ONLINE ONLY Table A: ANAM™ Pediatric Battery (Ped-ANAM)

Ped-ANAM Subtest	Cognitive Domain or Function	Subtest Description
1. Simple Reaction Time	Basic visuomotor response speed	20-item measure of reaction time. The test presents a simple stimulus on the screen "*" and the participant is required to press the left mouse key as quickly as possible following the presentation of the stimulus. This test is repeated at the end of the battery to assess both within-session reliability and the effect of fatigue on SRT performance.
2. Procedural Reaction Time	Mental Processing Speed	20-item measure of choice reaction time. The test presents a stimulus on the screen, a 2, 3, 4, or 5. The participant is required to press the blue (left) mouse key if a 2 or 3 is presented or the red (right) mouse key if a 4 or 5 is displayed.
3. Code Substitution & Code Substitution Delayed	Associative Learning, Processing Speed, Delayed Memory	The learning portion of this test assesses attention, concentration, and learning. In this test, a key containing a string of 9 symbols and 9 digits is displayed across the upper portion of the screen. Symbols and numbers are paired with a unique number located below a specific symbol. During the task, a "test" pair (i.e., a symbol and digit) is presented at the bottom of the screen, below the key containing the correct symbol number pairs. The objective is to indicate if the "test" pair matches the associated pair in the key at the top of the screen. The subject is instructed to try to remember the symbol-number pairs as they will be asked to recall them later. The delayed recall portion of this test is an explicit recognition memory task administered later in the test battery. For this subtest, the subject is presented only with a "test" pair and asked to remember whether the this symbol/number pairing is correct based on the earlier presented key.
4. Logical Relations	Reading speed and verbal reasoning	Short sentences are presented on the screen and the subject must decide if sentences are logical (i.e., do they make sense or not). Responses consist of pressing the blue (left) button if the sentence makes sense and the red (right) button if the sentence does not.
5. Spatial Processing	Mental rotation and Spatial Processing	The subject is asked to examine two bar graphs, one presented upright and one rotated 90 degrees and decide if the two bar graphs are the same are different.
6. ***Continuous Performance Test***	Sustained attention and Working Memory	Participants are asked to monitor a randomized sequence of numbers, 1 through 9. The numbers are presented one at a time in the center of the screen. Participants are asked to press a response button indicating whether or not the number presented on the screen matches the number that immediately preceded it. The subject is instructed to press the blue (left) mouse button if the number matches the previous stimuli or the red (right) button if the number does not match the previous stimuli.

Ped-ANAM Subtest	Abbreviation	Subtest Description
7. Mathematical Processing	Working Memory	Mathematical processing is a test of arithmetic, attention and processing speed. The subject is required to decide if a math problem presented on the screen is correct or incorrect. Each problem includes one mathematical operation (addition or subtraction) on single-digit numbers. The subject is instructed to indicate if the problem is correct by pressing the blue (left) button or if the problem is incorrect by pressing the red (right) button.
8. Matching Grids	Visuo-spatial discrimination	Two 4x4 grids are displayed side by side on the screen. The subject must then decide if the grids are exactly the same or different. The subject presses the blue (left) button if the grids are the same and the red (right) button if the grids are different.
9. Matching To Sample	Short term memory, attention, and visuo-spatial discrimination	The subject is presented with a single design to study and remember. The design then disappears and the screen goes blank. Following a brief delay, two more designs appear on the screen. The subject must then decide which of the two designs matches the original. The subject presses the blue (left) button if the left comparison grid matched the original and the red (right) button if the right comparison grid matches the sample grid.
10. Sternberg Memory Search	Sustained attention and working memory	Participants are presented with a set of 6 letters called the memory set (“secret code” in the pediatric version). They are allowed as long as they need to memorize the letters. Upon beginning the test, the code is removed from the screen and single letters begin appearing one at a time on the screen. The subject must then decide if the letter on the screen was contained in the “secret code.” The subject is instructed to press the blue (left) mouse button if the letter matches any of the letters in the “secret code” or the red (right) button if the letter does not match the code.

ONLINE ONLY **Table B: Demographics of study participants***

Variable n (% of N)	Category	cSLE (N=40)	Controls (N=40)	p-value
Age at enrollment in years (mean ± SD)		14.8 ± 2.3	13.9 ± 3.2	***0.03***
Ethnicity				
	White	12 (30%)	13 (32.5%)	0.98
	Black	18 (45%)	19 (47.5%)	
	Hispanic	7 (17.5%)	6 (15%)	
	Asian and other	3 (7.5%)	2 (5%)	
Maternal education level				
	No High School Diploma	3 (7.5%)	4 (10%)	0.7
	Completed High School Diploma	12 (30%)	15 (37.5%)	
	Education Beyond High School	25 (62.5%)	21 (52.5%)	
Family Income				
	< $25,000	20.0%	15.8%	0.81
	$26-$50,000	35.0%	34.2%	
	$51-$75,000	20.0%	28.9%	
	>$75,000	25.0%	21.1%	
Formal neuropsychological testing ¥				
	Normal cognition/ no NCD (total = 49)	25 (62.5%)	24 (60%)	0.36
	Mild to moderate NCD (total = 24)	10 (25%)	14 (35%)	
	Severe NCD (total = 7)	5 (12.5%)	2 (5%)	
History of neuropsychiatric SLE*		15 (37.5%)	-	
cSLE duration in months (mean ± SD)		23.7 ± 23.1	-	
Physician assessment of disease activity (mean ± SD)†		2.4 ± 2.0	-	
Disease activity (mean ± SD)				
	SLEDAI-2k score (mean ± SD)‡	4.9 ± 4.4	-	
	BILAG score (mean ± SD) §	3.0 ± 3.8	-	
Disease damage (SDI) (mean ± SD) ‖		0.4 ± 0.8	-	
Prednisone daily dose in mg (n=31; mean ± SD)		19.8 ± 17.4	-	

* Except where indicated otherwise, values are n and percentages of N; cSLE = childhood-onset systemic lupus erythematosus.

¥ Neurocognitive dysfunction (NCD) categories are defined as follows based on z-scores of the standardized tests completed for the formal neuropsychological testing: normal cognition/ no NCD as all four domains (attention/executive function; processing speed; visuoconstructional memory; working memory). Normal if all z scores $\geq$ -1; mild to moderate NCD if at least 1 domain z-score < -1 but at most two domain z-scores < -1 or at most one domain z-score $\leq$ -2; and severe NCD if more than one domain z-score < -2 or more than two domain z-scores < -1 or worse.

† Measured on categorical Likert scale with 0 = inactive cSLE; 10 = very active cSLE.

‡ Systemic Lupus Disease Activity Index; range 0 – 104; 0 = inactive cSLE.

§ British Isles Lupus Activity Group Index; A=9; B= 3; C= 1; D or E= 0; lower scores indicate lower cSLE activity.

|| Systemic Lupus Collaborating Clinics/American College of Rheumatology damage index.

** As defined by BILAG A-D score