Tasks of Executive Control™

TEC™

Score Report

Developed by

Peter K. Isquith, PhD, Robert M. Roth, PhD, Gerard A. Gioia, PhD, and PAR Staff

Client Information

Client Name:	Sample Client
Client ID:	Website SR/CR
Gender:	Male
Age:	10
Date of Birth:	01/25/1998
Current Grade:	5th
Handedness:	Right
—————————	
Test Date:	08/12/2008
Test Form:	Form 1
Test Description:	ADHD Evaluation
—————————	
Prepared for:	Examiner Example, PhD

Version: 1.00 (1.00.026)

Introduction

The Tasks of Executive Control (TEC) is a measure of an individual's cognitive response to increasing working memory load and inhibitory control demand. Although the TEC systematically increases working memory load and inhibitory control demand as the task progresses, it is important to note that the outcome measures (i.e., scores) reflect these processes indirectly. Thus, there are no pure "working memory" or "inhibit" scores. Rather, an individual's working memory and inhibitory control capacity are reflected in his or her performance on the TEC via several response accuracy, response time, and response consistency scores. These scores are commonly used to measure effects of manipulating working memory and inhibitory control.

Performance on the TEC should be interpreted within the context of other measures administered as part of a comprehensive clinical assessment battery, along with consideration of developmental history, self and collateral reports, and behavioral observations. Furthermore, there is no single score or profile of performance on any given test or battery that is of sufficient sensitivity and specificity to enable it to be used on its own to establish a diagnosis (e.g., attention-deficit/hyperactivity disorder [ADHD], traumatic brain injury, any other disorder or illness). Instead, diagnosis is made by the clinician based on relevant patient history, direct observations of behavior and performance, and test findings. The primary purpose of TEC interpretation is to provide information about certain aspects of an individual's executive functioning, not to establish a given diagnosis.

The TEC assesses an individual's performance in considerable detail by capturing several aspects of each stimulus presentation and each response, resulting in hundreds of variables that are stored within each protocol. To facilitate interpretation, individual scores are grouped according to whether they reflect composite aspects of performance across tasks (i.e., Factor scores), specific unidimensional characteristics of performance across tasks (i.e., Summary scores), or change in performance as working memory load and inhibitory control demand increase across tasks (i.e., Task scores). Scores also are grouped according to what they measure. Specifically, several scores that help gauge response accuracy, including the number of correct responses (i.e., Correct), number of omissions (i.e., Omissions), number of incorrect responses (i.e., Incorrect), and number of commission errors (i.e., Commissions), are provided. Another set of scores helps evaluate response time; these scores include Response Time (RT) and, to assess response time variability, the standard deviation of the Response Time (RTSD) and the Intra-Individual Coefficient of Variation (ICV). The ICV measures response time variability while also accounting for an individual's RT (i.e., RTSD divided by mean RT). Finally, several of the scores are provided separately for Target (i.e., Red) and Standard (i.e., Blue) stimuli.

Sample's performance is compared to typically developing peers of the same age and gender in the standardization sample. All scores are scaled so that higher *T* scores indicate poorer performance. A *T* score of 60 or above is considered to have potential clinical meaning. Please see the TEC Professional Manual for detailed information on the rationale for the test, administration and scoring, interpretation, standardization, development, and psychometric properties.

Validity of TEC Administration

Valid interpretation of the TEC requires that the tasks be administered correctly and with timing that follows the prescribed parameters. The TEC software self-verifies the accuracy of computer administration. Results of the verification indicate that there were no problems with the accuracy or timing of task administration.
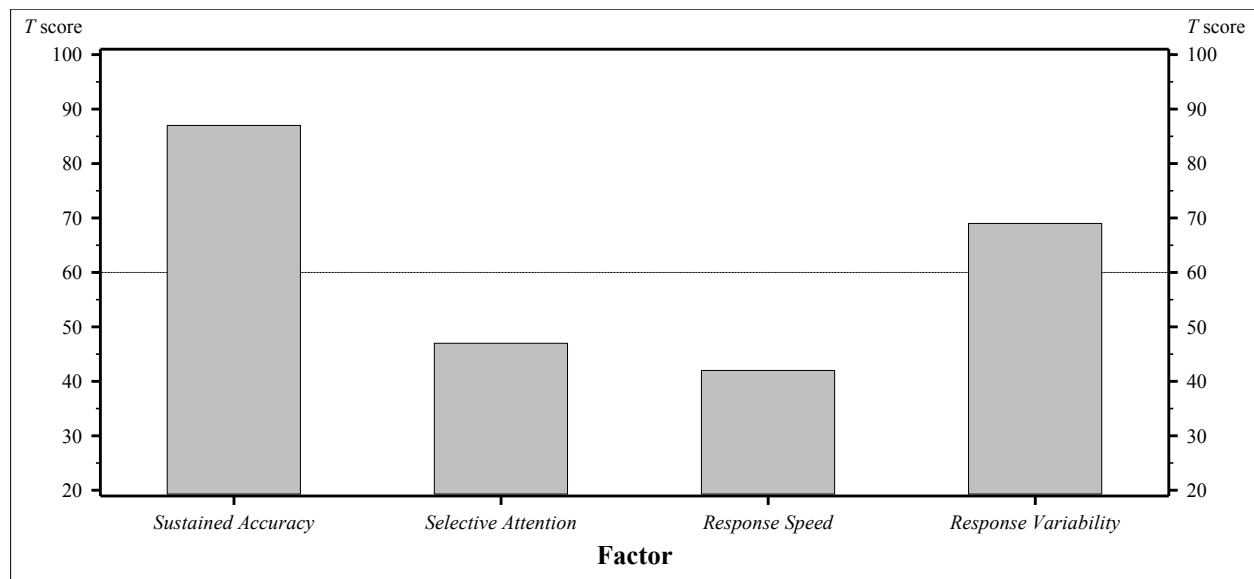
Valid interpretation of the TEC also requires that all recommended tasks for a given age are completed in sequential order (i.e., children ages 5-7 years must complete Tasks 1 though 4; children and adolescents ages 8-18 years must complete Tasks 1 through 6). Sample completed the recommended number of tasks for his age group in sequential order.

In addition, valid interpretation of the TEC requires that the client exert adequate effort on the tasks. Behavioral observations should be considered when determining whether appropriate effort was put forth during TEC administration. Further, responding accurately to fewer than 20 Standard (i.e., Blue button) or fewer than 2 Target (i.e., Red button) stimuli on a given task may suggest inadequate effort or difficulty understanding task demands. Validity of the resulting scores, particularly for the given task, may be questionable. In regards to the Standard stimuli there was no evidence of inadequate effort on any of the tasks, suggesting that results are interpretable. In regards to the Target stimuli there was also no evidence of inadequate effort on any of the tasks, likewise suggesting that results are interpretable.

Approach to Interpreting TEC Performance

Factor Scores

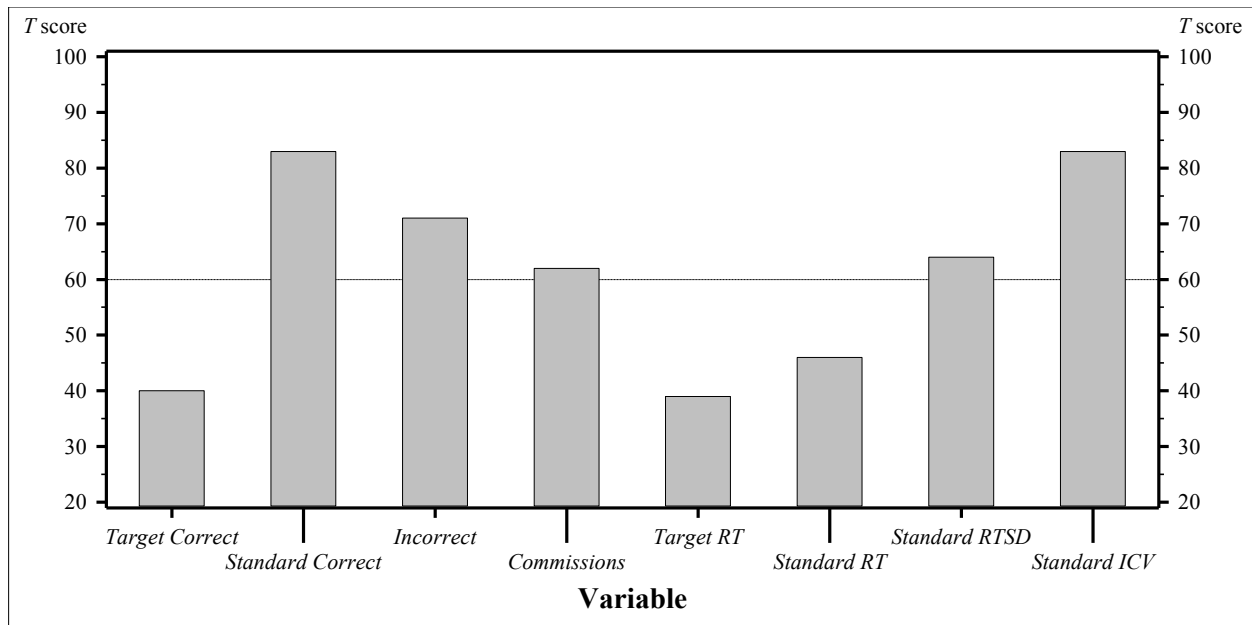**Bar Graph of Factor *T* Scores Obtained on the TEC**

Factor Raw Scores, *T* Scores, Percentiles, and CIs Obtained on the TEC

Factor	Raw score	*T* score	Percentile	90% CI	Interpretation
Sustained Accuracy	-15.55	87	> 99	84 - 90	Elevated
Selective Attention	-4.06	47	38	41 - 53	Typical
Response Speed	5.67	42	21	40 - 44	Typical
Response Variability	-15.52	69	97	65 - 73	Elevated

Note. CI = Confidence Interval.

Summary Scores

Bar Graph of Summary *T* Scores Obtained for Accuracy and Response Time Variables on the TEC

Note. RT = Response Time; RTSD = Standard Deviation of Response Time; ICV = Intra-Individual Coefficient of Variation.

Summary Raw Scores, *T* Scores, Percentiles, and CIs Obtained for Accuracy and Response Time Variables on the TEC
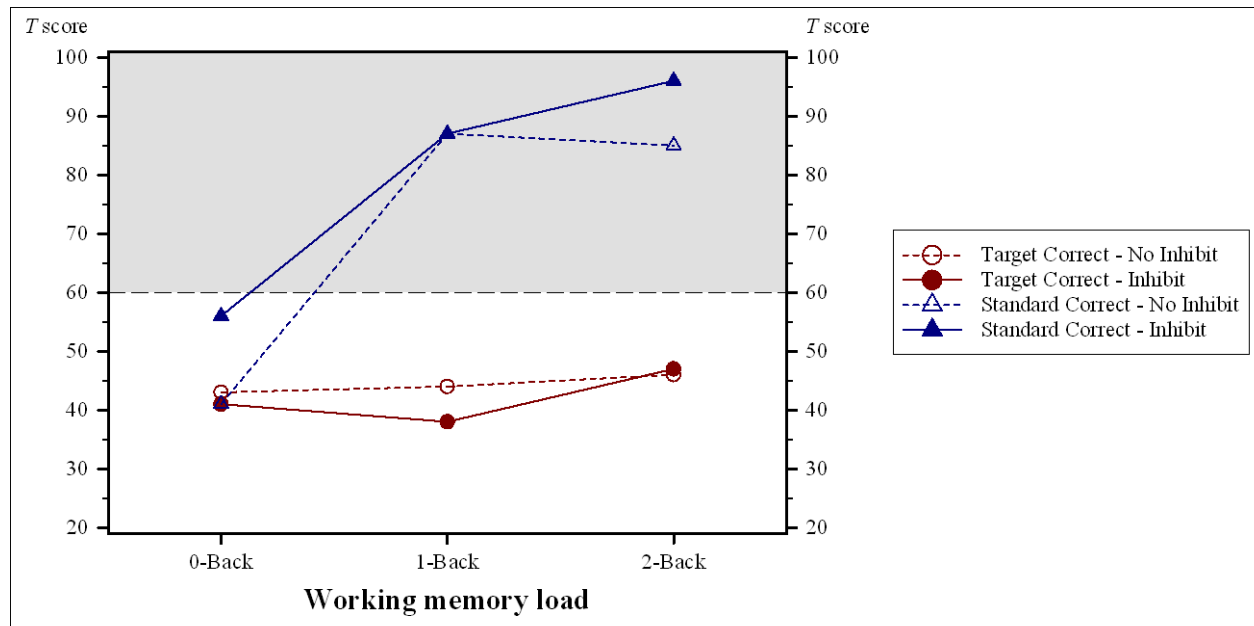
Variable	Mean raw score	*T* score	Percentile	90% CI	Interpretation
Accuracy					
Target Correct (% Correct)	11.50 (58%)	40	16	35 - 45	Typical
Standard Correct (% Correct)	45.33 (63%)	83	> 99	80 - 86	Elevated
Target Omissions	0.33				Typical
Standard Omissions	3.67				Typical
Incorrect	29.17	71	98	67 - 75	Elevated
Commissions	11.00	62	88	57 - 67	Elevated
Response time					
Target RT	352.55	39	14	36 - 42	Typical
Standard RT	421.88	46	34	44 - 48	Typical
Standard RTSD	230.66	64	92	62 - 66	Elevated
Standard ICV	0.56	83	> 99	75 - 91	Elevated

Note. RT = Response Time; RTSD = Standard Deviation of the Response Time; ICV = Intra-Individual Coefficient of Variation; CI = Confidence Interval. Only raw scores and ranges are reported for Omission variables. No *T* scores, percentiles, or confidence intervals (CIs) were calculated. % Correct scores are calculated as the mean percentage of correct responses per task (e.g., for Standard stimuli, (0B % Correct + 0BI % Correct + …+ 2BI % Correct)/6 and not as the number of total correct responses divided by the total possible responses.)

Task Scores

Response Accuracy: Target Correct and Standard Correct

Line Graph of *T* Scores Obtained for Target Correct and Standard Correct Across TEC Tasks

Client Name: Sample Client   *Client ID:* Website SR/CR   *Test Date*: 08/12/2008

Predicted Raw Scores, Obtained Raw Scores, and SRB Change Scores for Target Correct and Standard Correct Across TEC Tasks

	No Inhibit		Inhibit	
Variable	**0B-1B** Predicted raw score (Obtained raw score) [SRB change score]	**1B-2B** Predicted raw score (Obtained raw score) [SRB change score]	**0BI-1BI** Predicted raw score (Obtained raw score) [SRB change score]	**1BI-2BI** Predicted raw score (Obtained raw score) [SRB change score]
Target Correct	11 (11) [0.08]	7 (8) [0.51]	10 (13) [**1.49***]	10 (9) [-0.55]
Standard Correct	74 (45) [**-5.10***]	50 (36) [**-1.94***]	55 (35) [**-4.15***]	39 (25) [**-2.28***]

Note. SRB = Standardized regression-based; 0B = 0-Back/No Inhibit; 0BI = 0-Back/Inhibit; 1B = 1-Back/No Inhibit; 1BI = 1-Back/Inhibit; 2B = 2-Back/No Inhibit; 2BI = 2-Back/Inhibit. An asterisk (*) and bolded text indicates a significant SRB change score between tasks.
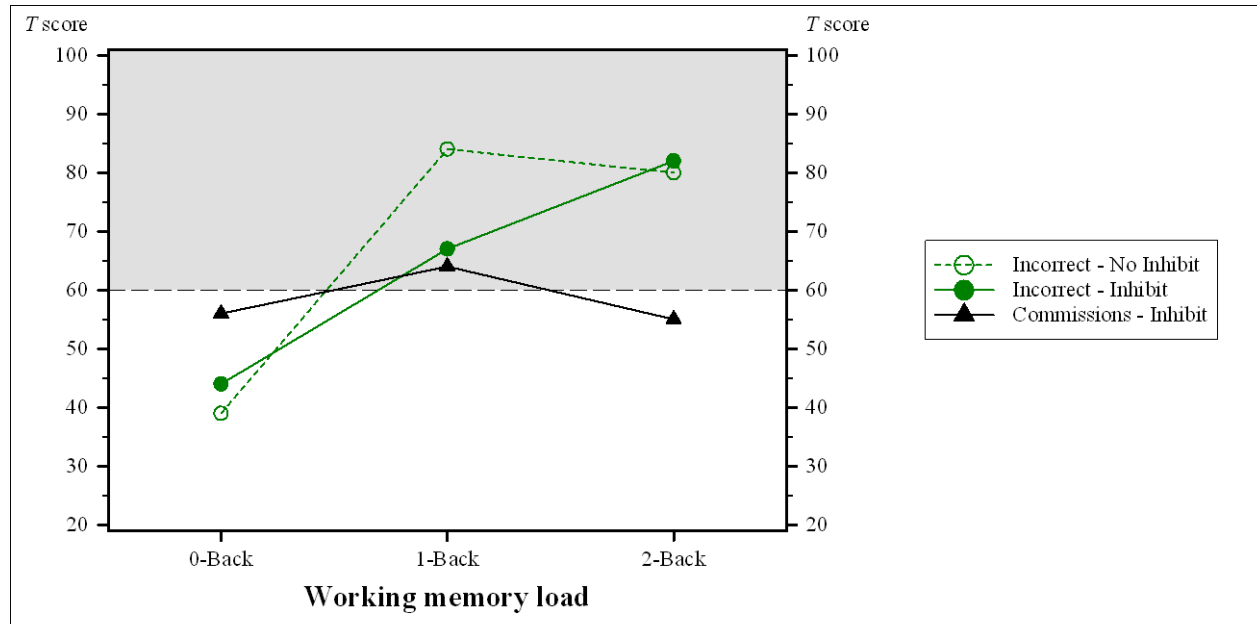
Task Scores Obtained for Target Correct and Standard Correct by Task on the TEC

Variable/Score	No Inhibit			Inhibit		
	0-Back (0B)	**1-Back (1B)**	**2-Back (2B)**	**0-Back (0BI)**	**1-Back (1BI)**	**2-Back (2BI)**
Target Correct						
Raw score (% Correct)	14 (70%)	11 (55%)	8 (40%)	14 (70%)	13 (65%)	9 (45%)
T score	43	44	46	41	38	47
Percentile	24	27	34	18	12	38
90% CI	34 - 52	35 - 53	36 - 56	33 - 49	30 - 46	38 - 56
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical
Standard Correct						
Raw score (% Correct)	77 (96%)	45 (56%)	36 (45%)	54 (84%)	35 (55%)	25 (39%)
T score	41	87	85	56	87	96
Percentile	18	> 99	> 99	73	> 99	> 99
90% CI	35 - 47	80 - 94	79 - 91	49 - 63	81 - 93	90 - 102
Interpretation	Typical	Elevated	Elevated	Typical	Elevated	Elevated

Note. CI = Confidence Interval.

Response Accuracy: Omissions, Incorrect, and Commissions

Line Graph of *T* Scores Obtained for Incorrect Responses and Commissions Across TEC Tasks

Predicted Raw Scores, Obtained Raw Scores, and SRB Change Scores for Incorrect Responses and Commissions Across TEC Tasks

	No Inhibit		Inhibit	
Variable	**0B-1B** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**1B-2B** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**0BI-1BI** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**1BI-2BI** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**
Incorrect	13 (43) [**-6.03***]	35 (48) [**-2.28***]	15 (26) [**-2.82***]	23 (40) [**-3.76***]
Commissions			9 (13) [**-1.81***]	13 (11) [0.98]

Note. SRB = Standardized regression-based; 0B = 0-Back/No Inhibit; 0BI = 0-Back/Inhibit; 1B = 1-Back/No Inhibit; 1BI = 1-Back/Inhibit; 2B = 2-Back/No Inhibit; 2BI = 2-Back/Inhibit. An asterisk (*) and bolded text indicates a significant SRB change score between tasks. Commissions are shown only for the Inhibit tasks, as they cannot occur in the No Inhibit condition.

Client Name: *Sample Client* **Client ID:** *Website SR/CR* *Test Date: 08/12/2008*

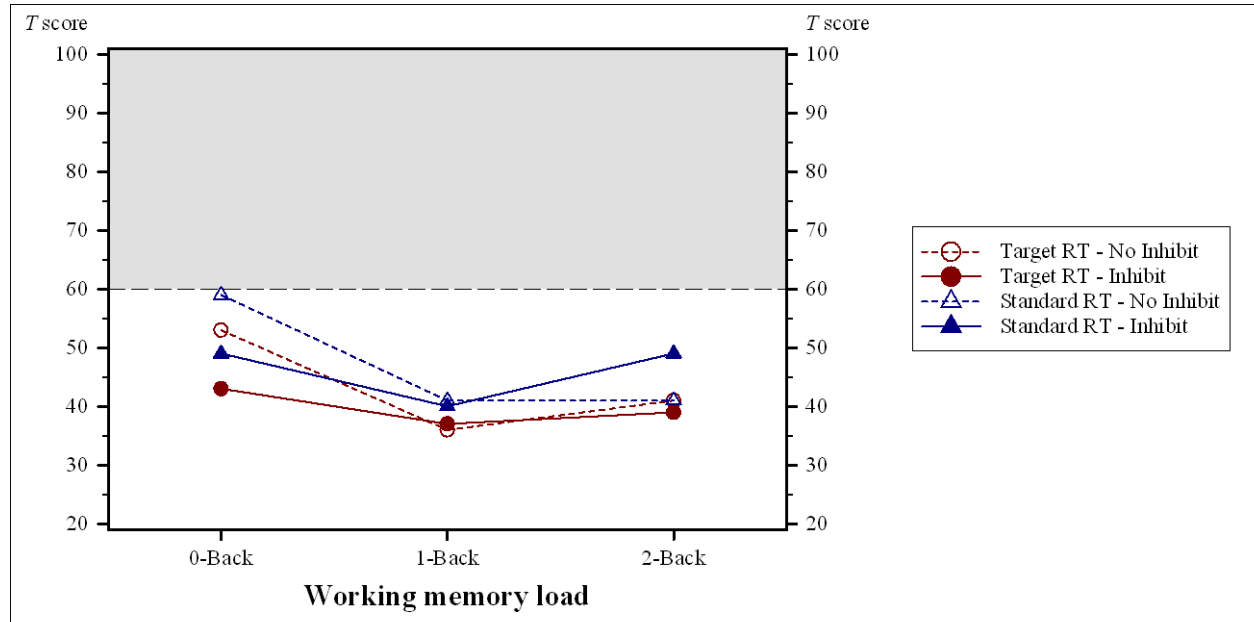**Task Scores Obtained for Target Omissions, Standard Omissions, Incorrect Responses, and Commissions by Task on the TEC**

Variable/Score	No Inhibit			Inhibit		
	0-Back (0B)	**1-Back (1B)**	**2-Back (2B)**	**0-Back (0BI)**	**1-Back (1BI)**	**2-Back (2BI)**
Target Omissions						
Raw score	0	0	1	0	0	1
(% of Targets)	(0%)	(0%)	(5%)	(0%)	(0%)	(5%)
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical
Standard Omissions						
Raw score	1	1	3	6	7	4
(% of Standards)	(1%)	(1%)	(4%)	(9%)	(11%)	(6%)
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical
Incorrect						
Raw score	8	43	48	10	26	40
T score	39	84	80	44	67	82
Percentile	14	> 99	> 99	27	96	> 99
90% CI	32 - 46	77 - 91	72 - 88	37 - 51	60 - 74	74 - 90
Interpretation	Typical	Elevated	Elevated	Typical	Elevated	Elevated
Commissions						
Raw score				9	13	11
T score				56	64	55
Percentile				73	92	69
90% CI				48 - 64	57 - 71	47 - 63
Interpretation				Typical	Elevated	Typical

Note.   CI = Confidence Interval. Commissions are shown only for the Inhibit tasks, as they cannot occur in the No Inhibit condition.

Response Time: Target RT and Standard RT

Line Graph of *T* Scores Obtained for Target RT and Standard RT Across TEC Tasks

Note.   RT = Response Time.

Predicted Raw Scores, Obtained Raw Scores, and SRB Change Scores for Target RT and Standard RT Across TEC Tasks

	No Inhibit		Inhibit	
Variable	**0B-1B** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**1B-2B** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**0BI-1BI** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**1BI-2BI** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**
Target RT	473.56 (293.89) [**2.41**[*]]	314.23 (321.40) [-0.07]	399.74 (268.21) [**1.49**[*]]	306.33 (300.71) [0.06]
Standard RT	553.51 (376.80) [**3.95**[*]]	366.80 (353.17) [0.32]	458.69 (368.64) [**2.42**[*]]	363.51 (438.34) [**-1.84**[*]]

Note.   SRB = Standardized regression-based; RT = Response Time; 0B = 0-Back/No Inhibit; 0BI = 0-Back/Inhibit; 1B = 1-Back/No Inhibit; 1BI = 1-Back/Inhibit; 2B = 2-Back/No Inhibit; 2BI = 2-Back/Inhibit.
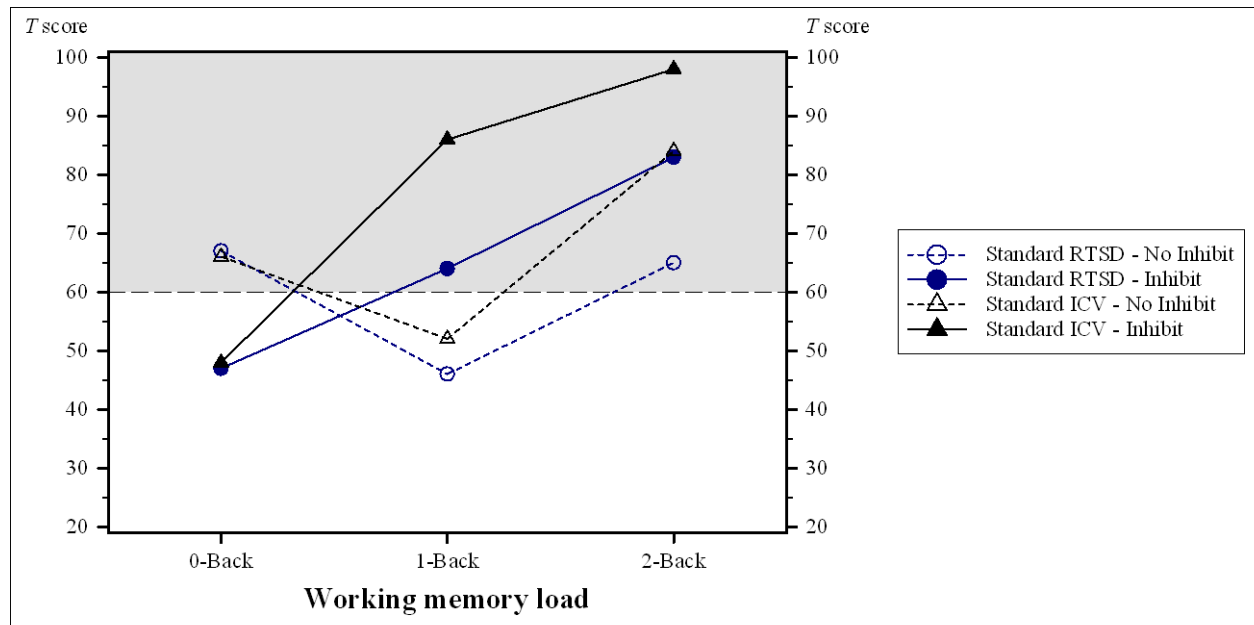An asterisk (*) and bolded text indicates a significant SRB change score between tasks.

Task Scores Obtained for Target RT and Standard RT by Task on the TEC

Variable/Score	No Inhibit			Inhibit		
	0-Back (0B)	1-Back (1B)	2-Back (2B)	0-Back (0BI)	1-Back (1BI)	2-Back (2BI)
Target RT						
Raw score	491.32	293.89	321.40	439.81	268.21	300.71
T score	53	36	41	43	37	39
Percentile	62	8	18	24	10	14
90% CI	47 - 59	31 - 41	34 - 48	37 - 49	32 - 42	32 - 46
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical
Standard RT						
Raw score	537.91	376.80	353.17	456.39	368.64	438.34
T score	59	41	41	49	40	49
Percentile	82	18	18	46	16	46
90% CI	55 - 63	37 - 45	36 - 46	45 - 53	36 - 44	45 - 53
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical

Note.   RT = Response Time; CI = Confidence Interval.

Response Time: Standard RTSD and Standard ICV

Line Graph of *T* Scores Obtained for Standard RTSD and Standard ICV Across TEC Tasks

Note.   RT = Response Time. RTSD = Standard Deviation of the Response Time; ICV = Intra-Individual Coefficient of Variation.

Predicted Raw Scores, Obtained Raw Scores, and SRB Change Scores for Standard RTSD and Standard ICV Across TEC Tasks

Variable	No Inhibit		Inhibit	
	0B-1B **Predicted raw score (Obtained raw score) [SRB change score]**	**1B-2B** **Predicted raw score (Obtained raw score) [SRB change score]**	**0BI-1BI** **Predicted raw score (Obtained raw score) [SRB change score]**	**1BI-2BI** **Predicted raw score (Obtained raw score) [SRB change score]**
Standard RTSD	207.66 (119.33) [**2.80***]	153.31 (272.20) [**-3.04***]	148.44 (235.47) [**-2.33***]	240.26 (413.01) [**-4.03***]
Standard ICV	0.36 (0.32) [0.72]	0.39 (0.77) [**-4.76***]	0.32 (0.64) [**-4.50***]	0.62 (0.94) [**-4.09***]

Note. SRB = Standardized regression-based; RTSD = Standard Deviation of the Response Time; ICV = Intra-Individual Coefficient of Variation. 0B = 0-Back/No Inhibit; 0BI = 0-Back/Inhibit; 1B = 1-Back/No Inhibit; 1BI = 1-Back/Inhibit; 2B = 2-Back/No Inhibit; 2BI = 2-Back/Inhibit. An asterisk (*) and bolded text indicates a significant SRB change score between tasks.

Task Scores Obtained for Standard RTSD and Standard ICV by Task on the TEC

Variable/Score	No Inhibit			Inhibit		
	0-Back (0B)	**1-Back (1B)**	**2-Back (2B)**	**0-Back (0BI)**	**1-Back (1BI)**	**2-Back (2BI)**
Standard RTSD						
Raw score	219.05	119.33	272.20	124.90	235.47	413.01
T score	67	46	65	47	64	83
Percentile	96	34	93	38	92	> 99
90% CI	61 - 73	39 - 53	57 - 73	40 - 54	57 - 71	76 - 90
Interpretation	Elevated	Typical	Elevated	Typical	Elevated	Elevated
Standard ICV						
Raw score	0.41	0.32	0.77	0.27	0.64	0.94
T score	66	52	84	48	86	98
Percentile	95	58	> 99	42	> 99	> 99
90% CI	58 - 74	44 - 60	75 - 93	40 - 56	78 - 94	90 - 106
Interpretation	Elevated	Typical	Elevated	Typical	Elevated	Elevated

Note. RTSD = Standard Deviation of the Response Time; ICV = Intra-Individual Coefficient of Variation; CI = Confidence Interval.

End of Report