Supplementary material

To calculate the corrected scores, we used the variation indices provided by Calamia et al. (1). These authors calculated a measure of the change in the retest scores due to practice effects depending on the type of test used, the age of the participant, the time elapsed since the first evaluation, and the type of population on which the tests are applied (clinical or non-clinical). Calamia et al. estimate a differential practice effect for each test analyzed. The gain is expressed as the number of standard deviations (SD) that the retest score would increase above the one obtained in the first evaluation. The gain obtained in each test is taken as a baseline over which the different weights (age, time since retest and type of population) are applied. Each weight refers to the observed practice effect for a 40-year-old man who makes the second evaluation one year after the first one.

To estimate the practice effects on patients' scores in the second assessment, first the specific weight for each patient in each test was calculated, and then, the retest score was estimated removing the practice effects. Table S1 shows the specific weights used to calculate the proportion of variance (SD) due to practice effects in each test as explained below.

Table S1 Specific weights used to calculate the practice effects based on different variables.

	Test Coefficient	Age	Test-Retest time difference	TCE / Clinical Group
TMT A	. 192	. 002	. 114	. 013
TMT B	. 212	. 006	. 046	. 037
Stroop W	. 249	. 004	. 058	. 089
Stroop C	. 249	. 004	. 058	. 089
Stroop CW	. 234	. 004	. 058	. 089
DS	. 300	. 008	. 038	. 054
SS	. 249	. 004	. 058	. 089
VF	. 258	. 002	. 021	. 051
Digits	. 265	. 005	. 044	. 371
Memory	. 235	. 004	. 058	. 089

Note. The age coefficients and test-retest days should be calculated according to the characteristics of the patient and the time elapsed between the evaluations. DS: Digits Symbol-Coding; SS: Symbol Search

As a baseline, the meta-analysis provides specific weights for most of the tests included in the present study (the "test coefficient"). For those tests without a specific coefficient, we used the average index of the cognitive domain of the test. For the Stroop W, Stroop C, and symbol search the speed of processing domain was used; for the Stroop CW the executive functioning; and for the recognition test, the verbal memory index. To calculate the specific weights based on the clinical group, Calamia et al. (1) provide a specific index for TBI only for TMT A and TMT B tests, for the rest of the scores the index provided for the mixed clinical group was used.

The case of a 34-year-old patient will be used as an example. This patient was evaluated for the second time 184 days after the first evaluation using the TMT A test. To calculate the number of SD that the patient improved due to practice, we start with the test coefficient which is 0.122 SD for TMT A. To this score we add the variation due to age, which for this test is 0.002 SD per year. Since the index provided corresponds to a 40-year-old person we multiply the coefficient by 6, which is the difference between 34 and 40 years (i.e. 0.002 x 6), obtaining the variation associated with age, in this case 0.012 SD. The lower the age the greater the gain due to the retest, therefore, being the youngest patient we add the coefficient of 0.012 to the 0.192 baseline coefficient for TMT A. Thus, after controlling the effect of age, the practice retest gain would be 0.204 SD.

Regarding the time elapsed since the first evaluation, the coefficients calculated by Calamia et al. (1) refer to 1 year after the first evaluation, while in the example 184 days have elapsed. Since the estimates provided are linear, the gain after 184 days can be calculated based on the values provided for 365 days. For TMT A, the gain decreases 0.114 SD per year. Here the gain per day is first calculated (i.e. 0.114/365 = 0.0003) and then multiplied by the difference between 365 and the number of days elapsed. This results in an increase of 0.054 DT (i.e. (365-184) x 0.0003 = 0.054). Therefore, after correcting for age and time between assessments, retest gain would be 0.258 SD above the score in the first evaluation.

Finally, it is necessary to correct the estimated gain according to the type of clinical population. For TMT A, Calamia et al. (1) provide a specific index for TBI patients. In this case, 0.013 SD lower than a healthy person. Therefore, the final gain in TMT A, taking into account the age, the test-retest interval, and TBI would be 0.245 SD above the mean of the first evaluation.

To calculate the proportion of change due to recovery, the SD due to practice, calculated as explained, is subtracted from the total change expressed in SD.

Reference

Calamia M, Markon K, Tranel D. Scoring higher the second time around: meta-analyzes of practical effects in neuropsychological assessment. Clin Neuropsychol 2012; 26: 543-70.