

Supplementary Material

Enhancing the Sensitivity of Memory Tests: Reference Data for the Free and Cued Selective Reminding Test and the Logical Memory Task from Cognitively Healthy Subjects with Normal Alzheimer’s Disease Cerebrospinal Fluid Biomarker Levels

Supplementary Table 1. FCSRT TFR. Age range 50-70 years

Percentile	Males				Females			
	Elementary	Secondary	Graduate	Post-graduate	Elementary	Secondary	Graduate	Post-graduate
1	13.98	15.3	16.61	17.92	15.32	16.64	17.95	19.26
2	15.32	16.63	17.95	19.26	16.66	17.97	19.29	20.6
5	17.32	18.63	19.95	21.26	18.66	19.98	21.29	22.6
10	19.1	20.41	21.73	23.04	20.44	21.75	23.07	24.38
15	20.3	21.61	22.93	24.24	21.64	22.95	24.27	25.58
20	21.26	22.57	23.88	25.2	22.6	23.91	25.22	26.54
30	22.81	24.12	25.44	26.75	24.15	25.46	26.78	28.09
40	24.14	25.45	26.76	28.08	25.48	26.79	28.1	29.42
50	25.38	26.69	28	29.32	26.72	28.03	29.34	30.66
60	26.62	27.93	29.24	30.56	27.96	29.27	30.58	31.9
70	27.94	29.26	30.57	31.89	29.29	30.6	31.91	33.23
80	29.5	30.81	32.13	33.44	30.84	32.15	33.47	34.78
90	31.65	32.97	34.28	35.59	32.99	34.31	35.62	36.93
95	33.43	34.75	36.06	37.37	34.77	36.09	37.4	38.71
98	35.43	36.75	38.06	39.37	36.77	38.09	39.4	40.72

Formula used: $(\text{Raw score} - [25.377 + \text{Schooling} \cdot 1.313 + \text{Sex} \cdot 1.34]) / 4.897$. Schooling entered as: Elementary=0; Secondary=1; Graduate=2; Postgraduate=3; Sex entered as: Male=0; Female=1.

Supplementary Table 2. FCSRT TR. Age range 50-70 years

Percentile	Males				Females			
	Elementary	Secondary	Graduate	Post-graduate	Elementary	Secondary	Graduate	Post-graduate
1	36.13	35.84	36.45	37.06	36.01	36.62	37.23	37.84
2	36.13	36.74	37.35	37.96	36.9	37.51	38.12	38.73
5	37.47	38.08	38.69	39.3	38.25	38.86	39.47	40.08
10	38.66	39.27	39.88	40.49	39.44	40.05	40.66	41.27
15	39.47	40.08	40.69	41.3	40.25	40.86	41.47	42.08
20	40.11	40.72	41.33	41.94	40.89	41.5	42.11	42.72
30	41.15	41.76	42.37	42.98	41.93	42.54	43.15	43.76
40	42.04	42.65	43.26	43.87	42.82	43.43	44.04	44.65
50	42.88	43.49	44.1	44.71	43.65	44.26	44.87	45.49
60	43.71	44.32	44.93	45.54	44.49	45.1	45.71	46.32
70	44.6	45.21	45.82	46.43	45.38	45.99	46.6	47.21
80	45.64	46.25	46.86	47.47	46.42	47.03	47.64	48.25
90	47.09	47.7	48.31	48.92	47.87	48.84	48	-
95	48.28	48.89	-	-	48	-	-	-
98	-	-	-	-	-	-	-	-

Formula used: $(\text{Raw score} - [42.876 + \text{Schooling} \cdot 0.61 + \text{Sex} \cdot 0.779]) / 3.287$. Schooling entered as: Elementary=0; Secondary=1; Graduate=2; Postgraduate=3; Sex entered as: Male=0; Female=1.

Supplementary Table 3. FCSRT TDFR. Age range 50-59 years

Percentile	Males				Females			
	Elementary	Secondary	Graduate	Post-graduate	Elementary	Secondary	Graduate	Post-graduate
1	5.65-6.12	6.11-6.59	6.58-7.05	7.04-7.52	6.26-6.74	6.72-7.2	7.19-7.66	7.65-8.13
2	6.2-6.68	6.67-7.14	7.13-7.61	7.6-8.07	6.82-7.29	7.28-7.76	7.74-8.22	8.21-8.69
5	7.04-7.51	7.5-7.98	7.97-8.44	8.43-8.91	7.65-8.13	8.11-8.59	8.58-9.06	9.04-9.52
10	7.78-8.25	8.24-8.72	8.71-9.18	9.17-9.65	8.39-8.87	8.86-9.33	9.32-9.8	9.79-10.26
15	8.28-8.76	8.74-9.22	9.21-9.68	9.67-10.15	8.89-9.37	9.36-9.83	9.82-10.3	10.29-10.76
20	8.68-9.15	9.14-9.62	9.61-10.08	10.07-10.55	9.29-9.77	9.75-10.23	10.22-10.69	10.68-11.16
30	9.32-9.8	9.79-10.26	10.25-10.73	10.72-11.19	9.94-10.41	10.4-10.88	10.87-11.34	11.33-11.81
40	9.88-10.35	10.34-10.82	10.81-11.28	11.27-11.75	10.49-10.97	10.95-11.43	11.42-11.9	11.88-12.36
50	10.39-10.87	10.86-11.33	11.32-11.8	11.79-12.26	11.01-11.48	11.47-11.95	11.94-12.41	12.4-12.88
60	10.91-11.39	11.38-11.85	11.84-12.32	12.31-12.78	11.52-12	11.99-12.46	12.45-12.93	12.92-13.39
70	11.46-11.94	11.93-12.41	12.39-12.87	12.86-13.33	12.08-12.55	12.54-13.02	13.01-13.48	13.47-13.95
80	12.11-12.59	12.58-13.05	13.04-13.52	13.51-13.98	12.72-13.2	13.19-13.67	13.65-14.13	14.12-14.59
90	13.01-13.49	13.47-13.95	13.94-14.41	14.4-14.88	13.62-14.1	14.09-14.56	14.55-15.03	15.02-15.49
95	13.75-14.23	14.22-14.69	14.68-15.16	15.15-15.62	14.36-14.84	14.83-15.3	15.29-15.77	15.76-16.23
98	14.59-15.06	15.05-15.53	15.52-15.99	15.98-16.46	15.2-15.67	15.66-16.14	16.13-16.6	-

The interval shows the results of introducing 59 and 50 years in the formula. Formula used: $(\text{Raw score} - [10.342 + (\text{Age}-60.5) \cdot (-0.053)] + \text{Schooling} \cdot 0.465 + \text{Sex} \cdot 0.613) / 2.041$. Age centered to 60.5. Schooling as: Elementary=0; Secondary=1; Graduate=2; Postgraduate=3; Sex entered as: Male=0; Female=1.

Supplementary Table 4. FCSRT TDFR. Age range 60-70 years

Percentile	Males				Females			
	Elementary	Secondary	Graduate	Post-graduate	Elementary	Secondary	Graduate	Post-graduate
1	5.07-5.59	5.53-6.06	5.99-6.52	6.46-6.99	5.68-6.21	6.14-6.67	6.61-7.14	7.07-7.6
2	5.62-6.15	6.09-6.61	6.55-7.08	7.02-7.54	6.23-6.76	6.7-7.23	7.16-7.69	7.63-8.16
5	6.46-6.98	6.92-7.45	7.38-7.91	7.85-8.38	7.07-7.6	7.53-8.06	8-8.53	8.46-8.99
10	7.2-7.73	7.66-8.19	8.13-8.66	8.59-9.12	7.81-8.34	8.27-8.8	8.74-9.27	9.2-9.73
15	7.7-8.23	8.16-8.69	8.63-9.16	9.09-9.62	8.31-8.84	8.77-9.3	9.24-9.77	9.7-10.23
20	8.1-8.62	8.56-9.09	9.02-9.55	9.49-10.02	8.71-9.24	9.17-9.7	9.64-10.17	10.1-10.63
30	8.74-9.27	9.21-9.74	9.67-10.2	10.14-10.67	9.36-9.88	9.82-10.35	10.28-10.81	10.75-11.28
40	9.3-9.82	9.76-10.29	10.22-10.75	10.69-11.22	9.91-10.44	10.37-10.9	10.84-11.37	11.3-11.83
50	9.81-10.34	10.28-10.81	10.74-11.27	11.21-11.74	10.43-10.95	10.89-11.42	11.35-11.88	11.82-12.35
60	10.33-10.86	10.79-11.32	11.26-11.79	11.72-12.25	10.94-11.47	11.41-11.94	11.87-12.4	12.34-12.87
70	10.88-11.41	11.35-11.88	11.81-12.34	12.28-12.81	11.5-12.02	11.96-12.49	12.42-12.95	12.89-13.42
80	11.53-12.06	11.99-12.52	12.46-12.99	12.92-13.45	12.14-12.67	12.61-13.14	13.07-13.6	13.54-14.07
90	12.43-12.96	12.89-13.42	13.36-13.89	13.82-14.35	13.04-13.57	13.51-14.03	13.97-14.5	14.43-14.96
95	13.17-13.7	13.63-14.16	14.1-14.63	14.56-15.09	13.78-14.31	14.25-14.78	14.71-15.24	15.18-15.7
98	14-14.53	14.47-15	14.93-15.46	15.4-15.93	14.62-15.15	15.08-15.61	15.55-16.07	16.01-16.54

The interval shows the results of introducing 70 and 60 years in the formula. Formula used: $(\text{Raw score} - [10.342 + (\text{Age}-60.5) \cdot (-0.053)] + \text{Schooling} \cdot 0.465 + \text{Sex} \cdot 0.613) / 2.041$. Age centered to 60.5. Schooling entered as: Elementary=0; Secondary=1; Graduate=2; Postgraduate=3; Sex entered as: Male=0; Female=1.

Supplementary Table 5. FCSRT TDR. Age range 50-70 years

Percentile	Elementary	Secondary	Graduate	Post-graduate
1	12.23	12.43	12.64	12.84
2	12.54	12.74	12.95	13.15
5	13	13.2	13.41	13.61
10	13.41	13.61	13.82	14.02
15	13.69	13.89	14.09	14.3
20	13.91	14.11	14.31	14.52
30	14.26	14.47	14.67	14.87
40	14.57	14.77	14.98	15.18
50	14.85	15.06	15.26	15.47
60	15.14	15.34	15.55	15.75
70	15.45	15.65	15.85	16.06
80	15.8	16.01	16.21	-
90	16.3	-	-	-
95	-	-	-	-
98	-	-	-	-

Formula used: $(\text{Raw score} - [14.855 + \text{Schooling} \cdot 0.204]) / 1.128$. Schooling entered as: Elementary=0; Secondary=1; Graduate=2; Postgraduate=3

Supplementary Table 6. LM I. Age range 50-70 years

Percentile	Elementary	Secondary	Graduate	Post-graduate
1	10.66	12.37	14.08	15.79
2	12.21	13.92	15.63	17.34
5	14.53	16.24	17.95	19.66
10	16.6	18.31	20.02	21.73
15	17.99	19.7	21.41	23.12
20	19.1	20.81	22.52	24.23
30	20.9	22.61	24.32	26.03
40	22.44	24.15	25.86	27.57
50	23.88	25.59	27.3	29.01
60	25.31	27.02	28.73	30.44
70	26.85	28.56	30.27	31.98
80	28.66	30.37	32.08	33.79
90	31.15	32.86	34.57	36.28
95	33.22	34.93	36.64	38.35
98	35.54	37.25	38.96	40.67

Formula used: $(\text{Raw score} - [23.875 + \text{Schooling} \cdot 1.71]) / 5.679$. Schooling entered as: Elementary=0; Secondary=1; Graduate=2; Postgraduate=3

Supplementary Table 7. LM II. Age range 50-70 years

Percentile	Elementary	Secondary	Graduate	Post-graduate
1	5.46	7.47	9.48	11.49
2	7.09	9.1	11.11	13.12
5	9.54	11.55	13.56	15.57
10	11.71	13.72	15.73	17.74
15	13.18	15.19	17.2	19.21
20	14.34	16.35	18.36	20.37
30	16.24	18.25	20.26	22.27
40	17.86	19.87	21.88	23.89
50	19.38	21.39	23.4	25.41
60	20.9	22.91	24.92	26.93
70	22.52	24.53	26.54	28.55
80	24.42	26.43	28.44	30.45
90	27.05	29.06	31.07	33.08
95	29.22	31.23	33.24	35.25
98	31.67	33.68	35.69	37.7

Formula used: $(\text{Raw score} - [19.38 + \text{Schooling} \cdot 2.01]) / 5.984$. Schooling entered as:
Elementary=0; Secondary=1; Graduate=2; Postgraduate=3

Supplementary Table 8. LM Recognition. Age range 50-70 years

Percentile	Elementary	Secondary	Graduate	Post-graduate
1	17.54	18.29	19.04	19.79
2	18.3	19.05	19.8	20.55
5	19.44	20.19	20.94	21.69
10	20.45	21.2	21.95	22.7
15	21.13	21.88	22.63	23.39
20	21.68	22.43	23.18	23.93
30	22.56	23.31	24.06	24.81
40	23.31	24.07	24.82	25.57
50	24.02	24.77	25.52	26.27
60	24.73	25.48	26.23	26.98
70	25.48	26.23	26.98	27.73
80	26.36	27.12	27.87	28.62
90	27.59	28.34	29.09	29.84
95	28.6	29.35	30.1	30.85
98	29.74	30.49	-	-

Formula used: $(\text{Raw score} - [24.02 + \text{Schooling} \cdot 0.751]) / 2.785$. Schooling entered as: Elementary=0; Secondary=1; Graduate=2; Postgraduate=3