

# EUROTEST: European Screening Dementia Test\*

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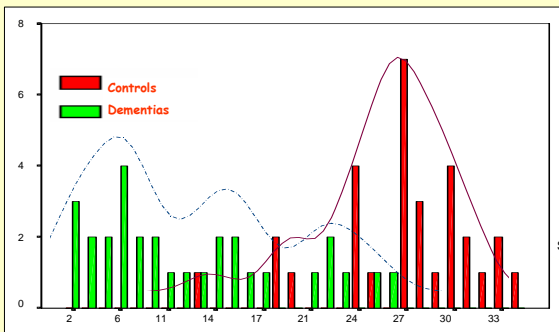
## Introduction and Objectives

To evaluate the Eurotest, a test for detection of dementia based on the knowledge and handling of currency coins of legal course (euros) that can be applied without changes in all European Community (EC)

## Results

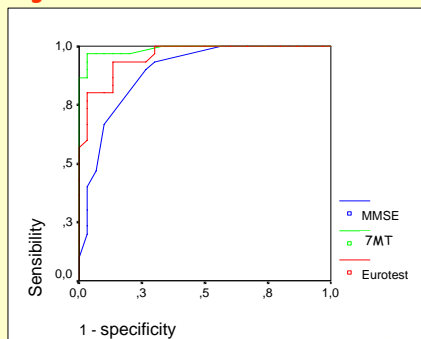
The groups do not differ in age, sex, educative level, degree of alphabetization, handling and knowledge of currency coins. The EUROTEST has a Sensitivity of 0.93 (0.76-0.99) and Specificity of 0.87(0.68-0.96), similar to the one of MMSE and 7MT. The time to run the EUROTEST (6.77±1.65 minutes) is lower than to apply the 7MT (8.87±1.81 minutes) and is not modified by the clinical status of the subject.

Figure 1. - Bar chart of the results



There are no significant differences in the area under the ROC curve in the three tests (Figure 2). The results of the EUROTEST are not influenced by age, sex, educative level or alphabetization level (Table III). The results of the three tests are highly correlated with each other (Table IV).

Figure 2.- Area under the ROC curve



Tests	ABC	e.e	IC 95%
Eurotest	0.96	0.02	0.91 - 1.00
7MT	0.98	0.01	0.96 - 1.00
MMSE	0.89	0.04	0.81 - 0.97

## Subjects and Methods

Cross-sectional study with sampling by convenience (n=60). Subjects: > 65 years old without sensory deficits; cases: patients with mild dementia; controls: volunteers without dementia. Methods: Evaluation of sociodemographic variables and Mini-Mental (MMSE), Seven Minutes test (7Mt) and the EUROTEST. Statistical study: comparison with "+" test and "Chi square" of quantitative and categorical variables, respectively; determination of parameters of diagnostic utility with their respective 95% Confidence Intervals; linear regression study with "step to step" strategy.

Table I.- Results for cases and controls

	Dementia	Control	
Number	30	30	
Age (in years)	73.97±5.81	73.80±6.38	n.s.
Sex			
Male	11	13	n.s.
Female	19	17	
GDS			
GDS 1	-	10	
GDS 2	-	20	
GDS 3	11	-	
GDS 4	19	-	
EUROTEST			
Results	11.40±7.45	26.93±4.67	p=0.001
Time (minutes)	6.97±1.65	6.77±1.65	n.s.
7MT			
Results	11.00±12.26	55.87±10.89	p=0.001
Time (minutes)	14.07±2.55*	8.87±1.81	p=0.001
MMSE	21.17±3.50	26.03±2.70	p=0.001

Table II.- Recommended cut points

Tests	Cut point Ref.	S	E	ED (%)
Eurotest	≤ 23@*	0.93 (0.76-0.99)	0.87 (0.68-0.96)	6 (10)
7MT	≤ 20# [59]8	0.87 (0.68-0.96)	1 (0.86-1)	4 (6.7)
MMSE	≤ 24** [26]4	0.67 (0.47-0.82)	0.90 (0.72-0.97)	13 (21.7)

Table III.- Models of regression (β coefficients)

	R <sup>2</sup>	Cte.	Dx	Age	Sex	Scholarship	Ed.Lev.	Alphab.	Use	Handling
Eurotest	0.77	20.18 (1.46)	-13.93 (1.30)						4.75 (1.57)	4.91 (1.43)
7MT	0.82	86.35 (18.22)	-42.89 (2.97)		-0.46 (0.25)	8.28 (3.34)				
MMSE	0.50	24.77 (0.63)	-4.18 (0.76)				2.93 (0.82)			

Table IV.- Correlations

	Eurotest	7MT	MMSE
Eurotest	1	0.76*	0.63*
7MT	-	1	0.72*
MMSE	-	-	1

## Conclusion

The EUROTEST is an easy, brief and useful test to detect dementia that is noninfluenceable by the educative level. In addition, it can be used without changes in all the countries of the EC, which supposes a great advantage with respect to other instruments of generalized use.

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