
CATEGORY AND VERBAL FLUENCY EXAMS

1. Background and Rationale

The Category and Verbal Fluency Exams test semantic memory, verbal production and language and requires approximately 3 minutes to administer. The Category Fluency Exam measures the number of vegetables named in a one-minute period. The Verbal Fluency Exam measures the number of words beginning with "F" that the participant can name in a one-minute period. Norms are based on educational levels. For a non-demented population with age range 65-69 years and <12 years education, the mean is 17.75 + 4.02; for persons with > 13 years education, the mean is 19.13 + 5.01 (Welsh KA, 1994).

2. Equipment and Supplies

- Black pen
- Stopwatch

3. Safety Issues and Exclusions

None.

4. Participant and Exam Room Preparation

The participant should be seated in a quiet room at a table in a comfortable position. Have a supply of number 2 pencils and a large rubber eraser handy.

5. Detailed Measurement Procedures

5.1 Category Fluency

This test is a measure of impairment in verbal production and also a test of semantic memory and language.

Say to participant:

"I am going to give you a category and I want you to name, as fast as you can, all of the things that belong in that category. For example, if I say 'articles of clothing,' you could say shirt, tie, or hat. Can you think of other articles of clothing?"

Wait for the participant to give two responses. If the participant succeeds, indicate that the responses are correct and proceed to the test itself. If the participant gives an inappropriate word or reply, correct the response and repeat the instructions ("No, ___ is (are) not an article(s) of clothing. You could have said 'shoes' or 'coat' since they are articles of clothing"). If the participant fails to respond, repeat the instructions. If it becomes clear that the subject still does not understand the instruction, terminate this task and explore why this is so. After you are satisfied that the participant understands the task and has given two words naming articles of clothing, say,

"Good job. Now I want you to name all of the things that belong to another category, that is, 'vegetables.' You will have one minute. I want you to tell me all the vegetables you can think of in one minute. Ready, begin."

Allow one minute and record all of the participant's responses. If she pauses for 10-15 seconds, prompt her by saying, "What other vegetables can you think of?" If the participant discontinues before the end of the time period, encourage her to try and find more words. No extension on the time limit is made in the event that the instruction is repeated in the course of the association.

5.2 Verbal Fluency

Following similar procedures as the Category Fluency exam, say to the participant:

"I'm going to say a letter of the alphabet. When I ask you to start, tell me as many words as you can that begin with that letter. None of the words can be names of people or places.

For example, if I gave you the letter 'B', you could say brown, bottle or bake, but not Barbara or Boston. Also, don't give me words that begin with the same word but different endings, so if you say big, you would not say bigger or biggest.

Tell me all the words you can, as quickly as you can, that begin with the letter 'B'. Begin."

Wait for the participant to give two responses. If the participant succeeds, indicate that the responses are correct and proceed to the test itself. If the participant gives an inappropriate word or reply, correct the response and repeat the instructions. If the participant fails to respond, repeat the instructions. If it becomes clear that the subject still does not understand the instruction, terminate this task and explore why this is so. After you are satisfied that the participant understands the task and has given two words that begin with the letter 'B', say,

"Good job. Now tell me all the words you can, as quickly as you can, that begin with the letter 'F'. You have one minute. Ready, begin."

Record all of the participant's responses for the next 60 seconds. If she pauses for 10-15

seconds, prompt her by saying, *"What other words beginning with 'F' can you think of? Do not give me numbers such as forty, forty-one, forty-two, forty-three and so on."* If the participant discontinues before the end of the time period, encourage her to try and find more words. No extension on the time limit is made in the event that the instruction is repeated in the course of the association.

6. Scoring Procedure

6.1 Category Fluency

The subject's score is the sum of acceptable "vegetables" given in the 60-second time limit. One point should be given for each new vegetable named. Repeated "vegetables" should be recorded as errors under "# Words Repeated" and words that do not fall into the category should be recorded as errors under "# Word Violations". A singular or plural version of a vegetable that has already been said should also be recorded as "# Words Repeated."

For example:

<u>Responses</u>	<u>Points</u>
tomato	1
bean	1
lettuce	1
potato	1
red potato	0 – repetition
orange	0 – word violation (does not fall under category)
eggs	0 – word violation (does not fall under category)
squash	1
tomato	0 – repetition
carrots	1
carrot	0 – repetition

Accept responses that may not technically be vegetables, but are generally considered to be in the "vegetable" category. For example:

- Tomato
- Cucumber
- Potato
- Yam
- Sweet potato
- Corn

If you are unsure whether a word should be scored as correct for "vegetable", give the participant the benefit of the doubt and mark as correct.

6.2 Verbal Fluency

The subject's score is the sum of acceptable "F-words" given in the 60-second time limit. One point should be given for each new appropriate "F-word" named. Repeated "F-words" should be recorded as errors under "# Words Repeated" and words that do not fall into the category should be recorded as errors under "# Word Violations". A singular or plural version of an F-word that has already been said should also be recorded as "# Words Repeated."

For example:

<u>Responses</u>	<u>Points</u>
fat	1
Freddie	0 – word violation (name of a person)
fish	1
ferry	1
fattest	0 – word violation (begins with the same word but different ending)
Florida	0 – word violation (name of a place)
gold fish	0 – word violation (does not begin with "F")
fracture	1
fractures	0 – repetition

If you are unsure whether a word is an acceptable "F-word", give the participant the benefit of the doubt and mark as correct.

7. Procedures for Performing the Measurement at Home

Same as for in-clinic measurement.

8. Alert Values/Follow-up/Reporting

See Cognitive Function Battery Overview Protocol.

9. Quality Assurance

9.1 Training Requirements

The examiner requires no special qualifications or prior experience to perform this assessment. Training should include:

- Read and study manual

- Attend SOF training session on techniques (or observe administration by experienced examiner)
- Practice on volunteers
- Discuss problems and questions with local expert or QC officer

9.2 Certification Requirements

- Complete training requirements
- Conducts exam while being observed by QC officer

9.3 Quality Assurance Checklist

- Subject given correct instructions and demonstration
- Mistakes on sample pointed out and corrected (if any)
- Subject told of 1 minute time limit
- Test scored correctly
 - Number of correct vegetables (or F-words) recorded
 - Number of repeated vegetables (or F-words) recorded
 - Number of words recorded that are not vegetables (or F-words)