

Multimedia Appendix 1

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Table S1. Inclusion and exclusion criteria of the DigiToms study.

	Inclusion criteria	Exclusion criteria
People with MS	<ul style="list-style-type: none"> • Aged 18-64 years • Diagnosis of MS according to 2017 revised McDonald criteria • EDSS score ≤ 6.0 	<ul style="list-style-type: none"> • Severe ongoing psychiatric condition, including depression • Change of DMT or psychotropic treatment in the last month • Clinically significant addiction • Recent acute relapse or disability worsening (<1 month) • Steroid course in the previous month • Neuropsychological testing in the previous year
Healthy participants	<ul style="list-style-type: none"> • Recruited from a center-owned database • Participants were considered healthy if they were not suffering from injuries that could affect walking and turning, or fine motor function • Aged 18-64 • Matched to MS patient sample for age, gender, and level of education 	<ul style="list-style-type: none"> • Severe ongoing psychiatric condition, including depression • Any clinically significant neurological disorder • Any psychotropic therapy consumption • Clinically significant addiction • Previous participation in other cognitive study using the same tests • Developmental learning disabilities

DMT disease-modifying therapy. *EDSS* Expanded Disability Status Scale. *MS* multiple sclerosis.

Table S2. Study participants' baseline characteristics.

Characteristic	People with MS (n=85)	Healthy Participants (n=68)	P value
Age (year), median (min, max)	44.0 (20.0, 62.0)	40.5 (20.0, 62.0)	.3018 ^a
Gender , n (%)			
Female	70 (82.4)	57 (83.8)	.8098 ^b
Male	15 (17.6)	11 (16.2)	
Body mass index (kg/m²) , median (min, max)	23.7 (16.6, 44.6)	23.5 (16.8, 36.5)	.9269 ^a
MS type , N (%)			
PPMS/PRMS/SPMS	4 (4.7)	NA	NA
RRMS	81 (95.3)	NA	NA
Disease duration (year), median (min, max)	8 (0,37)	NA	NA
Number of relapses last 12 months, median (min, max)	0.0 (0.0, 5.0)	NA	NA
Education Level , ^f N (%)			
ISCED <3	14 (16.5)	9 (13.2)	.9374 ^b
ISCED 3	16 (18.8)	12 (17.6)	
ISCED 4-6	38 (44.7)	32 (47.1)	
ISCED >6	17 (20.0)	15 (22.1)	
Job status , N (%)			
Unemployed	18 (21.2)	6 (8.8)	.0057 ^b
Part-time job	22 (25.9)	9 (13.2)	
Full-time job	45 (52.9)	53 (77.9)	
Dominant hand , N (%)			
Left	9 (10.6)	5 (7.4)	.4904 ^b
Right	76 (89.4)	63 (92.6)	
Ambidextrous	0 (0.0)	0 (0.0)	
EDSS , median (min, max)	2.0 (0.0, 4.5)	NA	NA
9HPT dominant hand (seconds), ^d mean (SD)	21.4 (6.7)	18.0 (2.0)	<.0001 ^a

9HPT nondominant Hand (seconds), ^d mean (SD)	22.2 (4.4)	18.6 (2.0)	<.0001 ^a
T25FW (seconds), ^e mean (SD)	4.5 (0.8)	4.0 (0.5)	<.0001 ^a
Daily Walk test (meters), mean (SD)	495.0 (102.3)	556.1(77.7)	.0002 ^a
SDMT (number of correct responses), ^c median (min, max)	58 (29, 85)	65 (41, 85)	.0002 ^a
BVMT ^c , median (Q1, Q3)	31 (6, 36)	32 (10, 36)	.1155 ^a
FVLT ^c , median (Q1, Q3)	68 (34, 77)	67.5 (38, 77)	.6445 ^a

^aWilcoxon test.

^bChi-square test.

^cPerformed either at V1 or V2, depending on randomization.

^dAverage time to complete the test from both attempts.

^eAverage time to complete the test from both attempts (seconds).

^fISCED <3: No baccaulaureate = did not complete upper secondary education, ISCED 3: Baccaulaureate = completed upper secondary education, ISCED 4-6: Secondary education short (≥ Baccaulaureate +2) = post-secondary tertiary education < master level, ISCED >6: Secondary education long (≥ Baccaulaureate +5) = master level and above.

BVMT Brief Visuospatial Memory Test. *EDSS* Expanded Disability Status Scale. *FVLT* French Verbal Learning Test. *ISCED* International Standard Classification of Education. *MS* multiple sclerosis. *PPMS* primary progressive multiple sclerosis. *PRMS* progressive relapsing multiple sclerosis. *RRMS* relapsing-remitting multiple sclerosis. *SPMS* secondary-progressive multiple sclerosis. *SDMT* Symbol Digit Modalities Test.

Table S3. DMT treatment allocation.

DMT	Number of patients
Natalizumab	58
Ocrelizumab	15
Other DMTs ^a	12

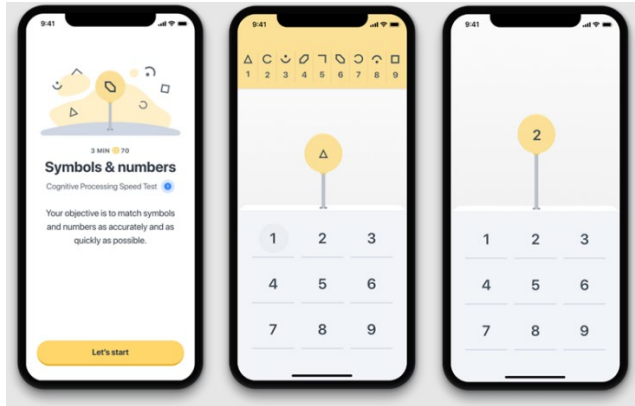
Excludes patients who were lost to follow-up (three people with MS).

^aIncluded teriflunomide, dimethyl fumarate, fingolimod, glatiramer acetate, azathioprine, methotrexate, cyclophosphamide.

DMT disease-modifying therapy.

Figure S1. Konectom™ app tests for cognitive and manual dexterity function.

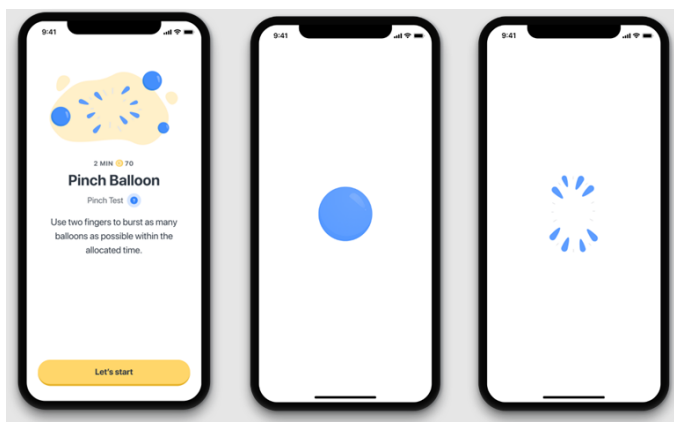
A



B



C

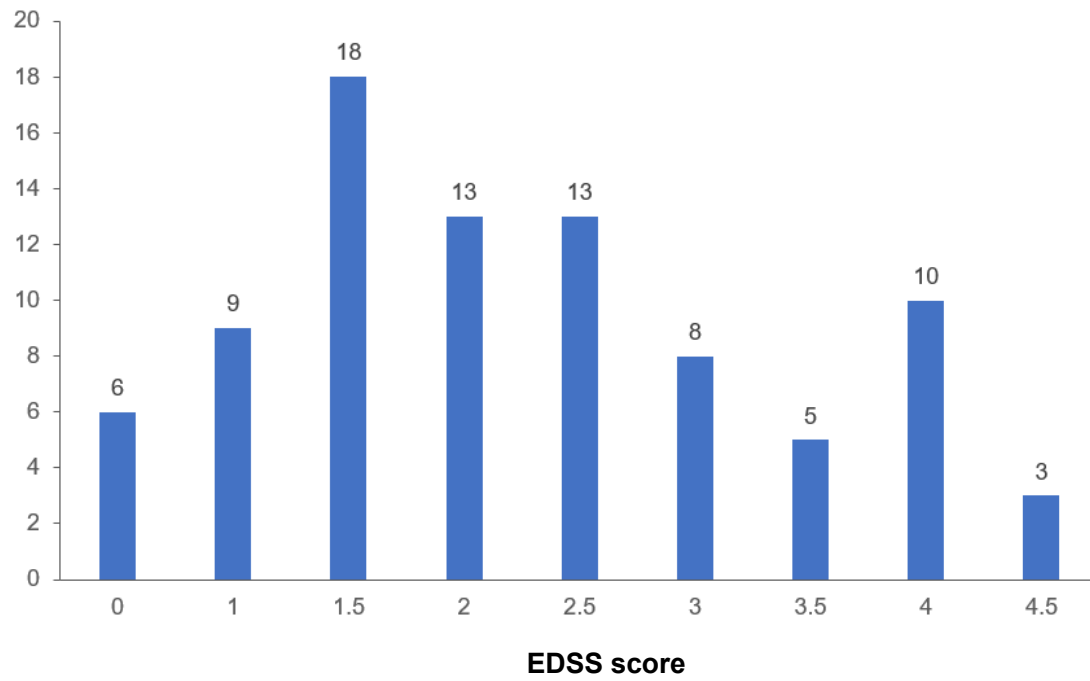


Konectom™ app interface: **(A)** Cognitive Processing Speed test; **(B)** Drawing test; **(C)** Pinching test.

Figure S2. Summary schedule of Konectom™ app tests for cognition, dexterity, and gait and posture.

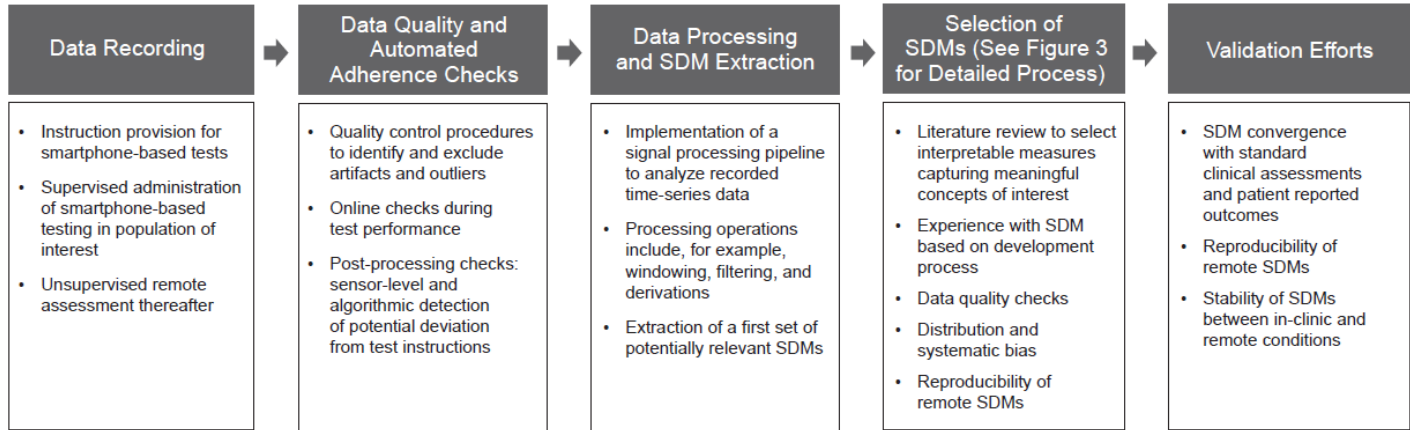
<i>Test Type</i>	<i>Test name</i>	
Experience Sampling		Mood scale
		MSIS-29 Multiple Sclerosis Impact Scale
Cognition		Symbols & Numbers Cognitive Processing Speed
Fine Motor		Pinch Balloons Pinching Test
		Draw a Shape Drawing Test
Gait & Posture		Balance & U-turn Static Balance & U-Turn Test
		Daily Walk 6 Minute Walk Test

Figure S3. EDSS distribution.



EDSS Expanded Disability Status Scale.

Figure S4. Process for selection and analysis of sensor-derived measures.



SDM sensor-derived measures.