique code.

For this algorithm, only the first 6 digits were used; the 7th digit of the code representing the breed/scientific taxonomic sub-species was discarded for a less inclusive score. Using an electronic algorithm, all codes that existed where a matching lower taxonomic classification existed were discarded; all remaining unique codes received 1 point. For example, if a participant stated "bird, parrot, pheasant…" bird did not receive a point because it is the category to which both parrot and pheasant belong. Validation of the algorithm was performed by manually scoring 200 tests and comparing them to the electronic score to ensure accuracy.

The data available to researchers are: each participant's test score, meta data containing the quality of the recording, if the participant was prompted or refused to complete the test and any notes regarding anomalies with the test.

2.2 Algorithm 2 (AFT_SCORE_2_TRM = Variable name)

Administration of this test as well as the high level details on coding of animal names can be found in paragraphs 1 and 2 of Algorithm 1 (AFT_SCORE_1_TRM) above.

For this algorithm, all 7 digits of the animal code were used which allowed for broader inclusion criteria that included the breed/sub-species of animals. Using an electronic algorithm, all unique codes received one point. For example, if a participant said "bird, parrot, pheasant…" each response stated received 1 point (for a total of 3 points). Validation of the algorithm was

performed by manually scoring 200 tests and comparing them to the electronic score to ensure accuracy.

The data available to researchers are: each participant's test score, meta data containing the quality of the recording, if the participant was prompted or refused to complete the test and any notes regarding anomalies with the test.

3.0 MAT ALTERNATION

3.1 (MAT_SCORE_TRM = Variable name)

Prior to the alternation task described below, participants were first asked to count from 1-20 and recite the alphabet to ensure that they were capable of completing the individual components of the alternation task.

The participant was asked to alternate consecutive numbers, beginning with number "1", and then with the letter "A" in 30 seconds. The participant's response was recorded and double data entered into a database. Data entry conflicts were identified electronically and resolved by a supervisor.

Using an electronic algorithm, a point was given for each correct alternation. Alternations are considered to be correct if it is a different category (numbers versus letters) from the previous response and is the next one in sequence from the previous response in the same category (i.e., 1A, 2B, 3C, etc.). Participants must start with the number 1 in order to receive a score. Validation of the electronic algorithm was performed by manually scoring 200 tests and comparing them to the electronic score.

The data available to researchers are: each participant's test score meta data containing the quality of the recording, if the participant refused to complete the test and any notes regarding anomalies with the test.

4.0 Rey II

4.1 (REYII_SCORE_TRM = Variable name)

The participant was asked to recall as many of the recorded words previously played (per Rey I), in any order, in 60 seconds. The participant's response was recorded and double data entered into a database. Data entry conflicts were identified electronically and resolved by a supervisor.

The electronic algorithm was applied to the cleaned data with the following rules;

- 1 point was awarded for all primary or variant words;
- 0 points were awarded for any other words stated (intrusion words that are not primary or variant).

NOTE: If the participant stated a variant word in Rey I and the matching primary word in Rey II (or vise-versa), the primary word in Rey II did not receive a point. For example, in Rey I the participant said "drum, **collar**, bell, house", but in Rey II they stated "drum, **colour**, bell, house". **Collar** in Rey I would get a point, but **colour** in Rey II would <u>not</u> receive a point.

Validation of the algorithm was performed by manually scoring 200 tests and comparing them to the electronic score to ensure accuracy.

The data available to researchers are: each participant's test score, meta data containing the quality of the recording, if the participant refused to complete the test and any notes regarding anomalies with the test.