

# Comparing the WJIII-COG, NEPSY, and D-KEFS Scores of Attention in a Mixed Clinical Group Sample

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These data were drawn from a archival sample of 316 case studies that were conducted by students in the School Neuropsychology Post-Graduate Certification Program (2001 - 2007). There were 216 males (68%) and 98 females (31%) and 2 not identified (.6%) in the sample. There were 72 Caucasians (22.8%), 8 African-Americans (2.5%), 24 Hispanic/Latino Americans (7.6%), 2 Asian-Americans (.6%), 3 biracial (.9%), 1 foreign-national (.3%), and 206 with ethnicity not identified (65.2%). The range of the ages of the sample was 3.4 to 18.7 years.

## School Neuropsychology Conceptual Model (Miller, 2007)

	N	Mean (SD)
<b>Selective/Focused Attention</b>		
• WJIII-COG Auditory Attention	185	96.05 (12.34)
• NEPSY Auditory Attention and Response Set Total	160	8.89 ( 6.44)
- Auditory Attention	119	9.27 ( 2.75)
- Response Set	122	7.96 ( 2.97)
• NEPSY Visual Attention	168	9.21 ( 3.27)
<b>Sustained Attention</b>		
• WJIII-COG Pair Cancellation	190	92.99 (11.71)
• NEPSY Auditory Attention and Response Set Total	160	8.89 ( 6.44)
- Auditory Attention	119	9.27 ( 2.75)
- Response Set	122	7.96 ( 2.97)
<b>Shifting Attention</b>		
• NEPSY Auditory Attention and Response Set Total	160	8.89 ( 6.44)
- Auditory Attention	119	9.27 ( 2.75)
- Response Set	122	7.96 ( 2.97)
• D-KEFS		
- Trail Making Test (Condition 4 - Switching)	129	6.96 ( 4.24)
- Verbal Fluency (Condition 3 - Switching)	114	7.89 ( 3.45)
- Color-Word Interference (Condition 4 - Switching)	106	7.63 ( 3.12)
- Design Fluency (Condition 3 - Switching)	100	8.27 ( 3.05)
<b>Divided Attention</b>		
• WJIII-COG Auditory Working Memory	193	95.51 (14.83)

## Exploratory Factor Analyses

**Factor Analysis Variables:** All variables except NEPSY-AA & NEPSY-RS

Factor	Eigenvalue	% of variance	Cumulative Variance
1	3.97	44.15%	44.15%
2	1.79	19.99%	64.14%
3	1.24	13.88%	78.02%
4	1.07	11.99%	90.02%

## Factor Loadings:

	Factor 1	Factor 2	Factor 3	Factor 4
<b>WJIII-COG Scores</b>				
-Auditory Attention	.37	.64	-.41	.47
- Pair Cancellation	.57	-.65	.30	.09
-Auditory Working Memory	.81	.14	-.25	.40
<b>NEPSY Scores</b>				
- Aud. Attention/Response Set	.80	.17	-.11	-.45
-Visual Attention	.67	-.66	.11	.21
<b>D-KEFS Scores</b>				
- Trail Making Test (4)	.88	-.02	-.01	-.13
-Verbal Fluency (3)	.25	.62	.61	-.34
-Design Fluency (3)	.72	.33	.53	.27
-Color Word Interference (4)	.64	-.07	-.51	-.50

## Factor Labels:

General Attention	Selective Attention	Shifting Attention	Weak Divided Attention or Working Memory
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	WJIII COG Measures			NEPSY Measures				D-KEFS Measures				
		WJAA	WJPC	WJAWM	AARS	AA	RS	VA	TMT(4)	VF(3)	CW(4)	DF(3)
<b>WJIII COG Measures</b>	WJAA	-----	.22 ( <b>&lt;.001</b> )	.35 ( <b>&lt;.001</b> )	-.02 (.85)	.21 (.05)	.17 (.11)	.18 (.07)	.32 (.002)	.19 (.10)	-.02 (.87)	.05 (.70)
	WJPC	-----	-----	.23 (.003)	.22 (.03)	.29 (.005)	.44 ( <b>&lt;.001</b> )	.47 ( <b>&lt;.01</b> )	.35 (.001)	.08 (.50)	.25 (.03)	.38 (.01)
	WJAWM	-----	-----	-----	.25 (.01)	.34 (.001)	.40 ( <b>&lt;.001</b> )	.21 (.03)	.22 (.04)	.39 (.001)	.45 ( <b>&lt;.001</b> )	.23 (.06)
<b>NEPSY Measures</b>	AARS	-----	-----	-----	-----	.35 ( <b>&lt;.001</b> )	.39 ( <b>&lt;.001</b> )	.17 (.03)	.37 (.05)	.18 (.39)	.62 (.001)	.46 (.03)
	AA	-----	-----	-----	-----	-----	.62 ( <b>&lt;.001</b> )	.20 (.03)	.17 (.39)	.12 (.63)	.50 (.01)	.29 (.21)
	RS	-----	-----	-----	-----	-----	-----	.35 ( <b>&lt;.001</b> )	.37 (.05)	.12 (.60)	.74 ( <b>&lt;.01</b> )	.53 (.01)
	VA	-----	-----	-----	-----	-----	-----	-----	.46 (.009)	-.24 (.24)	.31 (.10)	.31 (.15)
<b>D-KEFS Measures</b>	TMT(4)	-----	-----	-----	-----	-----	-----	-----	-----	.20 (.04)	.27 (.007)	.33 (.001)
	VF(3)	-----	-----	-----	-----	-----	-----	-----	-----	-----	.20 (.07)	.32 (.002)
	CW(4)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.39 ( <b>&lt;.001</b> )
	DF(3)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

## Implications:

- WJIII Auditory Working Memory and the D-KEFS Trail Making Test (Condition 4 - Switching) are the two measures that are most highly correlated with all of the other measures.
- Many of the WJIII COG, NEPSY, and D-KEFS measures that reportedly measure attention are intercorrelated; however, they are neurocognitively complex. Many of these tests are not factorially pure in that they require multiple components of attention (e.g., selective, sustained, and shifting attention).
- The factor analysis indicated that all of the tests are measuring some general aspect of attention. However, several tests do load on a factor that could be labeled selective attention and another set of tasks load on a factor that could be labeled shifting attention.
- The fourth factor appears to be made up of tasks that measure either divided attention or working memory.