

# NESPLORA MEMORY SUITE



## AGE and NORMS

Suite can be applied from 12 to 90 years of age. The normative is representative, the sample has 676 people.

## TIME

The test's length is variable, usually ranging from 20 to 23 minutes, with a second part of long-term memory assessment.

## ADVANTAGES









Virtual reality allows us to increase the ecological validity, decrease evaluator and administration bias and causes real immersion, increasing motivation and decreasing false negatives.

## What is Suite?

Suite is a test for the assessment of memory functions in people over 12 years of age.

Memory functions can be assessed in a virtual environment that provides ecological validity to the assessment and increases cooperation. This means that it is as close as possible to assessing the person in his or her real environment, by subjecting the person to a task in which immediate memory, short- and long-term memory and recognition are tested, which maximises the external and ecological validity of the test.

## Variables evaluated:

-  Learning curve
-  Immediate memory
-  Long-term memory
-  Auditory and visual memory
-  Recognition
-  Prospective memory
-  Primacy and Recency effects
-  Memory problems simulation

1

## RELIABILITY

All the main test variables have an excellent result for McDonald's \*Omega coefficient, yielding a reliability of between 95% and 89%.

2

## VALIDITY

It is concluded that the variables define the constructs well and determine the validity and reliability of the test scales in an excellent way.

3

## SENSITIVITY

Studies with specific populations, neurodegenerative diseases and convergent with other tests are currently underway.



## PSYCHOMETRIC PROPERTIES

Nesplora Suite is the most sensitive, accurate and specific test for the assessment of memory. Although ceiling effects are obtained in some variables in the performance of the subjects, it is considered that the priority of the test is the detection of subjects with some dysfunction in the cognitive domains measured. Therefore, these effects are not relevant.

Overall, it is concluded from the data presented that the variables define the construct well and determine the validity and reliability of the test scales excellently.

### Reliability

Suite has certain special characteristics which, in some respects, bring it close to an “adaptive” type of test, since the time of presentation between stimuli, their frequency, etc. depend on the sequence of responses given by the person. In many respects it could be said that the subject may in fact be responding to a “different” test. This, which considerably improves the ecological validity of the test and its actual effectiveness, makes it difficult, however, to estimate the reliability of all the scales measured, at least in what is traditionally understood as the reliability coefficient of a test. Therefore, it is only possible to estimate the classical reliability for the significant scales, which are between 0.89 and 0.95.

Five age groups have been found to obtain the scales. Differences were found between males and females in the variables analysed between the ages of 13-26 and 45-58. The extraction of these groups and the differences by sex are compatible with previous findings in the literature.

- Rebon, F. (2022). [Justificación estadística de Suite \(Unpublished doctoral thesis\). Universidad de Almería, Almería.](#)

Human memory is a complex cognitive system whose close relationship with executive functions means that, on many occasions, a memory deficit often leads to difficulties in working with correctly stored content. Traditional memory tests, which focus more on the storage of information than on its processing, may be insensitive both to the daily functioning of the subjects and to the changes caused by rehabilitation programmes. In memory assessment, there is abundant evidence for the need to improve memory by means of tests that offer greater ecological validity, with information that can be presented in several sensory modalities and that occurs simultaneously, as in real life, with the gradual and controlled presence of distracters. Virtual reality reproduces three-dimensional environments with which the patient interacts dynamically, with a sense of immersion in the environment similar to the presence and exposure to a real environment, and in which the presentation of these stimuli, distractors and other variables can be systematically controlled. This review aims to explore the trajectory of neuropsychological memory assessment based on virtual reality environments, and reviews existing tests for the assessment of learning, prospective, episodic and spatial memory, as well as more recent attempts at a comprehensive assessment of all memory components.

- Diaz-Orueta U, Climent G, Cardas-Ibanez J, Alonso L, Olmo-Osa J, Tirapu-Ustarroz J. [Evaluacion de la memoria mediante realidad virtual: presente y futuro \[Memory assessment by means of virtual reality: its present and future\]. Rev Neurol. 2016 Jan 16;62\(2\):75-84. Spanish. PMID: 26758354.](#)

## Standards and regulation

All of the Nesplora System tests comply with the essential requirements according to the Council Directive 93/42/EEC, its amendments according to Directive 2007/47/EC and with the essential requirements of the EN ISO 13485 management systems regulation of quality for sanitary products. These certifications allow you to use our tests and certify their value in any clinical, forensic or research process.

### CE marking



### Medical device certificate



### European Seal of Excellence



### Web de interés sanitario



“One of the most recent developments in relation to neuropsychological testing of visual memory using Virtual Reality is Nesplora Suite. The virtual environment is a furniture store, in which the test taker must group different furniture items according to certain conditions so that they are packed and shipped. A voiceover indicates the furniture that you must pack, and the respondent has to point and click on them. They warn us that there are different groups (categories) of people and each one wants lists of between four and six different types of furniture. In the second task, labelled as source memory task, the user is then shown eight different pieces of furniture or groups of pieces of furniture (e.g., two beds) that have been requested during the previous task, and must decide which group or family have requested them. Only pieces of furniture requested by one single family are presented, and in many cases, they are distinctive elements (e.g., who has asked for two beds? Who has asked for one desk?, etc.). The test reportedly provides measures of the learning curve, immediate and long-term memory, both auditory and visual memory, recognition, prospective memory, primacy and recency effects, and simulation of memory problems.”

Diaz-Orueta U, Rogers BM, Blanco-Campal A and Burke T (2022) [The challenge of neuropsychological assessment of visual/visuospatial memory: A critical, historical review, and lessons for the present and future. Front. Psychol. 13:962025. doi: 10.3389/fpsyg.2022.962025](#)