

NESPLORA EXECUTIVE FUNCTIONS

ICE CREAM



What is Ice Cream?

Ice Cream is a test for the assessment of executive functions in people over 8 years of age.

Executive functions can be assessed in a virtual environment with elements from everyday life that provide ecological validity to the assessment and increase cooperation. This means that it is as close as possible to assessing the person in their real environment, subjecting them to a task in which planning, cognitive flexibility and memory are tested, which maximises the external and ecological validity of the test.

Variables evaluated:



Planning

This index records the ability to use strategies to solve problems, sequence, abstract, decompose a global problem into partial ones, and solve problems appropriate to the achievement of a goal. It is the ability to carry out mental rehearsals of possible solutions and their consequences before trying them to solve a problem.



Working memory

The ability to record, encode, maintain and manipulate information.



Processing speed

The speed at which information is grasped, understood and begun to be responded to.



Cognitive flexibility

Our brain's ability to adapt our behaviour and thinking to new, changing or unexpected situations.

AGE and NORMS

Ice cream can be applied from 8 to 80 years of age. The normative is representative, the sample has 1240 people.

TIME

The test's length is variable, usually ranging from 24 to 32 minutes.

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.

1

RELIABILITY

All the main test variables have an excellent result for McDonald's *Omega coefficient, yielding a reliability of between 97% and 85%.

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 are currently being conducted with ASD populations, diseases neurodegenerative diseases and convergent with IQ



PSYCHOMETRIC PROPERTIES

Ice Cream is the most sensitive, accurate and specific test for the assessment of EEFF without ceiling or floor effect, with high predictive value and reliability.

Reliability

Ice Cream presents certain special characteristics which, in some respects, bring it closer 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 of significant scales, which are between 0.85 and 0.97.

The assessment of executive functions is a central aspect of neuropsychological assessment. For a reliable assessment, the traditional strategy followed for the assessment of executive functions has been their atomisation into different cognitive sub-processes. However, in clinical practice, it is often artificial to break down a global and complex cognitive process such as this into an infinite number of related subcomponents. Thus, tests designed according to this paradigm are often of little value for clinical procedures (diagnosis, rehabilitation design) due to their poor correspondence with the clinical reality of the subject or patient. The aims of this paper are to review the concept of ecological validity applied to the assessment of executive functions and to critically review the assessment of executive functions using multitasking paradigms as a means of increasing ecological validity and predictive value of the subject's functional performance.

- Bombín-González I, Cifuentes-Rodríguez A, Climent G, Luna-Lario P, Cardas-Ibáñez J, Tirapu-Ustárroz J, Díaz-Orueta U. Validez ecológica y entornos multitarea en la evaluación de las funciones ejecutivas. *Rev Neurol* 2014;59 (02):77-87. 10.33588/rn.5902.2013578

Executive functions encompass a broad set of self-regulatory functions that enable the control, organisation and coordination of other cognitive functions, emotional responses and behaviours. The traditional approach to assessing these functions, typically through neuropsychological pencil-and-paper tests, may show some patients performing better than expected or within normal limits, yet observe difficulties in everyday life. These discrepancies suggest that classical neuropsychological tests may not adequately reproduce the complexity and dynamic nature of real-life situations. Recent developments in the field of virtual reality offer interesting options in the neuropsychological assessment of many cognitive processes. Virtual reality reproduces three-dimensional environments with which the patient interacts dynamically, with a sense of immersion in the environment similar to

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



the presence and exposure to a real environment. In addition, the presentation of these stimuli, as well as distractors or other variables, can be systematically controlled. In addition, more consistent and accurate responses can be obtained, and allow for detailed analysis of these responses. This review shows the current problems of neuropsychological assessment of executive functions and the latest advances in achieving greater accuracy and validity in the assessment through innovative technologies and virtual reality, with special mention of some developments carried out in Spain.

- Climent G, Luna-Lario P, Bombín-González I, Cifuentes-Rodríguez A, Tirapu-Ustárroz J, Díaz-Orueta U. Evaluación neuropsicológica de las funciones ejecutivas mediante realidad virtual. *Rev Neurol* 2014;58 (10): 465-475. 10.33588/rn.5810.2013487

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<https://nesplora.com/ice-cream-referencias-y-estudios-proprios/>