



CONNERS CATA™

Continuous Auditory Test of Attention™

C. Keith Conners, Ph.D.

Assessment Report

Name/ID:	Jessica Sample
Age:	25
Gender:	Female
Birth Date:	January 5, 1989
Administration Date:	January 22, 2014
Normative Option:	Gender Specific norms
Input Device:	Keyboard
Assessor's Name:	Dr. Smith
Medication/Notes:	

This Assessment Report is intended for use by qualified assessors only, and is not to be shown or presented to the respondent or any other unqualified individuals or used as the sole basis for clinical diagnosis or intervention. Administrators are cautioned against drawing unsupported interpretations. To obtain a comprehensive view of the individual, information from this report should be combined with information gathered from other psychometric measures, interviews, observations, and available records. This report is based on an algorithm that produces the most common interpretations of the obtained scores. Additional interpretive information is found in the *Conners CATA Manual* (published by MHS).



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The Conners Continuous Auditory Test of Attention (Conners CATA™) assesses auditory processing and attention-related problems in individuals aged 8 years and older. During the 14-minute, 200-trial administration, respondents are presented with high-tone sounds that are either preceded by a low-tone warning sound (warned trials) or played alone (unwarned trials). Respondents are instructed to respond only to high-tone sounds on warned trials, and to ignore those on unwarned trials. By indexing the respondent's performance in areas of inattentiveness, impulsivity, and sustained attention, the Conners CATA can be a useful adjunct to the process of diagnosing Attention-Deficit/Hyperactivity Disorder (ADHD) and other neurological conditions related to auditory attention.

Validity of Administration

The Conners CATA performs a validity check based on the number of hits and omission errors committed, as well as a self-diagnostic check of the accuracy of the timing of each administration. If there is an insufficient number of hits to compute scores, and/or if the omission error rate exceeds 25%, these issues will be noted. Also, the program will issue a warning message noting that the administration was invalid if a timing issue is detected.

There was no indication of any validity issues; the current administration should be considered valid.

Response Style Analysis

The variable **C** represents an individual's natural response style in tasks that involve a speed-accuracy trade-off. Based on his or her score on this variable, a respondent can be classified as having one of the following three response styles: a **conservative** style (T-score ≥ 60) of responding that emphasizes accuracy over speed; a **liberal** style (T-score ≤ 40) of responding that emphasizes speed over accuracy; or a **balanced** style (T-score = 41-59) of responding that is sensitive to both speed and accuracy. Based on Jessica's responses, **she has a balanced style of responding that is sensitive to both speed and accuracy (T-score = 43; 90% Confidence Interval = 39-47)**. This response style is not likely to bias other Conners CATA scores.

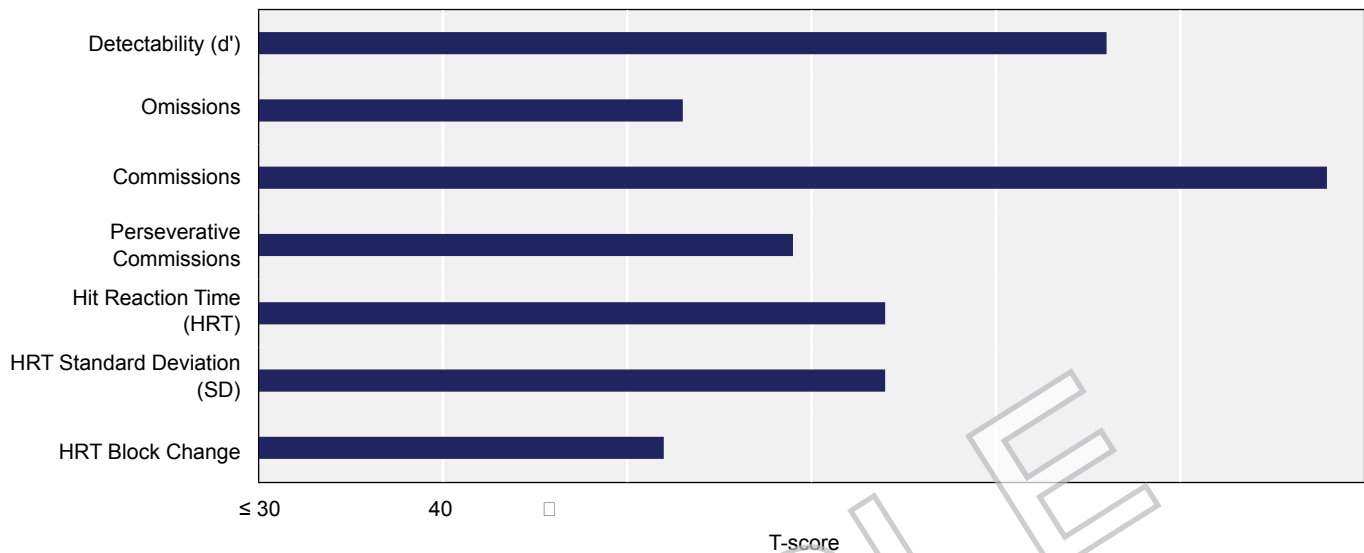
T-score Guidelines

The guidelines in the following table apply to all T-scores in this report.

Guidelines			
T-score	For Hit Reaction Time (HRT)	T-score	For all other variables
70+	Atypically Slow	70+	Very Elevated
60-69	Slow	60-69	Elevated
55-59	A Little Slow	55-59	High Average
45-54	Average	45-54	Average
40-44	A Little Fast	< 45	Low
< 40	Atypically Fast		

Overview of Conners CATA Scores

This section provides an overview of Jessica's Conners CATA scores.



Variable Type	Measure	T-score (CI)	Percentile	Guideline	Interpretation
Detectability	d'	76 (72-80)	99th	Very Elevated	Pronounced difficulty differentiating targets from non-targets.
Error Type	Omissions	53 (51-55)	81st	Average	Average rate of missed targets.
	Commissions	88 (84-92)	97th	Very Elevated	Very high rate of incorrect responses to non-targets.
	Perseverative Commissions	59 (57-61)	94th	High Average	Slightly above average rate of incorrectly responding before the target.
Reaction Time Statistics	HRT	64 (63-65)	95th	Slow	Slow mean response speed.
	HRT SD	64 (60-68)	87th	Elevated	High inconsistency in reaction times.
	HRT Block Change	52 (47-57)	63rd	Average	Average change in response speed in later blocks.

Note. CI = Confidence Interval.

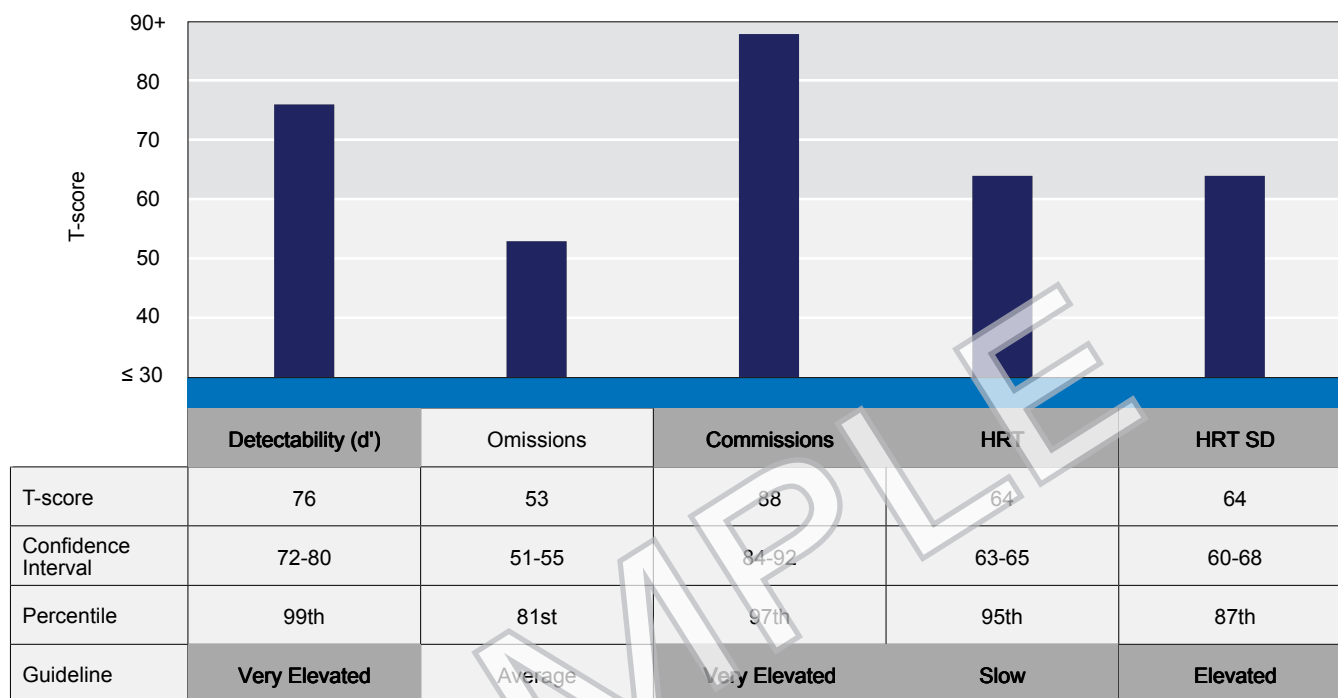
Summary: Relative to the normative sample, Jessica was less able to differentiate targets from non-targets, made more commission errors, responded more slowly and displayed less consistency in response speed.

Overall, Jessica has a total of 4 atypical T-scores, which is associated with a high likelihood of having a disorder characterized by attention deficits, such as ADHD. Note that other psychological and/or neurological conditions with symptoms of impaired attention can also lead to atypical scores on the Conners CATA.

Jessica's profile of scores and response pattern indicates that she may have issues related to:

- **Inattentiveness (Strong Indication)**

This section summarizes Jessica’s scores on the inattentiveness measures and provides information about how she compares to the normative group. Indicators of inattentiveness on the Conners CATA are poor Detectability (d’), a high percentage of Omissions and Commissions, a slow Hit Reaction Time (HRT), as well high levels of inconsistency in response speed (Hit Reaction Time Standard Deviation [HRT SD]).



Detectability (d') measures the respondent’s ability to differentiate non-targets (i.e., the high-tone sound on unwarned trials) from targets (i.e., the high-tone sound on warned trials). Jessica’s T-score is 76 (90% CI = 72-80), which is ranked at the 99th percentile, and falls in the **Very Elevated** range. This result means that her ability to discriminate non-targets from targets was very poor when compared to the normative group. Poor ability to differentiate non-targets from targets is an indicator of inattentiveness.

Omissions result from a failure to respond to targets. Jessica’s T-score is 53 (90% CI = 51-55), which is ranked at the 81st percentile, and falls in the **Average** range. This result means that she missed an average percentage of targets when compared to the normative group.

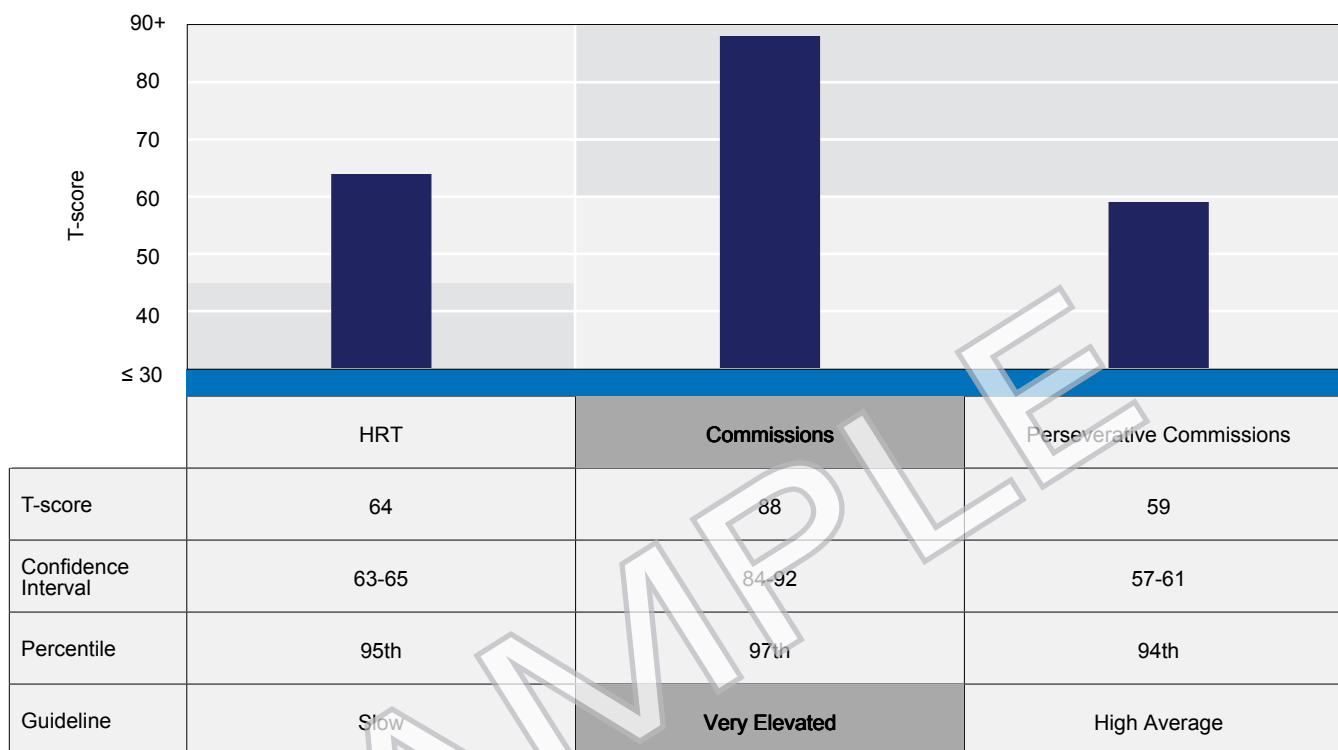
Commissions are made when responses are given to non-targets. Jessica’s T-score is 88 (90% CI = 84-92), which is ranked at the 97th percentile, and falls in the **Very Elevated** range. This result means that she responded to a much higher percentage of non-targets when compared to the normative group. A high level of commission errors may be related to inattentiveness and/or impulsivity. The combination of Jessica’s slow response times (see HRT, below) and high commission errors is an indicator of inattentiveness.

HRT is the mean response speed of correct responses for the whole administration. Jessica’s T-score is 64 (90% CI = 63-65), which is ranked at the 95th percentile, and falls in the **Slow** range. This result means that her response speed was slower than the normative group’s response speed. This may indicate that Jessica was not processing targets efficiently.

HRT SD is a measure of response speed consistency during the entire administration. Jessica’s T-score is 64 (90% CI = 60-68), which is ranked at the 87th percentile, and falls in the **Elevated** range. This result means that her response speed was less consistent than the normative group. This suggests that Jessica was more inattentive and processed stimuli less efficiently during some portions of the administration.

Jessica’s scores on these measures strongly suggest that she may have problems with inattentiveness.

This section summarizes Jessica's scores on the impulsivity measures and provides information about how she compares to the normative group. Indicators of impulsivity on the Conners CATA include a faster than normal Hit Reaction Time (HRT) in addition to a higher than average rate of Commissions and/or Perseverative Commissions.



HRT is the mean response speed of correct responses for the whole administration. Jessica's T-score is 64 (90% CI = 63-65), which is ranked at the 95th percentile, and falls in the **Slow** range. This result means that her response speed was slower than the normative group's response speed. A slower than normal HRT is often related to inattentiveness rather than impulsivity. See the *Measures of Inattentiveness* section of this report for more interpretative information.

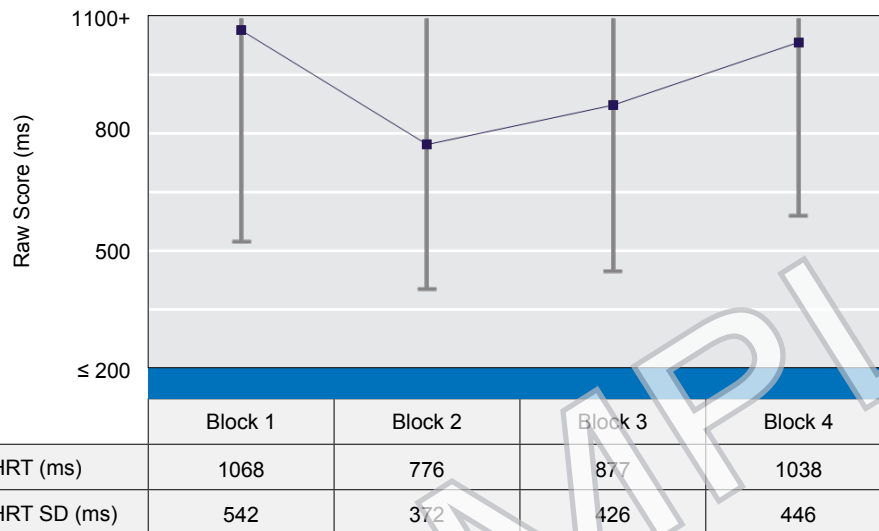
Commissions are made when responses are given to non-targets. Jessica's T-score is 88 (90% CI = 84-92), which is ranked at the 97th percentile, and falls in the **Very Elevated** range. This result means that she responded to a much higher percentage of non-targets when compared to the normative group. Commission errors may be related to impulsivity and/or inattentiveness. The combination of Jessica's slow response times (see HRT, above) and high commission errors is an indicator of inattentiveness rather than impulsivity.

Perseverative Commissions are incorrect responses that were made before the target sound. Jessica's T-score is 59 (90% CI = 57-61), which is ranked at the 94th percentile, and falls in the **High Average** range. This result means that she made slightly more perseverative commissions when compared to the normative group.

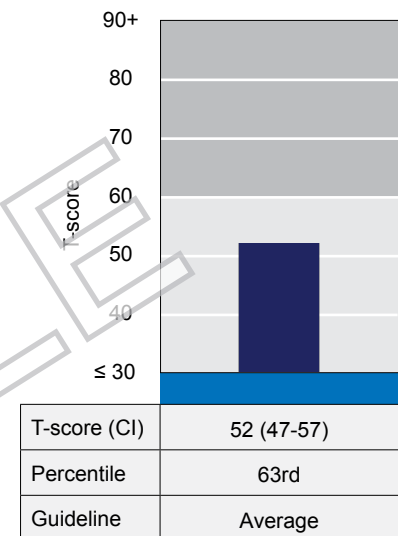
Jessica's scores on these measures do not indicate a problem with impulsivity.

This section summarizes Jessica’s scores on the sustained attention measures. Sustained attention is defined as the respondent’s ability to maintain attention as the administration progresses. A decrease in sustained attention across time is captured by atypical slowing in the respondent’s Hit Reaction Times (HRT; as indicated by the variable HRT Block Change, as well as by increases in Omissions and Commissions in later blocks of the administration.

Hit Reaction Time by Block

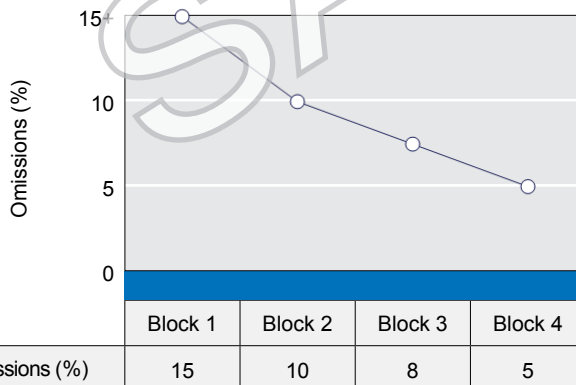


HRT Block Change

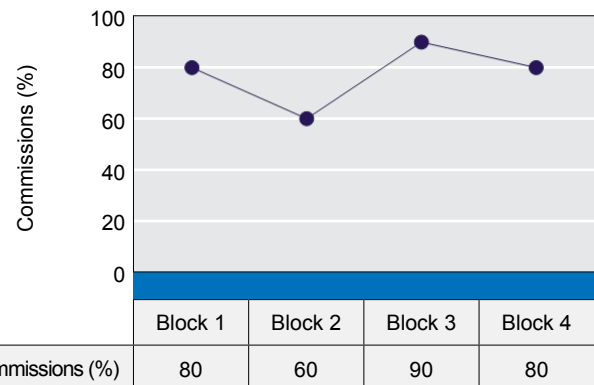


Note. ms = milliseconds; SD = Standard Deviation; CI = Confidence Interval.

Omissions by Block



Commissions by Block

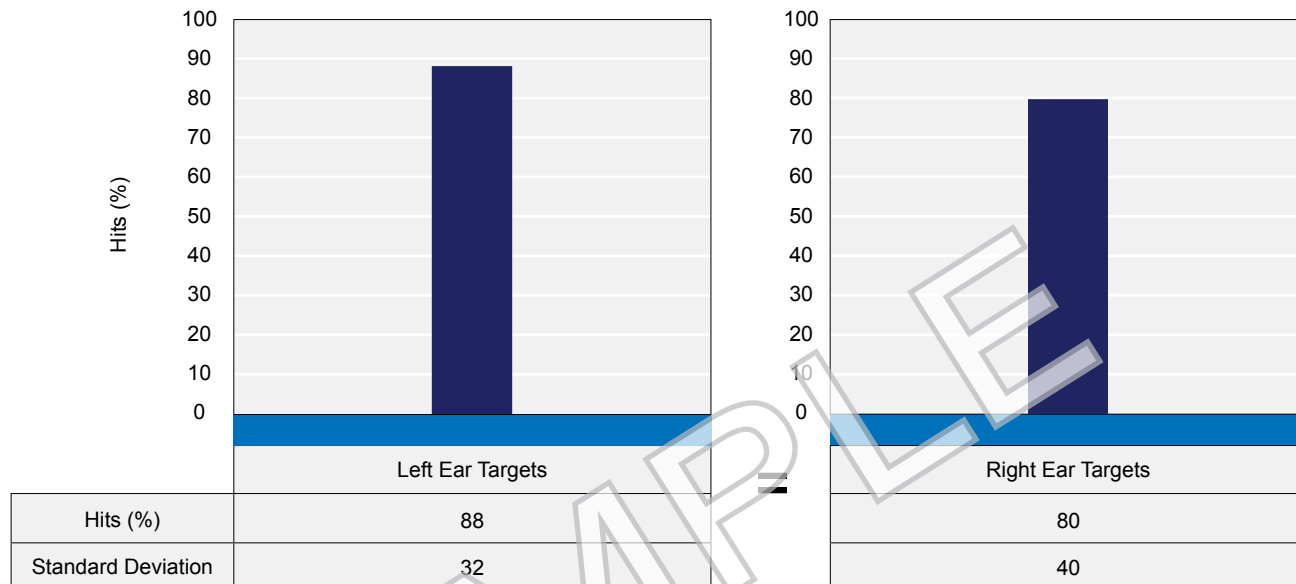


Note. No statistically significant differences were found in error rates between blocks.

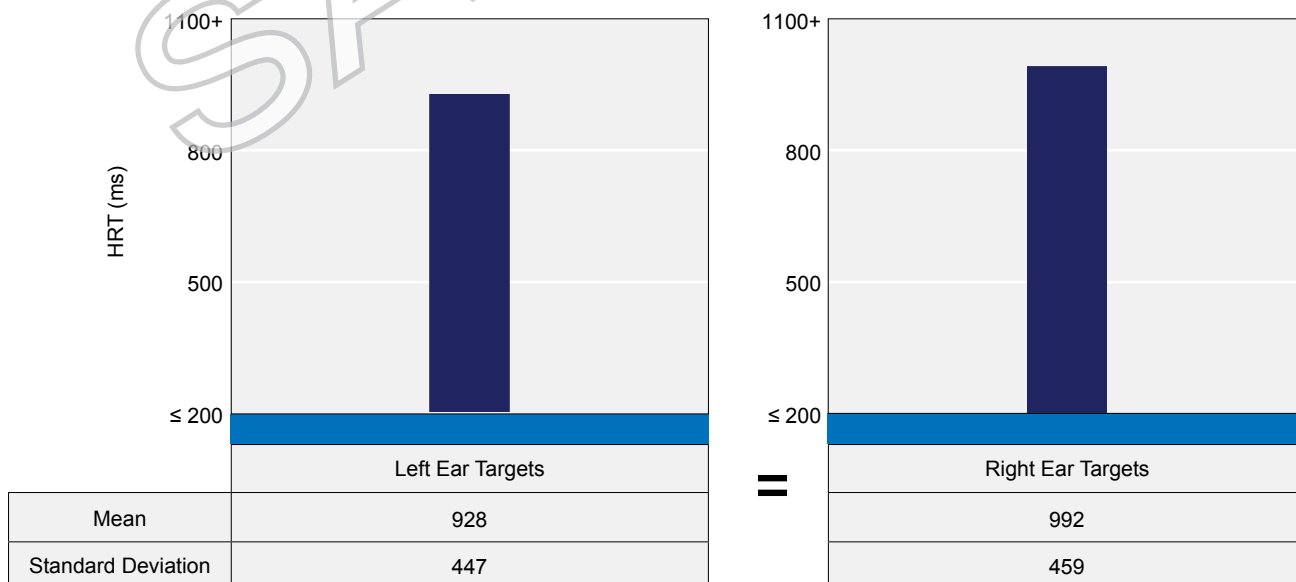
HRT Block Change indicates the change in mean response speed across blocks. Jessica’s T-score is 52 (90% CI = 47-57), which is ranked at the 63rd percentile, and falls in the **Average** range. This result means that she had an average reduction in response speed in later blocks. In terms of error rates, Jessica’s omission and commission errors did not increase significantly across multiple adjacent blocks. **Jessica’s profile of scores on these measures does not indicate a problem with sustained attention.**

This section of the report provides descriptive information about Jessica’s auditory laterality (i.e., the respondent’s preference for left or right ear targets). Auditory laterality is presented in terms of Percent of Hits (i.e., the rate of correct response to targets) and Hit Reaction Time (HRT). The “>” and “<” symbols indicate that there are statistically significant ($p < .10$) differences in Jessica’s responses to left versus right ear targets. Differences that do not reach statistical significance are denoted by the “=” symbol.

Percent of Hits



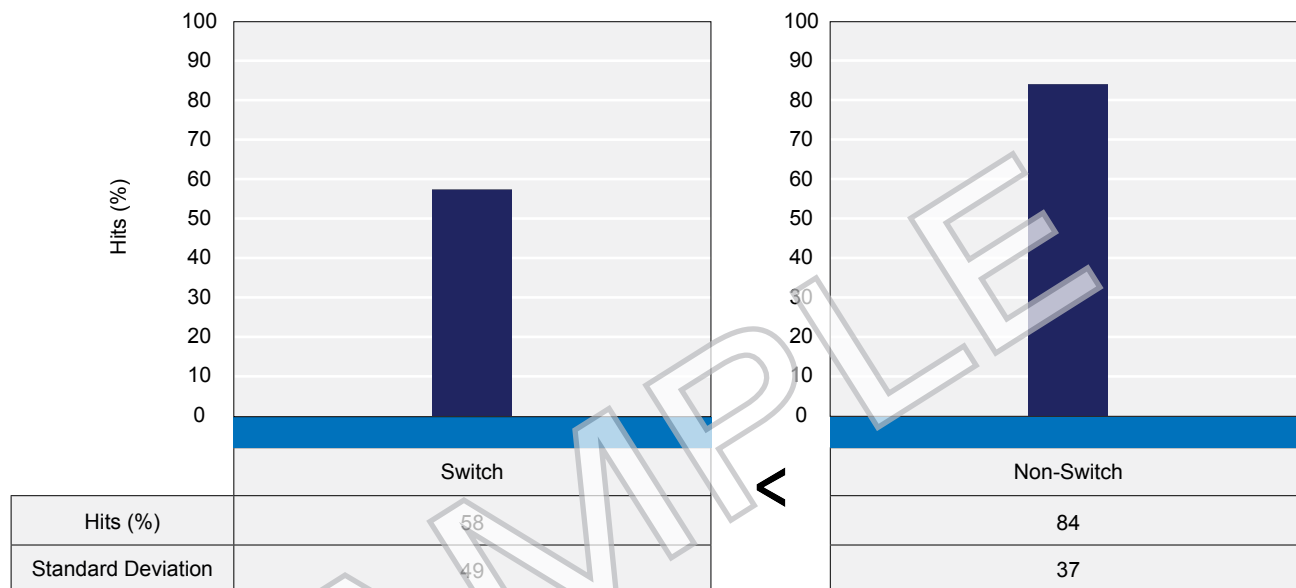
Hit Reaction Time (HRT)



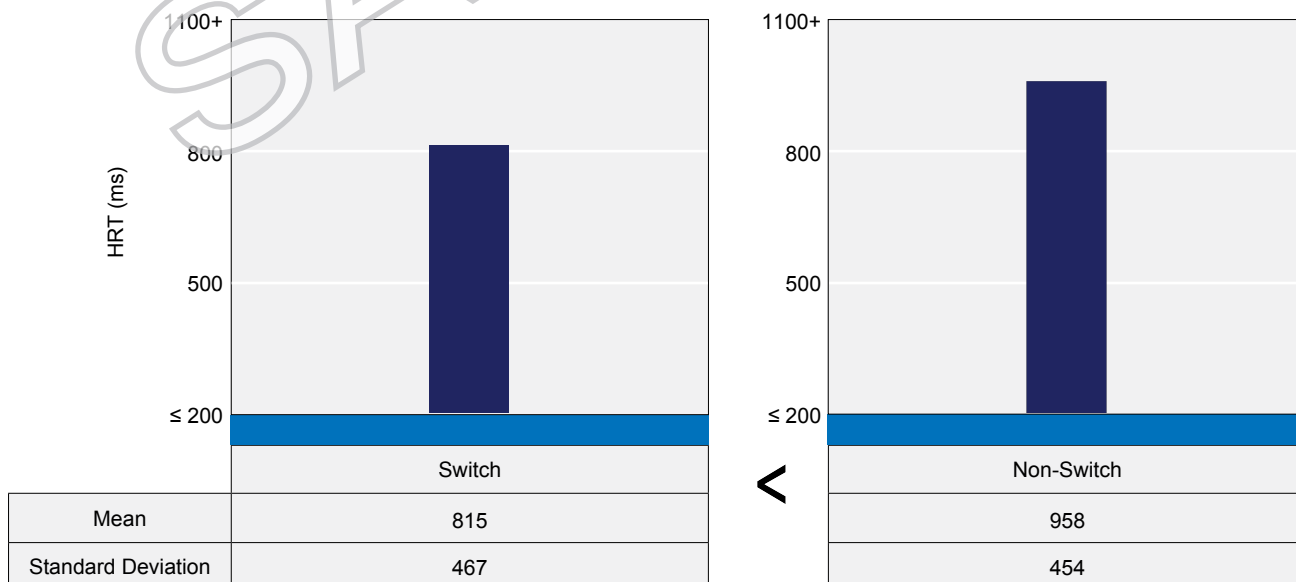
There were no statistically significant differences in the percentage of correct hits or in hit reaction times between left- and right-ear targets. **These results do not indicate an advantage to either ear.**

There are two types of warned trials on the Conners CATA. On *switch* trials, the low-tone warning sound and the high-tone target sound are played in different ears, requiring the respondent to shift auditory attention from one ear to the other. Sometimes, the switch is from left ear to right ear; other times, the switch is from right ear to left ear. On *non-switch* trials, the two sounds are played in the same ear. This section of the report provides descriptive information about Jessica’s auditory mobility. Auditory mobility is presented in terms of percent of hits (i.e., the rate of correct response to targets) and hit reaction time (HRT). The “>” and “<” symbols indicate that there are statistically significant differences between switch and non-switch targets. Differences that do not reach statistical significance are denoted by the “=” symbol.

Percent of Hits



Hit Reaction Time (HRT)



Jessica had a significantly higher (i.e., $p < .10$) percentage of correct hits on non-switch trials than on switch trials, but she had faster (i.e., $p < .10$) hit reaction times on switch trials than on non-switch trials.

Conners CATA Raw Scores



Variable Type	Measure	Raw Score
Detectability	d'	-0.02
Error Type	Omissions	9%
	Commissions	78%
	Perseverative Commissions	13%
Reaction Time Statistics	Hit Reaction Time (HRT)	931.79
	HRT Standard Deviation (SD)	459.72 (0.455)
	HRT Block Change	0.93 (0.010)

Note. The values in parentheses in the Raw Score column are based on the natural logarithm of the Hit Reaction Times. These logged values were used in the computations of the T-scores. For d' and HRT Block Change, negative raw score values are possible. See the *Conners CATA Manual* for more information.

SAMPLE

Response Style

C is a signal detection statistic that measures an individual's natural response style in tasks involving a speed-versus-accuracy trade-off. Based on his or her score on this variable, a respondent can be classified as having one of the following three response styles: a *conservative* style that emphasizes accuracy over speed; a *liberal* style that emphasizes speed over accuracy; or a *balanced* style that is biased neither to speed nor accuracy. Response style can affect scores such as Commissions and Hit Reaction Time (HRT), and should be taken into consideration during interpretation.

Detectability (d')

d -prime (d') is a measure of how well the respondent discriminates non-targets (i.e., the high tones on unwarned trials) from targets (i.e., the high tones on warned trials). This variable is also a signal detection statistic that measures the difference between the signal (targets) and noise (non-targets) distributions. In general, the greater the difference between the signal and noise distributions, the better the ability to distinguish non-targets and targets. On the Conners CATA, (d') this variable is reverse-scored so that higher raw score and T -score values indicate worse performance (i.e., poorer discrimination).

Omissions (%)

Omissions are missed targets. High omission error rates indicate that the respondent was not responding to the target stimuli due to a specific reason (e.g., difficulty focusing). Omission errors are generally an indicator of inattentiveness.

Commissions (%)

Commissions are incorrect responses to non-targets. Depending on the respondent's HRT, high commission error rates may indicate either inattentiveness or impulsivity. If high commission error rates are coupled with slow reaction times, then the respondent was likely inattentive to the stimulus type being presented and thus responded to a high rate of non-targets. If high commission error rates are combined with fast reaction times, the respondent was likely rushing to respond and failed to control his or her impulses when responding to the non-targets. In the latter case, high commission error rates would reflect impulsivity rather than inattentiveness.

Perseverative Commissions (%)

Perseverative Commissions are recorded when a respondent incorrectly responds after the low tone and before the high tone on a warned trial. Perseverative Commissions may indicate impulsivity (if HRT is also fast) or anticipatory responding.

Hit Reaction Time (HRT)

Hit Reaction Time (HRT) is the mean response speed, measured in milliseconds, for all non-perseverative target responses made during the entire administration. An atypically slow HRT may indicate inattentiveness (especially when error

rates are high), but may also be the result of a very conservative response style. Alternatively, a very fast HRT, when combined with high commission or perseverative commission error rates, may indicate impulsivity.

Hit Reaction Time Standard Deviation (HRT SD)

HRT SD measures the consistency of response speed to targets for the entire administration. A high HRT SD indicates greater inconsistency in response speed. Response speed inconsistency is sometimes indicative of inattentiveness, suggesting that the respondent was less engaged and processed stimuli less efficiently during some parts of the administration.

Hit Reaction Time Block Change (HRT Block Change)

HRT Block Change is the slope of change in HRT across the four blocks of the administration. A positive slope indicates decelerating reaction times as the administration progressed, while a negative slope indicates accelerating reaction times. If reaction times slow down, as indicated by a higher HRT Block Change score, the respondent's information processing efficiency declines, and a loss of sustained attention is indicated.

Omissions by Block

Omissions by Block (raw score only) is the rate of the respondent's missed targets in each of the four blocks. An increase in omission error rate in later blocks indicates a loss of sustained attention.

Commissions by Block

Commissions by Block (raw score only) is the rate of the respondent's incorrect responses to non-targets in each of the four blocks. An increase in commission error rate in later blocks indicates a loss of sustained attention.

Hit% and HRT by Left- or Right-Ear Targets

Hit% and HRT by Left- or Right-Ear Targets (raw scores only) assess auditory laterality (i.e., efficiency in processing left- or right-ear targets) by comparing the respondent's Hit% (percentage of correct responses to targets) and HRT for left-ear targets to those for right-ear targets. Faster HRT and a higher Hit% in a particular ear indicate preference for hearing targets using that ear.

Hit% and HRT on Switch vs. Non-Switch Trials

Hit% and HRT on Switch vs. Non-Switch trials (raw scores only) assess auditory mobility (i.e., ability to switch attention from one ear to the other) by comparing the respondent's Hit% and HRT on switch trials to those recorded on non-switch trials. Lower Hit% and slower HRT on switch trials may indicate issues with auditory mobility.