

A cognitive test suite for Android-driven mobile devices

including 10 tests of memory,
visuomotor functioning, visuospatial
functioning, attention, and complex
coordination

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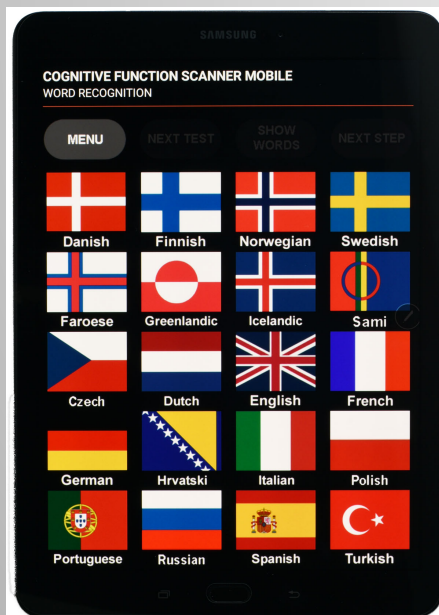
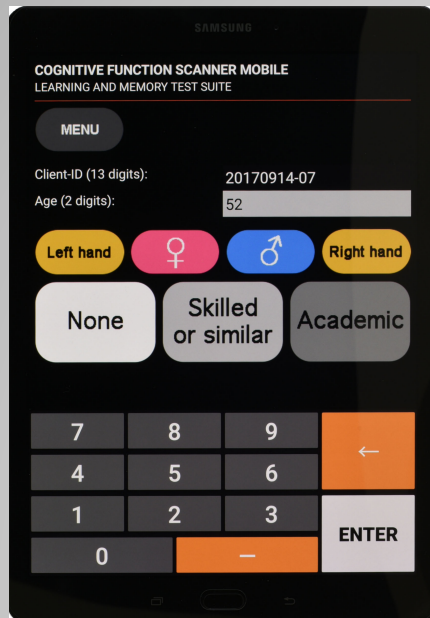
ITC Colloquium
9th-12th July 2021

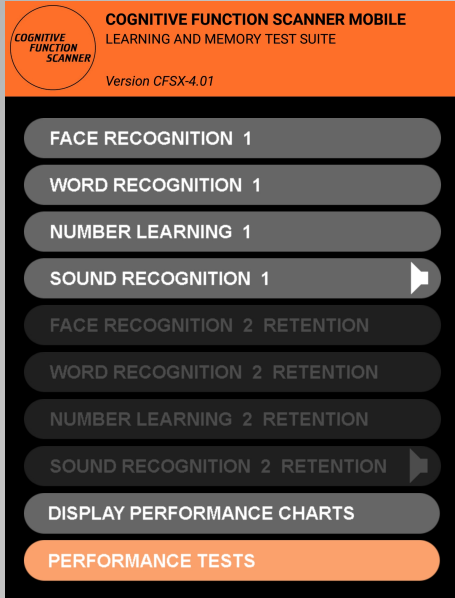
The Cognitive Function Scanner Mobile Test Suite

covers the four neurocognitive domains:

- 1) complex attention,
- 2) executive functions,
- 3) learning and memory, and
- 4) perceptual-motor function

The test suite comes with comprehensive menus and built-in 20 languages.





Learning and memory tests

(working memory, learning and retention)

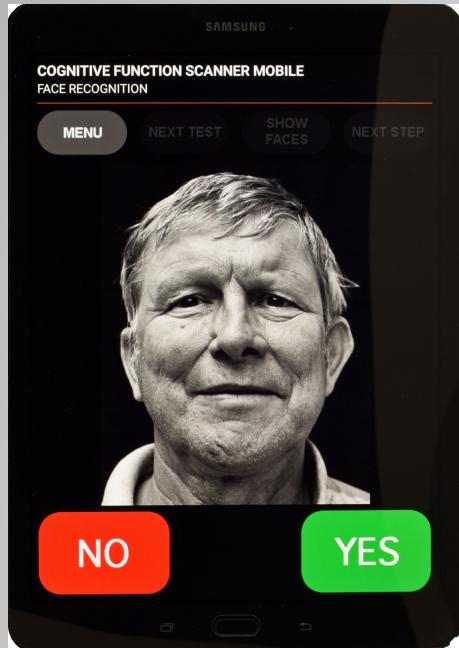
- Face Recognition Test
- Word Recognition Test
- Sound Recognition Test
- Number Learning Test

All tests include an immediate section and a section of delayed recall.

The Number Learning test includes a selective reminding process.

Possibility to check performance against norms after each test section.

At the menu bottom a button leads to the performance tests.



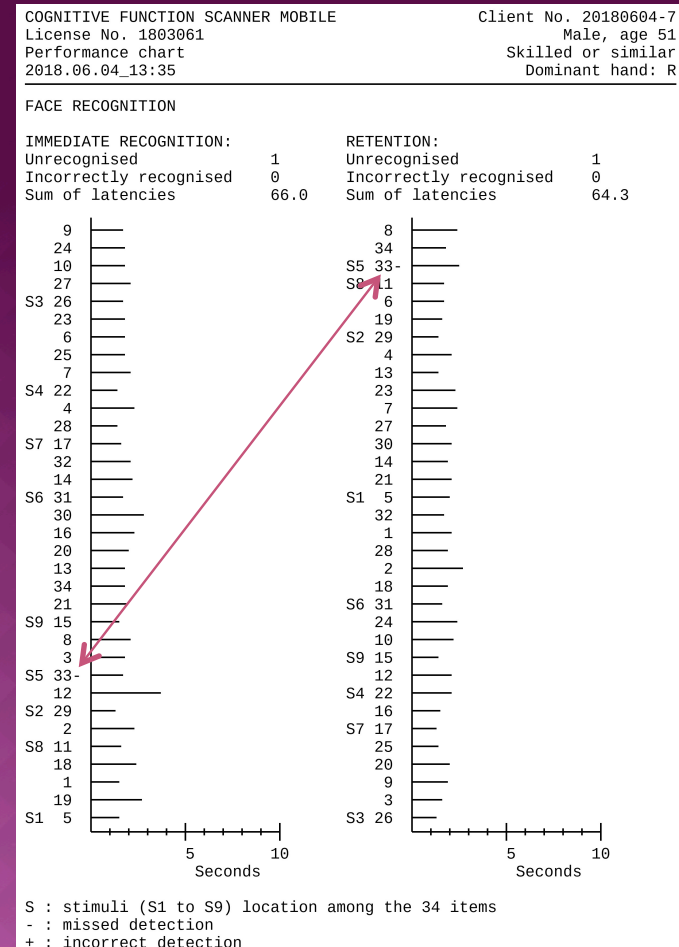
B&W all-male photos. The coloured YES- and NO-buttons have convenient size.

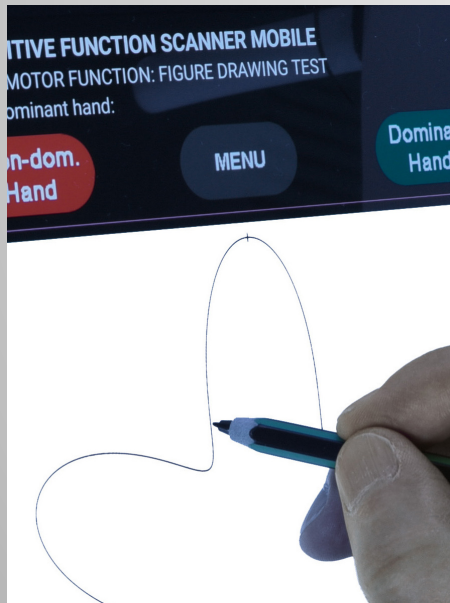
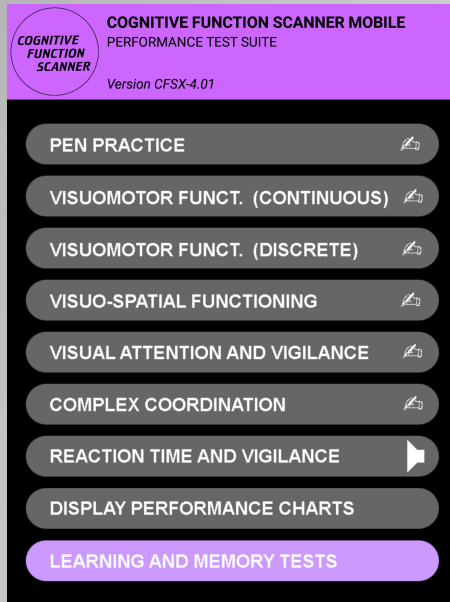
Built-in stopwatch starts automatically when the first photo is displayed and stops when the last response is given.

Test screen and response process chart

Face Recognition Test

The 34 stimulus items of the Face Recognition Test are randomly mixed at the beginning of a test section. At start the 9 photos to be recognised are drawn at random among the pool of photos and positioned at random in the set.





Performance tests

(perceptual-motor function, executive function, complex attention)

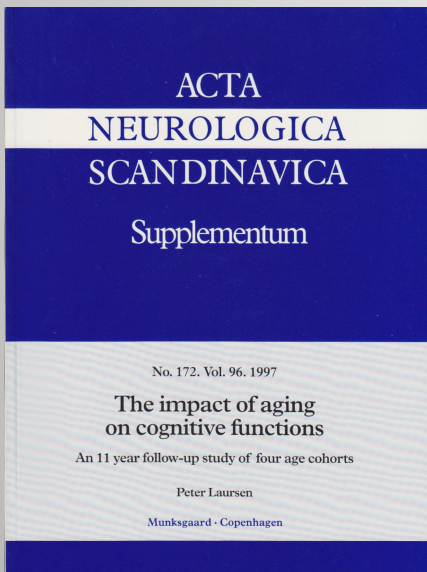
- Figure Drawing Test (visuomotor, dom. / non-dom. hand)
- Pen-to-Point Test do.
- Parallelogram Test* (visuospatial function)
- Bourdon-Wiersma Test* (visual attention, vigilance)
- Continuous Graphics Test* (complex coordination)
- Continuous Reaction-Time Test (auditory attention, vigilance)

Possibility to check performance against norms after each section.

At the bottom of the menu a button leads to the learning and memory tests.

All performance tests except the Continuous Reaction-Time Test are pencil tests (digital pencil, tip-width 0.7 mm).

* Special version



Norms

The Cognitive Function Scanner (PC-version) has been used in two large public health studies of random samples of the general population in Denmark (1982-83 and 1993-94).

Norms covering the 45 psychometric test parameters across the age span 25 to 75 years are established and built into the Test Suite.

The norms are the 50-percentiles and the 90-percentiles separate for 30 groups (5 levels of age, 2 categories of sex, and 3 levels of education).

The Test Suite automatically looks up the relevant table and generates a chart like the one on the next slide.

All performance charts are designed to be stored digitally as standard jpg-files or be printed on paper.

Psychometric comparison chart

Performance tests

Age-, sex-, and education-standardized 50- and 90-percentiles of random samples of the general Danish population are printed in columns 2 and 4. Client scores are printed in columns 1, 3 or 5 depending on value.

COGNITIVE FUNCTION SCANNER MOBILE License No. 1808131
 Psychometric comparison table (ref. values congregated via PC-version) 2020.04.19_11:59 Client No. 20200604-7 Male, age 53 Skilled or similar dominant hand: R

	Client better than 50 percentil.	Reference group 50 percentil.	Client between 50-90 percentil.	Reference group 90 percentil.	Client poorer than 90 percentil.
VISUOMOTOR FUNCTIONING:					
Figure Drawing, dominant hand, time sec.		37.9	41.9	51.4	
- , deviation mm		0.7		0.9	1.0
- , pen lifts	0	0		1	
- , non-dominant hand, time sec.	32.2	36.8		49.7	
- , deviation mm	0.7	0.8		1.2	
- , pen lifts		0	1	2	
Pen-to-Point, dominant hand, time sec.		30.0	32.9	47.8	
- , deviation mm		0.4		0.6	0.8
- , non-dominant hand, time sec.		29.5		45.5	50.9
- , deviation mm	0.4	0.7		0.9	
VISUOSPATIAL FUNCTIONING:					
Parallelograms, time sec.	30.5	78.4		160.4	
- , errors	1	2		4	
VISUAL PERCEPTION AND VIGILANCE:					
Bourdon-Wiersma, total time sec.	435.6	494.4		620.0	
- , median time/line sec.	12.3	13.9		17.4	
- , fluctuation, sec./line	2.4	3.7		6.1	
- , number of missed detections	2	13		34	
- , number of incorrect detections		0	1	2	
COMPLEX COORDINATION:					
Continuous Graphics, Pattern 1, time sec.	63.1	103.5		143.4	
- , Pattern 1, errors	0	0		2	
- , Pattern 2, time sec.	59.0	83.1		116.8	
- , Pattern 2, errors	0	0		1	
- , Pattern 3, time sec.	66.1	90.6		125.2	
- , Pattern 3, errors		0	1	2	
REACTION-TIME:					
Median, msec.	155	168		208	
Fluctuation, msec.	50	65		122	

Design and security

The Cognitive Function Scanner Mobile Test Suite is a computerised test battery for standard tablet computers*

- Covers four neurocognitive domains
 - All-in-one (tests, response media, and norms)
 - Game-like tests stimulating motivation and collaboration
 - Compliance with today's clinicians' and clients' expectations to instruments in clinical settings
 - Uniform test administration
 - Test outcomes stored in printable standard format files
-
- Independent of Internet and external databases
 - The psychologist has the sole and full ownership of all test data obtained via his or her use of the Cognitive Function Scanner Mobile Test Suite

* Certain Android-driven models featuring pen input

Future

Inquiries are welcome. The developers* are looking for a well-reputed institution for future collaboration and marketing.

Please contact:

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* Member of the team since its beginning in 1982, Thomas Sams PhD, passed away on 4 May 2020.