

The Cognitive Functions Dementia Battery: A Novel Computerized Tool for Neurocognitive Disorders

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SUPPLEMENTARY ITEMS

Supplementary Table 1. Descriptive Statistics of test main variables for the first (S1) and second (S2) test form

| Test | Test forms | Variable | N | mean | sd | min | max | sk | ku | |
|-------|------------|----------------------|----------------------|-------|--------|--------|--------|-------|-------|------|
| WIWO | S1 (T1) | Verbal fluency – | 395 | 26.11 | 8.62 | 9 | 52 | 0.62 | 0.03 | |
| | S2 (T2) | semantic | 362 | 31.16 | 9.07 | 8 | 71 | 0.29 | 0.47 | |
| | S1 (T1) | Verbal fluency – | 395 | 15.81 | 7.06 | 0 | 37 | 0.17 | 0.05 | |
| | S2 (T2) | lexical | 362 | 13.89 | 6.82 | 0 | 38 | 0.52 | 0.11 | |
| | S1 (T1) | Learning total | 395 | 26.79 | 6.43 | 8 | 43 | -0.16 | -0.12 | |
| | S2 (T2) | | 362 | 28.26 | 7.22 | 6 | 43 | -0.49 | -0.08 | |
| AWLT | S1 (T1) | Short-term delayed | 395 | 7.07 | 2.30 | 0 | 12 | -0.37 | 0.07 | |
| | S2 (T2) | recall | 362 | 7.28 | 2.69 | 0 | 12 | -0.49 | -0.22 | |
| | S1 (T1) | Long-term delayed | 395 | 6.73 | 2.50 | 0 | 12 | -0.35 | -0.26 | |
| | S2 (T2) | recall | 362 | 6.94 | 2.68 | 0 | 12 | -0.33 | -0.45 | |
| | S1 (T1) | Recognition | 395 | 4.85 | 1.39 | 0.6 | 6.44 | -0.62 | -0.18 | |
| | S2 (T2) | | 362 | 4.93 | 1.38 | 0.36 | 6.44 | -0.64 | -0.31 | |
| WAF | A | S1 (T1) | Mean reaction time – | 395 | 259.81 | 44.91 | 168 | 531 | 1.49 | 4.82 |
| | | S1 (T2) | intrinsic | 362 | 256.68 | 44.45 | 143 | 480 | 1.30 | 3.48 |
| | | S1 (T1) | Mean reaction time – | 395 | 291.83 | 57.79 | 192 | 540 | 1.11 | 1.99 |
| | | S1 (T2) | cross modal phasic | 362 | 289.48 | 60.81 | 165 | 596 | 1.46 | 3.81 |
| | G | S1 (T1) | Mean reaction time | 395 | 727.97 | 201.13 | 364 | 1536 | 0.71 | 0.56 |
| | | S1 (T2) | | 362 | 688.38 | 201.25 | 280 | 1479 | 0.86 | 0.84 |
| CORSI | S7 (T1) | Immediate block span | 395 | 3.74 | 1.19 | 0 | 7 | -0.79 | 1.86 | |
| | S7 (T2) | | 362 | 3.92 | 1.11 | 0 | 7 | -0.73 | 2.01 | |
| TMT-L | S1 (T1) | Working time Part A | 395 | 19.59 | 8.04 | 8.4 | 83.84 | 2.42 | 11.96 | |
| | S2 (T2) | | 362 | 18.39 | 7.44 | 8.43 | 67.95 | 2.43 | 10.61 | |
| | S1 (T1) | Working time Part B | 395 | 69.56 | 57.74 | 15.06 | 418.91 | 2.44 | 7.59 | |
| | S2 (T2) | | 362 | 59.03 | 45.78 | 12.35 | 311.6 | 2.44 | 7.71 | |
| WOBT | S1 (T1) | Object naming | 395 | 22.75 | 3.77 | 9 | 30 | -0.61 | -0.01 | |
| | S2 (T2) | | 362 | 23.03 | 3.78 | 10 | 30 | -0.59 | 0.25 | |
| VISCO | S1 (T1) | Visuoconstruction | 395 | 11.01 | 9.81 | 0 | 32 | 0.61 | -1.02 | |
| | S2 (T2) | ability | 362 | 14.28 | 10.42 | 0 | 32 | 0.18 | -1.46 | |

Notes: For each test of the CFD battery, mean, standard deviation (sd), min, max, skewness (sk), and kurtosis (ku) are displayed.
 WIWO – Vienna Verbal Fluency Test; AWLT – Auditory Word List Learning Test; WAF - Perception and Attention Functions – Subtest Divided Attention; CORSI - CORSI Block-Tapping Test; TMT-L – Trail Making Test – Langensteinbach Version; WOBT – Vienna Object Naming Test; VISCO – Visuoconstruction Test.
 T1 – first test session; T2 – second test session.

Supplementary Table 2. Descriptive Statistics of the CFD indices for the first session (T1) and the re-testing session (T2)

| Index | n | mean | sd | min | max | sk | ku | Percentiles | | | |
|-----------------------|-----------------------------------|------|-------|------|--------|------|-------|-------------|-------|-------|-------|
| | | | | | | | | 25 | 50 | 75 | |
| Test session 1 | Attention | 395 | -0.29 | 1.54 | -5.82 | 3.23 | -0.60 | 0.44 | -1.25 | -0.10 | 0.77 |
| | Verbal long-term memory | 395 | -0.90 | 2.94 | -10.25 | 5.26 | -0.40 | -0.12 | -2.79 | -0.66 | 1.24 |
| | Expressive language | 395 | -1.99 | 1.72 | -7.28 | 2.11 | -0.13 | -0.27 | -3.26 | -1.88 | -0.80 |
| | Executive functions | 395 | -0.79 | 1.68 | -8.39 | 2.23 | -1.55 | 3.17 | -1.40 | -0.39 | 0.27 |
| | Perceptual motor functions | 395 | -0.62 | 1.02 | -1.76 | 1.57 | 0.61 | -1.02 | -1.56 | -1.04 | 0.32 |
| | CFD-Index | 395 | -3.13 | 4.51 | -18.61 | 6.43 | -0.44 | -0.03 | -6.01 | -2.95 | 0.44 |
| Test session 2 | Attention | 362 | -0.30 | 1.56 | -5.82 | 3.23 | -0.61 | 0.45 | -1.27 | -0.11 | 0.77 |
| | Verbal long-term memory | 362 | -0.85 | 2.98 | -10.25 | 5.26 | -0.41 | -0.17 | -2.80 | -0.58 | 1.33 |
| | Expressive language | 362 | -1.97 | 1.73 | -7.28 | 2.11 | -0.11 | -0.30 | -3.23 | -1.87 | -0.79 |
| | Executive functions | 362 | -0.80 | 1.69 | -8.39 | 2.23 | -1.59 | 3.31 | -1.38 | -0.39 | 0.24 |
| | Perceptual motor functions | 362 | -0.62 | 1.02 | -1.76 | 1.57 | 0.59 | -1.04 | -1.56 | -0.93 | 0.32 |
| | CFD-Index | 362 | -3.12 | 4.54 | -18.61 | 6.43 | -0.42 | -0.07 | -6.05 | -2.96 | 0.52 |

Notes: For each index the CFD battery, mean, standard deviation (sd), min, max, skewness (sk), kurtosis (ku), and 25/50/75 percentiles are displayed.

Supplementary Table 3. Structural relations across all tests of the final norm sample (test session 1 – T1).

| CFD-T1 | AWLT | | CORSI | | TMT | | VISCO | | WIWO | | WOBT | | WAF | | |
|--------|-----------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-----------|-----------|--------|------|
| | LEG | KME | LME | WDI | UBS | BTA | BTB | VISCO | WOF_S1 | WOF_S3 | RBU | LMRTR1_i1 | LMRTR1_i2 | LMRTR2 | |
| | KME | 0.81 | | | | | | | | | | | | | |
| AWLT | LME | 0.80 | 0.90 | | | | | | | | | | | | |
| | WDI | 0.68 | 0.64 | 0.68 | | | | | | | | | | | |
| CORSI | UBS | 0.40 | 0.38 | 0.36 | 0.37 | | | | | | | | | | |
| TMT | BTA | -0.43 | -0.37 | -0.37 | -0.36 | -0.46 | | | | | | | | | |
| | BTB | -0.44 | -0.37 | -0.36 | -0.34 | -0.47 | 0.65 | | | | | | | | |
| VISCO | VISCO | 0.40 | 0.35 | 0.34 | 0.38 | 0.54 | -0.47 | -0.48 | | | | | | | |
| WIWO | WOF_S1 | 0.39 | 0.39 | 0.35 | 0.28 | 0.36 | -0.38 | -0.42 | 0.47 | | | | | | |
| | WOF_S3 | 0.44 | 0.38 | 0.34 | 0.39 | 0.44 | -0.45 | -0.48 | 0.51 | 0.59 | | | | | |
| WOBT | RBU | 0.47 | 0.42 | 0.42 | 0.45 | 0.47 | -0.50 | -0.54 | 0.55 | 0.58 | 0.59 | | | | |
| | LMRTR1_i1 | -0.28 | -0.21 | -0.20 | -0.27 | -0.34 | 0.28 | 0.31 | -0.35 | -0.31 | -0.34 | -0.36 | | | |
| WAF | LMRTR1_i2 | -0.29 | -0.22 | -0.21 | -0.27 | -0.33 | 0.30 | 0.29 | -0.33 | -0.27 | -0.32 | -0.32 | 0.73 | | |
| | LMRTR2 | -0.24 | -0.19 | -0.19 | -0.19 | -0.28 | 0.27 | 0.25 | -0.34 | -0.27 | -0.26 | -0.25 | 0.56 | 0.64 | |
| | LMRTC3 | -0.34 | -0.26 | -0.25 | -0.30 | -0.31 | 0.31 | 0.25 | -0.45 | -0.28 | -0.31 | -0.33 | 0.38 | 0.38 | 0.36 |

All Pearson correlations depicted are significant at the level of 0.01.

Note: AWLT: Auditory Word List Learning Test; CORSI: CORSI Block-Tapping Test; TMT-L: Trail-Making Test – Langensteinbach Version; VISCO: Visuoconstruction Test; WAF: Perception and Attention Functions; WIWO: Vienna Verbal Fluency Test; WOBT: Vienna Object Naming Test; LEG: Learning total; KME: Short-term delayed recall; LME: Long-term delayed recall; WDI: Recognition; UBS: Immediate block span; BTA: Working time – Part A; BTB: Working time – Part B; VISCO: Visuoconstruction ability; WOF_S1: Verbal fluency – Semantic; WOF_S3: Verbal fluency – Lexical; RBU: Object naming; LMRTR1_i1 & LMRTR1_i2: Alertness – intrinsic (visual); LMRTR2: Alertness – cross-modal phasic (visual); LMRTC3: Divided attention – cross-modal (visual/auditory).

Supplementary Table 4. Structural relations across all tests of the final norm sample (test session 2 – T2)

| CFD-T2 | | AWLT | | CORSI | | TMT | | VISCO | WIWO | | WOBT | | WAF | | |
|--------|-----------|--------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-----------|-----------|--------|
| | | LEG | KME | LME | WDI | UBS | BTA | BTB | VISCO | WOF_S2 | WOF_S4 | RBU | LMRTR1_i1 | LMRTR1_i2 | LMRTR2 |
| | KME | 0.84 | | | | | | | | | | | | | |
| AWLT | LME | 0.85 | 0.91 | | | | | | | | | | | | |
| | WDI | 0.65 | 0.66 | 0.67 | | | | | | | | | | | |
| CORSI | UBS | 0.44 | 0.40 | 0.37 | 0.31 | | | | | | | | | | |
| TMT | BTA | -0.54 | -0.45 | -0.42 | -0.43 | -0.49 | | | | | | | | | |
| | BTB | -0.48 | -0.40 | -0.37 | -0.34 | -0.50 | 0.68 | | | | | | | | |
| VISCO | VISCO | 0.47 | 0.42 | 0.40 | 0.38 | 0.58 | -0.52 | -0.52 | | | | | | | |
| WIWO | WOF_S2 | 0.55 | 0.43 | 0.44 | 0.42 | 0.32 | -0.42 | -0.41 | 0.34 | | | | | | |
| | WOF_S4 | 0.38 | 0.32 | 0.30 | 0.33 | 0.41 | -0.44 | -0.41 | 0.50 | 0.51 | | | | | |
| WOBT | RBU | 0.51 | 0.46 | 0.44 | 0.44 | 0.43 | -0.54 | -0.54 | 0.60 | 0.41 | 0.48 | | | | |
| | LMRTR1_i1 | -0.299 | -0.26 | -0.26 | -0.20 | -0.32 | 0.41 | 0.35 | -0.40 | -0.25 | -0.43 | -0.34 | | | |
| WAF | LMRTR1_i2 | -0.298 | -0.27 | -0.27 | -0.20 | -0.33 | 0.38 | 0.35 | -0.35 | -0.20 | -0.34 | -0.33 | 0.72 | | |
| | LMRTR2 | -0.255 | -0.21 | -0.21 | -0.21 | -0.29 | 0.37 | 0.32 | -0.33 | -0.14 | -0.35 | -0.31 | 0.63 | 0.70 | |
| | LMRTRC3 | -0.406 | -0.35 | -0.31 | -0.33 | -0.38 | 0.45 | 0.40 | -0.50 | -0.26 | -0.36 | -0.36 | 0.46 | 0.44 | 0.42 |

All Pearson correlations depicted are significant at the level of 0.01.

Note: AWLT: Auditory Word List Learning Test; CORSI: CORSI Block-Tapping Test; TMT-L: Trail-Making Test – Langensteinbach Version; VISCO: Visuoconstruction Test; WAF: Perception and Attention Functions; WIWO: Vienna Verbal Fluency Test; WOBT: Vienna Object Naming Test; LEG: Learning total; KME: Short-term delayed recall; LME: Long-term delayed recall; WDI: Recognition; UBS: Immediate block span; BTA: Working time – Part A; BTB: Working time – Part B; VISCO: Visuoconstruction ability; WOF_S1: Verbal fluency – Semantic; WOF_S3: Verbal fluency – Lexical; RBU: Object naming; LMRTR1_i1 & LMRTR1_i2: Alertness – intrinsic (visual); LMRTR2: Alertness – cross-modal phasic (visual); LMRTRC3: Divided attention – cross-modal (visual/auditory).

Supplementary Table 5. Coefficients for internal consistency (Cronbach's alpha) and re-test reliability (ICC) for all tests and variables.

| Test | Test forms (T1 / T2) | Test variables | Cronbach's α | Re- Test (ICC) | |
|-------|----------------------|--------------------------------|---|----------------|------|
| WIWO | S1 / S2 | Verbal fluency – semantic | 0.59 / 0.56 | 0.68 | |
| | S3 / S4 | Verbal fluency – lexical | 0.77 / 0.75 | 0.85 | |
| | | Learning total | 0.88 / 0.90 | 0.85 | |
| AWLT | S1 / S2 | Short-term delayed recall | 0.56 / 0.69 | 0.82 | |
| | | Long-term delayed recall | 0.64 / 0.68 | 0.84 | |
| | | Recognition | 0.64 / 0.65 | 0.70 | |
| | | Mean reaction time – intrinsic | 0.81 / 0.83 | 0.73 | |
| WAF | A | S1 / S1 | Mean reaction time – cross modal phasic | 0.82 / 0.86 | 0.75 |
| | G | S1 / S1 | Mean reaction time | 0.87 / 0.88 | 0.85 |
| CORSI | S7 / S7 | Immediate block span | 0.82 / 0.83 | 0.75 | |
| TMT-L | S1 / S2 | Working time Part A | 0.71 / 0.77 | 0.83 | |
| | | Working time Part B | 0.82 / 0.83 | 0.86 | |
| WOBT | S1 / S2 | Object naming | 0.80 / 0.76 | 0.89 | |
| VISCO | S3 / S4 | Visuoconstruction ability | 0.95 / 0.96 | 0.95 | |

Notes: WIWO – Vienna Verbal Fluency Test; AWLT – Auditory Word List Learning Test; WAF - Perception and Attention Functions – Subtest Divided Attention; CORSI - CORSI Block-Tapping Test; TMT-L – Trail Making Test – Langensteinbach Version; WOBT – Vienna Object Naming Test; VISCO – Visuoconstruction Test.
T1 – Test session 1 (N=395); T2 – Test session 2 (N=362).
ICC – Intraclass correlation coefficient.

Supplementary Table 6. Comparison between performances in the first (T1) and the second (T2) sessions

| Test | Test forms | Variable | mean T1 | mean T2 | mean difference | <i>t</i> | <i>p</i> | Cohen's <i>d</i> |
|-------|------------|--|---------|---------|-----------------|----------|----------|------------------|
| WIWO | S1/S2 | Verbal fluency – semantic | 26.15 | 31.16 | 5.00 | -7.59 | <0.001* | -0.56 |
| | S3/S4 | Verbal fluency – lexical | 15.86 | 13.89 | -1.97 | 3.82 | <0.001* | 0.28 |
| AWLT | S1/S2 | Learning total | 26.85 | 28.26 | 1.41 | -2.77 | 0.006 | -0.21 |
| | | Short-term delayed recall | 7.12 | 7.28 | 0.16 | -0.87 | 0.39 | -0.06 |
| | | Long-term delayed recall | 6.79 | 6.94 | 0.16 | -0.81 | 0.42 | -0.06 |
| | | Recognition | 4.86 | 4.93 | 0.08 | -0.73 | 0.46 | -0.05 |
| WAF | A | S1 Mean reaction time – intrinsic | 259.35 | 256.68 | -2.67 | 0.80 | 0.42 | 0.06 |
| | | S1 Mean reaction time – cross modal phasic | 292.75 | 289.48 | -3.27 | 0.74 | 0.46 | 0.06 |
| | G | S1 Mean reaction time | 729.71 | 688.38 | -41.33 | 2.74 | 0.006 | 0.20 |
| CORSI | S7 | Immediate block span | 3.72 | 3.92 | 0.19 | -2.27 | 0.02 | -0.17 |
| TMT-L | S1/S2 | Working time Part A | 19.73 | 18.39 | -1.33 | 2.29 | 0.02 | 0.17 |
| | | Working time Part B | 69.75 | 59.03 | -10.72 | 2.75 | 0.006 | 0.2 |
| WOBT | S1/S2 | Object naming | 22.79 | 23.03 | 0.25 | -0.87 | 0.38 | -0.06 |
| VISCO | S3/S4 | Visuoconstruction ability | 11.01 | 14.28 | 3.27 | -4.35 | <0.001* | -0.32 |

Notes: WIWO – Vienna Verbal Fluency Test; AWLT – Auditory Word List Learning Test; WAF - Perception and Attention Functions – Subtest Divided Attention; CORSI - CORSI Block-Tapping Test; TMT-L – Trail Making Test – Langensteinbach Version; WOBT – Vienna Object Naming Test; VISCO – Visuoconstruction Test. Comparison between T1 and T2 was carried out by paired sample t-tests with Bonferroni alpha correction resulting in statistically significant mean differences if $p < 0.004$

Supplementary Table 7. Differences for CFD test main variables between sex, education and age levels.

| Test | Variable | Sex (males vs. females) | | | | | Education (levels 1-3 vs. 4-5) | | | | | Age Younger [50-64 years] vs. older elders [≥65 years] | | | | |
|-------|--|----------------------------|-----------|-------------------------|------------------------|-----------------|-----------------------------------|-----------|-------------------------|------------------------|-----------------|---|-----------|-------------------------|------------------------|------------------|
| | | <i>t</i> | <i>df</i> | <i>sig.^c</i> | <i>mean difference</i> | <i>Cohens'd</i> | <i>t</i> | <i>df</i> | <i>sig.^c</i> | <i>mean difference</i> | <i>Cohens'd</i> | <i>t</i> | <i>df</i> | <i>sig.^c</i> | <i>mean difference</i> | <i>Cohen's d</i> |
| WIWO | Verbal fluency – semantic | 1.56 | 393 | 0.12 | 1.36 | 0.16 | -8.06 | 393 | <0.001* | -6.62 | -0.83 | 2.46 | 393 | 0.014 | 2.12 | 0.25 |
| | Verbal fluency – lexical | 1.37 | 393 | 0.17 | 0.98 | 0.14 | -10.78 | 393 | <0.001* | -6.87 | -1.11 | 2.06 | 393 | 0.040 | 1.46 | 0.21 |
| | Learning total | -2.47 | 393 | 0.01 | -1.59 | -0.25 | -5.60 | 393 | <0.001* | -3.56 | -0.58 | 6.78 | 393 | <0.001* | 4.15 | 0.68 |
| AWLT | Short-term delayed recall | -0.95 | 393 | 0.34 | -0.22 | -0.10 | -3.01 | 393 | 0.003 | -0.70 | -0.31 | 7.35 ^a | 376.73 | <0.001* | 1.60 | 0.74 |
| | Long-term delayed recall | -1.80 | 393 | 0.07 | -0.46 | -0.18 | -2.51 | 393 | 0.012 | -0.64 | -0.26 | 7.26 ^a | 371.98 | <0.001* | 1.72 | 0.73 |
| | Recognition | -0.94 | 393 | 0.35 | -0.13 | -0.10 | -5.00 ^a | 363.20 | <0.001* | -0.68 | -0.50 | 5.50 ^a | 382.46 | <0.001* | 0.74 | 0.55 |
| WAF | Mean reaction time – intrinsic ^b | -1.48 | 393 | 0.14 | -6.71 | -0.15 | 6.41 ^a | 389.31 | <0.001* | 26.66 | 0.62 | -0.04 | 393 | 0.967 | -0.19 | 0.00 |
| | Mean reaction time – cross modal phasic ^b | -3.22 ^a | 392.97 | 0.001* | -18.27 | -0.32 | 3.86 | 393 | <0.001* | 22.52 | 0.40 | -1.42 | 393 | 0.158 | -8.22 | -0.14 |
| CORSI | Mean reaction time ^b | -3.72 | 393 | <0.001* | -74.36 | -0.38 | 7.02 ^a | 373.81 | <0.001* | 132.46 | 0.70 | -3.48 | 393 | 0.001* | -69.46 | -0.35 |
| | Immediate block span | 1.89 | 393 | 0.06 | 0.23 | 0.19 | -6.07 ^a | 377.97 | <0.001* | -0.68 | -0.60 | 3.90 | 393 | <0.001* | 0.46 | 0.39 |
| TMT-L | Working time Part A ^b | 1.12 | 393 | 0.26 | 0.91 | 0.11 | 6.97 ^a | 392.96 | <0.001* | 5.08 | 0.66 | -5.69 ^a | 325.96 | <0.001* | -4.43 | -0.57 |
| | Working time Part B ^b | -1.06 | 393 | 0.29 | -6.17 | -0.11 | 7.25 ^a | 390.73 | <0.001* | 37.28 | 0.68 | -5.45 ^a | 307.52 | <0.001* | -30.62 | -0.55 |
| WOBT | Object naming | 0.81 | 393 | 0.42 | 0.31 | 0.08 | -9.64 ^a | 371.67 | <0.001* | -3.27 | -0.96 | 2.48 | 393 | 0.014 | 0.93 | 0.25 |
| VISCO | Visuoconstruction abilit | 4.32 ^a | 359.6 | <0.001* | 4.23 | 0.44 | -9.17 ^a | 284.03 | <0.001* | -8.70 | -0.98 | 3.59 ^a | 384.74 | <0.001* | 3.49 | 0.36 |

Notes: WIWO – Vienna Verbal Fluency Test; AWLT – Auditory Word List Learning Test; WAF - Perception and Attention Functions – Subtest Divided Attention; CORSI - CORSI Block-Tapping Test; TMT-L – Trail Making Test – Langensteinbach Version; WOBT – Vienna Object Naming Test; VISCO – Visuoconstruction Test.

Education levels: 1 (≤ 4 years); 2 (5 – 6 years); 3 (7 – 9 years); 4 (10 – 12 years); and 5 (≥ 13 years).

Positive mean difference indicates higher scores for male participants, and for participants with education level 1-3.

^a Violation of homogeneity assumption -> Welch-test. ^b Higher scores indicate lower ability. ^c The alpha level was Bonferroni corrected ($\alpha = 0.0025$), significant p-values are marked with an *.

Supplementary Table 8. CFD indices differences between Mild Cognitive disorder (MiCD/MCI), Major Cognitive disorder (MaCD/Dementia), and healthy participants

| | MiCD/MCI (n=45) | MaCD/Dementia (n=26) | Healthy group (n=196) | <i>F</i> | <i>sig.^a</i> | Multiple comparisons |
|---------------------------------------|----------------------------|---------------------------------|----------------------------------|----------|-------------------------|---|
| CFD-Index | -7.35 (5.62) | -13.46 (5.66) | -3.31 (4.82) | 52.42 | <0.001* | MCI<HG: p<0.001* Dementia<HG: p<0.001* MCI>Dementia: p<0.001* |
| Attention | -1.80 (2.15) | -3.84 (3.08) | -0.28 (1.49) | 50.72 | <0.001* | MCI<HG: p<0.001* Dementia<HG: p<0.001* MCI>Dementia: p<0.001* |
| Verbal long-term memory | -4.29 (3.52) | -7.89 (2.85) | -1.15 (3.09) | 63.11 | <0.001* | MCI<HG: p<0.001* Dementia<HG: p<0.001* MCI>Dementia: p<0.001* |
| Expressive language | -2.91 (1.70) | -4.84 (1.61) | -1.86 (1.75) | 37.04 | <0.001* | MCI<HG: p=0.001* Dementia<HG: p<0.001* MCI>Dementia: p<0.001* |
| Executive functions | -1.63 (2.24) | -3.28 (2.96) | -0.94 (1.92) | 11.66 | <0.001* | MCI<HG: p=0.14 Dementia<HG: p<0.001* MCI>Dementia: p=0.01 |
| Perceptual motor functions | -0.88 (1.01) | -1.13 (0.87) | -0.64 (0.98) | 3.09 | 0.05 | N/A |

Notes: MiCD – Mild Cognitive Disorder; MCI – Mild Cognitive Impairment; MaCD – Major Cognitive Disorder

Data are expressed as mean (SD). Comparisons between the two groups were carried out by one-way ANOVA with post-hoc multiple comparisons with Bonferroni corrections.

^a The alpha level was Bonferroni corrected ($\alpha = 0.008$), significant p-values are marked with an *.

Supplementary Table 9. Diagnostic classification accuracy of the CFD indices in discriminating Mild Cognitive disorder (MiCD/MCI), Major Cognitive disorder (MaCD/Dementia), from the cognitively healthy group.

| | MiCD/MCI | | | MaCD/Dementia | | | | | | |
|-----------------------------------|----------|--------------|---------|---------------|-------------|------|--------------|---------|-------------|-------------|
| | AUC | 95% CI | sig. | Sensitivity | Specificity | AUC | 95% CI | sig. | Sensitivity | Specificity |
| CFD-Index | 0.72 | [0.66, 0.78] | <0.0001 | 84.44 | 55.61 | 0.91 | [0.87, 0.94] | <0.0001 | 84.62 | 82.14 |
| Attention | 0.72 | [0.65, 0.77] | <0.0001 | 75.00 | 66.33 | 0.85 | [0.80, 0.90] | <0.0001 | 69.23 | 94.90 |
| Verbal long-term memory | 0.74 | [0.68, 0.80] | <0.0001 | 57.78 | 85.71 | 0.94 | [0.90, 0.96] | <0.0001 | 76.92 | 96.43 |
| Expressive language | 0.68 | [0.62, 0.74] | <0.0001 | 75.00 | 59.18 | 0.90 | [0.85, 0.93] | <0.0001 | 96.15 | 73.47 |
| Executive functions | 0.63 | [0.56, 0.69] | 0.004 | 67.44 | 59.69 | 0.76 | [0.70, 0.81] | <0.0001 | 66.67 | 84.18 |
| Perceptual motor functions | 0.59 | [0.53, 0.66] | 0.07 | 50.00 | 68.88 | 0.67 | [0.61, 0.74] | 0.008 | 60.00 | 75.00 |

Notes: MiCD – Mild Cognitive Disorder; MCI – Mild Cognitive Impairment; MaCD – Major Cognitive Disorder
AUC – area under the operating characteristics curve; CI – confidence interval. Sensitivity and Specificity values are expressed in percentage.