

# Cognitive test performance documentation MoBa Brain Health *Memoro Matrix test*

First and second-generation participants aged 16 years and older were invited to participate in the MoBa Brain Health Study November 2022 through February 2023.

The Norwegian Mother, Father and Child Cohort Study  
(MoBa)

Version	Date	Performed by	Description
1.0	09.04.2026	Asta Håberg Tor Ivar Hansen	Original version

## Instrument

### 1. Name of original instrument:

Memoro Matrix test

### 2. Description of original scale or selection of items used

Matrix test of general ability (non-verbal fluid intelligence measure) based previous work by Carpenter et al (1990), Jensen et al., (1988), Lovett et al. (2010) and Bilker et al. (2012).

Scoring is based on the maximal number of successfully completed patterns.

#### Variables:

\*matrix9\_TotalCorrect: number of correct responses

matrix9\_TotalError: Number of erroneous responses

\*Primary variable

Metadata for this test is the automatically generated response object that contains all individual responses and their respective time stamps and data.

Sample metadata for a single response:

```
{"img": "static/matrix/6/alt1.svg", "type": "input", "input": 1, "correct": false, "expected": 7, "timestamp": 1667935543208, "timeOnTask": 439324, "currentTask": 6, "timeIncludingThisTask": 1249865}
```

### 3. Rationale for choosing the instrument:

Well-known measure of non-verbal general abilities.

### 4. Modifications:

Part of first data collection only.

## References

Bilker, W. B., Hansen, J. A., Brensinger, C. M., Richard, J., Gur, R. E., & Gur, R. C. (2012). Development of Abbreviated Nine-Item Forms of the Raven's Standard Progressive Matrices Test. *Assessment, 19*(3), 354–369. <https://doi.org/10.1177/1073191112446655>

Carpenter, P. A., Just, M. A., & Shell, P. (1990). What one intelligence test measures: A theoretical account of the processing in the Raven Progressive Matrices Test. *Psychological Review, 97*(3), 404–431. <https://doi.org/10.1037/0033-295X.97.3.404>

Jensen, A. R., Saccuzzo, D. P., & Larson, G. E. (1988). Equating the Standard and Advanced Forms of the Raven Progressive Matrices. *Educational and Psychological Measurement, 48*(4), 1091–1095. <https://doi.org/10.1177/0013164488484026>

Lovett A, Forbus K, Usher J (2010). A Structure-Mapping Model of Raven's Progressive Matrices. Proceedings of the Annual Meeting of the Cognitive Science Society, 32(32).