

CORRECTION

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Correction to: Classical galactosemia: neuropsychological and psychosocial functioning beyond intellectual abilities

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Correction to: Orphanet Journal of Rare Diseases (2020) 15:42
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Following the original article's publication [1] the authors informed us of the following errors:

1. Author M. Estela Rubio Gozalbo's first and last names were captured incorrectly. The author's first names are M. Estela, while last names are Rubio Gozalbo.

The correct author's name has been updated in the original article [1] and shown in the author list of this Correction.

2. In Table 2 'Digit span' and 'GIT-2' are tests and should be preceded by a - just like the other tests in the table.

Furthermore, 'Responses' is not a domain and should therefore be deleted.

Finally, 'Conceptual' should be corrected to 'conceptual'.

The table is shown here corrected.

3. The grey box for 'test result better than expected' is missing from the legends of Tables 4 and 5.

The two tables with their respective legends are shown here corrected.

4. In the 'Results' section under 'Demographics', the following sentence is incorrect: "In the pre-NBS group ($n = 30$) (diagnosis based on clinical symptoms), with the exception of the late diagnosed p.Ser135Leu patients, the diet was started at a median age of 10 days [6, 39]." The references 6,39 are in fact a range. The sentence should therefore be corrected to read: "...the diet was started at a median age of 10 days (6-39)."

5. In Table S8 of the Additional file 1, some rows have shifted. 'Anxiety & Depression' and 'Social Functioning' should be shown on separate lines. HADS should be in line with 'Anxiety & Depression' and SRS with 'Social Functioning'.

In addition, subsequent references should be renumbered as 35–49.

The corrected Additional file 1 accompanies this Correction.

The original article can be found online at <https://doi.org/10.1186/s13023-019-1277-0>.

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Table 2 Cognitive Functioning Results

Domain	N	Results patients	P-value ^a	N	FSIQ 50–69 (Group 1)	N	FSIQ 70–85 (Group 2)	N	FSIQ > 85 (Group 3)	P-value ^b
Learning & Memory										
- AVLT Immediate Recall	19	46.0 (9–61)	0.029	4	40.0 (9–46)	11	45.00 (35–61)	4	49.50 (47–51)	0.121
- AVLT Delayed Recall	19	46.0 (15–65)	0.545	4	49.5 (15–58)	11	46.00 (34–65)	4	50.00 (43–55)	0.956
- AVLT Delayed / Immediate	19	52.0 (38–65)	0.445	4	55.5 (43–62)	11	52.00 (38–65)	4	52.00 (39–62)	0.803
- Digit span	35	43.0 (20–63)	< 0.0005^c	8	30.00 (20–57)	15	43.00 (27–60)	12	48.50 (33–63)	0.017
Visuospatial functioning										
- GIT-2 ^a spatial test	19	36.0 (23–50)	< 0.0005^c	4	26.5 (23–40)	11	35.0 (28–40)	4	41.5 (40–50)	0.019
- Block design	42	38.5 (20–53)	< 0.0005^c	9	30.0 (20–40)	17	37.0 (27–50)	16	37.0 (33–53)	< 0.0005^c
Executive functioning										
<i>Inhibition</i>										
- Stroop III (Inhibition)	25	45.0 (20–56)	0.003^c	6	27.0 (20–49)	13	48.00 (22–56)	6	46.0 (35–53)	0.078
- Stroop III/II (Interference)	25	49.0 (30–66)	0.537	6	43.0 (30–60)	13	50.00 (31–66)	6	47.5 (40–63)	0.642
<i>Cognitive flexibility</i>										
- WCST Total number of errors	24	50.5 (27–67)	0.988	6	46.0 (27–50)	12	51.50 (37–67)	6	52.0 (39–64)	0.134
- WCST Perseverative responses	24	51.0 (30–81)	0.626	6	46.0 (33–52)	12	53.00 (30–81)	6	52.0 (35–73)	0.278
- WCST Percent conceptual level responses	24	49.5 (27–64)	0.951	6	48.0 (27–51)	12	52.00 (39–64)	6	51.0 (37–62)	0.270
- TMT B/A	25	44.0 (27–57)	0.002^c	6	45.0 (27–50)	13	43.00 (27–57)	6	48.5 (40–57)	0.510
- Letter fluency	19	37.0 (27–67)	0.001^c	4	31.0 (28–38)	11	39.00 (31–67)	4	34.0 (27–56)	0.143
<i>Mental Speed</i>										
- Stroop I (Color naming)	25	40.0 (25–61)	0.001^c	6	35.0 (25–43)	13	43.00 (35–61)	6	46.5 (33–55)	0.077
- Stroop II (Word reading)	25	37.0 (20–56)	< 0.0005^c	6	30.0 (20–40)	13	43.00 (20–56)	6	39.0 (33–56)	0.063
- TMT A (Digit sequencing)	25	52.0 (20–67)	0.352	6	50.5 (20–59)	13	56.00 (43–67)	6	47.5 (33–67)	0.173
- TMT B (Digit-Letter-Switching)	25	45.0 (20–58)	0.003^c	6	33.5 (20–47)	13	46.00 (20–58)	6	45.0 (33–56)	0.111
- Symbol search	41	43.0 (20–67)	< 0.0005^c	9	23.0 (20–50)	17	40.00 (27–67)	15	47.0 (40–60)	0.001^c
- Substitution	42	40.0 (23–57)	< 0.0005^c	9	30.0 (23–47)	17	40.00 (30–57)	16	43.0 (33–53)	0.006

Data reported in T-scores, median (ranges). ^a Patient data vs. normative data (T-score 50), ^b Comparison between FSIQ groups, ^c Significant after Bonferroni-Holm correction. FSIQ full scale IQ, AVLT auditory verbal learning test, GIT-II Groninger intelligentie test 2, Stroop stroop color word test, WCST wisconsin card sorting test, TMT trail making test

Table 4 Individual Results, Adult Patients

Patient→	1	2	3	4	5	6 ^a	7	8	9	10	11	12	13	14	15	16	17	18	19
VIQ	103	101	72	100	77	90	86	72	83	64	68	81	81	70	66	86	83	93	81
PIQ	104	77	72	85	60	72	75	62	75	58	60	75	87	70	68	75	77	77	81
Test results (corrected for FSIQ):																			
Executive functioning																			
Inhibition																			
Stroop III																			
Stroop III/II																			
Cognitive flexibility																			
- WCST Total Errors								X											
- WCST PR								X											
- WCST Percent CLR								X											
- TMT B/A																			
- Letter fluency		■		■				X											
Learning & Memory																			
- AVLT Immediate Recall								X						■					
- AVLT Delayed Recall								X											
- AVLT Delayed/ Immediate								X											
Digit span																			
Mental Speed																			
- Stroop I																			
- Stroop II																			
- TMT A																			
- TMT B																			
- Symbol search																			
- Substitution																			
Visuospatial functioning																			
GIT-2 spatial test								X				■							
Block design		■					■												
Questionnaire results (uncorrected for FSIQ):																			
HADS*						-		X				-				-		-	
BRIEF-A*	-		-		-	-		X	-			-			-	-	-	-	-
SRS-A*		X	X		X	-				X	X	-		X					

^ap.Ser135Leu homozygous patient. VIQ Verbal IQ, PIQ Performal IQ, FSIQ Full Scale IQ, Stroop Stroop Color Word Test, WCST Wisconsin Card Sorting Test, PR Perseverative Responses, CLR Conceptual Level Responses, TMT Trail Making Test, AVLT Auditory Verbal Learning Test, GIT-II Groninger Intelligentie Test 2, HADS Hospital Anxiety and Depression Scale, BRIEF Behavior Rating Inventory of Executive Function, SRS Social Responsiveness Scale
 X no test result, ■ test result worse than expected, ▣ test result better than expected, □ test result as expected
 *X no result, - - T-score on total scale in clinical range, - T-score on total scale in subclinical range, □ T-score on total scale within normal range

Table 5 Individual Results, Pediatric Patients

Patient→	20	21 ^b	22 ^b	23	24 ^b	25	26	27	28	29	30	31	32	33	34	35 ^a	36
VIQ	106	80	96	55	85	98	81	60	90	102	106	92	74	72	81	70	95
PIQ	93	100	85	85	97	85	59	75	77	89	99	86	61	85	95	57	98
Test results (corrected for FSIQ):																	
Executive functioning																	
Inhibition																	
- NI: Naming Total Errors	X			X		X					X	X	X	X	X	X	X
- NI: Inhibition Total Errors	X			X		X					X	X	X	X	X	X	X
- NI: Switching Total Errors	X	X	X	X		X					X	X	X	X	X	X	X
- Stroop III	X	X	X	X	X	X	X	X	X	X	X						
- Stroop III/II	X	X	X	X	X	X	X	X	X	X	X						
Cognitive flexibility																	
- NEPSY RS, Total Correct	X	X	X	X		X						X	X	X	X	X	X
- WCST Total Errors	X	X	X	X	X	X	X	X	X	X	X						
- WCST PR	X	X	X	X	X	X	X	X	X	X	X						
- WCST Percent CLR	X	X	X	X	X	X	X	X	X	X	X						
- TMT B/A	X	X	X	X	X	X	X	X	X	X	X						
- Letter fluency	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Attention																	
- NEPSY AA, Total Correct	X			X		X					X	X	X	X	X	X	X
Learning & Memory																	
- AVLT Immediate Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
- AVLT Delayed Recall	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
- AVLT Delayed/ Immediate	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
- Digit span	X	X		X	X												
Mental Speed																	
- NI: Naming TCT	X			X		X					X	X	X	X	X	X	X
- NI: Inhibition TCT	X			X		X					X	X	X	X	X	X	X
- NI: Switching TCT	X	X	X	X		X					X	X	X	X	X	X	X
Stroop I	X	X	X	X	X	X	X	X	X	X	X						
Stroop II	X	X	X	X	X	X	X	X	X	X	X						
- TMT A	X	X	X	X	X	X	X	X	X	X	X						
- TMT B	X	X	X	X	X	X	X	X	X	X	X						
- Symbol search																	
- Substitution																	
Visuospatial functioning																	
- GIT-2 spatial test	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
- Block design																	
Questionnaire results (uncorrected for FSIQ):																	
CBCL 6-18y*	X			--	X	X			X				--	-			
YSR*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BRIEF-P*	-			X	X	X	X	X				X	X	X	X	X	X
BRIEF*	X	X	X	X	X	X	X	X	X	X	X	X	X				
SRS-2*		X		X					-		-						

^ap.Ser135Leu homozygous patient, ^b Variant patient, VIQ Verbal IQ, PIQ Performal IQ, FSIQ Full Scale IQ, NI NEPSY Inhibition, Stroop Stroop Color Word Test, RS Response Set, AA Auditory Attention, WCST Wisconsin Card Sorting Test, PR Perseverative responses, CLR Conceptual Level Responses, TMT Trail Making Test, AVLT Auditory Verbal Learning Test, TCT Total Completion Time, GIT-II Groninger Intelligence Test 2, CBCL 6-18y Child Behavior Checklist 6-18 years, YSR Youth Self Report, BRIEF Behavior Rating Inventory of Executive Function, SRS Social Responsiveness Scale
 X no test result, ■ test result worse than expected, ▨ test result better than expected, □ test result as expected
 *X no result, -- T-score on total scale in clinical range, - T-score on total scale in subclinical range, □ T-score on total scale within normal range

Supplementary information

Supplementary information accompanies this paper at <https://doi.org/10.1186/s13023-020-01447-z>.

Additional file 1: Table S8. The Neuropsychological Assessment.

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