Abstracts for the AACN Scientific Poster Session

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ABSTRACTS FOR THE AACN SCIENTIFIC POSTER SESSION

ADULT SECTION
(Student first-authored papers identified by “S” after poster number)

#01
ALDERSON, A.L., MCCARTNEY, R.D., BEEGHLY, J.L., BOOK, W.M., BERRY, S., & GUASCH, S.
Neurocognitive Outcomes in Adolescents and Adults with Congenital Heart Defects: A Pilot Study

Survival of children with congenital heart defects (CHD) into adulthood has dramatically increased over the past 5 decades. Unfortunately, many individuals fail to successfully assume responsibility for their medical care as adults. This transitional failure is likely multi-factorial and may result from cardiac-related cognitive deficits. To date, empirical studies of the cognitive sequelae in adults with CHD, and their implications for transition, appear lacking. This study evaluated neurocognitive outcomes in a sample of 19 adolescents and adults (M = 34 years; range 14 to 54) with CHD. Approximately 79% of participants demonstrated cognitive deficits in at least 1 neurocognitive domain (p <.000): 26% in visuoconstruction (p <.02), 42% in attention (p <.015), and 68% in executive functioning (p <.001). Language mediated abilities were preserved. Despite the high prevalence of neuropsychological deficits, no impairments were found on measures of health literacy or self-reported neurobehavioral functioning, although patients rated themselves as having significantly more difficulties with memory, communication, and health. The significant impairments in executive and attentional functioning suggest that these factors may play a role in transitional failures of CHD patients. Continued exploration of neuropsychological functioning in CHD patients, and its relationship to healthcare behaviors, can substantially enhance provider-patient relationships in provision of medical care.

#02
ALDERSON, A.L.
How Benign is Essential Tremor? A Case Study

Although cognitive deficits are readily recognized as a potential complication of Parkinson’s disease, essential tremor has historically been conceptualized as a “pure” motor disorder. However, recent literature suggests that individuals with
essential tremor demonstrate neuropsychological impairments in areas such as executive function, memory, and complex visuospatial abilities that implicate cerebello-thalamo-frontal networks. Age of onset and tremor severity may be correlated with neurocognitive deficits. A 49-year-old Caucasian gentleman with a 3-year history of progressive essential tremor, diagnosed by a specialty Movement Disorders Clinic, was evaluated with a comprehensive neuropsychological battery. He demonstrated significant impairments in all speeded visuomotor activities, complex working memory, unstructured visuoconstruction, and executive functioning. Visuospatial attention was relatively reduced in comparison to verbal attention. Executive components of memory were also impaired, including incidental learning and source discrimination, with greater impairment of nonverbal memory. Symptom validity measures fell within normal limits. While speeded performances likely resulted from his essential tremor, impairments in visuospatial abilities, working memory, and executive functioning are consistent with recent literature and suggest that essential tremor is more than a benign motor impairment. Awareness of neuropsychological ramifications of this diagnosis is important for clinicians, who will increasingly be called to evaluate such patients.

#03S

ANDRESEN, E.N., BREMSER, M., ORVIS, A.M., & OSMON, D.C.
The Impact of Attention Ability on Attention Deficit Hyperactivity Disorder Simulation in College Students

Incentives to feign ADHD in psychoeducational assessments have been well documented. The ability of simulators to fake ADHD performance on a continuous performance test and the effect of their innate attentional ability were evaluated in the present study. Using a median split on CPT-II performance, students were identified as having good or poor attention. Then they were randomly assigned to an ADHD simulator or a high incentive control group, and took the CPT II, WMT, and NAB Letters & Numbers. 2 x 2 MANOVAs showed a significant effect of Simulation on WMT (F = 16.4, p < .001), CPT-II (F = 4.2, p < .001), and Letters & Numbers (F = 2.2, p < .05), but no significant effect of Attentional Ability and no significant interaction. Forward logistic regression with Letters & Numbers achieved 82% sensitivity and 83% specificity, while logistic regression with the CPT-II achieved 88% sensitivity and 83% specificity using variability and commissions. 2 ADHD simulators did not fail the WMT, and 3 high incentive control participants did fail the WMT. These 5 participants were identified as having poor attention prior to group assignment. These results suggest that ability to pay attention does not impact undergraduate's ability to simulate ADHD on attention tests, although it may impact their WMT performance.

#04S

ANDRESEN, E.N., SCHMOLLER, D.J., & OSMON, D.C.
Simulation of Attention Deficit Hyperactivity Disorder on the Gordon Diagnostic System
Recently, numbers of college students presenting for ADHD evaluations in university clinics have increased dramatically. Incentives to feign ADHD have been well documented. However, little research has been done investigating the ability of college students to credibly feign poor attention on the Gordon Diagnostic System (GDS). 52 college students without history of ADHD were randomly assigned to a high incentive group or an ADHD simulator group. Simulators differed from controls on total correct, commissions, and overall reaction time using both the 6 minute and 9 minute norms. Using 6 minute ADHD norms, simulators differed from ADHD participants on reaction time ($t = -2.4, p < .01$), but not on total correct. Using 6 minute data, forward logistic regression achieved 61% sensitivity at 93% specificity using total correct. Using 9 minute data, forward logistic regression achieved 85% sensitivity at 90% specificity using total correct, total commissions, and overall RT. These data suggest that undergraduate students can successfully feign ADHD on the GDS. The 9 minute version of the GDS may allow for better discrimination of credible from feigned performance.

#05S
ARENSEN, T.J., GOLDBERG, H.E., FINLAY, L., BOONE, K.B., ARCHAMBEAULT, M., LO, T., TILAHUN, B., & MANSOUR-MORIARTY, T.
Stroop Word Reading Raw Score as a Processing Speed Symptom Validity Test

An efficient way to evaluate effort is to derive SVTs from core neuropsychological tests, but there is currently no SVT derived exclusively from a widely utilized processing speed test. The current study hypothesized that a Stroop Word Reading raw completion time score could potentially discriminate credible from non-credible groups in a “real world” population, thus providing an embedded SVT to directly assess processing speed effort. The study sample consisted of 74 clinical patients who were assigned to either a credible or non-credible group based on the following criteria: patients in the credible group ($n = 54$) had no motive to feign, failed <2 SVTs, had FSIQ scores >70, and were not diagnosed with dementia; patients assigned to the non-credible group ($n = 20$) failed >2 SVTs, and had documented secondary gain motive to feign cognitive symptoms (e.g., in litigation, applying for disability). Results indicated that a Stroop Raw Score cutoff of >73 seconds discriminated between the credible and non-credible groups with 93% specificity and 55% sensitivity, and could be useful as an embedded processing speed SVT.

#06
AXELROD, B.N., LONGMAN, R., & CROCKETT, D.J.
Using Age-Centered Score to Predict Performance on the Symbol Digit Modalities Test

This study used the performance of healthy control (HC) groups in published studies to examine the impact of selected demographic variables on the written (WSDMT) and oral (OSDMT) versions of the Symbol Digit Modalities Test (SDMT). We conducted a regression analysis weighted by the square root of the number of subjects using mean age, square- and cube-transformations of deviations
from mean age, mean education, and the proportion of male subjects to predict performance on WSDMT ($R = .88, df = 5/158, p < .001$). We also conducted a weighted regression analysis using mean age, age-centered transformations of mean age, and mean education to predict performance on OSDMT. A coded variable indicating whether the oral condition had been preceded by the written-condition also made a significant contribution to the prediction of OSDMT ($R = .875, df = 5/128, p < .001$). Studies with higher proportions of male subjects reported lower average levels only on WSDMT. Increased levels of education were associated with higher average scores on WSDMT and OSDMT. The prior administration of WSDMT but not gender had a significant impact on mean OSDMT scores. The use of age-centered transformations of the mean age reduced the problems with collinearity.

#08S

The Impact of Posttraumatic Stress Disorder on Executive Functioning

Although cognitive disturbances are common for those who experience traumatic stress (Briere & Spinazzola, 2005), few studies have investigated executive functioning (EF) in individuals diagnosed with posttraumatic stress disorder (PTSD). The present study was designed to explore the relationship between EF and PTSD utilizing several common neuropsychological measures including the Wisconsin Card Sort Test, Trail Making Test B, and Verbal Fluency. A mixed clinical sample of participants diagnosed with PTSD ($n = 26$) was compared to groups diagnosed with either anxiety disorder NOS (ANX; $n = 30$) or a neurological disease (ND; $n = 46$). Factor analysis of the EF measures indicated the presence of a single factor variable which was labeled EF. One way ANOVA indicated a significant difference between the groups, $F(2, 81) = 4.298, p = .017$. Post hoc analysis indicated that PTSD and ND performed significantly worse than the ANX group on EF. Results suggest that individuals with PTSD have EF deficits similar to those with a known neurological disease, and both groups have significantly poorer EF functioning than participants diagnosed with an anxiety disorder. Furthermore, results provide additional evidence that EF deficits are a significant issue when treating trauma survivors.

#09

BAIRD, A.D., GALE-ROSS, R., GHANDEHARI, O.O., & KRASEAN, L.
Age Self-Stereotyping and Neuropsychological Assessment

We investigated the effects of age self-stereotyping on neuropsychological assessment. Twenty-eight cognitively-healthy elders completed two short batteries, with one battery administered after a query asking for counsel (wise induction) and one after solicitation of age-related limitations (frail induction). Induction and battery order were randomly assigned. Initial analyses revealed no induction effect, but we noted that participants completed a negatively-worded aging attitudes survey after the first induction. This survey might have evoked negative aging stereotypes
regardless of which induction preceded it. Therefore we contrasted the effect of the wise induction administered second with other induction conditions. There was no induction effect for letter fluency, verbal learning, delayed recall, or false positive recognition errors, but practice or interference effects were present and may have obscured any induction effect. When administered after an intervening battery, the wisdom induction had a marginally significant positive effect on processing speed, a significant favorable effect on card sorting perseverative responses and paced auditory serial addition test correct responses, and no effect on a simple effort measure. Stereotype effects probably are evoked unwittingly in neuropsychological assessment at times. In normal elders these adverse effects may be most apparent on challenging executive function tasks.

#10S
BAJO, S.D., HAUSER, M.E., PACIORA, R.A., & KONOPKA, L.M.
Effects of an Acute Dose of Stimulants on Auditory P300: Differences Between Ritalin and Adderall

This study examines the way in which Ritalin and Adderall affect P300 amplitude. Focus is placed on observing differences in P300 wave amplitude change from pre to post test (auditory oddball paradigm) between the two medication types. Patients were selected for the study based on their clinical presentation and history of attention difficulties. Subjects were placed into one of two stimulant groups; Adderall (n = 10) or Ritalin (n = 10). No significant differences regarding age and gender were found across groups. Pre and post medication evoked potential data was acquired. P300 wave amplitude change was analyzed and differences between Ritalin and Adderall conditions were addressed. Results indicated that there is a trend towards significance regarding differences in wave amplitude generation at Pz between Ritalin and Adderall groups. The Ritalin condition showed an overall average amplitude increase (M = 4.909) over the Adderall group (M = .328). The data suggests that P300 wave amplitude is likely to be affected differently depending on the type of stimulant used. As many assessment measures typically rely on behavioral observation, this study provides electrophysiological data driven by objective measures as a way to address treatment for attentional difficulties.

#11S
BALLANTYNE, E.C., MAUCIERI, L., FRANCIS, T.J., CHAPLIN, A., & BEITEL, M.
The Neuropsychology of Mindfulness: Attentional Aspects

Mindfulness techniques require focused attention on the present moment and awareness of one’s thoughts and feelings as they occur. Based on mindfulness theory, it is expected that dispositional mindfulness will be positively associated with cognitive flexibility, sustained attention, concentration, and capacity for attention switching. The purpose of this correlational study was to explore the relationship between self-reported mindfulness and performances on standardized measures of attention. Fifty-three participants completed the following
standardized measures: Kentucky Inventory of Mindfulness Skills (KIMS); Mindful Attention Awareness Scale (MAAS); and Mindfulness/Mindlessness Scale (MMS); and the following attention measures: FAS and Animals Test of Orthographic Verbal Fluency; Letter-Number Sequencing (LNS); and Trail Making Test. KIMS Act with Awareness subscale was negatively correlated with Animals Verbal Fluency ($r = -0.290; p = 0.041$), positively correlated with Trails B Time Completed ($r = 0.289; p = 0.042$), and approaching significance with LNS ($r = -0.239; p = 0.094$) and Trails B T-Score ($r = -0.251; p = 0.067$). KIMS Accept without Judgment was approaching significance in relation to Animals Verbal Fluency ($r = -0.257; p = 0.71$).

There were no significant correlations between the MMS, MAAS, and outcome measures. As such, objective attention was inconsistently related to self-reported mindfulness. Variations could be due to small sample size, restricted education range of sample, or outcome measure sensitivity.

#12S
BARBIERI, E., AGGUJARO, S., MOLTENI, F., & LUZZATTI, C.
Processing of the Verb Argument Structure in Agrammatism: Evidence from a Word Naming Task

The Argument Structure Complexity Hypothesis (ASCH) accounts for the different pattern of verb production found in agrammatic patients by assuming that verbs taking two or more arguments (e.g., transitive verbs) are more difficult to produce than one-place unergative verbs. Furthermore, unaccusative verbs are more complex than unergative verbs since their grammatical subjects undergo syntactic movement. To investigate the possibility that argument structure complexity influences verb processing already at a word naming level, 78 verbs were randomly presented to an Italian agrammatic patient, who had to read them aloud. Three types of verbs (26 unergatives, 26 unaccusatives and 26 two-place transitives), matched for frequency, length and imageability, were used. Thirty-one nouns were also included as fillers in the task. Bivariate logistic regression analysis shows a significant effect of the verb type only in the unergative-transitive comparison ($p = 0.028$), with the first category being less impaired than the second. Data indicate that the ASCH can account for the pattern of verb retrieval in word reading; however, the prediction of a greater difficulty in processing unaccusatives vs. unergatives is not confirmed, suggesting that the effects (number of arguments and movement) arise at different processing levels.

#13S
BENSON, L.M., GIUFFRE MEYER, D., KASPRZYK, L., & SWEET, J.J.
Examining Response Validity on the Behavioral Dyscontrol Scale

The Behavioral Dyscontrol Scale (BDS; Grigsby & Kaye, 1996) is a 10-minute measure of executive functioning comprised of nine items that form three factors: Motor Programming Factor (MPF), Environmental Independence Factor (EIF), and Fluid Intelligence Factor (FIF). The present study investigated whether indicators of valid responding could be developed. All participants ($n = 169$) were
individuals referred for neuropsychological evaluation at a Midwestern outpatient clinic who completed the BDS and at least one of three symptom validity tests: Victoria Symptom Validity Test (VSVT), Test of Memory Malingering (TOMM), and Green's Word Memory Test (WMT). Results of regression analyses indicated that both the MPF and FIF factors significantly predicted pass rate on the VSVT, whereas only MPF was a significant predictor for the WMT. The TOMM, in contrast, yielded no significant predictors. The BDS total score was predictive of passing or failing on each effort test. Considering only individuals who were administered the VSVT and WMT (n = 93), the BDS total score was predictive of degree of effort test failure (e.g., passing both, passing one, failing both). Implications of analyses, including item analyses, and limitations related to sample composition are discussed.

#14
BERGMAN, M.A., WARD, L., & HEBERT, K.R.
The Influence of Working Memory, Semantic Memory, and Perceptual Speed on Verbal Learning and Memory: A Latent Variable Analysis

The psychometric properties of common memory measures are not well understood. The present research used latent variable (LV) analyses to investigate how performances on tests of prose recall, associative learning, and word-list learning are influenced by individual differences in other cognitive abilities. The data were raw scores from the WAIS-III and WMS-III for 345 patients (23 to 69 years old). Raw scores from subtest components (e.g., trials and delayed recall) were LV indicators for memory tasks, and LVs were constructed from WAIS-III raw subtest scores to represent 4 cognitive constructs. Multivariate multiple regression models with memory tasks as dependent variables and an age covariate were evaluated. Working Memory and Semantic Memory were significant, positive predictors of performance on all 3 memory tasks. Perceptual Speed added to prediction of Word-List Learning, but Perceptual Reasoning did not contribute uniquely to prediction. The fit of the final model (excluding Perceptual Reasoning) was good (CFI = .99, RMSEA = .044, SRMR = .044) but significantly at variance with the data, Satorra-Bentler $\chi^2(286, N = 345) = 474.29, p < .001$. The combined independent variables predicted 45%, 31%, and 29% of the reliable variance in word-list learning, prose recall, and associative learning, respectively.

#15
Demanding Perfection: Improving the Detection of Poor Effort Among Veterans Suspected of Mild Traumatic Brain Injury Using the Rey Fifteen-Item Test

The Rey Fifteen-Item Memory Test (FIT) is among the most widely used measures of symptom validity, but has been criticized for poor sensitivity in detecting insufficient effort in neuropsychological testing. This study explored the ability of the FIT to detect poor effort among 203 veterans undergoing evaluation for mTBI,
a population for which questionable effort during neuropsychological testing is fairly common. The diagnostic validity of the standard cutoff of <9 items and a much stricter cutoff of <15 (one error or more) were compared. Four (2%) and 46 (23%) veterans failed the FIT according to standard and strict criteria, respectively. Using failure on at least one additional effort test as a criterion for poor effort, the standard criteria resulted in 7% sensitivity and 99% specificity. The strict criteria resulted in 40% sensitivity and 84% specificity. These results indicate that the poor sensitivity of the FIT can be improved in this population by raising the cutoff. Thus, among individuals undergoing evaluation for mTBI, any errors on the FIT raises the possibility of suboptimal effort, suggesting that additional symptom validity tests should be employed.

#16
BINDER, L.M., & BINDER, A.L.
Relative Subtest Scatter in the Wechsler Adult Intelligence Scale - Fourth Edition Standardization Sample

The frequency of relative subtest scatter, the normative frequency of differences between highest and lowest subtest scores as a function of highest score, was computed in the standardization sample of the WAIS-IV. Participants from the standardization sample of 2200 were required to have at least one subtest score of 5 or more, eliminating 6 participants from the analysis of 10 subtests and 5 from the analysis of 15 subtests. For the 10 core subtests, participants with maximum scaled scores >12 had greater mean variability than the mean for the entire sample of 6.6. For all 15 subtests, participants with maximum scaled scores >14 had greater mean variability than the mean for the entire sample of 7.6. For example, for the 10 core subtests, scatter of 9 points or more occurred in 18.8% of the participants with highest scores of 16 and in 57.1% of participants with highest scores of 18. For the 10 core subtests, the correlation between the level of the highest subtest score and the amount of scatter was r = .62; for 15 subtests the correlation was .63. Participants with relatively high maximum subtest scores showed more scatter than participants with low maximum subtest scores.

#17
BLAHNIK, M., SCHETTLER, S., LUNDGREN, S., SMITH, B., GUERNON, A., & PAPE, T.
Comparison of the Galveston Orientation Amnesia Test and the Disorders of Consciousness Scale on Autonomy with Cognitive Functioning One Year Post Severe Brain Injury

The Galveston Orientation Amnesia Test (GOAT), is a well established predictor of long-term functional outcome after brain injury (BI). Disorders of Consciousness Scale (DOCS) is a reliable and valid bedside measure for assessing neurobehavioral recovery and is obtained during recovery from coma. This longitudinal study examined the relationships between the GOAT, the DOCS, and autonomy with functional cognition one year after severe BI as measured with the Functional
Independence Measure (FIM). Subjects were 20 persons admitted to acute rehabilitation, who were unconscious for at least 28 days after a severe BI. The DOCS was administered up to six times to each participant. PTA was assessed via serial GOAT administrations. Level of independence with cognitive functioning one year after injury was measured with the FIM via telephone interview with the caregiver. Average GOAT measures are significantly correlated (r = .70; p = .004) with FIM Cognitive measures. The second DOCS Auditory measure (DOCS Aud2), is also significantly correlated (r = .60; p = .01) with FIM Cognition. The DOCS Aud2 and the 2nd GOAT test (GOAT2) are also significantly correlated (r = .53; p = .05). The exploratory findings suggest that DOCS auditory measures obtained earlier in the recovery trajectory than the GOAT may be useful for predicting level of independence with cognitive functioning one year post injury.

#18S
BRABEC, C.M., GFELLER, J.D., BUCHANAN, T.W., & ROSS, M.J.
Relationships Among Measures of Social Cognition and Decision-Making in Persons with Low and High Emotional Intelligence

In addition to cognitive deficits, individuals with neurobehavioral conditions affecting executive functions often experience impaired social cognition and emotional reasoning. For example, studies by Anderson et al. (1999) and Bar-On et al. (2003) report that individuals with damage to the ventromedial portions of the prefrontal cortex evidenced deficits in emotional decision-making, identification of emotions, or empathy skills, although their performance on traditional neurocognitive tests remained relatively intact. The current study investigated the relationships among several measures of social cognition and emotional decision-making in neurologically-intact individuals who scored at the extremes of a self-report measure of emotional intelligence (EI). Forty participants who scored in the highest and lowest quartiles of the Trait-Meta Mood Scale (TMMS), completed the revised version of the Reading the Mind in the Eyes Test (RME-R) and the Iowa Gambling Task (IGT). Consistent with predictions, gender differences were found as women performed significantly better than men on the RME-R. Additionally, male participants in the high EI group performed significantly better on the RME-R than male participants in the low EI group. However, no group or gender differences were found on the IGT. The implications of these findings, in the context of existing literature, are discussed.

#19S
BRIDGMAN, M.W., & WILSON, B.J.
Gender as a Moderator of Memory Performance Following Traumatic Brain Injury

Gender has been studied as a moderator of outcome following TBI with some research finding better outcomes associated with female gender. The current study examined gender as a moderator of memory performance following TBI. Nineteen males and 10 females s/p TBI were compared for performance on total and delayed recall trials from Logical Memory I and II subtests of the WMS-III and the
HVLT-R at greater than or equal to 1-month s/p TBI. Group differences were not significant for age, IQ, or initial GCS. Females performed significantly better than males on Logical Memory I (female mean scaled score = 11.57, SD = 2.94; male mean scaled score = 7.12, SD = 2.91) and Logical Memory II (female mean scaled score = 11.86, SD = 2.8; male mean scaled score = 7.29, SD = 2.78), even when accounting for a significant difference in education. While females performed better than males on total and delayed recall trials on the HVLT-R, these results were not statistically significant. The results are of interest relative to research investigating neuroprotective factors and potential treatments following TBI.

#20S
BROOKS, L.G., & JOHNSON-GREENE, D.
Learning Characteristics In An Acute CVA Population Using the Hopkins Verbal Learning Test-Revised
Following acute CVA, learning and memory are prominent factors affecting independence and quality of life. One of the most commonly used learning and memory tasks is the HVLT-R, a brief word-list learning measure. Methods for calculating learning characteristics (i.e., semantic and serial clustering) are not provided with the HVLT-R manual; however, they can be easily calculated based on order of words recalled during learning trials. This study sought to demonstrate the relevance of HVLT-R learning characteristics in an acute CVA population. Participants included 187 patients consecutively admitted to a rehabilitation unit following CVA. Stepwise regression analyses identified semantic clustering as the best predictor of delayed recall, explaining nearly 37% of the variance. Serial clustering explained an additional 3% of the variance. The findings remained robust even after adjusting for the number of words recalled during learning trials. No differences in learning characteristics were found for right versus left CVA. These results indicate that impaired delayed recall in acute CVA may be primarily related to reduced quality of learning (i.e., semantic clustering). This study demonstrates that the HVLT-R can be utilized in CVA populations to provide information about learning characteristics, which in turn may help identify targets for rehabilitation interventions.

#22S
BROWN, M., WHITESIDE, D.M., LOWRY, N., & MARTEL, S.
Relationship Between Attention and Post-Traumatic Stress Disorder in a Mixed Clinical Sample
Attentional networks have been implicated as a major source of difficulties experienced by many individuals suffering from posttraumatic stress disorder (PTSD; Leskin & White, 2008). For example, previous research has shown that individuals diagnosed with PTSD have difficulties with attentional measures on the Wechsler Memory Scale-3 (WMS-III; Burriss et al., 2008). The current study further explores the relationship between individuals diagnosed with PTSD and attention and concentration utilizing 127 participants who completed an outpatient
neuropsychological evaluation. A group diagnosed with PTSD was compared to
groups diagnosed with a neurological disorder (ND) or an anxiety disorder (ANX).
An exploratory factor analysis was conducted to create an attention factor variable
based on the Working Memory Index (WMI) of the WAIS-III, Trails A, and the
Brief Test of Attention (BTA). There was a significant difference between groups on
measures of attention and concentration ($F = 9.725$, $p = .000$). Further analyses
were conducted using independent t-tests which revealed that individuals diagnosed
with PTSD were different than those diagnosed with anxiety. Additionally,
participants diagnosed with PTSD were similar to individuals diagnosed with
neurological disorders, and examination of the group means indicated that both the
PTSD and the ND group performed worse than the ANX group.

#23S
BURGESS, A.J.
The Wada Assessment Procedure Adaptated for Congenital Deafness

The Wada, intracartoid amobarbital procedure (IAP) assessment is widely used as a
presurgical assessment of hemispheric language dominance and memory in
individuals with medically intractable temporal lobe and other focal lobe epilepsy.
Despite the wide use of the Wada assessment, procedures utilized vary widely by
medical facility and often there are no specific recommendations on how to adapt
the Wada to unique case presentations. Though an estimated one million Americans
are functionally deaf (Mitchell, 2005) there are currently no published guidelines for
conducting Wada assessments with these individuals. As many deaf/hearing
impaired individuals utilize American Sign Language (ASL) to communicate, a
language that often requires use of both hands, the hemispheric paralysis that
accompanies Wada assessment procedures necessarily complicates assessment. The
current case study details Wada procedures adapted to the assessment of a
congenitally deaf patient. A medical interpreter was present for all baseline and
surgical procedures. With the assistance of the medical interpreter, a list of words
and objects that can be signed in ASL using one hand was developed for memory
and language assessment. Additionally, materials such as cue cards for memory and
naming tasks were constructed and utilized. Wada assessment of the individual
proceeded as anticipated, thus the procedures of the current case study have been
validated in a congenitally deaf individual. It is vital that standardized Wada
assessment procedures such as those presented in the current case study be available
to guide assessment, however, this necessity becomes all the more relevant in the
assessment of deaf/hearing impaired individuals, where many typical Wada must be
adapted to ASL use.

#24S
CALAMIA, M., MARKON, K., & TRANEL, D.
Developing a Short Form of Benton’s Judgment of Line Orientation Test: An Item
Response Theory Approach
Developed to be, in Arthur Benton’s words, “as pure a measure of one aspect of spatial thinking, as could be conceived,” the Judgment of Line Orientation (JLO) test has been widely used in neuropsychological practice for decades. The test has a high test-retest reliability, as well as good neuropsychological construct validity as shown through neuroanatomical localization studies. Despite its popularity and strong psychometric properties, many have criticized the 30-item test as being unnecessarily long. There have been numerous attempts at developing short forms; however, these forms have been limited in their ability to accurately estimate scores. Using a sample of 530 participants in the Iowa Neurological Patient Registry, we used techniques from Item Response Theory to estimate each item’s difficulty and power to discriminate among various levels of ability. Multilevel modeling was used to estimate the influence of item stimulus properties as predictors of item difficulty. These results are being used to optimize the selection of items for a short form, either matched to psychometric properties of the original form, or targeted at a specific range of ability most relevant to goals of clinical assessment. The findings will broaden the clinical utility of the JLO, and enhance its diagnostic applications.

#25
CARONE, D.A., & PAUL, G.
Word Memory Test: No Left Hippocampus Required

Goodrich-Hunsaker and Hopkins (2009) reported that three amnesic patients with bilateral hippocampal damage passed the easy recognition subtests of the Word Memory Test (WMT) but had profoundly impaired free recall. They hypothesized that intact recognition memory might be mediated by an intact parahippocampal gyrus. We tested two patients with left anterior hippocampectomies and parahippocampectomies to treat chronic intractable epilepsy. Patient A was a 15 year-old boy and Patient B was 58 year-old woman. Both patients suffered post-operative strokes. Both passed the easy WMT subtests: Immediate Recognition (IR), Delayed Recognition (DR), and Consistency (CNS) = 100% for Patient A; IR & CNS = 85% and DR = 95% for Patient B. While both patients performed variably on the more difficult Multiple Choice and Paired Associate subtests (Patient A = 90% for both; Patient B = 45% and 20%, respectively), both were profoundly impaired for Free Recall (25% & 17.5%, respectively). These dramatic findings demonstrate the ease of the WMT effort subtests and the difficulty of the memory subtests. They suggest that verbal recognition memory can be mediated outside the anterior hippocampal and parahippocampal network. These results should assist clinicians using these tests to evaluate patients with mild neurological injuries.

#26
CERNICH, A.N., DUX, M., FOSTER, S., KANE, R.L., WITTMENBERG, G., & MACKO, R.F.
Aerobic Capacity and Cognitive Function in Stroke Survivors

Evidence suggests enhancing aerobic capacity affects cognitive function either as a result of maximal exercise bouts or as a result of structured exercise training, though
much of the work was conducted in healthy college samples or older adults. The objective of the current study is to examine the relationship between aerobic capacity as measured by a maximal exercise test and cognitive function as measured by a computerized assessment battery in individuals with chronic impairment following stroke. Data for the purpose of this study was taken from the baseline assessment of a randomized controlled trial investigating the effects of aerobic exercise on functioning post-stroke. The sample consisted of 26 chronic stroke participants (m age = 60.2 years, SD = 8.6; m education = 13.5 years, SD = 2.5; 71.4% male; 56% African American, 36% Caucasian). Exercise testing was conducted using open-circuit spirometry and cognitive testing was conducted using a total cognitive efficiency score from the ANAM testing system. Results indicate a moderate relationship between baseline aerobic capacity and cognitive function (r = .41, p = .04). These data suggest that improving aerobic capacity in individuals with neurologic disability may be a significant rehabilitation intervention to preserve or improve cognitive status.

#27S
CHUNG, D.M., RUSSELL, A., KATZ, H., JERRAM, M., & GANSLER, D.A.
The Neural Network of the Wisconsin Card Sorting Test: A Proposal for a Voxel Based Morphometry Study

Neuropsychology assumes that mental functions are represented as stable properties of brain structure. Therefore, we explored the relationship between brain matter and mental functions as measured by the Wisconsin Card Sorting Test (WCST). Voxel based morphometry (VBM) has been utilized to study the WCST but only involved psychiatric populations. The present study was the first to include control subjects. Based on the review of literature, it was hypothesized that the performance of WCST will predict brain matter volume of the frontal cortex. Anatomical MR images (1.5T) were gathered from 14 heterogeneous psychiatric patients and 15 normal controls. Neuropsychological tests were administered within two weeks of scan. Perseveration, as measured by WCST Perseverative Response, inversely predicted gray matter volume in the inferior frontal lobe of psychiatric subjects (co-ordinate /C0 18, 32, /C0 17; p = .005). Based on the atlas of Chiavaras et al. (2001), the estimated location is caudomedial orbital gyrus. This result was not replicated in the normal subjects. Petrides (1994) suggested that inferior frontal lobe is involved in simple working memory functions while the dorsolateral prefrontal cortex is involved in complex working memory. Results may indicate the engagement of lower-order aspects of working memory amongst psychiatric patients on the WCST.

#28S
COTTINGHAM, M.E., BOONE, K.B., GOLDBERG, H.E., VICTOR, T.L., & BAUMGART, M.
Minnesota Multiphasic Personality Inventory-2, Restructured Form Somatic Scales: Sensitivity and Specificity
The MMPI-2 is among the most widely used measures in neuropsychological evaluations. The new version, the MMPI-2-Restructured Form (RF), is designed to assess the same constructs with more psychometrically advanced scales and fewer items. The MMPI-2-RF has added scales measuring somatic and cognitive complaints (MLS, GIC, HPC, NUC, and COG), as well as one new validity scale measuring “Infrequent Somatic Responses” (Fs). A new version of FBS has been included (FBS-r), while the standard RBS can still be derived. The current study was undertaken to determine sensitivity and specificity values for these scales in individuals feigning cognitive symptoms. The archival sample was comprised of 46 noncredible (i.e., motive to feign, failure on >2 unrelated measures of cognitive response bias, and clinician deemed noncredible) and 89 credible (i.e., no motive to feign, <2 effort indicator failures, documented FSIQ >70, no dementia or amnestic disorder diagnosis) participants. When selecting cut-offs with >89% specificity, sensitivity rates were as follows: Fs = 28%, FBS-r = 35%, MLS = 30%, GIC = 7%, HPC = 33%, NUC = 22%, COG = 24%, and RBS = 48%. Results suggest that RBS is the most accurate MMPI-2-RF scale for identifying subjects with noncredible cognitive symptoms.

#29
HEITZMAN, T., CUNNINGHAM, B., & GONZALEZ, C.
Investigating Young Adult Performance on the Rey-Osterrieth Complex Figure Based on the Developmental Scoring System Approach and its Relation to Executive Functioning

The Developmental Scoring System of the ROCF allows for a normative comparison for children and adolescents up to the age of 14. Nevertheless, it is known that neuropsychological skills in general and executive functioning skills in particular continue to develop well past that age. The aim of the current study was to explore the use of this scoring system for college students (N = 70) and to compare performance on the ROCF-DSS to performance on tests of executive functioning. Descriptive statistics similar to those used by Bernstein and Waber (1996) reveal a pattern and range of performance suggesting continued development of organizational skill and a surprisingly broad range of process styles consistent with the normative sample. Little correlation was found between ROCF-DSS performance and self-reported executive functioning (BRIEF). Nevertheless, these results suggest a value in considering an extension of the ROCF-DSS norms for use with older adolescents and young adults.

#30S
DOANE, B.M., NELSON, N.W., & HOELZLE, J.B.
Meta-Analytic Review of Embedded Effort Indices and Neuropsychological Performances in Clinical and Forensic Neuropsychology

Response validity assessment is integral to accurate interpretation of neuropsychological performances. In addition to formal symptom validity tests (SVTs), clinicians rely upon various embedded validity indicators (EVIs), derived from
geistel, F., & KANE, R.L.  

Examination of Neurocognitive Profiles of Sub-Acute and Chronic Right Hemisphere Stroke Survivors: Implications for Rehabilitation

New physical therapy interventions in stroke utilize robotics that require sustained attention and intact visuospatial function. These interventions may be influenced by cognitive status at different phases of recovery. The current study compared the neurocognitive profiles of persons post-right hemisphere stroke in the subacute phase (SP; >3 <6 months post-stroke, n = 30) and chronic phase of recovery (CP; >1 year post-stroke, n = 30). Participants included were right-hand dominant to minimize the effect of use of a non-dominant and/or hemiparetic limb. Subjects were administered the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS). The groups did not differ with respect to age (SP m = 59.4 years, SD = 9.4; CP m = 60.0 years, SD = 8.2), gender (SP = 60% male; CP = 62% male), or education (SP m = 13.1 years, SD = 3.0; CP m = 13.6 years, SD = 2.3). Independent samples t-tests were conducted to compare the performance of the groups on RBANS indices. No significant differences emerged, and for both groups, the most prominent deficits were noted on the Visuospatial/Constructional and Attention Indices. Results suggest that cognitive profiles of right-hemisphere stroke survivors are similar at different points in the recovery process. Implications of these findings are discussed in the context of strategies for rehabilitation.

#32S

EASTVOLD, A.D., VANDERPLOEG, R.D., WALKER, W.C., & SCHWAB, K.  

Differential Contributions of Posttraumatic Amnesia Duration and Time Since Injury in Prediction of Functional Outcomes Following Moderate to Severe Traumatic Brain Injury

Walker et al (2010) and others have reported length of posttraumatic amnesia (PTA) is a strong predictor of global outcome following moderate to severe
traumatic brain injury (TBI). The current study sought to extend these findings by examining the relative contribution of demographic and injury characteristics to actual independent living (IL) and work status (WK) at 1 year post-injury. Participants (N = 305) included veterans/active duty military with moderate to severe TBI from four VA acute rehabilitation programs. Multiple predictors were entered into hierarchical logistical regression analyses, including demographics (age, education, gender, race, marital status) and injury characteristics (etiology, time from injury to rehabilitation [TTR], length of coma, PTA). In the prediction of IL, the overall model was significant ($\chi^2(8) = 88.10$, $p < .001$, R-Square = .339); age and PTA were the only significant predictors, 5.6% and 13.3% unique variance, respectively. Longer PTA and older patients were less likely to be living independently at 1 year. In the prediction of WK, the overall model was significant ($\chi^2(8) = 54.75$, $p < .001$, R-Square = .227). However, now age and TTR were the only significant predictors, 5.3% and 2.4% unique variance, respectively; older patients and those with greater time to acute rehabilitation were less likely to have returned to work/school at 1 year. These findings highlight unique contributions of different injury severity characteristics in the prediction of functional outcomes.

#33S

ENGLAND, R.L., SPERLING, R.A., & RENTZ, D.M.

Does Anosognosia Accompany Early Signs of Memory Disturbance? Association Between Memory Complaints and Cognitive Performance in Normal Older Individuals and Mild Memory Impaired Older Individuals

Lack of awareness of memory deficits in patients with dementia, particularly Alzheimer’s disease, is a well-established phenomenon. Less clear is the relationship between subjective memory complaints in older adults with mild memory difficulties. In this study, we wanted to determine if congruency between subjective and objective memory measures varied in older adults with and without mild memory impairment. A sample of 324 non-demented older individuals, (mean age = 67.83, SD = 10.5, range = 43–95) were divided into two cognitive categories: normal and mild memory impaired based on age- and IQ-adjusted norms. Memory complaints were measured using the validated Memory Functioning Questionnaire (MFQ). Pearson correlations were employed to determine the relationship between a variety of neuropsychological measures and the MFQ for both groups. Among the cognitively normal group, several positive relationships were found between the MFQ and neuropsychological measures. In contrast, no significant relationships between the MFQ and neuropsychological measures were observed in the mild memory impaired group. Findings suggest that subjective memory complaints are accurate in older individuals without evidence of memory disturbance. By contrast, awareness of memory difficulties may be diminished in those with mild memory impairment. Thus, a disconnect between subjective report and objective measures of memory, may serve as an early indicator for future cognitive decline.
FINLAY, L.D., GOLDBERG, H.E., ARENTSEN, T., LO, T.,
ARCHAMBEAULT, M., & MORIARTY, T.
Effects of English Second Language Status on Cognitive Screening Test Scores

Research indicates ESL status impacts scores on English language neuropsychological tests (Roberts et al., 2007). However, effects of ESL on domains of brief cognitive screening tests are less well known. The current study analyzed archival data on six NCSE/Cognistat domains—Orientation, Comprehension, Repetition, Calculation, Reasoning, and Judgment—that are part of a more extensive battery routinely administered to patients referred for neuropsychological testing at a metropolitan hospital with a largely ethnic patient population. The groups were comprised of native English (n = 62) or ESL (n = 28) patients. Of the 28 ESL patients, 24 currently speak English >50% of the time (range 20–100%) and communicated in English during testing. A between groups MANCOVA controlling for years of education found significantly lower scores in the ESL group on Comprehension, Reasoning, and Judgment. The effect sizes were clinically meaningful, suggesting that brief screening measures can also require a substantial level of English language processing and appear to be sensitive to impacts of ESL status, even when patients report speaking English >50% of the time.

FORD, A.I., WANG, C., DARBY, D., & GIORDANI, B.
Use of One-Day Repeated Neuropsychological Testing to Identify Cognitive Decline

Previous research by Darby and colleagues (2002) found that examination of individuals’ performance pattern on repeated evaluations over a single day of the CogState computerized test battery accurately identified patients with early cognitive decline. This study sought to replicate those findings in a new sample and extend the concept to a brief battery of traditional neuropsychological tests (HVLT-R, Trail Making, WAIS-III Digit Symbol). Participants were 82 older adults drawn from a longitudinal study of aging and cognition. All had received yearly cognitive screening for at least 7 years. They were tested over 3.5 hours; with all procedures administered four times using alternate forms as available. Three comparison groups were created based upon the slope of performance on the longitudinal cognitive screenings. Results found that, unlike the previous study, the pattern of performance was generally the same for all groups, with the exception of CogState reaction time. For tests with the largest between-group differences (HVLT-R, CogState One Back), the discrepancy was present at first administration. Overall, participants with an established pattern of longitudinal cognitive decline were accurately identified by a subset of the administered tests. However, there was no significant benefit to the method of repeated administrations in one day.
GALBREATH, J., WHITESIDE, D.M., SELDEN, A., & GABOR-GAGEA, A.
Relationship Between Executive Functioning and Depression

Depression has been linked with difficulties in executive functioning (EF), including problematic initiation, organization, cognitive flexibility, and set shifting abilities (Deveney & Deldin, 2006). This study further explores the relationship between depression and EF. The study first hypothesized that EF would correlate with a measure of depression. Second, the study hypothesized that EF in depressed participants (N = 68) would be similar to EF in participants with posttraumatic stress disorder (PTSD, N = 20), but less severe than EF deficits in individuals with various neurological disorders such as multiple sclerosis and hydrocephalus (ND, N = 32). An EF factor variable composed of the Wisconsin Card Sorting, Verbal Fluency, and Trail Making Tests was computed and used as the dependent variable. First, small but significant correlations were found between the DEP scale of the Personality Assessment Inventory and EF. Second, ANOVA indicated that the three groups differed significantly (F = 6.076, p = .003) on EF. Additionally, post hoc analysis indicated that EF in the depression group was better than in the PTSD and ND groups. The results partially supported the research hypotheses and provided evidence that EF, while correlated with depression, generally may not be as severe as in individuals diagnosed with PTSD and various neurological disorders.

The Relevance of the Rostral-Caudal Orbital Frontal Cortex Axis for Emotion and Behavior

Dysfunction of the orbital frontal cortex (OFC) is associated with emotional disorder, such as aggression (Grafman et al., 1996). Researchers have focused on the OFC medial-lateral axis to understand the neural processes of emotional dysregulation (Rolls, 2007). In our recent work using voxel based morphology (VBM) to verify volumetry results, we found that the OFC rostral-caudal axis might help explain behavioral versus control aspects of aggression, a dysregulated behavior. Barbas and Zikopoulos’s (2006) neural model of social and information processing in primates predicts differential involvement of posterior and anterior aspects of OFC. We collected anatomical (3T) MR images, derived OFC volume using standard volumetry protocol, and collected LHA-R-Agg, STAXI 2 and IPAS from 10 healthy controls right after the scan session. After IPAS scores for premeditated aggression were partialed, right posterior OFC volumes were positively correlated with quantity and frequency of aggressive behaviors, as measured by LHA-R-Agg (r = .667, p = .05), right and left anterior OFC volumes were negatively correlated with anger control on the STAXI 2 (r = -.751, p = .02; r = -.696, p = .037, respectively). Relevant to our hypothesis, the inverse correlations coefficients were non-significant. Our findings indicate a
dissociation of behavioral expression/arousal and anger control along the rostral-caudal OFC axis.

#38
GFELLER, J.D., ROSKOS, T., MURPHY, J., HERBERGER, V., BRYANT, K., SOPKO, K., IBATA, B.A., & BUCHOLZ, R.D.
The Validity of the Automated Neuropsychological Assessment Metrics in Persons with and without Traumatic Brain Injury

The Automated Neuropsychological Assessment Metrics (ANAM) is a computerized battery of cognitive tests designed to assess changes in neurocognitive functioning across multiple administrations. The battery consists of tests with an emphasis on attention, processing speed, and memory skills. ANAM is most frequently used in screening for cognitive impairment due to concussion or mild traumatic brain injury (mTBI) in civilian and military settings. This study sought to compare ANAM index scores to established neuropsychological measures in a sample of TBI and healthy control participants. We anticipated that the ANAM scores would significantly correlate with neuropsychological measures of similar constructs. As part of a larger ongoing prospective study, ANAM was administered to all participants. The test battery also included traditional neuropsychological tests (e.g. CVLT-II, WAIS-III working memory and processing speed subtests, and Trail Making Test). Descriptive statistics and Pearson correlations were calculated using ANAM throughput scores and neuropsychological measures. Results showed strongest correlations between ANAM scores and traditional measures of processing speed, attention, and memory. These findings support the use of ANAM as a measure of neuropsychological functioning, particularly in assessment of cognitive deficits commonly associated with diffuse brain injury.

#39S
GLYWASKY, K.E.
Performance on Neurocognitive Testing of Mild Traumatic Brain Injury Patients Reporting Post Traumatic Stress Disorder Symptoms

The purpose of this study was to compare the performance of U.S. Army soldiers with self-reported histories of mild traumatic brain injury (TBI) on a self-rating scale of posttraumatic stress with their performances on cognitive Symptom Validity Tests (SVTs). All subjects (n = 146) were seen in the Army Neuropsychology Clinic at the San Antonio Military Medical Center- South as part of their Medical Evaluation Board. The study compared scores obtained on the PTSD Checklist- Military Version (PCL-M) with scores on at least two “stand alone” or embedded SVTs. Subjects were assigned to one of four groups based on their PCL-M scores (high vs. low) and SVT performance (2 or more failures vs. no failures). High PCL-M scores (>68) were defined as 0.5 SD or more above the mean, while low PCL-M scores (<50) were 0.5 SD or more below the mean. Pearson’s chi-square test was used to analyze the frequency distribution in the four cells. High scorers on the PCL-M tended to fail multiple SVTs, while low scorers on the
PCL-M tended to pass all SVTs (p < .001). In conclusion, soldiers reporting high levels of emotional distress are more likely to fail SVTs.

#40S
GREEN, D.L., ARNOLD, S.E., DAVATZIKOS, C., MOELTER, S.T., CLARK, C.M., & MOBERG, P.J.
The Relationship Between Intraindividual Variability on the Dementia Rating Scale and Regional MRI Brain Volume in Patients with Alzheimer’s Disease, Mild Cognitive Impairment, and Older Controls.

Intraindividual variability (IIV), operationalized in this study as within-person across-test neuropsychological variability, may inform neuropsychological research and practice, which has mainly focused on mean differences in performance across individuals. Independent of neuropsychological test performance, increased IIV has been related to poor cognitive function in healthy older adults in cross-sectional studies and associated with the development of incident dementia. This study examined the relationship of IIV, computed across subtests of the Dementia Rating Scale (DRS), to regional MRI brain volume in individuals with Alzheimer’s disease (N = 54), mild cognitive impairment (N = 68), and older controls (N = 52). Controlling for age, IIV was significantly different among groups, AD > MCI > Controls (p < .05). Partial correlations revealed that IIV was negatively correlated with volume across a variety of brain regions in MCI patients relative to far fewer regions for AD and control groups. Within the MCI group, IIV was correlated with more brain regions in amnestic multiple-domain MCI (N = 20) relative to single-domain amnestic (N = 17) and non-memory (N = 9) subtypes. IIV is a representation of variability across multiple cognitive domains and appears to reflect reduced cerebral integrity, which accompanies normal aging and is the hallmark of neurodegenerative disease.

#41S
Diffusion Tensor Imaging of Older Adults Undergoing Chemotherapy

Older adults are among the largest proportion of newly diagnosed cancer patients and may be at particular risk for neurological compromise following chemotherapy. The present study examined the integrity of white matter in older adult cancer patients undergoing chemotherapy. It was hypothesized that older adults undergoing chemotherapy treatment would have worse white matter integrity compared to healthy peers. We evaluated nine cancer patients treated with chemotherapy and six demographically-matched control participants by using diffusion-tensor imaging (DTI) and compared fractional anisotropy (FA) findings in whole brain and selected regions of interest (hippocampus and cingulate). Results revealed a significant (p < .01) decrease in FA in the right parahippocampal gyrus and genu of the corpus callosum. There was also a significant (p < .01) increase in FA in the anterior cingulum. Along with the increase in FA is a nearly significant (p = .06)
increase in the axial diffusivity in the cancer patients, suggesting a loss of complexity in the cingulum bundle. White matter integrity may be compromised in older adults undergoing chemotherapy treatment for cancer. Regions that show differences are associated with memory performance, suggesting subjective memory complaints during or following chemotherapy may have a neurobiological correlate.

#42S
HAMMERS, D., SPURGEON, E., RYAN, K., PERSAD, C., COULAS, T., TALTON, K., BHAUMIK, A., NATHAN, A., HEIDEBRINK, J., BARBAS, N., & GIORDANI, B.
Evaluating the Clinical Utility of Serial Administrations of the CogState Clinic Battery for the Assessment of Mild Cognitive Impairment, Alzheimer’s Disease, and Other Dementia.

While research has evaluated the effect of serial assessment on the computerized CogState Clinic battery for patients with Mild Cognitive Impairment (MCI), similar studies have not been completed with other clinical populations. This study evaluated the stability of two administrations of CogState, separated by approximately two hours of other testing, for healthy control (N = 22), MCI (N = 15), Alzheimer’s disease (AD, N = 41), Lewy Body dementia (DLB, N = 7), and Frontotemporal dementia (FTD, N = 7) groups evaluated at the Michigan Alzheimer’s Disease Research Center. Diagnoses were established through consensus. Participants were administered the CogState Clinic battery, consisting of measures of simple reaction time, choice reaction time, working memory, incidental learning, divided attention, and associative learning. Results indicated relatively minimal learning effects across administrations. Small learning effects were seen for the MCI, AD, and DLB groups on the working memory task, and healthy controls displayed a similar level of learning for associative learning, with no effects for FTD patients. CogState appears to be relatively stable across serial administrations when examining normal and clinical groups, with the exception of minor learning effects on two tasks. The CogState Clinic battery provides a reasonable measure of change with only minimal learning, even when repeated after a very short delay.

#43S
HAUSER, M.E., PACIORA, R.A., & KONOPKA, L.M.
Cordance Findings in Patients with Attention Deficit Hyperactivity Disorder Undergoing Acute Medication Challenge Studies

The clinical utility of cordance measures in quantitative EEG (QEEG) has been examined in several populations, including depressed and autistic patients. The objective of this study was to evaluate this measure’s utility in a novel clinical population, patients with ADHD undergoing acute medication challenge studies as described by Konopka and Poprawski (2008). In this method, patients are administered behavioral and mood measures and QEEG then orally administered
stimulant medication; measures are repeated post-medication. This study evaluated 7 self-referred patients (3 males and 4 females; mean age 24.3) who demonstrated a positive response to stimulant medication, as defined by normalization of electrophysiological activity in absolute and relative power measures. Cordance values were analyzed using the method developed by Leuchter et al. (1994). Patients who responded to stimulant medication showed significant decreases in cordance findings in theta frequencies (p<.035) that corresponded with significant decreases in Beck Depression Inventory (p<.011) and Beck Anxiety Inventory (p<.018) scores. Improvement was also seen in mean scores of Attention and Response Quotients on the Integrated Visual and Auditory attention test but failed to reach statistical significance. Reduction in cordance findings may be associated with improvement in behavioral presentation in patients with ADHD.

#44S
HOELZLE, J.B., NELSON, N.W., & ARBISI, P.A.
Exploratory Factor Analysis of Cognitive and Somatic Minnesota Multiphasic Personality Inventory-2 and Minnesota Multiphasic Personality Inventory-2, Restructured Form Validity Scales

In recent years a number of new and revised MMPI-2 and MMPI-2-Restructured Form (RF) validity scales have been introduced to assist clinicians in determining validity of self-reported cognitive and somatic symptoms. The current exploratory factor analytic study was conducted to clarify underlying constructs evaluated by the Symptom Validity Scale (FBS; FBS-r), Infrequent Somatic Responses (Fs) scale, Response Bias Scale (RBS), and Henry – Heilbronner Index (HHI). Empirically-supported factor retention procedures were utilized to identify congruent dimensions across two samples (Psychiatric N = 2548; Forensic N = 172). Three dimensions were observed underlying the FBS and FBS-r scales, and reflected (1) cognitive efficiency/emotional distress, (2) somatic symptoms, and (3) cynicism. In contrast, single, somewhat more heterogeneous, factor structures were observed underlying the remaining scales. The MMPI-2-RF Fs scale dimensions reflected unusual somatic and sensory experiences. RBS and HHI dimensions both reflected cognitive efficiency, though the latter dimensions also emphasized emotional distress. Associations between dimensions and standard MMPI-2 and MMPI-2-RF scales are presented to assist in conceptualization of results. Clinical implications for evaluation of self-reported cognitive and somatic symptoms are also discussed.

#45S
HUDEPOHL, A.D., STROESCU, I., YANIS, Z., OLIVERI, M.V., & GFELLER, J.D.
Can the Wechsler Test of Adult Reading Provide an Additional Measure of Effort?

Effort is frequently assessed in neuropsychological practice (Sharland & Gfeller, 2007). In addition to tests that have been developed to detect suboptimal effort (symptom validity tests; SVTs), some embedded measures or indices have demonstrated sensitivity in the detection of suboptimal effort. The WTAR is typically used
as an estimate of premorbid intelligence. Baade (2007) suggested that in the absence of a language deficit, large discrepancies (>−15) between demographics-predicted and obtained WTAR scores may indicate suboptimal effort. Researchers are yet to examine this hypothesis. The present study examined the relation between performance on the WTAR, commonly used SVTs (VSVT, WMT), and the MMPI-2. Subjects were clinical and medicolegal patients (N = 51; mean age 43.1). Individuals with a premorbid history of a learning disorder, positive imaging findings, and/or observable language deficits were excluded from the analysis. Statistical analyses, including Spearman’s Rho and the Mann-Whitney U Test showed that discrepancy scores (>−15) on the WTAR were associated with failure on VSVT difficult items (Spearman’s rho = −0.22, p = .06) and elevated Response Bias Scale (RBS) scores on the MMPI-2 (Spearman’s rho = −0.51, p < .01) but not other measures of effort. Thus, the WTAR may be of limited utility in detecting suboptimal effort.

#46S
IRANI, F., KALKSTEIN, S., MOBERG, E.A., & MOBERG, P.J.
A Meta-Analysis of Neuropsychological Performance in Older Individuals with Schizophrenia

Cognitive deficits are reliable predictors of functional impairment in schizophrenia and a particular concern for the elderly. Previous reviews have focused on the nature and course of cognitive impairments in younger cohorts, but a quantitative meta-analysis in older patients is pending. Cross-sectional and longitudinal studies assessing performance on tests of global cognition and specific neuropsychological domains were included. Potential methodological, demographic and clinical moderators were analyzed. 29 cross-sectional (2110 patients, 1738 comparison subjects) and 14 longitudinal (954 patients) studies met inclusion criteria. Patients were approximately 65 years old, with 11 years of education, 53% male and 79% Caucasian. Cross-sectional analyses revealed large and heterogeneous deficits in global cognition (d = −1.19) and specific neuropsychological domains (d = −0.7 to −1.14). Moderator analysis showed a significant role for demographic (age, sex, education, race) and clinical factors (diagnosis, inpatient status, age of onset, duration of illness, symptoms). In contrast, longitudinal analysis (mean follow-up = 2.2 years) revealed homogeneity with small effect sizes (d = −0.097). Cognitive deficits in older individuals with schizophrenia represents a robust finding paralleling impairments across the lifespan. Short-term longitudinal studies do not indicate cognitive decline late in life for most patients with schizophrenia. The importance of demographic and clinical moderators is discussed.

#47S
JORDAN, L.L., DIETZ, J.B., CLARK, A., MCKENTLY, H., OKUN, M.S., & BOWERS, D.
Muted Enhancement of Emotional Memory in Parkinson Disease

It is widely known that emotional events are better remembered than neutral ones. Previous research suggests that the amygdala modulates this emotional
enhancement effect on memory via influence on the hippocampus. Based on observed amygdalar dysfunction in Parkinson’s disease (PD), we hypothesized that PD patients would not exhibit emotional enhancement in recall of novel information. Twenty-three non-demented idiopathic PD patients, 23 age-matched controls, and 25 young adults were shown 44 pictures on a computer and asked to recall them 30' later. Stimuli included high-arousing emotional and low-arousing netural images from the International Affective Picture Set. All PD patients were tested on dopaminergic medications, and all subjects were screened for dementia. In line with previous literature, older and younger controls recalled significantly more emotional than neutral pictures (p < 0.01). In contrast, recall memory of the PD group was not improved with emotional stimuli. This finding was not due to general memory failure, visuoperceptual or mood disturbance, or lack of appreciation of emotional value. The memory finding with PD patients may reflect diminished arousal by the emotional stimuli and/or a disconnect between arousal and amygdala-hippocampal systems. Implications will be discussed in terms of contemporary views of emotional deficits in PD.

#48S
KALKUT, E.J., & HAN, S.
Relationship between Depressive Symptomatology and Subjective and Objective Measurement of Executive Functioning

This study examined depressive symptomatology and executive functions (EFs) through objective and subjective methods. Although it is known that depression can affect performance on standardized assessments of general cognitive ability and EF, it is less clear how depression may differentially affect objective versus subjective EF assessment approaches. The current study sought to determine the relationship between depressive symptomatology and objective and subjective measurement of EF. Ninety-five undergraduates (82% female), ages 18–24 (mean age = 19, SD = 2.2 years) were administered the Wechsler Abbreviated Scale of Intelligence (WASI), Delis-Kaplan Executive Function System (D-KEFS), Behavior Rating Inventory of Executive Function-Adult (BRIEF-A), and Beck Depression Inventory-II (BDI-II). A hierarchical step-wise regression procedure was used. Depressive symptomology was significantly related to all BRIEF-A subscales (p < .05). Higher levels of depressive symptomatology were related to more reported problems on BRIEF-A subscales, except the Inhibit subscale, in which more EF problems was related to higher depressive symptomatology. Depressive symptomology was not significantly related to D-KEFS task performance (p > .05). Depressive symptomology was significantly related to subjective EF report, but not objective EF task performance. Findings suggest an overlap between behavior manifestations of EF and depressive symptomatology.

#49S
KASPRZYK, L., GIUFFRE MEYER, D., BENSON, L.M., & SWEET, J.J.
Effort Effects on the Behavioral Dyscontrol Scale
The Behavioral Dyscontrol Scale (BDS; Grigsby & Kaye, 1996) is a 10-minute measure of executive functioning. It is comprised of nine items which form three factors: Motor Programming Factor (MPF; motor learning tasks), Environmental Independence Factor (EIF; go/no-go tasks), and Fluid Intelligence Factor (FIF; adaptation of Head’s test, oral trails, and self-perception) (Grigsby, Kaye, & Robbins, 1992; Suchy, Blint, & Osmon, 1997). The impact of effort on the BDS has not been explored, which prevents effective use with forensic cases. The study sample consisted of individuals referred for neuropsychological evaluation at a Midwestern outpatient clinic. All participants were administered the BDS and at least one of three effort tests: Victoria Symptom Validity Test (VSVT; Slick, Hopp, Strauss, & Thompson, 1997), Test of Memory Malingering (TOMM; Tombaugh, 1996), and Green’s Word Memory Test (WMT; Green, 2003). T-tests compared BDS factor means of participants who passed each effort test with those who failed. Results indicated significant differences for all three BDS factors on the VSVT and the WMT. The TOMM, in contrast, yielded a significant result only for the FIF factor. Implications of these results will be discussed in terms of the impact of effort on interpretation of BDS factors and items.

#50S
KAUFMAN, D.A., & BILDER, R.M.
A Novel Web-Based System for Collecting Cognitive Outcomes

With newly emerging web-based methods of collecting and sharing health-related data, there are unprecedented opportunities to examine cognitive outcomes in neuropsychological patients. Despite the advancements offered by the NIH-sponsored Patient Reported Outcomes Measurement Information System (PROMIS), cognitive outcomes remain largely unstudied. In line with AACN goals to examine cognitive outcomes in neuropsychological patients, we have developed a novel web-based measure for collecting patient reported outcomes of cognitive functioning. Adapting items from previously validated interview-based measures of cognition, this instrument includes 60 items that assess a wide range of cognitive symptoms. A modified version of this measure has also been developed for use with caregivers, family members, and other individuals familiar with the patient, in order to verify cognitive complaints in patients who possess compromised insight of their cognitive deficits. These measures are available for use within the web-based PROMIS Assessment Center, which provides easy access for multi-site collaboration. We are hopeful that this endeavor will provide a useful mechanism for collecting of cognitive outcomes data across a broad range of neuropsychological populations.

#51S
KAY, C.D., & LEAHY, B.J.
Utility of the Mini-Mental State Examination in Detecting Cognitive Impairment in a Clinical Population
Objective measures of cognition are necessary in clinical settings, as subjective complaints and informant reports are often unreliable. Despite its known limitations, the Mini-Mental State Examination (MMSE) continues to be the leading instrument used in primary care settings for assessment of cognitive status. The present study examined the efficacy of the MMSE in detecting cognitive impairment as measured by the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) in a sample of 367 older adults referred for neurological assessment due to memory complaints. Using a cutoff score of 26, results suggested that specificity of the MMSE in detecting cognitive impairment (RBANS Total Scores of <80) was adequate (.92), but sensitivity was poor (.64). Changing the cutoff score did not improve classification accuracy. Among the 101 patients with MMSE scores above the cutoff but RBANS Total Index scores in the impaired range, almost half had RBANS scores below 65. Of those who scored above the MMSE cutoff, females were more likely to show impairment on the RBANS than males, but no differences were noted in age, education, or depression scores. Implications for the use of the MMSE and RBANS with clinical populations are discussed.

#52S
KEIFER, K., NELSON, N.W., HOELZLE, J.B., & THURAS, P.
Meta-Analysis of the Relationship Between Subjective Cognitive Limitation and Objective Neuropsychological Performance

Comprehensive neuropsychological assessment integrates self-report (subjective) information with objective psychometric data. Research has documented that self-reported cognition and objective cognitive performances are often incongruent, though the magnitude of this relationship is unclear. The aim of the current project was to clarify the degree of association between subjective and objective indicators of cognition. Meta-analysis of 31 independent studies (k = 400; n = 3485) yielded a small-medium relationship (r = .18) between self-report measures of cognitive functioning and objective measures of neuropsychological performance. Of these 31 studies, 11 also included self-report measures of emotional distress. Analysis of these studies (k = 23; n = 1531) suggested a moderate-large relationship (r = .45) between cognitive complaint and emotional distress. Moderator analyses of clinical condition and measure are presented. Overall, results highlight the need for neuropsychologists and other professionals to exercise caution when interpreting subjective reports of cognition, as well as to be aware of the potential impact emotional functioning may have on perception of cognitive limitations.

#53S
KINKELA, J., & URBAN, A.
Veterans Health Administration regularly screens for the presence of TBI in all Iraq/Afghanistan veterans. Responses on the Neurobehavioral Symptom Inventory (NSI), a self-report measure of supposed postconcussive symptoms, obtained during a comprehensive TBI assessment by a physiatrist were compared with objective cognitive test data from a follow-up neuropsychological assessment. Participants were 34 veterans (6 female; mean age = 31.03, SD = 8.14) with history of one or more possible MTBI (mean time since injury = 33.3 months, SD = 14.7) and psychological distress. All passed SVTs. NSI total score was unrelated to objective cognitive performance with regard to attention (digit span; letter number sequencing), processing speed (Trails A; Stroop Word and Color; digit-symbol coding), learning/memory (CVLT-2 total initial learning and long delay free recall), and executive functioning (Trails B; Stroop Color-Word). NSI total score was correlated with self-report on the PTSD Check List-Military ($r = .46$; $p = .006$), and Beck Depression Inventory-II ($r = .55$; $p = .001$). This further supports the understanding that postconcussive checklists, like the NSI, tap most strongly into general distress rather than specific cognitive sequelae of TBI. Service connected disability, pain, and psychological symptoms are also discussed.

#54S
KOBY, D.G., WORRELL, G.A., & TRENERRY, M.R.
Relation of Depressive Symptoms to Abuse in Patients with Epilepsy and Behavioral Spells

Depression is the most frequent psychiatric comorbidity in epilepsy and is also recognized among patients with non-epileptic events. Assessment of past abuse is often limited to spells given presumed etiological value. The current study examines interactions between abuse and depression in each diagnostic group. Participants were consecutive patients admitted to a tertiary care video-EEG monitoring unit from June 2009-February 2010. Ninety-two participants included 56 patients with epilepsy and 36 with non-epileptic behavioral spells. Self-reported depressive symptoms were assessed with the Beck Depression Inventory II (BDI-II). Childhood abuse was reported by 57% of patients with spells and 43% of patients with epilepsy, $X^2 = 8.44$, $p < .05$. When abuse was present, patients in both groups reported mild, clinically significant depressive symptoms (mean = 18.92, SD = 11.09). When abuse was absent patients with spells also reported mild depressive symptoms (mean = 19.50, SD = 13.83) while patients with epilepsy reported only minimal symptoms (mean = 11.51, SD = 8.46), $F(1, 48) = 6.27$, $p < .05$. Clinically significant depressive symptoms were reported by all patients with spells and by previously abused patients with epilepsy. Significant rates of childhood physical abuse and their link to current depressive symptoms in epilepsy indicate screening for past abuse should not be limited to patients with known or suspected behavioral spells.

#55S
KOLBERG, B.J., & LAATSCH, L.
Successful Reading Fluency Remediation in a Young Adult College Student
In this case study, a 23 year-old male was diagnosed with Reading Fluency Disorder post neuropsychological testing and underwent 20-sessions of Cognitive Rehabilitation (CR) under the Developmental Metacognitive Approach (DMA; Laatsch, 1983) with the primary goal of increasing reading fluency. Using a similar approach as Laatsch (2009) has with medical students; treatment included computerized and non-computerized tasks to increase reading rate and accuracy, sustained attention and rapid processing of linguistic material. Therapeutic activities included visual scanning exercises, phonetic cancellation tasks with print articles, and computerized programs to increase reading fluency. Additionally, reading aloud outside of treatment was assigned as repeated exposure to text has been shown to assist in increasing reading fluency (Archer, Gleason, & Vachon, 2003). In keeping with the hierarchical treatment model, visual scanning abilities were targeted first, followed by reading fluency and verbal memory, with attention paid to improving study habits, problem solving, and executive functioning. Objective neuropsychological assessment 6-months after beginning treatment showed statistically-significant improvements in linguistic attention, memory for verbal material and improvements in reading fluency. Assessments of quality of life showed mildly-improved scores as well. This case provides evidence for the effectiveness of the DMA as applied to a college-student with Reading Fluency Disorder.

#56S
KURTZ, S.M., DUX, M.C., CLARK, J.A., & CERNICH, A.N.
Factor Structure of the Neurobehavioral Symptom Inventory in a Veteran Population

Returning veterans report mild traumatic brain injuries (mTBI) and persistent symptoms of postconcussive syndrome (PCS). Self-report measures, such as the Neurobehavioral Symptom Inventory (NSI), are employed to assess these symptoms. Factor analyses of PCS symptoms in civilian populations have suggested the presence of three symptoms clusters (cognitive, affective, somatic). However, Benge et al. (2009) demonstrated a difference in factor structure when applied to their veteran population. The purpose of the current study was to examine the factor structure of the NSI in our veteran population. Veterans at an urban hospital who screened positive on the TBI Screening Questionnaire also completed the NSI at follow-up (n = 301; age = 33.49 + 9.37; 91% male; 54% Caucasian). Principal components analysis was conducted to determine the factor structure of the NSI symptoms in our population. Results retained two factors, explaining 50.7% of the variance (factor 1 = 42.97%; factor 2 = 7.47%). The first factor includes cognitive and affective symptoms and the second consists of somatic symptoms. Results are in contrast to previous studies of civilian and veteran populations. The inability of our study to replicate the previous studies may reflect differences in demographic characteristics, psychiatric comorbidities, and physical injuries. Future studies should explore these differences and determine impact on treatment.
LABKOVSKY, E.B., & ROSENFLED, J.
Assessment of Memory Deficit, Malingering and Deception with P300 based “Complex Trial” Protocols, Using Acoustic and Visual Stimuli

ERP methodology can be effectively used for assessing memory deficit/intactness and feigning/deception. The present study demonstrates effectiveness of visual and acoustic ERP-based “complex trial” protocols. Two protocols were tested in the study: (1) Visual Complex Trial Protocol (VCTP): Visual stimuli presented in two parts in each trial: First part – dates, “Probe” (subject’s birth date), and “Irrelevants” (irrelevant dates). Second part-strings of numbers: “1s” (“Target”) and “2s” to “5s” (“Non-targets”). (2) Acoustic version (ACTP) (in the second part of a trial there were high pitch (Target) and low pitch (Non-target) tones. Four groups (“Experimental” and “Control” for VCTP and ACTP), N = 50. EEG was recorded from Fz, Cz, and Pz. Bootstrapped based hit rates [Probe vs.all Irrelevants combined(Iall)], in each Experimental group was 100% and one false positive in each Control group. P300 amplitudes for VCTP were bigger (Probe: 11.06uV-Experimental & 5.83uV-Control); and Iall(4.43uV-Experimental & 5.48-Control) compared to ACTP (Probe: 4.97uV & 1.11uV-Control); and Iall: 1.66uV-Experimental & 1.06uV-Control). The biggest absolute difference “Probe-Iall” was in VCTP/Experimental (6.63uV) and .35uV-VCTP/Control, compared to (3.31uV-ACTP/Experimental & .045uV-ACTP/Control). But relative index “P-Iall/ P” was comparable for VCTP and ACTP (.6-VCTP/Experimental & .05-VCTP/Control & .7-ACTP/Experimental & .05-ACTP/Control). The study demonstrates that both visual and acoustic versions of “Complex Trial” protocol are effective for assessing memory deficit and malingering.

LANCASTER, M.A., TUCHSCHERER, V.N., BITYOU, L., FINK, J., & PLISKIN, N.H.
Subjective Memory Complaints as a Predictor of Memory Dysfunction in Electrical Injury

Subjective memory complaints in relation to objective memory performance have been investigated in several neurologic conditions, yet findings on the relationship of these variables are mixed. Subjective memory complaints in patients with electrical injuries (EI) have yet to be investigated. Ninety-one adult patients sustaining an EI were assessed in either the acute (<3 months since injury; N = 28) or post-acute (≥3 months; N = 63) stages using a subjective memory questionnaire (Squire Memory Self-Rating Questionnaire; SMSR) and an objective measure of memory (CVLT-II long-delay free recall), as well as measures of executive functioning ( Trails B), intelligence (WAIS-III), and depression (BDI). Hierarchical multiple regression analyses were conducted to determine the
predictive value of subjective memory complaints on delayed memory when taking IQ, executive functioning, and depression into account, respectively. For all patients, the overall model was significant ($R^2 = .203$, $p = .001$), yet SMSR total score did not account for any unique variance. In the subset of acute patients only, however, SMSR score did account for unique variance ($R^2$ change = .145, $p = .040$). These findings suggest that subjective memory ratings may be predictive of objective memory impairment in EI patients in the acute but not post-acute stage of injury.

#59
LLOYD, H.A., & GOLDBERG, M.
Comparison of Alternate Methods for Calculating the Wechsler Memory Scale, Fourth Edition Auditory Memory Index

Introduction: The Wechsler Memory Scale – IV (WMS-IV) allows for calculation of the Auditory Memory Index (AMI) in two different ways, one (AMI\text{VP}) using scores from the Verbal Paired Associates subtest (VP) and the other (AMI\text{CVLT}) using scores from the California Verbal Learning Test-II. The WMS-IV does not report any direct comparison between the AMI\text{VP} and AMI\text{CVLT} scores. This study compared AMI\text{VP} and AMI\text{CVLT} scores in a clinical sample. Method: Data from 35 consecutive patients seen for an outpatient neuropsychological evaluation were included. The sample had a mean age of 47 ± 14 and a mean WAIS-IV FSIQ of 96 ± 13. Correlational analyses and paired t-tests were used to compare the AMI\text{VP} and AMI\text{CVLT}. Results: AMI\text{VP} and AMI\text{CVLT} were correlated significantly ($r = .76$; $p < .001$). A paired t-test comparing AMI means (AMI\text{VP} = 87.8 ± 13.6; AMI\text{CVLT} = 86.3 ± 11.1) was nonsignificant. Despite statistical equivalence, the difference between AMI\text{VP} and AMI\text{CVLT} scores in a sizeable percentage of the sample (i.e., 40%) was 10 points or greater. Discussion: Although group data shows them to be highly related, AMI\text{VP} and AMI\text{CVLT} scores for a given patient may differ substantially and, as such, potentially lead to different impressions regarding verbal memory proficiency.

#60
MACCIOCCHI, S.N., SEEL, R.T., WARSHOWSKY, A., THOMPSON, N., & BARLOW, K.
“Déjà vu All Over Again”: The Impact of Mild Traumatic Brain Injury on the Cognitive Functioning of Persons with Co-Occurring Spinal Cord Injury

Mild traumatic brain injury (MTBI) has been clinically and empirically controversial since the 1980s. Many controlled studies have not observed persisting cognitive impairment following MTBI, but some clinicians and researchers continue to argue that MTBI is associated with persisting cognitive dysfunction. The current study prospectively examined the impact of a co-occurring MTBI on the cognitive functioning of persons with a SCI. Participants were consecutive admissions to a neurorehabilitation hospital ($N = 189$). Participants mean age and education were 28.5 (SD = 10.1) and 12.3 (SD = 2.0) respectively. All participants were screened for co-occurring TBI. Criteria for TBI severity ratings were empirically established and
ranged from mild to severe. All participants completed an assessment of processing speed, working memory, problem solving and memory at 52.2 days post injury (SD = 22.2). Based on TBI diagnostic criteria, 59% of participants (N = 112) sustained a SCI and co-occurring TBI, but most injuries were MTBI (56%/N = 63). As a group, all participants were impaired relative to normative expectations. Cognitive impairment was not apparent until TBI severity reached the moderate to severe level. Persons with SCI + MTBI did not differ from persons with SCI alone on cognitive measures. MTBI does not cause cognitive impairment above and beyond that observed in the SCI population.

#61
MADRID, R., & SCHWARZ, L.
Validity of the Working Memory Index and Processing Speed Index of the Wechsler Adult Intelligence Scale - Fourth Edition in a Sample with Dementia

Beyond memory impairment, patients with dementia often exhibit signs of decline in speed of processing and working memory. The current study aimed to examine the validity of the Wechsler Adult Intelligence Test (WAIS-IV) Processing Speed (PSI) and Working Memory Indices (WMI) by comparing them to other neuropsychological tests that measure similar constructs. The files of 26 patients referred for neuropsychological evaluations who met for DSM-IV-TR diagnostic criteria for dementia were examined. Neurocognitive assessment included the PSI and WMI subtests of the WAIS-IV, Wechsler Test of Adult Reading (WTAR), Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), Trail Making Test (TMT), and Stroop Color Word Test. The samples’ mean intelligence was estimated to be within the average range (WTAR mean = 100 & SD = 11.88). Overall impairment, as measured by the RBANS Total Index Score, was within the mild range (mean SS = 75.19 & SD = 14.03). WAIS-IV subtests significantly correlated with other standardized measures as follows: WMI and RBANS Attention Index r = 0.48, PSI and TMT A r = 0.74, PSI and Stroop Word condition = 0.77, and PSI and Stroop Color condition = 0.60. These results suggest that the newest version of the WAIS is measuring similar constructs to other traditional measures of speed of processing and working memory.

#62
MARSHALL, P.S., & SCHROEDER, R.W.
Effectiveness of Symptom Validity Measures in Identifying Cognitive and Behavioral Symptom Exaggeration in Adult Attention Deficit Disorder

This study examines the relative effectiveness of several symptom validity measures to detect suspect effort in cognitive testing and of a validity scale to detect invalid completion of ADHD behavior rating scales in 267 consecutive patients referred for ADHD assessment. Patients had a mean age of 28 (SD = 9), were 61% male., 69% had completed 1 or more years of college, 81% were Caucasian, and their mean estimated full scale IQ score was 112(SD17). Patients were diagnosed with ADHD based on cognitive testing, behavior rating scales, and clinical interview. They were
diagnosed as making a suspect effort by their failing at least two of the following: embedded and stand alone SVT measures, a score > 2 SD’s below the ADD population average on tests, an ADHD behavior rating scale validity scale, or a major discrepancy between reported and observed ADHD behaviors. 25% of patients made a suspect effort. The Word Memory test (78%), TOVA reaction time variability (57%) and omission errors(59%), the CAT-A infrequency scale (54%), and the b test (47%) had good sensitivity as well as at least 90% specificity. Clearly, such measures should be employed to help avoid making false positive diagnoses of ADHD.

#63S
MAZUR-MOSIEWICZ, A., LUTZ, J.T., & DEAN, R.S.
Relationship Between Tactile-Kinesthetic and Higher-Order Cognitive Functions

Sensory-motor performance has been considered in neuropsychological evaluation since the 1950’s. Yet, there seems to be a paucity of data quantifying the relationship between sensory-motor and cognitive functions when using modern neuropsychological theories. This study was the first one to look at the correlation between sensory-motor and cognitive functions in adults with neurological impairment and using tests based on the Gf-Gc framework. The participants were adults diagnosed with a neurological disorders. Instruments used: Dean-Woodcock Sensory Motor Battery and the Woodcock-Johnson Test of Cognitive Abilities, Third Edition. Canonical correlation analysis was used to estimate the strength and nature of the relationships between sensory-motor skills and cognitive functioning. The canonical correlation yielded two statistically significant canonical correlations. The results suggest that the Gf-Gc approach allows for more accurate differential diagnosis of neurocognitive and psychiatric disorders. Moreover, the present findings are in keeping with Dean & Woodcock’s (1999) argument that sensory-motor functions could be incorporated under the broad umbrella of the Gf-Gc theory of cognitive functioning.

#64S
MCDERMOTT, A.T., DONNELL, A.J., BRUDER, L., & GASS, C.
Psychometric Evaluation of a Motor Free Test of Visuospatial Construction

Measuring visuospatial and visuoconstructive abilities is an indispensable component of any comprehensive neuropsychological evaluation, as many neurological disorders, dementias, and focal lesions can cause these deficits. However, limited information can generally be obtained about visuoconstructive skills in persons with upper extremity disability. Therefore, the Test of Visuospatial Construction (TVSC) was developed as an easily administrated measure of visuoconstruction that does not rely upon a motor response. This study investigated the psychometric properties of the TVSC in 59 demographically-matched neurologically normal and brain injured patients including estimated premorbid IQ. ANOVA was performed to compare means. Pearson product-moment correlations were performed to determine construct validity. Analysis revealed statistical differences between
groups on the TVSC (p < .0001), Block Design (p < .0001), and the copy portion of the Rey Complex Figure Test (p < .0001). The TVSC demonstrated good convergent and discriminant validity, as it highly correlated with Block Design (r = .70, p < .0001) and RCFT (r = .53, p < .0001), and it did not correlate with a theoretically dissimilar task; the Wechsler Test of Adult Reading (r = .10, p = .45). These findings suggest that the TVSC is an efficacious and valid measure that has the ability to distinguish between normals and brain injured patients.

#65S
MCDERMOTT, A.T., & DONNELL, A.J.
Optimal Cutoffs for the Test of Visuospatial Construction

The Test of Visuospatial Construction (TVSC) was developed as an easily administered measure of visuoconstruction that does not rely upon a motor response. The TVSC has been shown to differentiate statistically between neurologically normal and brain injured patients (p < .0001). It has also been shown to have good convergent and discriminant validity. In order to further evaluate the efficacy of this assessment tool, this study sought to determine optimal cutoffs and sensitivity and specificity for the TVSC using ROC curve analysis. 30 neurologically normal and 29 brain injured patients comprised the sample. Statistical analysis revealed that the power of the TVSC and its ability to discriminate between groups is very good with an area under the curve of .934 (p < .0001). A cutoff that can be used to differentiate between groups is a score of <5 (out of 14 items). At this level the sensitivity is 100% and the specificity is 62%. At a score of <4 the sensitivity was 100% and the specificity increased to 80%. In the hopes of increasing the TVSC’s overall ability to distinguish between groups, the score range on the test has been increased from 14 to 56 by expanding the time bonuses. Future research endeavors and implications are discussed.

#66S
MCDERMOTT, A.T., & DONNELL, A.J.
Evaluating the Validity of the Test of Visuospatial Construction

The Test of Visuospatial Construction (TVSC) was developed as an easily administered measure of visuoconstruction that does not rely upon a motor response. The TVSC has been shown to statistically differentiate between neurologically normal and brain injured patients (p < .0001). Preliminary findings also suggest it has good construct validity. In order to further evaluate validity, this study sought to examine how well the TVSC correlates with conceptually similar and dissimilar tests. Pearson product-moment correlations were performed on 50 neurologically normal individuals. As hypothesized, results revealed that the TVSC correlated highest with the Block Design subtest (r = .60, p < .0001), Visual Puzzles (r = .54, p < .0001), and then the copy portion of the Rey Complex Figure Test (r = .52, p < .0001). It moderately correlated with the Similarities (r = .43, p = .001) and Information (r = .46, p < .0001) subtests, which is consistent with the research on the WAIS-III normative sample for Block Design and Similarities (r = .52) and
Block Design and Information ($r = .48$). A significantly smaller correlation was found between the TVSC and the Wechsler Test of Adult Reading ($r = .19$, $p < .02$). These findings reveal that the TVSC has good convergent and discriminant validity in terms of strength, direction, and consistency.


**Persistent Postconcussive Symptoms and Post Traumatic Stress Disorder in Operation Enduring Freedom/Operation Iraqi Freedom Military Personnel**

Military service members and veterans who served in Operation Enduring Freedom (OEF) or Operation Iraqi Freedom (OIF) participated in an ongoing study to examine post-deployment symptom report and level of functioning. Participants were assigned to one of three groups: (1) history of significant blast exposure, (2) history of significant blast exposure and current posttraumatic stress disorder (PTSD), and (3) controls. Current postconcussive symptoms (PCS) were assessed in accordance with VA guidelines for TBI assessment in the context of a larger interview process. Preliminary analysis of variance (ANOVA), using group as the independent variable and number of self-reported current PCS as the dependent variable, suggested significant differentiation between groups (Blast + PTSD > Blast-only > Controls). The preliminary results support the literature documenting self-reported PCS rates and highlight the potential contributions of PTSD to increased symptom reporting. Implications are discussed in terms of the challenges that clinicians face regarding self-reported combat events (e.g., blast as simultaneous concussive and criterion A event), the non-specificity of PCS, and optimal treatment recommendations.

**MCMANUS, S.M., ROBINS, D.L., TONE, E.B., & WASHBURN, D.A.**

**Gaze Fixations During the Perception of Congruent and Incongruent Visual and Auditory Affective Cues**

The ability to recognize facial expressions is important for successful social encounters and interpersonal relationships. This study was designed to examine gaze behavior during the perception of novel dynamic audio-visual emotion stimuli. Typically developing adults ($n = 51$) completed a forced-choice emotion identification task with congruent (e.g., happy face, happy voice) and incongruent movies (e.g., happy face, angry voice). Fixation duration and count were examined across core facial regions (eyes, nose, mouth). Fixation duration and count were greater during incongruent than congruent movies, $F(1, 50) = 22.54$, $p < .01$, $\eta^2_p = .3$, $F(1, 50) = 27.34$, $p < .01$, $\eta^2_p = .35$, respectively. Fixation duration and count were also greater for eyes than mouth, $F(1, 50) = 26.05$, $p < .01$, $\eta^2_p = .34$, $F(1, 50) = 27.14$, $p < .01$, $\eta^2_p = .35$, respectively. An interaction indicated that the difference between
fixation count to eyes and mouth was greater during incongruent movies, F(1, 50) = 7.55, p = .01, η² = .13. Among facial regions, participants elicited critical information from the eyes. During an emotion judgment task, the presence of an incongruent auditory emotion caused participants to increase fixations to the eyes, a region considered to be the most salient visual affective source. These results expand previous knowledge of emotion perception in typically developing individuals, as well as provide researchers and clinicians a foundation from which to explore social deficits found in various clinical populations.

#69S
MEHTA, A., HUNNICUTT-FERGUSON, K., GETCH, S., HOXHA, D., & GOLLAN, J.
Characteristics of Major Depressive Disorder Associated with Reported Childhood Trauma

Objective: This study investigates the extent to which childhood trauma before the age of 18 is associated with clinical symptoms of Major Depressive Disorder (MDD). Hypotheses: Depressed subjects with higher scores on the Childhood Trauma Questionnaire (CTQ) will have higher scores on the Hamilton Rating Scale for Depression (HRSD) and will have different clinical characteristics of depression compared to depressed subjects with lower scores on the CTQ. Depressed subjects with higher scores on the CTQ will have higher scores on the anxiety-subscale of the HRSD compared to depressed subjects with lower scores on the CTQ. Method: Sample includes unmedicated adults between the ages of 18–65, qualifying for MDD using Structured Clinical Interview for DSM-IV (SCID) interviews. Measures are the CTQ and HRSD. Results: The authors will use correlational analyses between the CTQ and HRSD, while controlling for demographic variables. Conclusion: If childhood trauma is associated with more severe depression and specific clinical characteristics, treatment providers can better understand the impact of childhood trauma on depression and provide more appropriate treatment to those who have experienced childhood trauma.

#70
MENDELLA, P.D.
A Preliminary Examination of the Relationship Between Word Memory Test Profiles and Negative Symptoms in First Episode Psychosis

High failure rates have been reported on the Word Memory Test (WMT) in chronic schizophrenia, and performance on the WMT has been related to the severity of negative symptoms. Low failure rates on the WMT have been reported in first episode psychosis (FEP). Purpose of study was to extend findings examining WMT profiles in FEP and to report preliminary data regarding the relationship between WMT scores and negative symptoms. Twenty-two men and seven women enrolled in a FEP clinic underwent neuropsychological testing. Correlations were calculated to compare
performance on the WMT with CVLT-II Trials 1–5 Total scores, and BRIEF-A Self-Report Initiation scale scores. Correlations between WMT scores and negative symptoms were calculated, as measured using the PANSS (available in a subset of the sample; n = 11). Twenty-eight of 29 participants produced a “Pass” profile on the WMT. Large, positive correlations were noted between scores on the WMT and the CVLT-II. Correlations between the WMT and BRIEF-A were negative, and small to medium in size. Correlations between WMT scores and the PANSS were minimal. Most individuals with FEP produce “Pass” profiles on the WMT. Performance on the WMT was related to memory functioning, but not severity of negative symptoms.

#71S
MICKLEWRIGHT, J.L., BERGQUIST, T., YUTSIS, M., GEHL, C.N., & SMIGIELSKI, J.
Pre-admission Functional and Neurocognitive Status are Associated with Comprehensive Day Treatment Gains Following Acquired Brain Injury

Comprehensive Day Treatment (CDT) program participation has been associated with improved neurobehavioral/functional outcomes in individuals with acquired brain injuries (ABI) of varying severity/etiologies. However, few studies have examined if differences in the pre-admission neurocognitive profiles of dependent vs. independent ABI participants are associated with CDT treatment gains. We hypothesized that residentially dependent ABI participants would exhibit greater pre-admission executive dysfunction and verbal memory impairments and that these impairments would be associated with reduced CDT treatment gains. We retrospectively examined 68 participants in the Mayo Clinic’s CDT program, ages 18–69 (79% male, 13.5 years education), who underwent pre-admission neurocognitive testing. Mayo Portland Adaptability Inventory percent change scores (between admission/discharge) quantified treatment gains. T-tests revealed significantly (p < .05) reduced performance IQ, concentration/flexibility (Trails A/B), verbal memory (AVLT delayed recall), and problem solving abilities (WCST) in the residentially dependent group. The dependent group exhibited significantly (p < .05) reduced treatment gains (M = 24.2%) relative to the independent group (M = 41.2%). Across groups, baseline verbal memory abilities were significantly predictive of treatment gains. Residually dependent individuals with ABI exhibit greater intellectual, attention/executive, and verbal memory impairments at baseline and reduced CDT treatment gains. The implications of using neurocognitive functioning to predict CDT outcomes will be discussed.

#72S
MINTZ, R.J., WINGO, J., FINK, J.W., & PLISKIN, N.H.
Executive Function and Electrical Injury

Individuals who sustain an electrical injury (EI) have been reported to experience a variety of neuropsychological changes, and previous research has documented that EI survivors perform more poorly than healthy controls on measures of attention,
mental processing speed, and motor abilities. Research has demonstrated that working memory, verbal memory and visual memory all remain relatively intact in most EI survivors, but executive functioning has not been examined. This investigation sought to examine the executive function performance of EI survivors in relation to attention and mental processing speed. Participants in this study were 70 (61 males; 64 Caucasian) EI patients (average age 40.8 ± 9.5; education = 12.5 ± 2.2) who were administered Trails B, Stroop Color-Word Test and the Wisconsin Card Sorting Test as part of a comprehensive neuropsychological battery given through the Chicago Electrical Trauma Research Program. An analysis of mean scores for attention and processing speed measures was consistent with prior research documenting decreased performance compared to the normative sample. However, on measures of executive functioning there was no difference between EI patients and the normative sample. Thus, despite having reduced attention and processing speed, EI patients in our sample performed within normal limits on executive functioning measures.

#73S
Severity of Motor Impairment Predicts Automated Neuropsychological Assessment Metrics Performance in Parkinson’s Disease

Research has demonstrated that the severity of motor symptoms in Parkinson’s disease (PD) patients is associated with cognitive test performance on traditional neuropsychological tests. Common ratings of motor severity in PD include Hoehn and Yahr Staging (HY) and the motor subscale of the Unified PD Rating Scale (UPDRS-Motor). The aim of this study was to determine whether PD motor symptoms predicted cognitive performance on a computerized battery of neurocognitive measures. Seventy-six PD patients without dementia completed the Automated Neuropsychological Assessment Metrics (ANAM) battery and received HY Staging and UPDRS-Motor ratings at an urban PD Center. Regression models included age, education, gender and disease severity rating with UPDRS-Motor scores providing incremental improvement over and above known covariates on ANAM tests of memory, complex reaction time, processing speed, and working memory. HY Staging did not predict performance on any ANAM tests. Our findings suggest that the more comprehensive UPDRS motor ratings better predict cognitive performance in PD patients compared to HY Staging. Results also provide additional evidence that ANAM is a useful tool for measuring cognitive functioning in PD patients.

#74S
MORSE, C.L., CHUTE, D.L., GALLO, J.L., & POSTMAN-CAUCHETEUX, W.A.
“Dystextia” as an Isolated Typing Impairment

We report on a 62-year-old male with selective impairment in type-written communication in the absence of other cognitive disability—including memory,
aphasia, agraphia, and apraxia. The isolated typing impairment (termed “dystextia”) emerged following recovery from an evacuated subdural hematoma in the dorsolateral left frontal lobe extending to the insula and left temporal pole. Errors include homophone confusion (e.g., “roll” for “role”), omission of word endings (e.g., “import” for “important”), phonologically plausible errors (e.g., “possible” for “possibly”), and grammatical errors (e.g., “should of” for “should have”). Linguistic disturbance is not believed to entirely underlie this selective typing impairment, due to the absence of aphasia and agraphia. Further, we believe these errors cannot be attributed entirely to motor deficits since the patient does not show deficits on a task of fine motor control or when writing longhand. Rather, we hypothesize that damage to a specific monitoring process needed for typing, but not writing longhand, may underlie these errors—namely, an attention-dependent visual-motor coordination process that works together with orthographic processing and that is selectively activated during type-written communication. Further, we hypothesize that neuroanatomical substrates for this process involve the frontal left hemisphere and insula.

#75S
NEAL, N., SCHWARZ, L., PLISKIN, N., BITYOU, L., & GROSSBERG, G.
The Utility of the Test of Memory Malingering in Patients with Dementia

The Test of Memory Malingering (TOMM) is one of the most well studied and frequently used symptom validity tests. However, few investigations have been conducted concerning its applicability in a dementia population. From these studies, conflicting data has emerged and its utility is unclear. The purpose of the present evaluation was to elucidate the role of the TOMM in evaluations of patients with dementia. The files of 21 patients diagnosed with dementia using the DSM-IV-TR criteria referred for neuropsychological evaluation were examined. Neurocognitive data included the Wechsler Test of Adult Reading (WTAR), the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) and the TOMM. The combined sample IQ was within the average range (WTAR predicted mean FSIQ = 104.24, SD = 13.67). The sample demonstrated overall mild impairment as assessed by the RBANS Total Index Score (mean = 78.29, SD = 17.92). TOMM performance was as follows: Trial 1 (mean = 43.90, SD = 7.20), Trial 2 (mean = 47.57, SD = 5.52), and Retention Trial (mean = 31.50, SD = 12.02). All trials of the TOMM correlated significantly with the RBANS Total Index (T1 r = 0.72, T2 r = 0.68, Retention r = 1.00). Overall, results suggest that in individuals with more advanced dementia, the TOMM is likely not an appropriate measure of effort using the traditional cutoff of 45.

#76
NELSON, N.W., HOELZLE, J.B., MCGUIRE, K.A., SIM, A.H.,
GOLDMAN, D.J., FERRIER-AUERBACH, A.G., CHARLESWORTH, M.J.,
ARBISI, P.A., & SPONHEIM, S.R.
Evaluation Context Impacts Minnesota Multiphasic Personality Inventory-2 and Minnesota Multiphasic Personality Inventory-2, Restructured Form Presentation
Among Operation Enduring Freedom/Operation Iraqi Freedom Veterans with Histories of Combat-Related Concussion

Civilian mild traumatic brain injury (concussion) literature suggests that evaluation context impacts symptom presentation in the late stage of recovery. Few studies have examined evaluation context as a moderator of symptom presentation in OEF/OIF veterans with histories of concussion. The current study presents MMPI-2 and MMPI-2-RF profiles of 114 OEF/OIF veterans with histories of combat-related concussion. Evaluations were conducted across forensic (compensation/pension), clinical (Polytrauma), and research settings. Relative to the research sample, forensic and clinical samples showed significant elevations on the Symptom Validity Scale (FBS), Response Bias Scale (RBS), F-scale, Fb, and the MMPI-2-RF Infrequent Somatic Responses Scale (Fs). Using conservative validity scale cutoffs, a sizeable proportion of the forensic and clinical groups showed probable or definite symptom exaggeration on FBS (20–22%), Fs (15–22%), and RBS (5–13%). In contrast, probable exaggeration was evident in 0% (Fs, RBS) to 4% (FBS) of the research group. Consistent with the civilian literature, findings suggest that exaggeration, particularly over-endorsement of somatic and cognitive symptoms, increases dramatically in forensic and clinical contexts relative to settings in which primary and secondary gain issues are less salient. Response validity assessment is essential to the forensic and clinical evaluation of OEF/OIF veterans presenting with combat-related concussion.


Accumulating research suggests that soldiers of Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF) sustain blast-related mild traumatic brain injury (concussion) and physical injury with alarming regularity. The Departments of Defense and Veterans Affairs have developed several screening instruments to detect individuals who may have sustained in-theatre traumatic brain injury. A well known limitation of screening instruments is variable diagnostic utility, which complicates determination of who should be referred for follow-up assessment. The current study introduces the Minnesota Blast Exposure Screening Tool (MN-BEST), a systematic approach to the assessment of concussion meant for use following a ‘positive’ concussion on initial TBI screening. Unique from the TBI screening process, the MN-BEST allows for uniform evaluation of concussion frequency, severity, and plausibility. Through presentation of three OEF/OIF veterans with differing blast-related concussion histories, the authors illustrate how the MN-BEST can be implemented by clinicians and researchers to inform the extent to which concussion and other co-morbid conditions (e.g., post-traumatic stress, chronic pain) may impact neuropsychological performances.
NELSON, N.W., HOELZLE, J.B., MCGUIRE, K.A., THURAS, P.,
FERRIER-AUERBACH, A.G., CHARLESWORTH, M.J., & SPONHEIM, S.R.
Blast Exposure and Other Predictors of Cognitive Performance among Veterans of
Operations Enduring Freedom and Operation Iraqi Freedom

While blast exposure may represent a unique mechanism of concussion, little is
known about the effect that blast may have on cognitive performance in the late
stage of recovery. The current study examines factors that predict neuropsycholog-
ical performance in a sample of 60 OEF/OIF veterans evaluated at least two
years post-deployment. Predictors of cognitive performance included premorbid
intellectual ability, effort, concussion history (blast and non-blast), service-
connection status, persisting post-concussive symptoms (PCS), and current
emotional distress. Moderate collinearity among predictors confounded results of
initial hierarchical linear regression, which identified effort as the only significant
predictor of cognitive performance (Final $\beta = -.369; p < .05$). Follow-up stepwise
regression revealed insufficient effort (Final $\beta = -.431; p < .001$) and emotional
distress (Final $\beta = -.342; p < .01$) to be the only predictors of cognitive
performance. Concussion history, regardless of mechanism (blast or non-blast),
was not predictive of cognitive performance years following deployment.
Implications for evaluation and treatment of co-morbid concussion and emotional
distress are discussed.

NELSON, N.W., LAMBERTY, G.J., ARBISI, P.A., SWEET, J.J.,
& BEN-PORATH, Y.S.
The Minnesota Multiphasic Personality Inventory and Clinical Neuropsychology: A
Historical Review of Publication Trends and Topics

Literature dating from the early 1940s documents the evolution of the most
frequently relied upon personality inventory in clinical psychology, the Minnesota
Multiphasic Personality Inventory (MMPI). The current study examines MMPI
and MMPI-2 publication trends since the measure was first developed, particularly
with regard to topics directly relevant to clinical neuropsychology. Topics of
subjective cognition, psychiatric symptoms associated with neurologic disease, and
other clinical neuropsychological topics were among the first to be addressed in the
early MMPI literature. Examination of publication rates of more than 10,000
published MMPI and MMPI-2 studies (1942–2009) suggests an accelerated rate of
published works through the 1970s and 1980s, and a somewhat diminished rate
since the early 1990s. Literature explicitly devoted to clinical neuropsychology
appears to have increased in recent years. Inspection of literature published in 17 of
the most widely read neuropsychology journals revealed 110 studies primarily
centered on the MMPI since 1990. Traumatic brain injury was by far the most
common clinical condition examined using the MMPI in the neuropsychology
literature (50.9%), and many studies (36.4%) were primarily devoted to
response validity and forensic issues in neuropsychology. Contextual and
cultural factors that may account for MMPI and MMPI-2 publication trends are discussed.

#80
A Case Study Examining The Neuropsychological Functioning In A Man With Hereditary Hemorrhagic Telangiectasia

Hereditary Hemorrhagic Telangiectasia (HHT) is a rare medical disorder (1 in 6500) which is characterized by systemic vascular dysplasia. The symptom presentation of this condition includes gastrointestinal bleeding, nosebleeds, mucocutaneous telangiectasia, pulmonary and cerebral arteriovenous malformations. There is scant research pertaining to the cognitive sequellae for this condition. The aim of this case study is to present how HHT may impact the long-term cognitive functioning in an otherwise healthy 60 year old male who was hospitalized after a major GI hemorrhage due to colonic arteriovenous malformations from HHT. Brain MRI at 1 month post hemorrhage was remarkable for diffuse white matter disease. Other than age, his medical history is negative for primary risk factors for such a condition. The patient, a board certified neurologist, reported cognitive deficiencies since his GI hemorrhage. His neuropsychological evaluation at one year post incident demonstrated deficits in processing speed, executive functioning, and language phonemic fluency. In contrast, short-term memory functioning was well within normal limits. These cognitive deficits are particularly relevant to the patient’s profession as a physician. The specific tests and scores will be presented. He passed embedded measures of effort. This case study documents the cognitive deficits in a previously high functioning patient with HHT. This case study presents findings with which future neuropsychological research in HHT can be compared.

#81S
PAPP, K., SPRINGATE, B., MINER, D., KAPLAN, R.F., & WOLFSON, L.
Processing Speed and Fine Motor Control in the Old and the Very Old

Studies have shown that decrements in processing speed are part of normal aging. Processing is also related to the integrity of the brain’s white matter, which is often compromised in small vessel disease, secondary to hypertension and diabetes. Yet despite the importance of information processing speed for discriminating early dementia from normal aging there is little normative data available. This study compared performance of 45 healthy Old participants (Mean age 80.9, Range 77–84) and 36 Very Old participants (Mean Age 87.5, Range 85–91) on speed of processing measures. While the Very Old group performed comparably to the Old on tasks measuring simple reaction time (California Computerized Assessment Package) and motor speed (Trails A), the Very Old performed more poorly on speed tests requiring fine motor control (Grooved Pegboard, Cohen’s d = −.50) and executive functioning (Stroop Color Word, Cohen’s d = −.99; Symbol Digits Modalities Test, Cohen’s d = .75; and Trails B, Cohen’s d = −.46). These results
suggest that slower psychomotor speed in the Very Old is influenced by task demands, with those tasks requiring higher levels of processing showing relative impairment compared to performances on simple motor speed tasks.

#82S
PEDERSEN, H., FERRARO, R., POOLMAN, M., HIMLE, M., & SCHULTZ, C.
Neuropsychological Factors Related to College Hockey Concussions

Sports-related head injuries are common and have been associated with a host of neurocognitive deficits. The ImPACT Test is a widely-used computer based assessment tool specifically designed to assess and monitor neurocognitive functioning following sports-related concussions (www.impacttest.com). ImPACT contains six modules to assess aspects of executive functioning, memory, and learning (immediate and delayed memory, attention, concentration, working memory, reaction time, visual processing speed, and visual-motor speed). Scores on individual tests are combined to create composite scores for Verbal Memory, Visual Memory, Reaction Time, Processing Speed, and Impulse Control. We are currently analyzing data collected over a six-year period from 74 male collegiate hockey players attending a Midwestern university. Each athlete began their season with a baseline administration of ImPACT. Following any sports-related head injury, the athlete was re-administered the test to assess the impact of the injury on various neurocognitive domains. Preliminary analyses revealed a statistically significant decrease in performance (compared to baseline) on Word and Design Memory scores following the first sports-related concussion. When a second sports-related concussion was sustained, significant decreases in performance was observed on five of the six cognitive domains. Additional analyses are currently underway to further examine the effect of sports-related concussions on neurocognitive domains.

#83S
PERAZA, J.R., & DANIEL, M.
Language Ability and Performance on Tests of Executive Functions

Objective: This study examined the association of overall language ability with performance on tests of executive functions. Method: Subjects were 66 women and 47 men referred to a university doctoral clinical psychology training and research clinic for neuropsychological evaluation. Mean (SD): age = 29.76 (10.89); education = 13.61 (2.63). Comprehensive neuropsychological evaluation included WAIS-3, DKEFS Verbal Fluency and Trails Switching. Subjects were divided into low (WAIS-3 VCI < 89; N = 12), mid (WAIS-3 VCI = 90-109; N = 61), and high (WAIS-3 VCI > 110; N = 40) language ability groups. Results: Subjects in the high- and mid-language ability groups scored significantly higher than the low-language group on letter fluency. The low language group’s performance was in the low-average range (SS: M = 83.08, SD = 12.52) with the other language groups’ letter fluency falling in the average range (SS: M = 96.15, SD = 15.18 & M = 102.67, SD = 15.76). For category fluency, the high-language group scored significantly higher than the low-language group, with scores in the high-average (SS: M = 109.24,
SD = 20.05) and average ranges (SS: M = 92.25, SD = 14.79) respectively. There were no differences between groups on Category Switching, Switching Accuracy or Trails Switching. Conclusions: Overall language ability is an influence on verbal tests of executive functions and the nature of the influence varies with the test. Low-language ability is associated with low-average performance on phonological fluency and high-language ability is associated with above average performance on semantic fluency. Language ability does not have a significant effect on visual-motor tests of executive functions.

**#84S**
**PRENTKOWSKI, E., & CHAFETZ, M.**
**Base Rate of Medical Symptom Validity Test Failure in Louisiana Child Protection Cases**

The current study examined base rates of Medical Symptom Validity Test (MSVT) failure in a group of adults referred from Louisiana child protection (Office of Community Services: OCS). Base rates are useful for decision making and prediction. In previous research examining motivation to work, Chafetz (2009) determined MSVT failure in two populations of adults: seeking compensation through social security disability (SSD), and seeking assistance obtaining work through the Louisiana Rehabilitation Services (LRS). After removing those individuals who were truly impaired (Howe & Loring, 2009), the effort fail rate for the SSD claimants was 52.3% with the LRS group at 23.5%, but these failing individuals were also seeking SSD. The aim of the current study was to determine the base rates of malingering for OCS clients. As OCS clients are motivated to perform their best, it was expected that the base rate for MSVT failure would be significantly lower relative to the SSD group. In fact, in a sample of adults with IQ < 80, there was a 0% failure rate, and no OCS adults (larger group) failed the MSVT.

**#85S**
**ROMERO, H.R., BROWNDYKE, J.N., BURKE, J.R., HAYDEN, K.M., & WELSH-BOHMER, K.A.**
**Executive Measures are Related to Functional Ability in an Ethnically Diverse Cohort**

Subtle functional change occurs in preclinical dementia. Executive measures may be useful proxies of function if validity can be established across diverse groups. The current study evaluated the relationship of common executive measures to functional ability in an ethnically diverse, clinically well-characterized cohort of normal adults and mild memory disorder patients (n = 300; 18% African American, mean age = 75). Executive functions were assessed with the Trail Making Test, EXIT interview, WAIS-R Digit Symbol, and Digit Span backward (DS-b) tests. Functional scales included the Blessed DRS (BDRS), Functional Assessment Questionnaire (FAQ) and the Clinical Dementia Rating Scale (CDR). Results were analyzed using multiple regression models. Executive measures accounted for a significant amount of variance in the CDR (21%) and BDRS (15%). Semi-partial coefficients indicated that Trails B (.12, .48) and EXIT (.18, .13) uniquely
contributed to variance in BDRS and CDR scores, respectively. DS-b contributed to CDR scores (-.11). Ethnicity influenced the relationship between executive and functional abilities when EXIT and Trails A were used, but did not moderate the relationship between Trails B and functional ability. Trails B appears to be an optimal predictor of function in ethnically diverse populations. Continuing work will examine performance of executive measures in relation to literacy.

#86
ROSOKS, T., GFELLER, J.D., BRYANT, K., SOPKO, K., HERBERGER, V., MURPHY, J., IBATA, B.A., & BUCHOLZ, R.D.
The Validity of the Repeatable Battery of Neuropsychological Status in Persons with and without Traumatic Brain Injury

The RBANS is a brief battery assessing multiple cognitive functions in persons with suspected cognitive impairment. The validity of the RBANS index scores has been examined in both patient and non-patient groups. This study contributes to this literature using a sample of TBI and healthy control participants by comparing RBANS index scores to established neuropsychological measures. We anticipated that the RBANS index scores would significantly correlate with neuropsychological measures of similar constructs. As part of a larger ongoing prospective study, the RBANS was administered to all participants. The test battery also included traditional neuropsychological tests (e.g. CVLT-II, Boston Naming Test, Rey Complex Figure, and Wisconsin Card Sorting Test). Descriptive statistics and Pearson correlations were calculated using RBANS index scores and neuropsychological measures. As expected, RBANS indices correlated with traditional tests measuring similar neuropsychological constructs (e.g. Attention Index correlated with WAIS-III working memory subtests; Language Index correlated with naming and verbal fluency tests; and Visuospatial/Constructional Index correlated with visuospatial tests). These results are consistent with previous studies and further support the utility of the RBANS as a brief neuropsychological battery.

#87S
RUPPERT, P.D., GFELLER, J.D., & OLIVERI, M.V.
Utility of Victoria Symptom Validity Test Response Latency Variables for the Detection of Insufficient Effort

This study examined the utility of Victoria Symptom Validity Test (VSVT) response latency variables for the detection of insufficient effort. Empirically derived cut scores for these variables have previously been recommended; however, these cutoffs were set using VSVT accuracy scores or the identification of compensation-seeking patients as a criterion. The present study sought to determine cut scores relative to performance on an external and well-validated measure of symptom validity, the Word Memory Test (WMT). The sample was comprised of 129 mixed clinical and/or medicolegal patients who were administered the VSVT and WMT during the course of a neuropsychological evaluation. Overall, VSVT response latency variables were modestly sensitive to failures on WMT effort indices (IR,
Among these variables, the Standard Deviations for VSVT Difficult Item Response Latencies showed the greatest potential for identifying those patients who failed one or more WMT effort indices. Specifically, a cut score of 2.9 seconds on this variable yielded a sensitivity of 39% with specificity set at 90%. In some cases, VSVT and WMT variables may be selectively tapping different aspects of response validity. Implications for the interpretation of VSVT response latency variables are discussed.

#88S


Association of Plasma Aβ42/40 Ratio, Age, and APOE Genotype to Incident Cognitive Impairment

Studies in cognitively normal elders suggest that a low ratio of two plasma proteins (Aβ42/Aβ40) is associated with increased risk of mild cognitive impairment (MCI) and Alzheimer’s disease (AD). To date, however, the relationship between plasma Aβ and cognition remains largely unexplored. A cohort of 278 older adults with normal cognition at baseline was followed for 2–12 years. Association between baseline plasma Aβ and risk of subsequent cognitive impairment was studied along 5 factor analytic-derived cognitive domains: Verbal, Visuoperception, Attention, Learning, and Memory Retention. Primary endpoint was time to incident cognitive impairment, operationalized as age-corrected standard scores 1.0 SD below the mean. In Cox proportional hazard models, Aβ42/Aβ40 ratio was associated with impairment in Retention (p < .05). Specifically, subjects with ratios below the median were more likely to develop memory impairment compared to those with ratios above the median (5-year cumulative incidence of 21% and 6%, respectively). This effect was strongest in subjects over age 80 and not significantly mediated by APOE ε4 genotype. There was no significant association between Aβ42/Aβ40 ratio and impairment in non-memory domains. These findings suggest that plasma Aβ may be a useful biomarker for identifying individuals at increased risk of memory impairment and development of MCI/AD.

#89S


The Effects of Attention Deficit Hyperactivity Disorder and Learning Disability on Baseline Neurocognitive Evaluation in Collegiate Athletes

Management of sports related concussion (SRC) has relied on baseline neurocognitive evaluation for comparison with post concussion performance. Currently, little research exists on baseline performance in athletes with ADHD and/or LD. Extant literature suggests that athletes with ADHD/LD exhibit differences in baseline performance, concussion history, and concussion recovery/outcome (Collins et al., 1999; Iverson, Collins, Roberge, & Lovell, 2008). Previous studies have relied on
self-reported diagnoses of ADHD/LD rather than confirmed diagnoses and/or objective neuropsychological data. The current study investigated differences on baseline performance using the Concussion Resolution Index (CRI) in athletes with self-reported or confirmed ADHD and/or LD, and matched controls. Archival data were collected for athletes who participated in academic evaluations spanning years 2000 to 2009 at a major Mid-Atlantic university. Athletes with self-reported ADHD, diagnosed ADHD and/or LD based on academic/neurocognitive test performance, developmental history, self-report, and DSM-IV-TR criteria, and matched controls were compared. Data on 1062 athletes were analyzed, 122 with confirmed diagnoses, and 70 with self-reported ADHD/LD. MANOVA revealed significant between group differences on CRI baseline performance (Wilks’ Lambda = .96, F(12, 2110) = 3.9, p < .001). Results highlight the importance of confirming ADHD/LD diagnoses for accurate baseline and post-concussion evaluation in athletes with ADHD/LD.

#90
SCHAEFER, L.A., VARGHESE, T., ISAACSON, A.C., & WEISS, L.D.
A Case of Progressive Nonfluent Aphasia: A Diagnosis Frequently Overlooked in Clinical Practice

A 73-year-old white female with history of hypertension, hypercholesterolemia and coronary artery disease presented to rehabilitation clinic, complaining of difficulty finding words for six months. Physical examination showed no focal neurological deficits. MRI and MRA were negative for cerebrovascular accident; EEG found bifrontal changes. Neuropsychological assessment revealed deficits in complex attention and working memory, executive functioning, and language (including articulation, fluency, naming, and complex comprehension). Memory was comparatively intact, and she showed no behavioral or motor symptoms. Patient was diagnosed with progressive nonfluent aphasia (PNFA), a subtype of frontotemporal dementia (FTD) and primary progressive aphasia (PPA). PET scan later confirmed the diagnosis. Speech therapy and cognitive remediation improved the patient’s quality of life by increasing awareness of deficits, maximizing existing abilities, and teaching alternative strategies for improved communication. This case highlights PNFA, a rare neurodegenerative disorder presenting with word finding difficulty that can ultimately lead to muteness. No cure exists; treatment is supportive and differs from that of Alzheimer’s disease or aphasia secondary to CVA. Neuropsychologists should consider PNFA when encountering similar patients in the future. Proper diagnosis of these individuals is essential, in order to assist the patient in preserving their independence and lifestyle longer.

#91
SCHUTTE, C.E., MILLIS, S.R., AXELROD, B.N., & VAN DYKE, S.A.
A Model for Assessment of Overall Effort at Multiple Time Points Across Testing

The purpose of the current study was to derive a model to assess for overall effort at multiple time points on cognitive testing with several embedded measures using the
MSVT as the criterion. 231 participants in a mixed clinical sample underwent neuropsychological examination. Each performance was determined to be the result of adequate or suboptimal effort, as defined by failure on the MSVT. A model of embedded memory tasks theoretically identified to match features of the MSVT, including measures from the Rey Complex Figure, CVLT-II and WMS-III, was entered into a logistic regression and the resulting probability was then used in a ROC analysis. We determined a baserate of approximately 36% failure on the MSVT. The overall model was significant, $\chi^2(4) = 40.86$, $p < .000$ and a good fit Hosmer and Lameshow $\chi^2(8) = 8.40$, $p = .40$. The resulting probability was used to perform a ROC analysis, $p = .83$. Colinearity diagnostics showed that the model was acceptable. It has been suggested that effort should be measured across the bandwidth of testing. Our model performed well in predicting suboptimal effort, suggesting that it may be a good way of assessing overall effort across testing rather than at one time point.

#92S

SIMPLER, A.H., & PARMENTER, B.A.

Brief Visuospatial Memory Test-Revised Performances of Civil and Forensic Patients who Pass or Fail the Medical Symptom Validity Test

Neuropsychologists often use embedded validity indices found in traditional memory measures to differentiate individuals who present with genuine memory deficits from those who present with suspect effort. While much of the research has focused on verbal memory, the current study sought to explore the extent to which performances on a visuospatial memory task [i.e., Brief Visuospatial Memory Test-Revised (BVMT-R)] related to performances on an established symptom validity task [i.e., Medical Symptom Validity Test (MSVT)]. Archival data from 69 civil and forensic patients in a state psychiatric hospital were compared to determine if delayed recall and/or recognition memory variables from the BVMT-R predicted MSVT performances. Kruskal Wallis tests revealed significant differences only on the BVMT-R Recognition Discrimination Index (RDI), $\chi^2 = 12.44$, $p < .01$, between individuals who passed and those who failed the MSVT, regardless of patient group (civil vs. forensic). A discriminant analysis was conducted to determine whether free recall and recognition predictors could predict MSVT pass/fail status. The overall Wilks’ lambda was significant, $\lambda = .75$, $\chi^2(4) = 12.44$, $p < .001$, indicating these predictors differentiated pass/fail MSVT performances. These findings have implications for utilizing scores on the BVMT-R as an embedded validity index.

#93S

SONG, W., LACY, M., & ASSURAS, S.

Symptoms of Obsessive Compulsive Disorder in Relation to Right Frontal Tumor

Obsessive Compulsive Disorder (OCD) is an anxiety disorder characterized by recurrent ego-dystonic intrusive thoughts and repetitive behaviors aimed to reduce associated anxiety. Although its etiology is not completely understood, recent research has shown that dysfunction in the cortico-basal-thalamo-cortical loop,
including the orbitofrontal cortex, the anterior cingulate cortex and the head of the caudate nucleus, may be implicated in OCD. We present a case of a 28-year-old, right-handed female with a 20-year-long history of OCD reviewed in the context of this recent research. The patient’s history of OCD started at the age of 9 and included various obsessions regarding health or sexual interests. She also displayed corresponding repetitive checking behaviors. In 2008, an MRI revealed a large right frontal grade II astrocytoma, which resulted in effacement of the right frontal horn, inferior displacement, and a left midline shift. Anxiety symptoms exacerbated prior to diagnosis. Upon tumor resection, her OCD symptoms abated considerably. Nine months later, her symptoms reemerged which corresponded with regrowth of her tumor. This case illustrates the changes in OCD symptoms in relation to the development of a tumor affecting right frontal cortical structures, consistent with the current hypothesis underlying this disorder.

SOZDA, C.N., TYNER, C.E., LARSON, M.J., & PERLSTEIN, W.M.
Error-Related Processing Following Severe Traumatic Brain Injury: An fMRI Study

Continuous performance-monitoring is invaluable for guiding behavior towards successful goal attainment by identifying deficits and strategically adjusting responses when performance is inadequate. In the present study, we exploited the advantages of event-related functional magnetic resonance imaging (fMRI) to examine neuronal reflections of error-related processing after severe traumatic brain injury (sTBI). FMRI and behavioral data were acquired while 10 sTBI participants and 12 neurologically-healthy controls performed a cued-Stroop task. fMRI data were analyzed using a random-effects whole-brain voxel-wise general linear model and planned linear contrasts. Behaviorally, both controls and patients demonstrated standard Stroop interference RT effects, that is, significant slowing in the incongruent compared to congruent conditions. sTBI patients committed significantly more errors than controls under incongruent color-naming “conflict” conditions, but not congruent conditions. FMRI data revealed that, compared to controls, error-related processing activity in the anterior cingulate cortex (ACC) was increased in both magnitude and spatial extent. Findings from the present study extend previous findings that the neural networks mediating cognitive control, specifically, error-related processing, are disrupted after sTBI. Additionally, while TBI patients demonstrated greater errors than controls during task-performance, the postulated neural underpinnings of error-related processing within our sample of TBI patients was relatively intact.

SPENCER, R.J., TREE, H.A., DRAG, L.L., PANGILINAN, P.H., & BIELIAUSKAS, L.A.
Extending Reliable Digit Span with the Wechsler Adult Intelligence Scale, Fourth Edition Sequencing Task: Preliminary Results
Reliable Digit Span (RDS, Greiffenstein, Baker & Gola, 1994) is a measure of effort using the Digit Span subtest of the WAIS-R. RDS is composed of the sum of the longest forward and backward spans in which both trials are correctly completed, with a below-threshold score suggesting poor effort. This study examined the incremental benefit of adding the Digit Sequencing task, introduced in the WAIS IV, as an additional measure of effort. Data were collected from 324 veterans seen in a traumatic brain injury (TBI) clinic. Preliminary analyses showed that a reliable Sequencing span of <4 correctly distinguished those passing or failing the traditional RDS with 77% accuracy. The extended RDS adds RDS and Sequencing scores. To compare the traditional and extended RDS, performances of 81 veterans were examined using the Test of Memory Malingering as a criterion measure. The traditional RDS, with a cutoff of <8, had 47% sensitivity and 85% specificity (77% overall predictive power). With a cutoff of <12, the extended RDS had 58% sensitivity and 89% specificity (82% overall predictive power). These preliminary results suggest that the extended RDS improves upon the sensitivity and specificity of the traditional RDS among veterans being evaluated for TBI.

#96S
STROESCU, I., OLIVERI, M.V., & GFELLER, J.D.
A Comparison of Failure Rates on the Victoria Symptom Validity Test and Word Memory Test in Medical and Medicolegal patients

The aim of the present study was to explore the failure rates and agreement rates for two commonly used forced-choice symptom validity tests (SVTs): the Victoria Symptom Validity Test (VSVT; Slick et al., 1995) and the Word Memory Test (WMT; Green, 2003). The sample consisted of mixed clinical and medicolegal patients referred for neuropsychological assessment (N = 108; mean age 43.3). The sample was 43.5% male, with an average of 13.3 years of education. Scores of ≤82.5% on the WMT and ≤20 on the VSVT represented failures. Failure rates based on VSVT indicators ranged from 8% to 41%, versus 45% based on WMT aggregate indicators. Percentages of agreement among the various VSVT and WMT indicators ranged from 64% to 78%. The WMT and VSVT Easy trial indicators disagreed 36% of the time, while the WMT and VSVT Difficult trial indicators disagreed 22% of the time. The latter number is comparable to the 24% disagreement rate between the WMT and Test of Memory Malingering (TOMM) obtained by Greiffenstein et al. (2008). These findings document that WMT and VSVT indicators frequently yield different conclusions. The findings also point to the differential sensitivity of effort indicators from these commonly used tests.

#97S
STROESCU, I., HUDEPOHL, A.D., STRINGER, A.Y., & HAMMOND, F.M.
Posttraumatic Stress Symptoms and Executive Dysfunction in Civilian Traumatic Brain Injury Patients: An Exploratory Investigation

The Centers for Disease Control and Prevention (CDC) estimate that approximately 1.4 million individuals sustain traumatic brain injuries (TBIs) annually in
the US. TBI is commonly associated with cognitive dysfunction, and with executive dysfunction in particular (Nampiaparampil, 2008). Additionally, TBI is commonly comorbid with posttraumatic stress disorder (PTSD) symptoms, especially in combat veterans (Hoge et al., 2008). Some research has pointed to an association between PTSD symptoms and executive dysfunction (Nelson et al., 2009). In the current sample of civilian TBI patients, the associations between PTSD symptoms, injury characteristics, and aspects of executive dysfunction were examined. Data from the Georgia and North Carolina Brain Injury Model Systems (N = 79; mean age = 32, SD = 15.2) were examined. Multiple regression analyses showed that self-reported posttraumatic symptoms did not account for significant variance in number of perseverative errors or category sorts on the Wisconsin Card Sorting Test (WCST), while injury variables (length of posttraumatic amnesia, presence of cerebral pathology) accounted for statistically significant (albeit small) amounts of variance in WCST performance (7%, p < .01 and 4%, p < .05, respectively). In this civilian sample, posttraumatic symptoms were not significantly associated with executive dysfunction.

#98
STRONG, C.H., TIESMA, D., CARLSON, H., & DONDE, J.
Validity of the Fluency Subtests of the Delis-Kaplan Executive Function System after Traumatic Brain Injury

The clinical utility of the Verbal and Design Fluency subtests of the Delis-Kaplan Executive Function System (D–KEFS) was evaluated prospectively in adult patients with traumatic brain injury (TBI), selected from a five-year series of consecutive rehabilitation referrals, including 65 patients who all had positive intracranial findings on neuroimaging and who did not have premorbid (e.g., psychiatric) or comorbid (e.g., litigation) complicating factors. A group of 65 demographically matched controls was obtained from the D–KEFS standardization sample. Five of the 6 D–KEFS subtests demonstrate statistically significant (p < .05) correlations with length of coma, but only Letter Fluency and Category Switching demonstrated statistically significant group mean differences. Logistic regression analyses using the Letter Fluency and Category Switching scores as the independent variables, and groups as the dependent variable, revealed that the D-KEFS scores correctly classified 65.2% of the participants, with a rate of 34.8% false positives and 34.4% false negatives. It is concluded that D–KEFS fluency subtests have some criterion validity but that caution should be used in relying primarily on these tasks to assess cognitive sequelae of TBI.

#100S
TREE, H.A., SPENCER, R.J., DRAG, L.L., PANGILINAN, P.H., & BIELIAUSKAS, L.A.
Operation Enduring Freedom/Operation Iraqi Freedom Veterans Reporting “Very Severe” Cognitive Symptoms Following Mild Traumatic Brain Injury are at Increased Risk of Poor Effort During Neuropsychological Testing
Ongoing cognitive impairments following mild traumatic brain injuries (mTBI) are often reported by returning combat veterans. As part of standard VA assessment procedures to screen for TBI, veterans provide subjective ratings of their cognitive symptoms. The current study examines if extreme self-reports of impairments correspond with poor effort during subsequent neuropsychological screening. Participants included 190 veterans undergoing evaluation for mTBI. Veterans rated problems with memory, concentration, and processing speed/organization on 5-point scales ranging from “none” to “very severe.” They also completed brief neuropsychological testing which included two or more measures of effort. Among all participants, 35% reported one or more “very severe” cognitive impairments and 26% failed at least one test of effort. Thirty-six percent of participants who reported a “very severe” cognitive impairment failed at least one effort test compared to 20% of the remaining participants who did not report a “very severe” cognitive impairment. Six of the seven veterans who failed two tests of effort reported a “very severe” cognitive impairment. These results indicate that veterans with suspected mTBI that give subjective ratings of “very severe” cognitive impairment have a greater likelihood of putting forth suboptimal effort on objective testing, and thus warrant a comprehensive assessment of effort.

#101S
TYNER, C.E., SOZDA, C.N., STIGGE-KAUFMAN, D.A., LARSON, M.J., & PERLSTEIN, W.M.
FMRI of Rostral Anterior Cingulate Cortex: Exploring a Cognitive-Affect Network Important in Post-Concussive Symptoms and Posttraumatic Stress Disorder

The incidence of traumatic brain injury (TBI) is staggering, yet causes of functional impairments known as post-concussive symptoms (PCS) are incompletely understood. In a subset of patients, these impairments can be confused with, or magnified by, symptoms of posttraumatic stress disorder (PTSD). Additionally, the neuroanatomical underpinnings of PTSD may overlap with the brain regions often damaged in TBI. The current project investigated, in control participants, regions of the brain implicated in both PCS and PTSD, using a task of attention that used emotionally arousing words as stimuli, to determine if this task could have utility in explicating the neurocognitive dysfunction seen in both disorders. Four neurologically-normal adults completed an event-related fMRI paradigm using a Cued Emotional Counting Stroop task, which included an instructional-cue followed by stimulus-probes comprising pleasant, neutral, and unpleasant words. Random-effect general linear modeling and planned contrasts revealed significant task-related activation to emotionally arousing words in bilateral amygdala and rostral anterior cingulate (rACC). Frontal activation was observed during instructional context maintenance. Results support further exploration of this task as a probe of rACC and cognitive-affective brain circuits important in both PTSD and PCS. Future application to clinical populations, in conjunction with measures of symptomatology, is encouraged.
VAN DYKE, S.A., AXELROD, B.N., & SCHUTTE, C.
Use of Self-Report Measures in Assessing Symptoms and Effort

Self-report measures of symptom presentation (Postconcussive Syndrome Questionnaire; PCSQ) and symptom validity (Structured Inventory of Malingered Symptomatology; SIMS) are increasingly administered in neuropsychological evaluations to assess patient report as well as accuracy of patient responding. Participants included 278 patients consecutively referred for neuropsychological evaluation at a Veteran’s Affairs hospital. As part of a neuropsychological evaluation, patients were administered the PCSQ, SIMS, and Minnesota Multiphasic Personality Inventory-2 (MMPI-2). The sample was trichotomized into overreporting (OR), underreporting (UR), or within normal limits (WNL) based on F minus K scores. The OR group presented an MMPI-2 profile significantly more distressed than the other two groups, which were generally comparably to each other. Rates of pathological reports of symptoms on the PCSQ as well as atypical responses as demonstrated by scores on the SIMS were substantially higher for the OR group in comparison to the WNL group, which in turn was higher than the UR group (See table below). A false positive rate of 27% observed in the WNL group for the SIMS suggests features other than fabrication are being tapped by that measure, while PCSQ symptoms are less frequently endorsed by people who deny psychological, cognitive, and somatic concerns. Percentage of pathological scores Group PCSQ SIMS UR 0% 27% WNL 16% 54% OR 62% 88%.

VINER, K.M., & ARMSTRONG, C.L.
Late-Effects of Radiation Treatment on Memory in Adult Brain Tumor Patients

Radiation therapy (XRT) has proven an effective brain cancer treatment, leading to longer survival rates among patients. While methodological advancements have lessened the burden to surrounding tissue, healthy brain continues to be inadvertently affected. Consensus over late-effects has been difficult, with a wide-range of cited neurological and cognitive manifestations. The present study is a prospective analysis designed to reduce the effects of confounds to better understand the complex pathogenetic relationships between radiation, neurotoxicity, and cognition (memory). Effects of XRT on memory outcomes were examined for 30 patients with low-grade, supratentorial, brain tumors (15 left, and 15 right hemisphere) from baseline (post-surgery and immediately before XRT) and yearly to 8 years. Site of tumor treatment had differential effects on memory outcome. Analyses showed a consistent pattern of initial improvement followed by decline in mean group memory scores for patients with left-sided tumor regardless of material (visual vs. verbal) and tumor location (anterior vs. posterior). Improvement appears universal over the initial 4 year follow-up,
potentially related to practice or recovery from surgical/disease state. Steady decline in performance was noted for the left-hemisphere group after year 4, as efficiency in encoding and retrieval was impacted by disruption of left-hemisphere pathways.

#104S
WALDRON-PERRINE, B., RAPPORT, L.J., MEACHEN, S., & HUBBARTH, P.
Prediction of Benefit Finding After Traumatic Brain Injury: Unique Contributions of Social Support and Spirituality

Prior research has shown that some individuals who have experienced significant trauma make meaning or find benefit from the experience, often resulting in improved psychological well-being. This study extends this research to persons with cognitive impairments due to trauma and evaluates predictors of ability to find benefit. Participants were 88 adults with moderate to severe TBI. Benefit finding was assessed via the Perceived Benefit Scale (PBS). Predictors included time to follow commands post injury (injury severity); Symbol Digit Modalities Test (SDMT, neuropsychological functioning); Social Provisions Scale (SPS, perceived social support); Coping Inventory for Stressful Situations (CISS, task- and emotion-oriented coping); Positive and Negative Affectivity Scale (PANAS, negative affectivity) and Spiritual Well-Being Scale (SWBS, spirituality). Hierarchical multiple regression assessed the contributions of injury severity and neuropsychological functioning (Step 1), social support (Step 2), trait personality characteristics (CISS subscales, PANAS-NA; Step 3) and SWBS (Step 4) in predicting perceived benefit (PBS). Step 1 was nonsignificant, whereas each subsequent step added significant variance to the model. The total model accounted for 41% of variance in PBS. Social support and spiritual well-being each explained unique variance. Thus, psychosocial but not injury-related characteristics predict ability to find benefit from the traumatic experience of brain injury.

#105S
WARREN, L.H., PENNUTO, T.O., MARQUINE, M., SANCHEZ, A., & ATTIX, D.K.
The Repeatable Battery for the Assessment of Neuropsychological Status Effort Index: Performance in a Geriatric Inpatient Sample

Brief neuropsychological instruments such as the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) are useful for cognitive screening and are often utilized for inpatient assessments. It is frequently impractical to administer free-standing symptom validity instruments in this setting, and thus validity indicators embedded in conventional neuropsychological measures can be helpful in determining level of engagement with testing. Recently, Silverberg et al. (2007) developed an effort index (EI) for the RBANS and
concluded that a score greater than 3 on this index was indicative of suspect effort. However, Hook et al. (2009) argued that in older adults, cognitive impairment may present as poor effort, and a cutoff of 3 might be too stringent. Our study aimed to further explore the utility of the RBANS EI in a non-litigating geriatric inpatient sample that included both medical and psychiatric patients (n = 99). Similar to Hook et al. (2009), 34.3% of our sample obtained scores higher than 3 on the EI, and there was no significant difference in EI performance between medical and psychiatric inpatients ($\chi^2 (1) = 1.70, p = .19$). Our results suggest that the proposed RBANS EI might not be an adequate validity indicator for certain populations, particularly with geriatric patients.

#106S
WEST, M.L., & BARR, W.B.
Performance on the Test of Memory and Malingering in a Sample of Memory-Impaired Epilepsy Patients

Psychologists conduct cognitive testing in many settings, including medical and forensic. Poor effort, or feigned cognitive impairment, influences test interpretation in any of these contexts. Symptom validity tests (SVTs) are designed to detect feigned impairment, including feigned cognitive impairment, based on empirically-developed cutoffs. Several SVTs involve forced-choice memory tests, including the Test of Memory and Malingering (TOMM). Some authors have questioned the validity of such memory SVTs based on the concern that these tests would inaccurately identify memory-impaired individuals as feigning. This study investigated this concern using the TOMM in a sample of memory-impaired epilepsy patients. Difference scores using the WAIS-III General Ability Index (GAI) and the WMS-III Delayed Memory Index (DMI) were used to operationalize memory impairment. Results indicate that failure of the TOMM was extremely rare in this population; in fact, most subjects obtained perfect scores. These results suggest that the TOMM did not falsely identify genuinely memory-impaired individuals as malingering in this study. Conclusions address the utility of SVTs in identifying cognitive malingering, in legal and in other contexts.

#107
WESTERVELD, M., STABILE, L., & GHOGOWALA, Z.
Improved Long-Term Cognitive Function Following Carotid Endarterectomy

Although medical benefits are well established, whether Carotid Endarterectomy (CEA) has a positive effect on cognitive function is unclear (Lunn et al., 1999). The current study examines cognitive outcome in patients undergoing CEA one year following surgery. Pre- and post surgical cognitive data were obtained from a sample of 50 patients referred for CEA (31 right side, 19 left) at 3, 6, and 12 months after surgery. 28 patients had full follow-up data at one year. Significant improvements in Trail Making (A and B), and memory (HVLT Total recall) were observed ($p < .05$). Psychomotor speed also improved significantly ($p < .05$).
Increased word production in controlled fluency was also observed (FAS baseline mean = 32.7; post-op = 38.8). At one year post-surgery, patients undergoing CEA demonstrate meaningful improvement in cognitive function and psychomotor speed. Surgical management of cerebral vascular disease may confer cognitive benefits that contribute to improved overall function and quality of life.

#108
WHITESIDE, D.M., LOBE-BUSSE, M., & WALD, D.M.
Utility of the Judgment of Line Orientation Test as a Symptom Validity Test

Multiple reliable and valid measures of symptom validity are critical during a neuropsychological assessment, as insufficient effort can invalidate neuropsychological assessments (Vanderploeg & Curtiss, 2001). Previous research with the Judgment of Line Orientation Test (JLO) found some preliminary evidence of utility as an embedded symptom validity measure (Iverson, 2001). The current study sought to further investigate the validity of the JLO. The relationship between the JLO and other measures of symptom validity were explored, including the Test of Memory Malingering (TOMM), and Negative Impression Management (NIM), and Somatic Complaints (SOM) scales from the Personality Assessment Inventory (PAI). A mixed clinical sample of participants (n = 243) referred for a neuropsychological evaluation were studied. Results indicated significant correlations between JLO and NIM/SOM scales and between JLO and TOMM. Further analysis using an independent samples t-test found that people identified as feigning effort on the TOMM have significantly higher scores on NIM/SOM scales and significantly lower scores on JLO. Additional analysis demonstrated that cutoff levels of 3 SD below the mean on JLO provided the best classification accuracy, with adequate predictive power. These findings provide evidence that the JLO is a potentially useful measure of symptom validity when used with other well-validated measures.

#109S
WIENER, J., & HOLTZER, R.
The Relationship Between Depression Scores and Verbal Memory in Elders is Mediated by Sex

To examine whether gender influenced the relationship between depression scores and verbal memory performance in non-demented community residing older adults. Participants (N = 680, mean age = 78.2, female = 60.5%) were enrolled in the Einstein Aging Study. Verbal memory was assessed using the Free and Cued Selective Reminding Test (FCSRT). Depression was assessed using the Geriatric Depression Scale (GDS), 15-item version. Linear regression analysis was used to examine the effects of sex, depression scores, and their interaction on verbal memory in older adults. Analysis controlled for age, education, medical comorbidity, and smoking. Men and women were comparable across demographic variables, including GDS scores (male mean = 2.46; SD = 2.22; female mean = 2.44, SD = 2.230). GDS scores (standardized beta coefficient = −0.253, p < 0.001) and the
interaction between sex and the GDS (standardized beta coefficient = 0.174, \( p = 0.021 \)) were significant predictors of FCSRT performance. To describe the interaction we stratified the sample by sex and found that GDS scores significantly correlated with verbal memory in men (\( r = -0.234; p < 0.001 \)) but not in women (\( r = -0.112; p = 0.023 \)). These findings suggest that depressive symptoms have a significant negative effect upon verbal memory in men but not in women.

#110S
YEHYAWI, N.T., & ROPER, B.L.
Preliminary Analysis of Repeatable Battery for the Assessment of Neuropsychological Status Verbal Memory Measures and the Delayed Word Recall Test to Discriminate Between Dementia of the Alzheimer’s Type and Vascular Dementia

Differential diagnosis of Dementia of the Alzheimer’s type (DAT) from Vascular Dementia (VaD) is a common referral question for neuropsychologists. The RBANS has been shown to reliably discriminate between cortical and subcortical dementias. While the Delayed Word Recall Test (DWRT; Knopman & Ryberg, 1989) has been shown to have high predictive accuracy (95.2%) for discriminating DAT from controls, the utility of DWRT to discriminate between different dementias has yet to be demonstrated. The purpose of this study is to examine whether the DWRT or RBANS verbal memory measures better discriminate DAT (N = 45) from VaD (N = 23) in a between-subjects experimental design using forward stepwise logistic regression analyses. No differences in age or education were found across groups. Although the DWRT and all RBANS delayed verbal memory tests were significantly different across groups (\( p < .02 \)), only Story Recall and DWRT significantly contributed to the logistic regression model (chi square = 17.3, \( p < .001 \)), suggesting that the DWRT offers incremental validity in discriminating DAT from VaD above that of the RBANS alone. It is possible that the greater semantic organization of these two tests contributes to their discriminative power among DAT and VaD.

#111S
YOUNG, K.M., EME, R., & O’DONNELL, K.
The Impact of Neurocognitive Measures on Driving Performance in the Elderly

This study examined the magnitude of the relationship between automobile driving assessment and four domains of cognitive functioning (attention, memory, executive function, and visuospatial perception) to determine the predictive power of neuropsychological measures to the driving ability of a sample of 48 elderly veterans. Hypothesis (1) stated significant differences in scores on the neuropsychological battery would exist between individuals who pass or fail the driver’s examination. This was tested using a MANOVA to examine the effect of a Pass/Fail on the driver’s evaluation on multiple dependent interval variables (scores on the eight neuropsychological measures). Hypothesis (2) stated individual neuropsychological measures would demonstrate predictive utility for driving
performance. This was tested using a discriminant function analysis to find the most predictive neurocognitive measure (predictor variables) of a pass/fail determination on the driver’s evaluation (criterion variable). Results of the present analysis were non-significant for hypotheses one and two. It is hypothesized that the non-significant results are primarily due to the numerous neurocognitive measures investigated and the small sample size of the study. Also, the present study did not differentiate among etiology of cognitive impairment and/or dementing illnesses. Directions for future research might include direct comparisons of driving performance between discrete diagnostic populations.

#112S
YUTSIS, M., BERGQUIST, T., MICKLEWRIGHT, J., & NELSON, C.
Lower Compensation Use is Associated with Greater Family Ratings of Memory Difficulties and Self-Reported Depression among Persons with Severe Traumatic Brain Injury.

We examined the relationship of compensation use to cognitive impairment, mood, and everyday memory in persons with moderate to severe acquired brain injury (ABI). A total of 21 individuals (9 males and 12 females) recruited for a cognitive rehabilitation study with medically documented ABI completed an assessment of cognitive functioning, self and family ratings of mood and everyday memory, and their use of basic compensation strategies (e.g. using a planner). Participants averaged 40.3 (range 21–63) years old, 58% had at least some college education, and 47% were married. The majority (81%) lived with family. Self-reported depression and memory complaints were associated with poorer attention on RBANS Digit Span ($r = -.46$ to $-.48$, $p = .03$). Patient ratings of greater depression and family ratings of greater everyday memory difficulties were associated with lower frequency of common compensation strategies ($r = -.56$, $p = .01$; $r = -.48$, $p = .03$, respectively). Compensation use was not associated with cognitive impairment. Results indicate that level of compensation use is associated with mood and everyday memory problems independent of degree of cognitive impairment after ABI. We will discuss the implication of these findings for neuropsychological assessment in persons presenting for cognitive rehabilitation.

#113
ZAGO, S., CRISTOFFANINI, M., ALLEGRI, N., PORTA, M., FERRUCCI, R., & PRIORI, A.
The Loss of Mental Visual Imagery Between Neurology and Psychopathology: A Critical Reexamining of the Charcot and Bernard’s Case (1883)

In 1883 it was published on Le Progrès Medical what has been considered the first case of mental imagery loss due to brain injury. It was the famous case of Monsieur X, a cultured business man who showed a sudden and persistent lack of ability to generate visual images. Originally examined by Jean-Martin Charcot, this case appeared in print thanks to Dèsiré Bernard, one of his disciples at the Salpétrière hospital. Clinical examination established that Monsieur X suffered no motor or
sensory neurological symptoms and the selective loss of visual imagery was the only outstanding feature in addition to some visual recognition problems. Over the following years many other cases of impairment of visual mental imagery were reported and interpreted as psychopathological cases. Patients whose ability to mentally represent objects, colours, persons and places was impaired following brain damage were described only much later. Although Monsieur X’s damage was initially interpreted as neurological, reports of similar symptoms in psychiatric field lead us to postulate a psychogenic cause for his impairment as well. Based on previous literature, the present work gives a critical review of Monsieur X’s symptoms as expression of a psychiatric disorder.

#114

The loss or preservation of visual imagery in patients with cortical blindness may be helpful in resolving the controversial roles assigned by some researchers to the early visual cortex during the process of visual imagery. Patients with bilateral damage to the calcarine cortex in addition to cortical blindness should have visual imagery impairment or no imagery at all. Here we report a patient PB, with complete permanent cortical blindness coupled with denial of the blindness (Anton syndrome) as a result of bilateral occipital infarction. Interestingly, the patient’s ability to visualize objects, color, and spatial imagery was preserved, although cerebral computed tomography, magnetic resonance imaging, and positron emission tomography scans detected what was likely complete bilateral damage to the primary visual cortex. Our findings may support the hypothesis that the primary visual cortex, in which retinal spatial geometry is preserved, is not critical for visual imagery.

#115
ZAGO, S., ALLEGRI, N., VANINI, B., ZANCHEDDU, F., BALZARINI, D., LOPEZ, V., CRISTOFFANINI, M., DI BISCEGLIE, A., LIMINA, T., POLETTI, B., VIMERCATI, R., & BRESolin, N.
Cognitive Decline Over Time: A Longitudinal Retrospective Analysis with the Clock-Drawing Test in Dementia

Among the cognitive screening tools for early detection of dementia, the clock-drawing test has been used extensively. It is a simple, fast and practical instrument, that simultaneously recruits a wide range of cognitive abilities including attention, visuoconstructive ability, visual imagery and executive functions. Although the clock-drawing test has shown satisfactory results in terms of sensitivity and specificity for diagnosis of dementia, there is little information about its ability in monitoring cognitive change over time. This report describes a retrospective analysis carried out on 96 subjects with Alzheimer
(n = 50) or vascular dementia (n = 46) at mild and moderate stages who underwent three to six clock-drawing tests over time as part of a more composite routinary neuropsychological battery. All patients had to place the numbers in a pre-drawn circle of 10 cm in diameter so that it looked like a clock and then set the time to 10 minutes past 11. Different scoring criteria were adopted and a correlation with Mini Mental State Examination and other tests was made. In general, we found a good correlation between the clock-drawing test and the progression of dementia, especially in Alzheimer’s patients. The role of the adopted scoring system is also discussed.

#116S
Effects of Chemotherapy on Cognition and Quality of Life in Older Adults with Cancer

Older adults are among the largest proportion of newly diagnosed cancer patients. The present study examined cognitive and quality of life outcomes in older adult cancer patients undergoing chemotherapy. It was hypothesized that older adults undergoing chemotherapy treatment would have poorer memory performance and worse quality of life outcomes compared to healthy peers. The current study is part of a larger ongoing investigation of chemotherapy treatment effects in older adults with cancer. Participants completed a neuropsychological battery of measures and quality of life questionnaires. Preliminary data includes twelve older adults with cancer and five demographically-matched control participants. On a word list-learning test, older adults undergoing chemotherapy had poorer delayed recall as compared to healthy peers (F(1, 15) = 4.76, p < .05). Total recall scores approached significance, with healthy older adults having higher recall scores than older adults with cancer (F(1, 15) = 3.85, p = .069). Older adults with cancer endorsed a greater number of physical and functional complaints (F(1, 15) = 6.80, p < .05, and F(1, 15) = 12.27, p < .01, respectively). Memory and quality of life outcomes appear to be negatively affected in older adults undergoing chemotherapy treatment for cancer. Implications will be discussed.

PEDIATRIC SECTION
(Student first-authored papers identified by “S” after poster number)

#117S
ANDERSON, S.A., O’TOOLE, K., & BURNS, T.G.
Neuropsychological Variability in Partial Agenesis of the Corpus Callosum: A Case Series

Partial agenesis of the corpus callosum (CC) is a rare congenital condition affecting less than 1% of the population. The large body of literature on adult callosotomy
patients has revealed much about CC function. However, qualitative differences between callosotomy and agenesis patients helps us understand phenotypic neuropsychological sequelae from a neurodevelopmental perspective. One commonality between the two populations is within-group variability. In the present case series, neuropsychological profiles of three children with partial agenesis of the CC were compared. In each child, different CC substructures were affected: anterior, middle and posterior. Direct comparisons of age-based standard scores were made when possible. Domain functioning is presented and compared. Though each child demonstrated deficits in many areas, specific weaknesses varied. The child with affected anterior CC displayed deficits in receptive/expressive language, attention, gross and fine motor, verbal long-term memory, and executive functioning. The child with the middle CC affected displayed more limited deficits in receptive/expressive language and motor functioning. The child with posterior CC regions affected demonstrated deficits in visuomotor integration, visuospatial, processing speed, fine motor, executive, and attention regulation. The results suggest a degree of localization. Treatment recommendations should address functions subsumed by these locations. MRI images will be presented.

#118S
ARENIVAS, A., HARDER, L.L., MEALY, M.A., & GREENBERG, B.M.
Psychosocial Functioning, Academic Performance, and Utilization of School Services in Pediatric Demyelinating Diseases: Preliminary Findings

Patients diagnosed with demyelinating diseases present with a host of symptoms including those affecting motor, sensory, visual, speech, cognitive, and emotional functioning. In order to address these complex symptoms, a multi-disciplinary approach is warranted. The presentation aims are to describe a multi-disciplinary pediatric outpatient clinic designed to address the complex needs of patients with demyelinating diseases. Patients treated include 43% transverse myelitis, 37% multiple sclerosis, 10% neuromyelitis optica, and 10% other demyelinating disease. The mean age of patients is 12 years (SD = 3.7) and 68% are female. The team is comprised of specialists in neurology, nursing, physiatry, urology, neuro-ophthalmology, surgery, radiology, physical therapy, occupational therapy, speech/language therapy, social work, and neuropsychology. The role of neuropsychology is highlighted and involves assessment and consultation to address cognitive, behavioral, emotional, and/or educational concerns. Patients complete a brief neuropsychological battery to screen for cognitive deficits and caregivers complete rating forms to assess behavioral/emotional functioning and school performance. Practical issues related to coding and billing for neuropsychological services will be presented. Such a multi-disciplinary approach facilitates collaboration of professionals to promote positive outcomes for patients. The multi-disciplinary approach allows for better coordination of care, treatment
decisions, patient education, and comprehensive data gathering for clinical research.

#119S
ASSURAS, S., MEAGER, M., WEINER, M., LACY, M., & FRIM, D.
Effects of Congenital Hydrocephalus and Prematurity on Neurocognitive Functioning

It has been well established that children born with hydrocephalus experience significant developmental and cognitive problems (Yeates, Fletcher, & Dennis, 2008). Many of these children are also born preterm (<37 weeks of gestation). Prematurity alone has been linked to long-term neurocognitive deficits (Aarnoudse-Moens et al., 2009; Frye et al., 2009), thus complicating the understanding of the etiology of observed cognitive dysfunction in congenital hydrocephalus. The current study examined whether the cognitive deficits documented in children with congenital hydrocephalus are driven by prematurity alone. The neurocognitive outcome of 21 children born premature with congenital hydrocephalus and 20 children born full term with congenital hydrocephalus was compared to 23 full term healthy children. Children completed a battery of tests assessing intelligence and executive skills. There were no differences between the groups in terms of age, education or gender. Significant differences were found between the groups across the battery of tests. The impact of prematurity, congenital hydrocephalus and age will be discussed in the context of these findings. While prematurity clearly adversely impacts neurocognitive development and potentially exacerbates the effects of hydrocephalus on neurocognitive functioning, hydrocephalus alone appears to hinder optimal long term development.

#120S
BANERJEE, P., GRANGE, D.K., STEINER, R.D., & WHITE, D.A.
Strategic Processing During Verbal Fluency Performance in Children with Phenylketonuria

Previous research has demonstrated that frontally-mediated executive abilities are often impaired in children with phenylketonuria (PKU). We investigated one aspect of executive abilities, strategic processing, in children with early-treated PKU. We administered semantic (animal, food/drink) and phonemic (S, F) fluency tasks to seventy-four children (33 PKU, 41 controls) from 7 to 18 years of age and analyzed clustering and switching abilities. Specifically, number of words generated, number of subcategory clusters, number of words in subcategory clusters, and number of switches between subcategories were analyzed. Compared with controls, children with PKU generated significantly fewer words in the food/drink and phonemic fluency conditions [food/drink: t(72) = 1.95, p < .05; phonemic: t(72) = 2.36, p < .05] as well as fewer switches [food/drink: t(72) = 2.36, p < .05; phonemic: t(72) = 2.48, p < .01]. Number of switches was associated with number of words generated
In addition, a significant interaction between age and group in number of switches for the food/drink condition [ΔR² = .04, ΔF(1,70) = 5.10, p < .05] reflected a greater increase in number of switches for the control than PKU group as a function of increasing age. These results point to an impairment in frontally-mediated aspects of strategic processing in children with early-treated PKU, and suggest that evaluation and possible rehabilitation of strategic processing should be considered as these children age.

#121S
BARNARD, H.D., KELLY, L.M., & STANFORD, L.D.
Novel Mutation in the Jumonji AT-rich Interactive Domain 1C Gene Associated with Global Developmental Delay but Not Autism Spectrum Disorder

There has been an increased interest in the genetic contributions to neurodevelopmental disorders (e.g., Autism Spectrum Disorder; ASD) with the identification of genetic syndromes (e.g., Fragile X) and chromosomal abnormalities (e.g., Isodicentric 15) that, along with metabolic disorders, account for a significant amount of variance in these disorders. One such chromosomal disorder is secondary to a mutation in the Jumonji AT-rich interactive domain 1C (JARID1C) gene. Mutations in the JARID1C gene have been associated with X-linked mental retardation (XLMR) and ASD. To date, 18 mutations have been reported and are spread throughout the gene. In order to inform research and clinical work in this population, this case study presents results from a neurodevelopmental evaluation of a three-year-old child with a novel mutation in the JARID1C gene. The patient (AK) tested positive for a nonsense mutation at nucleotide 2041 of exon 14 (R681Ter). Neurodevelopmental battery included: Mullen, BBCS-III, CBCL, VABS, and behavioral observation. Results indicated global suppression of cognitive functioning and deficits in communication and motor skills in the presence of good social reciprocity, eye contact, gesture, directed affect, and joint attention. Implications for clinical work and research on individuals with JARID1C mutations in relation to ASD will be discussed.

#122S
BEAN, J.L., & EIGSTI, I.

Central coherence (CC) is the ability to integrate information into a coherent whole; theory of mind (ToM) is the recognition that others have distinct thoughts. Both are implicated in the neuropsychological profile of ASD and as explanations for social deficits. The current study aims to investigate CC and ToM within a single sample to capture their relevance for social skills. Participants were children with ASD (n = 18) and typical development (n = 28), ages 7 to 17, matched on age and IQ. Participants completed assessments of CC, ToM, autism severity, and social skills. Results suggest that, for typically-developing participants, CC was associated with
social skills, $r = .70$, $p < .001$, but ToM performance was unrelated to other measures. In contrast, for the ASD group, CC and ToM were both significantly associated with autism severity, $r = -.80$, $p < .001$ and $r = -.58$, $p = .02$, respectively; however, CC was related to communication skills, while ToM was related to social reciprocity. For TYP children, only CC abilities were related to social abilities; ToM findings were limited by ceiling effects. For children with ASD, CC and ToM were both related to the severity of ASD-specific symptoms, but affect social skills through different mechanisms. Mediating factors will be discussed.

#123S
BEARDEN, D.J., BURNS, T.G., GRAHAM, J., WELKOM, J.S., HUAMANI, J., BROWN, C., JONES, R., & SUN, B.
Executive Functioning Deficits in Children with Sickle Cell Disease

An estimated 1,000 babies are born with sickle cell disease (SCD) annually. Research suggests that children diagnosed with SCD are at greater risk for cognitive impairment. One area of cognitive functioning found to be affected by SCD is executive functioning. The Drexel-Tower of London (TOL) is a measure of executive functioning that assesses planning, problem-solving, and organization of behavior. This is an area for which little information is available in the SCD literature. The current study utilized the TOL, as a part of a comprehensive assessment, in an effort to understand the impact of SCD on these areas. This study included five children diagnosed with SCD and seven demographically matched controls who were administered the TOL. Results revealed significant executive functioning differences between children diagnosed with SCD and controls in areas related to working memory capacity and control, $t (10) = 3.04$, $p = .01$, timed problem-solving, $t (10) = 2.62$, $p = .03$, planning, $t (10) = 2.75$, $p = .02$, and speed at which executive plans are operationalized. Overall, the current study provides information about specific areas of executive functioning associated with SCD. These findings may aid in tailoring optimal home and academic environments for children with SCD.

#124S
BRASKY, K.M., & STANFORD, L.D.
Assessment of Executive Function in Preterm Children Using Parent Report and Neuropsychological Test Performance

Previous research has demonstrated executive function (EF) deficits in very preterm and/or very low birth weight children. Most studies have assessed EF using a neuropsychological test battery with several measures of EF. However, few studies have examined parent report of EF in everyday activities for preterm children. Participants included 21 children (16 boys; $M = 8.24$, $SD = 1.73$) with a history of premature birth (gestational age in weeks, $M = 29.97$, $SD = 2.95$). The BRIEF was used to assess parent report of EF. Neuropsychological test performance (NTP) of EF was measured using Digit Span (DS) and several TEA-Ch subtests. Results indicated that the proportion of children who displayed clinically significant elevated scores was 43% for Metacognition Index (MCI), 24% for Behavior...
Regulation Index (BRI), and 33% for Global Executive Composite (GEC). Gestational age was correlated with BRI ($r = .56, p < .05$) and GEC ($r = .51, p < .05$) but not MCI. Results of a second analysis ($N = 13$) indicated that BRI was correlated with TEA-Ch Sky Search Dual Task ($r = .66, p < .05$). Correlations of GEC and MCI with NTP were not significant. Findings suggest that, for some preterm children, EF impairments extend into home and school environments.

**#125S**
CASSIDY, A.R., & CRICK, N.R.
Unity and Diversity of Executive Functions Across Childhood and Adolescence: A Latent Variable Modeling Investigation

Although some have posited a unitary/domain-general understanding of executive function (EF; e.g., Kimberg et al., 1997), others suggest that EF is multi-faceted, comprised of distinct yet related component processes (e.g., Miyake et al., 2000; Lehto et al., 2003). Using data from the first wave of the National Institutes of Health (NIH) MRI Study of Normal Brain Development, the current investigation examined the latent factor structure of EF in a large, nationally-representative sample of children and adolescents (7–18 years of age; $N = 352$). Recruitment procedures were extensive and numerous exclusion criteria were utilized to ensure that the sample was generally representative of healthy children and adolescents (see Waber et al., 2007). Confirmatory Factor Analysis (CFA) was used to test latent associations among EF factors. Relative to one- and two-factor models, and accounting for age-related variation, a three-factor (Working Memory, Shifting, Verbal Fluency) model of EF best fit the data ($\chi^2(23) = 26.67, p = 0.27$; $AIC = 90.68$; $RMSEA = 0.021$; $NNFI = 0.997$; $CFI = 0.998$). In addition, a fully interrelated three-factor model provided a markedly better fit than an independent three-factor model ($AIC = 130.30$), further evidencing the unity and diversity of executive functions across childhood and adolescence.

**#126S**
CHANG, J.S., & KIEFEL, J.
Case study of an Eleven Year Old with Early-Onset Morbid Obesity and Tentative Diagnosis of Macrosomia, Obesity, Macrocephaly, and Ocular Abnormalities Syndrome

A common finding of early childhood obesity is an association with mental retardation, developmental delays, and autism. A number of well-documented genetic-obesity syndromes exist, such as Prader-Willi Syndrome (PWS), a disorder that results from non-stop eating. A common feature of PWS is mental retardation; more recently, research documents the presence of white matter lesions in PWS. We present the case of an overgrowth syndrome, which was tentatively diagnosed as MOMO syndrome (macrosomia, obesity, macrocephaly, and ocular abnormalities), in a child who was obese at a time when food intake was well controlled. At the age of 3 months he weighted 20 pounds. Genetic testing did not indicate PWS or suggest any of the “known” genetic-obesity syndromes. Due to the rarity of cases of
MOMO syndrome, the neuropsychological deficits associated with MOMO are not well described. Our case is unique in that mental retardation was not found. The neuropsychological protocol implicates deficits in visual-spatial and visual-organization, as well as fine motor slowing. Academic deficits were found in reading skills. Our case provides additional support for the link between early-onset obesity and neurocognitive deficits and supports the critical role of a comprehensive neuropsychological evaluation of children with early-onset obesity.

#127S
FITZPATRICK, S., SILVER, C., HERNANDEZ, A., KERNIE, S., VAN DE BRUINHORST, K., & STAVINOHA, P.L.
Working Memory Following Moderate and Severe Traumatic Brain Injury in Children

Working memory is considered at risk following TBI in children, though studies have been mixed in terms of the extent to which children with TBI experience disruption in this function as well as the extent to which severity of injury affects working memory. This pilot study examined performance on common measures of working memory between groups of children with moderate (n = 11) or severe (n = 12) TBI. Comparisons on working memory variables included the Working Memory Index (WMI) from the Wechsler Intelligence Test for Children-Fourth Edition, Trial 1 from the California Verbal Learning Test-Children’s Version (CVLT-C), and the Working Memory scale from the Behavior Rating Inventory of Executive Function (BRIEF). Results indicated no statistically significant differences between the moderate and severe TBI groups. Specifically, both groups were rated as performing in the clinically significant range of impairment on the BRIEF, but the groups were not significantly different. Groups performed below average on Digits Backward from the WMI, but significant differences were not detected between groups. While the moderate group performed nearly a standard deviation higher on Trial 1 from the CVLT-C, this difference was not statistically significant. Results are discussed in light of implications, limitations, and direction for future research.

#128S
FULTON, R.L., DODZIK, P.A., & BONEFF, T.
The Diagnostic Utility of the Dyslexia Screening Test in Children with Reading Disorders

The aim of this study was to investigate the clinical utility of the Dyslexia Screening Test (DST) in children referred for reading disabilities versus clinical controls. The sample consisted of 179 (46 females) children diagnosed with dyslexia, dyslexia with ADHD or clinical controls (mean age = 9.8). The sample consisted of 68 children with dyslexia (WISC-IV GAI = 95.8; WJ-III Broad Reading = 72.9), 26 with dyslexia + ADHD (WISC-IV GAI = 97.2; WJ-III Broad Reading = 73.6) and 85 clinical controls with emotional disturbances (WISC-IV GAI = 101.8; WJ-III Broad Reading = 97.4). Diagnosis was made with DSM-IV/ICD-9 criteria by two board certified pediatric neuropsychologists. Participants were administered a battery of
neuropsychological tests appropriate for their age in addition to the DST. A one-way ANOVA was conducted and significant differences were found between groups on the DST-Total Score, $F(2, 117) = 51.11$, $p < .0001$. Post hoc analysis indicated no significant difference between dyslexia and dysleixa + ADHD groups; both were significantly higher than the clinical control group. Operating characteristics were also considered. The sensitivity was 85.7, specificity was 92.6 at the recommended cut-off score. The DST provided a rapid, accurate assessment method for classification of dyslexia (with or without comorbid ADHD) from clinical controls.

#129
GLASIER, P.C., & STAVINOHA, P.L.
The Influence of Timed Reading to Distinguish Dyslexics from Normal Readers

This study compared normal and dyslexic readers’ performance on timed and untimed measures of sight word and pseudoword decoding. Participants were prospectively recruited as part of a larger longitudinal study, and included 16 controls and 10 dyslexics between 7 and 18 years of age. Individuals with language disorder, psychiatric illness (other than attention-deficit/hyperactivity disorder), IQs less than 85, or histories of significant neurological injury were excluded from participation. The Basic Reading Skills (BRS) score from Form A of the Woodcock-Johnson Tests of Achievement-Third Edition and the Total Word Efficiency (TWE) score from Form A of the Test of Word Reading Efficiency were obtained as composite measures of timed (TWE) and untimed (BRS) reading skills. The TWE and BRS were selected due to their common use in clinical practice and relative overlap in reading skills measured (i.e., sight- and pseudoword-reading). After controlling for age, abbreviated IQ, and gender, the dyslexic and control readers differed significantly only on the TWE and not the BRS. The findings suggest that timed reading measures may best differentiate dyslexic and normally developing readers. These results may have practical implications for clinicians making test-selection decisions when evaluating for dyslexia.

#130
GOLDBERG, L.F., EASON, S.H., RYAN, M., & CUTTING, L.E.
Combining the Simple View of Reading with Fluency, World Knowledge, and Reading Strategies to Predict Comprehension

Decoding and oral language play a vital role in reading comprehension. Other studies have identified fluency, world knowledge, and reading strategies as significant predictors of comprehension, yet few models have integrated the simple view of reading with these combined factors. To explore the influence of additional factors on reading comprehension, three reading comprehension measures administered to 69 children (Ages 9–15). Hierarchical regression analyses were used to examine the contributions of decoding, oral language, fluency, world knowledge, and reading strategies to each comprehension assessment. Overall, the regression models accounted for 43–73% of variance for the comprehension tests. Decoding contributed a significant amount of variance on all measures of
comprehension (27–31%, p < .001), as did oral language (5–26%, p < .05) and world knowledge (2–6%, p < .05). Fluency accounted for additional variance on two of the reading tests (4–5%, p < .05). Reading strategies was not a significant predictor of comprehension. Our findings suggest that world knowledge and fluency contribute to reading comprehension performance in addition to decoding and oral language from the simple view of reading. Children with strengths in these areas may be able to compensate for weaknesses that may otherwise hinder successful comprehension of text.

#131S
GOLLA, M.A., GATTUSO, J.L., ROSAEN, A.E., PACIORA, R.A., & KONOPKA, L.M.
Brain to Behavior Evaluation of Acute Medication Response in Pediatric Patients with Excess Parietal Beta and Fine Motor Hyperactivity

In this study, we evaluated 6 self-referred pediatric patients (4 males, 2 females) ranging from 6–15 years of age. Patients with ADHD symptomology were studied using acute oral medication challenge; agent used was Adderall or Ritalin (10–20 mg). As described by Konopka and Poprawski (2008), participant brain electrophysiology was evaluated with quantitative electroencephalography (QEEG) at baseline and post-medication. Patients were defined as positive medication responders if improvement was seen in absolute power electrophysiological patterns. Absolute power changes in Ritalin (n = 3) and Adderall (n = 3) studies were analyzed using NeuroGuide 2.4.4. Fine motor hyperactivity was measured using the Integrated Visual and Auditory Continuous Performance Test (IVA+Plus). Of the Ritalin challenge studies (n = 3), all were negative medication responders (based on QEEG). Of the Adderall challenge studies (n = 3), 2 were positive medication responders (based on QEEG). Fine motor hyperactivity improved in 5 of the 6 patients, independent of medication type. These findings implicate a possible electrophysiological and behavioral marker for medication selection prior to oral medication challenge study. Results revealed that there may be a temporal dissociation between the effects of absolute power on QEEG and modification of fine motor hyperactivity. Further research is needed to understand the connection between the negative medication responders and their fine motor hyperactivity decreases.

#132S
GRANADER, Y., ZEMON, V., WHITMAN, L., BENDER, H., & MACALLISTER, W.
The Contribution of Working Memory to Reading Comprehension in Children with Epilepsy

Reading comprehension relies on executive functions, such as working memory. Given that such weaknesses are more common in children with epilepsy than in the general population, this area warrants investigation to assist in designing appropriate interventions. Twenty-six children and adolescents with epilepsy
(13 males/13 females, age 6–17, mean = 11.50, SD = 3.19) were evaluated. Executive functions were assessed via the BRIEF (parent-report) and WISC-IV digit span backward (DSB). The reading comprehension subtest of the WIAT-II was also completed as part of a comprehensive neuropsychological evaluation. Multiple regression analysis assessed the contributions of these predictors to reading comprehension. The mean reading comprehension standard score was 96.77, SD = 20.17 (range 52–125). The mean DSB scaled score was 5.73, SD = 2.73 (range 1–10). The mean BRIEF working memory T-score was 64, SD = 12.23 (range 43–90). A model with both measures accounted for 39.4% of the variance on the RC subtest, but only DSB was found to be a significant predictor of reading comprehension. In this sample, working memory, as measured by DSB, predicted reading comprehension ability. Interventions geared toward improving working memory in general may improve reading comprehension in children with epilepsy.

#133
HARDER, L.L., ARENIVAS, A., MEALY, M.A., & GREENBERG, B.M.
Neuropsychological Functioning in Pediatric Demyelinating Disease Populations: A Preliminary Comparison of Performance Between Multiple Sclerosis and Transverse Myelitis Patient Groups

Up to 10% of multiple sclerosis (MS) and 20% of transverse myelitis (TM) cases manifest before adulthood. Neuropsychological deficits occur in approximately 50% of adults diagnosed with MS, though little is known about the neuropsychological profiles of children and adolescents with demyelinating diseases. Whereas the MS disease process occurs throughout the central nervous system, lesions associated with TM are found exclusively in the spinal cord. Thus, it was hypothesized that children diagnosed with MS would perform more poorly on tests of neuropsychological functioning as compared to children diagnosed with TM. Twenty-two patients, aged 5 to 18 years, diagnosed with either MS (N = 10) or TM (N = 12) participated in a brief neuropsychological battery within a multi-disciplinary clinic. The aim of the current study was to compare neuropsychological performance between TM and MS groups. Mean comparisons showed poorer performance in several areas across neuropsychological functioning for the MS group. Results of independent samples t-tests revealed statistically significant differences in the areas of visual-motor integration (p < .01), speeded visual attention and sequencing (p < .05), and verbal memory (p < .05). Understanding specific neuropsychological deficits associated with childhood MS is important for informing intervention and emphasizes the role of neuropsychology in the multi-disciplinary approach to treatment.

#134
HARDER, L.L., ARENIVAS, A., MEALY, M.A., & GREENBERG, B.M.
The Role of Neuropsychology in a Multi-disciplinary Clinic to Treat Pediatric Demyelinating Diseases
Patients diagnosed with demyelinating diseases present with a host of symptoms including those affecting motor, sensory, visual, speech, cognitive, and emotional functioning. In order to address these complex symptoms, a multi-disciplinary approach is warranted. The presentation aims are to describe a multi-disciplinary pediatric outpatient clinic designed to address the complex needs of patients with demyelinating diseases. Patients treated include 43% transverse myelitis, 37% multiple sclerosis, 10% neuromyelitis optica, and 10% other demyelinating disease. The mean age of patients is 12 years (SD = 3.7) and 68% are female. The team is comprised of specialists in neurology, nursing, physiatry, urology, neuro-ophthalmology, surgery, radiology, physical therapy, occupational therapy, speech/language therapy, social work, and neuropsychology. The role of neuropsychology is highlighted and involves assessment and consultation to address cognitive, behavioral, emotional, and/or educational concerns. Patients complete a brief neuropsychological battery to screen for cognitive deficits and caregivers complete rating forms to assess behavioral/emotional functioning and school performance. Practical issues related to coding and billing for neuropsychological services will be presented. Such a multi-disciplinary approach facilitates collaboration of professionals to promote positive outcomes for patients. The multi-disciplinary approach allows for better coordination of care, treatment decisions, patient education, and comprehensive data gathering for clinical research.

#135S
HARGRAVE, D.D., KIRKWOOD, M.W., & KIRK, J.W.
Sensitivity and Specificity of Digit Span Scores in Identifying Suboptimal Effort after Pediatric Mild Traumatic Brain Injury

In adult populations, research on methodologies to identify suboptimal effort has grown exponentially in the last two decades. Far less work has focused on methods appropriate for children. Although several recent studies have used stand-alone symptom validity tests with younger populations, there remains a near absence of pediatric work investigating indices from conventional tests to identify response bias. The present study examined the sensitivity and specificity of age-corrected scaled scores (SS) and Reliable Digit Span (RDS) scores from the Wechsler Digit Span (DS) subtest. The sample consisted of 187 clinically referred mild TBI patients aged 8 through 17 years. Failure on both the Medical Symptom Validity Test and Test of Memory Malingering was used as the criterion for poor effort. For SS, a score of 6 resulted in the optimal cut-score, yielding sensitivity of 61% and specificity of 90%. For RDS, the optimal cut-score was 6 as well, with sensitivity of 48% and specificity of 93%. Although only moderately sensitive, the findings suggest that DS indices may have utility in identifying pediatric suboptimal effort, at least in mildly affected populations.

#136S
HORVATH, J.
Sustained Attention Performance in Attention Deficit Hyperactivity Disorder and Disorganized Attachment
The Test of Variables of Attention (TOVA) is a standardized neurophysiological measure used to assess attentional abilities and performance. The TOVA has been widely used as a major component in evaluating for Attention Deficit Hyperactivity Disorder. Research has documented that T.O.V.A. results correlate with the diagnosis of ADHD, Inattentive Type at least 84% of the time and with ADHD, Hyperactive-Impulsive Type at least 86% of the time. In the same study, the T.O.V.A. correctly identified 89% of the non-ADHD children. According to the TOVA manual, clinicians are advised to take into consideration the many factors other than ADHD that could affect a person’s T.O.V.A. performance. One such factor affecting TOVA performance, more deserving of attention, includes attentional variations resulting from parent-child attachment disruption. While the TOVA manual has widely publicized norms for ADHD, there are no documented norms for a phenomenon, called Disorganized Attachment. As children with disorganized attachment live in an enduring state of traumatic stress, it makes theoretical sense to propose that their attentional performance could suffer. In this study, we compared children aged 8–13 diagnosed with ADHD vs. disorganized attachment on their TOVA performance. While ADHD participants, known for their difficulty with sustained effort demonstrated inconsistency, hyperactivity and/or inattention as the test progressed, disorganized children, independent of ADHD status, demonstrated even more severe deficits than ADHD children. While performance was impaired in both groups, individuals with attachment disorganization, manifested in hyperarousal and freezing, demonstrated more severe levels of impairment than those with mere hyperactivity and inattention. This finding suggests that caregiver-induced trauma is qualitatively and quantitatively potentially more psychopathogenic than biological factors alone.

#137S
HUDEPOHL, M.B., ROBINS, D.L., KING, T.Z., & HENRICH, C.C.
Investigating the Role of Emotion Perception in the Adaptive Functioning of Individuals on the Autism Spectrum

Cognitive functioning has historically been used to predict adaptive outcomes of individuals with autism spectrum disorders (ASDs); however, research shows that it is only a partial predictor. Emotion perception abilities, an area of weakness for individuals with ASDs, are implicated in real-life situations, such as having relationships. This study aimed to explore the relationship between emotion perception and adaptive functioning in high-functioning ASDs. Eighteen children/adolescents with ASDs (mean age = 13.1 years, SD = 3.9) and 22 IQ-matched typically-developing controls (TD; mean age = 13.9 years, SD = 3.3) participated as part of a larger study. All subjects were administered the DANVA-2 as a measure of emotion perception ability, and each parent/guardian completed the Vineland Adaptive Behavior Scales, Second Edition (VABS-II) to assess participants’ adaptive functioning. Results indicated that individuals with ASDs demonstrated significant impairments in adaptive functioning domains (t(38) = 3.59–5.58, all ps < .001 for Communication, Socialization, and Daily Living skills) and emotion perception (t(38) = -2.35; p = .029) compared to TDs. Moreover, mediational
analyses with bootstrapping demonstrated a novel relationship such that, compared to TD individuals, more impaired emotion perception abilities in ASDs resulted in lower levels of socialization skills and daily living skills. Findings highlight that interventions focused on improving emotion perception skills may advance adaptive outcomes in high-functioning ASDs.

#138
KIRK, J.W., KIRKWOOD, M.W., & HUTAFF-LEE, C.F.

In adult populations, research on methodologies to identify suboptimal effort has grown exponentially in the last two decades. Far less work has focused on methods appropriate for children. Although several recent studies have used stand-alone symptom validity tests with younger populations, there remains a near absence of pediatric work investigating indices from conventional tests to identify response bias. The present study examined the utility of the validity scales from self-report BASC-2 profiles as an indication of poor effort. The sample consisted of 158 clinically referred mild TBI patients aged 8 through 17 years. Twenty-eight patients failed the MSVT based on actuarial criteria. The majority of these patients (86%) provided valid self-report BASC-2 profiles. Analysis of valid/invalid self-report BASC-2 profiles and MSVT pass/fail did not reveal a significant relationship (p = .399, one-tailed Fisher's Exact Test). These findings suggest that symptom validity tests like the MSVT provide different information about the validity of a neuropsychological profile than that provided by the BASC-2. Reliance on BASC-2 validity indicators alone is likely to substantially underestimate the number of patients providing invalid neuropsychological data.

#139S
KRAMER, M., SUSKAUER, S., CHRISTENSEN, J., DEMATT, E., TROVATO, M., & SLOMINE, B.
Predictors of Recovery During Inpatient Rehabilitation Following Severe Pediatric Traumatic Brain Injury

Early prediction of outcome is necessary for discharge planning from inpatient rehabilitation. Functional outcome varies widely for children with severe traumatic brain injuries who are very low functioning at admission to rehabilitation, making discharge planning particularly challenging. We investigated the power of demographic and rehabilitation variables to predict outcome via the Functional Independence Measure for Children (weeFIM) in a group of children (n = 17) who entered rehabilitation with the lowest possible weeFIM score. Children were administered the weeFIM on admission, at two week intervals during rehabilitation, and at discharge. A subgroup of children (n = 7) were also administered the Cognitive and Linguistic Scale (CALS), a measure of cognitive and linguistic recovery, at the same time points. Results from multiple linear regressions suggest
that after controlling for time from injury to admission, children who showed improved weeFIM scores by the first month of rehabilitation were significantly more likely to have higher weeFIM scores at discharge. Improvement in CALS scores by the first month of rehabilitation was equally predictive of functional independence at discharge. These findings highlight the utility of measuring early changes in functional independence and neuropsychological status during inpatient rehabilitation to predict recovery.

#140S
LOGGINS, K.S., IVANISEVIC, M., ROBINS, D.L., & KING, T.Z.
Anxiety Comorbidity in Children and Adolescents with Autism Spectrum Disorders

Researchers have identified that some children with ASD are at increased risk for comorbid anxiety (Reaven, 2009), which can negatively impact school functioning, relationships, and effective interventions. It is unclear whether these symptoms are caused by stress associated with ASD or manifested as part of ASD’s neurological etiology. The current study identifies anxiety prevalence in 49 child and adolescents (20 ASD, 29 typically developing), using the parent report Behavioral Assessment System for Children-2 (BASC-2). Both groups had a mean age of 13, contained 5 females, and had an average range full-scale IQ (ASD M = 100, SD = 19; TD M = 106, SD = 12). Results suggest that compared to the TD group, the ASD group had significantly higher anxiety levels, t(47) = 4.18, p < .001 and was on average in the at-risk range according to BASC-2 norms (ASD M = 62.7, SD = 12.5; TD M = 47.6, SD = 12.4). Within the ASD group, 50% reported anxiety symptoms (20% at-risk, 30% clinically significant) whereas only 17% of the TD group reported symptoms (10% at-risk, 7% clinically significant), χ²(2) = 6.47, p = .039. The higher rate of elevated anxiety symptoms reported by parents of our ASD participants highlights the importance of careful assessment as well as the need for interventions that address elevated anxiety symptoms reported in ASD.

#141
MACALLISTER, W.S., BENDER, H.A., WHITMAN, L., GRANADER, Y., & FRESHMAN, A.
Cognitive Estimations in Children with Epilepsy

Estimation tasks require a variety of executive functioning (EF) skills, including working memory, planning, inhibition, and self-monitoring. Some have posited that estimation tasks may demonstrate better ecological validity than other EF tests. Here, the link between cognitive estimation skills and “real world” EF was examined in children with epilepsy. Twenty-one children with epilepsy were administered the Biber Cognitive Estimations Test (BCET), which measures estimation of quantity, time, weight, and distance. Parents completed the BRIEF to quantify observable EF. Correlational analyses examined relations between the BCET, epilepsy variables (seizure frequency, age of onset, treatment regimen), intelligence, and BRIEF scales. Quantity and weight estimation were impaired in 42.8% of participants. Time
estimation was impaired in 28.5%, while distance estimation was impaired in (14.2%). 42.8% of children with epilepsy exhibited impaired BCET total scores. BCET total was significantly correlated with age of onset ($r = .476$, $p = .029$), but no other seizure-related variables. BCET was significantly correlated with intellectual functioning ($r = .728$, $p < .001$), but not to BRIEF scales. In sum, results suggest that cognitive estimation ability is often impaired in children with epilepsy and predicted by both age of seizure onset and intellectual functioning. However, such abilities may not predict parent-reported, observable EF deficits in daily life.

#142
Subcortical and Cortical Anomalies in Preschoolers with Attention Deficit Hyperactivity Disorder (ADHD): A Preliminary Neuroimaging Study

Among school-aged children with ADHD, anatomic MRI studies have identified widespread cortical and subcortical (basal ganglia, cerebellum) abnormalities. To better understand the neurobiological development of ADHD, these three levels of the CNS (cortex, basal ganglia, cerebellum) should be studied concurrently in younger children. High resolution anatomical (MPRAGE) images, acquired at 3.0T, were analyzed in 11 preschoolers, ages 4–5 years (5 with ADHD, 6 controls, matched on age and sex). The ADHD sample was diagnosed using DSM-IV-TR, and screened for language disorders. Automated cortical (volume, thickness, surface area) and white matter measurements were obtained using Freesurfer. Volumetric basal ganglia (caudate, putamen) and cerebellar vermis measurements were completed manually. Children with ADHD had significantly reduced total cerebral and caudate volumes bilaterally ($all p < .05$, $\eta_p^2 > .40$), with large (albeit non-significant) gray and white matter reduction in all four lobes ($all \eta_p^2 > .20$), and moderate reductions in right and left putamen and posterior-inferior cerebellar vermis ($all \eta_p^2 > .10$). Subcortical and cortical reductions in brain volume are observable in preschoolers with ADHD, with largest effects (twice that of lobar volumes) observed in caudate volumes, and relatively less reduction observed in putamen and cerebellar vermis. Anomalous basal ganglia development may play an important role in early development of ADHD.

#143S
MARTIN, C.N., HYMER, J.M., PACIORA, R.A., & KONOPKA, L.M.
Maturational Theory of Childhood Attention Deficit Hyperactivity Disorder (ADHD) Revisited: A Clinical Electrophysiological Study

Children diagnosed as ADHD are commonly believed to be “deficit” in some fashion. With 4.4 million children in the United States meeting criteria for the disorder, approximately half are receiving pharmacological treatment despite 20–40% of these children being unresponsive to the treatment. The literature suggests that pharmacological treatment resistance may be due to maturation
delays. As classically defined, the maturation lag theory suggests that the behavioral manifestation of ADHD symptoms are due to delayed cortical development. However, we have found evidence supporting maturational enhancement effects. Based on the maturational enhancement theory we examined the quantitative electroencephalography of 22 children who met criteria for an ADHD diagnosis and had associated cortical abnormalities. Baseline abnormalities were assessed through statistical comparison of relative power maps within a normative database, which is normed for age, gender, and handedness. The children’s age was then decreased and increased by five years and reanalyzed for abnormalities. Greater anomalies were observed in the −5 group, which goes against the classical maturation theory. However, in the +5 group there was a significant improvement in abnormal activity, specifically in the beta frequency band. These findings suggest that some children who display behavioral symptoms of ADHD may not actually possess any deficits at all, but rather have accelerated cortical development that is inappropriate for their age cohort.

#144S
MELTON, A.M., & KIEFEL, J.
Case Study of a Fourteen Year Old with Kikuchi–Fujimoto Disease

Kikuchi–Fujimoto Disease, also know as necrotizing lymphadenitis, is a rare disease characterized by non-cancerous enlargement of the lymph nodes. The disease is most commonly observed in individuals of Asian decent and is usually seen in young females (i.e., 20–30 years old). The cause of this disease is unknown, but infectious and autoimmune etiologies have been proposed. We present an unusual patient, not only because of the rarity of the disease, but also because she is African American and significantly younger than the usual population afflicted with this disease. Kikuchi–Fujimoto Disease with neurological involvement was diagnosed following a complicated medical course and cervical lymph node biopsy. Neuroimaging results will be presented and include involvement of the hypothalamus, periaqueductal region of the mid brain, periventricular and right low ventral pons, and medulla oblongata. Neuropsychological sequelae of Kikuchi–Fujimoto Disease with neurological involvement are not well documented. Testing revealed average overall cognitive ability. Skills across most domains of functioning were secure, although areas of isolated weakness were seen in aspects of visuomotor integration and executive skills. These neuropsychological difficulties implicate the frontal-subcortical axis of the brain.

#145
MONTOUR-PROULX, I., KEENE, D., MATZINGER, M., & JOHNSTON, D.
Cerebellar Contributions to Feedback Utilization and Impulse Control

Reports of executive dysfunction in individuals with cerebellar damage challenge the traditional view that coordination of voluntary movement is the only function attributed to the cerebellum. Neuroanatomical studies have shown that the
cerebellum communicates with cerebral cortical regions, particularly the prefrontal cortex, through bi-directional connections. Through this retrospective institutional review, we investigated cerebellar contributions to feedback utilization and impulse control by examining the performance of 25 children (16 males) treated for cerebellar tumours on the Delay Task, which involves reduced motor demands. Benign astrocytomas and malignant tumours represented 64% and 36%, respectively, of the sample. All patients underwent neurosurgery prior to testing. None of the benign tumour patients received adjuvant therapy. All patients with malignant tumours received cranial radiation and 6 received chemotherapy. The mean age (years) at diagnosis and at testing was 7.25 (SD = 3.48) and 10.17 (SD = 2.43), respectively. The mean age-based percentile for the Efficacy Ratio was 37.5, which is significantly below that of the normative population (p = .045) (Wilcoxon Rank Sum test). Despite study limitations (small sample size, absence of a medical control group of non-CNS malignancy, absence of repeated measures), our findings contribute further evidence supporting cerebellar involvement in non-motor, cognitive functioning.

#146
OLDS, J.
Neuropsychological Functioning in Pediatric Hearing Loss

Cochlear implantation (CI) has been available to children with severe to profound hearing loss for two decades and now affords children access to sound and oral communication. While there has been some investigation of neuropsychological outcomes after pediatric CI, there is little information about outcomes in children with lesser degrees of hearing loss. This is an important question as decisions around candidacy evolve, and children are presenting with additional clinical concerns. The aim of the study was to compare the performance of pediatric CI recipients with severe-profound hearing loss to a group of children who wore hearing aids (HA) and had hearing losses in the moderate-severe to severe range. Convenience samples of pediatric CI recipients and HA users were compared on measures of intelligence, language, phonological processing, word and pseudoword reading, and reading comprehension, as well as measures of audiologic functioning (speech perception). All participants used oral language to communicate. The results indicated that there were no between-group differences in speech perception, but HA users had higher scores on some measures of language, phonology and reading comprehension. These results have clinical implications for candidacy decisions and for neuropsychological evaluations in pediatric hearing loss.

#147
ORNSTEIN, T.J., MAX, J.E., SCHACHAR, R., DENNIS, M., BARNES, M., EWING-COBBS, L., & LEVIN, H.S.
Response Inhibition in Children with Attention Deficit/Hyperactivity Disorder and Traumatic Brain Injury
Children with attention-deficit/hyperactivity disorder (ADHD) and traumatic brain injury (TBI) show deficient response inhibition. ADHD itself is a common consequence of TBI, known as secondary ADHD (S-ADHD). Similarity in inhibitory control in children with TBI, S-ADHD, and ADHD would implicate impaired frontostriatal systems; however, it is first necessary to delineate similarities and differences in inhibitory control in these conditions. We compared performance of children with ADHD and those with TBI without pre-injury ADHD on a stop signal, response inhibition task. Participants were 125 children aged 7–13 years. There were 49 children with ADHD, 49 children with TBI and 27 typically developing children who served as controls. Among the TBI participants, injury severity ranged from mild to severe. Children with ADHD and TBI showed deficient inhibition. The deficit in children with ADHD was as great as or greater than that in children with TBI, regardless of degree of TBI severity or the presence of S-ADHD. The finding indicates that TBI results in deficient inhibition regardless of the development of S-ADHD.

#148S
PETERSEN, C.E., LUTON, L.M., & O’TOOLE, K.
Investigating the Neuropsychological Sequelae of West Nile Virus within a Pediatric Population

A complete neurocognitive profile has not yet been developed revealing the side effects of West Nile virus; however, some of the associated neuropsychological sequelae include difficulties with memory and concentration, problems with daily activities, depression, anxiety, and apathy. Given these limitations, research on neurocognitive functioning in children with West Nile virus is warranted. This project examines two case studies of children with histories of West Nile virus. A 9-year-old female and an 11-year-old female were evaluated via full neuropsychological batteries. Both participants showed intact receptive and expressive verbal abilities and performed at grade level on academic measures. In contrast, testing also revealed decreased motor dexterity bilaterally as well as executive functioning weaknesses in both participants. Emotionally, both participants reported symptoms of anxiety. Discrepancies between the participants’ profiles were also noted, as the 11-year-old patient exhibited significant weaknesses in sustaining her attention, whereas the 9-year-old child displayed good focused attention. The common findings noted between these two cases, specifically related to decreased motor functioning and symptoms of anxiety, suggests that limbic structures may be affected by West Nile virus. Clearly, further exploration is needed to substantiate this hypothesis.

#149S
RACHES, D., & BEETAR, J.T.
Inadequate Response to Dyslexia Intervention: A Neuropsychological Case Report

Dyslexia is a relatively well understood word-level reading learning disability often associated with phonological awareness deficits. However, less is known about the
cognitive profiles of children who respond inadequately to dyslexia intervention. We present neuropsychological data for an 11-year-old male with persistent and profound reading deficits despite intensive high-quality reading intervention. There is no family history of learning difficulties. Evaluation ruled out language and phonological deficits commonly associated with dyslexia. Neuropsychological assessment further revealed high average intellect with numerous intact functions to include verbal and nonverbal memory, and processing speed. In contrast, reading and writing were impaired. Furthermore, inefficient problem solving and constructional weaknesses suggested involvement of anterior substrates. Responses reflected an overreliance on phonetics and a dearth of sight-word vocabulary, resulting in a labor intensive decoding process which impeded word-level reading. Atypical letter formation was also noted. Results suggest that the neurocognitive profile of inadequate responders to dyslexia intervention may differ in important ways from that typically seen in children with phonological dyslexia. Further exploration of the neuropsychological profiles of inadequate responders may aid in developing intervention strategies to address the severe reading deficits experienced by this population.

#150S
REBECCA, M., WHITNEY, H., CAROLYN, W.T., ERNEST, M.M., & ALENA, H.
Early Treatment with Cranial Radiation is Associated with Deficits in Verbal Recall, Working Memory and Motor Speed

Treatment for pediatric brain tumors often requires aggressive treatment, including surgery, chemotherapy, and cranial radiation therapy (RT). Since a significant number of children treated with this regimen now become long-term survivors, late sequelae of these treatments are of increasing interest. A total of 74 children (24 with brain tumor, 50 healthy controls), ages 5–18 years, received neuropsychological assessment at four time points, defined on the basis of clinical treatment timelines (baseline—after resection/before RT; and 6, 15, and 27 months after completion of RT). Mixed model regression was used to examine the effects of diagnosis (RT versus controls), age (at start of RT), and time since treatment on neuropsychological function. Assessment emphasized skills previously known to be vulnerable to late effects of RT, including verbal memory, executive function, processing speed and motor dexterity. There were significant (p < .01) age-by-group-by-age interactions for tasks of processing and motor speed, working memory, and verbal recall, such that children receiving RT at younger ages had the most significant deficits (compared to age-matched controls). Although associated with increased survival rates among children with brain tumors, cranial radiation also leads to multiple, late-emerging cognitive deficits, with greatest risk observed among children treated before age 10 years.

#151
RYAN, M., FERENC, L., WEBB, K., DENCKLA, M.B., & MAHONE, E.M.
The Nature of Slowed Rapid Color Naming Among Children with Attention Deficit Hyperactivity Disorder Without Dyslexia

Processing speed deficits in ADHD may affect efficient reading, even among children with adequate decoding skills. Rapid automatized naming (RAN) deficits are present in individuals with dyslexia; however, rapid color naming also appears to be deficient in children with ADHD (without dyslexia), with improvement (but not normalization) observed upon introduction of stimulant medication. Forty-four children, ages 9–14 (26 with ADHD, 18 controls, matched on age), were administered the RAN, with responses digitally recorded to allow measurement of articulation and pause times, and response variability. The ADHD group was screened for language and reading disorders, and removed from stimulant medication for the study. Children with ADHD were significantly slower than controls on RAN Color Naming ($p = .04, \eta_p^2 = .07$), with slowing significantly associated with reduced oral reading fluency ($p = .02$). Examination of row-by-row RAN performance revealed that the ADHD group was consistently slower than controls (pause time, total time) on each of the five rows, and on transitions between rows, with no interaction between row and group. Consistent slowing in ADHD is observable in rapid color naming and oral reading fluency, and appears related to a fundamental aspect of executive control underlying processing speed—response preparation—influenced by inefficient memory retrieval and attentional control.

#152S

SALINAS, C.M., & ILARDI, D.

Neuropsychological Profiles of Children with Hypothalamic Hamartoma Brain Tumors: Case Series

Hypothalamic hamartoma (HH) is a rare benign brain tumor associated with precocious puberty, gelastic seizures (GS), and behavioral dysregulation (Malladi & Singh, 2005). The literature is predominantly composed of case studies with documented impairments in intellectual functioning, visual/verbal learning, memory, and social functioning (Quiske, Frings, & Wagner, 2006; Prigatano et al., 2008). These case presentations elucidate the variability in clinical presentation of children with HH, and available treatment options are discussed. Two males (ages 6 and 7) and a female (age 14) with HH underwent comprehensive neuropsychological testing. A developmental model (Dennis, 2000) for understanding cognitive outcomes is presented and we compare neuropsychological and neuroimaging findings. Consistent with previous findings, cognitive profiles were variable. As expected, deficits in intellectual functioning and visual/verbal learning were found. However, visuospatial dysfunction was also noted. Our cases demonstrate the difficulty in treating HH along with GS and behavioral problems. Seizure onset, seizure frequency, developmental and biological variables appeared to influence neurocognitive performance. Behavioral problems may be linked with pathways of the hypothalamus (including hippocampus and amygdala) and association areas in the cortex. More longitudinal data are needed to clarify the cognitive profile of children with HH over time.
SCHUH, J.M., MIRMAN, D., & EIGSTI, I.
Finding Common Ground: Contributions of Working Memory and Theory of Mind to Shared Knowledge in Children with Autism Spectrum Disorders

Pragmatic language impairments in autism spectrum disorders (ASD) are significant and deficits may include “common ground”—monitoring what information is known to participants in a conversation. Common ground impairments in ASD may reflect limitations in Theory of Mind (ToM) or working memory (WM). This study explored common ground in 13 children with ASD and 21 typically developing controls, aged 9–16. We tracked participants’ eye movements while they completed, with a partner, a problem-solving task in which some information was “secret” (known only to the participant). As a manipulation of WM load, the amount of secret information varied. Accuracy was high across groups (91%). All participants were slower to integrate secret information, but the ASD group was significantly slower and more influenced by the secret information under high WM loads. Across groups, performance errors were associated with standardized scores of language and WM, and (for the ASD group) correlated with symptom severity. ToM was only weakly associated with performance. Differences for low/high WM loads suggested that WM modulates the ability to incorporate shared information, with the ASD group particularly susceptible to WM load. Results are consistent with studies in typical development that suggest taking another person’s perspective requires additional processing capacity.

SCOTT, M.N., TAYLOR, H.G., MUNICH, N.M., KLEIN, N., & HACK, M.
Behavioral Outcomes of Extreme Prematurity: Findings From a Structured Diagnostic Interview

Extreme prematurity (EP) results in numerous developmental and behavioral problems; however, prevalence rates of disorders as determined by psychiatric interview have not been well studied in early childhood. This study examined prevalence rates of psychiatric disorders and symptom severity in kindergarten children with EP compared with term-born controls. Participants included 149 children born between 2001 and 2003 with birth weights of <1000g and/or a gestational age of less then 28 weeks and 112 classmate-matched controls. Participants’ parents completed the Children’s Interview for Psychiatric Syndromes-Parent Version (P-ChIPS). The EP group had significantly higher rates of any type of ADHD diagnoses than controls (33% vs. 14%, \( \chi^2 (1, 253) = 11.6, p < .01 \)). While groups did not differ significantly in rates of other disorders, the EP group had significantly more symptoms of Oppositional Defiant Disorder (\( U = 5550.5, Z = -4.26, p < .01 \)), Conduct Disorder (\( U = 6947.0, Z = -2.04, p = .04 \)), Social Phobia (\( U = 6980.0, Z = -2.34, p = .02 \)), and Enuresis (\( U = 6496.5, Z = -2.62, p < .01 \)). Consistent with previous research, results indicate ADHD is a common consequence of EP but that these children are also prone to
other behavior problems. Results highlight the importance of early identification and intervention for behavior problems in children with EP.

#155S
SHANAHAN, M.A., & STANFORD, L.D.
Neuropsychological Functioning in Alternating Hemiplegia of Childhood

AHC is an extremely rare neurological disorder, with fewer than 100 cases reported in the literature. Very little is known regarding neuropsychological functioning in children with AHC, with one case study identified. In order to inform research and clinical work with individuals affected by AHC, this study presents results from a comprehensive neuropsychological evaluation of a single child with AHC. The patient (KA) was an eight-year, three-month-old, right-handed, female with six to eight episodes of AHC per month, more often affecting her left side. Neuropsychological battery included: WISC-IV, WJ-III, NEPSY-II, Beery VMI, grooved pegboard, finger tapping test, and dynamometer. Her mother completed the CBCL, CPRS-R, BRIEF, and Vineland-II. Results indicated that KA's cognitive abilities were globally suppressed but not equally affected. Specifically, she demonstrated stronger abilities in verbal reasoning, verbally-based rote academic skills, and right-sided fine motor functioning. In contrast, her scores were severely impaired on tasks of visuospatial processing, nonverbal reasoning, visuoperception, visual motor integration abilities, math, higher order conceptual academics, left-sided fine motor functioning, and attention/impulse control. Severe inattention, hyperactivity, behavioral and emotional dysregulation were reported by her mother. Implications for clinical work and research on individuals with AHC will be discussed.

#156S
SINCLAIR, C., LADENHEIM, B., ZEMON, V., & MAST, J.
Development of an Instrument for Assessment of Cognitive Function in Children with Traumatic Brain Injury

The psychometric properties of an instrument based on constructs assessed by the Level of Cognitive Functioning Scale (LCFS) were measured in cases of traumatic brain injury (TBI). The LCFS assesses cognitive functioning in post-coma patients and generates classification into one of ten levels, ranging from “no response” to “purposeful, appropriate response.” This instrument does not reflect subtle changes in recovery and limits classification of an individual into one category. Thus, the Blythedale LCFS (B-LCFS) was constructed, in which each construct was quantified using a rating scale to measure dimensions of orientation, mood, and four dimensions of cognition (processing, memory, attention/concentration, and language). Sleep and agitation (using the Agitated Behavior Scale) were also rated. A sample of children with TBI (n = 63) were measured on the LCFS and one of two versions of the B-LCFS (at two time points) designed for those who scored either level ≤ 3 or ≥ 4 on the LCFS. Principal component analysis (PCA) was performed. The majority of participants (n = 50) were tested on the second version of the B-LCFS and PCA
demonstrated that only the four cognitive items loaded consistently on a single component. These preliminary findings need to be replicated on a larger sample.

#157
SPECTOR, J., & LEWANDOWSKI, A.G.
Significant Rate of Symptom Validity Test Failure in an Adolescent and Young Adult Sample of Early Childhood, Low-level Lead Exposure Litigants

Malingering occurs in about 30%-40% of cases of litigated mTBI or alleged toxic exposure. This approximate rate has been reported across settings and age groups. Low level lead exposure in early childhood is reported to be associated with a modest and inconsistent pattern of deficits in intellectual functioning. It was hypothesized that a significant portion of lead exposure litigants might also exhibit evidence of exaggerated cognitive impairment. Subjects were 236 inner city residents aged 12–24 involved in lawsuits over their low level (10–30 μg/dl) childhood lead exposures. All underwent comprehensive neuropsychological evaluation following defense referral, including administration of two symptom validity procedures: the Word Memory Test and the Victoria Symptom Validity Test. Exaggeration was determined when a claimant’s performance fell below cut-offs on both the WMT and the VSVT. 33% of litigants failed both SVTs. The oldest subjects were about twice as likely to fail SVTs as were the youngest ones. Modest correlations between low level lead exposure and IQ subscales dissipated when invalid data sets were eliminated. SVT failure occurs in subjects involved in litigation over low level lead exposure about as frequently as it does in other groups involved in lawsuits over similarly disputed conditions. Research purporting to demonstrate a relationship between childhood lead exposure and neurocognitive outcome should be held to the same standards as have become common in mTBI and similar conditions. The present data suggest that the modest and inconsistent relationship between blood lead level and intellectual functioning may dissipate further when subjects who exaggerate impairment are eliminated from analysis.

#158
SPECTOR, J., & LEWANDOWSKI, A.G.
No Meaningful Deficits in Attention Skills in Adolescent and Young Adult Early Childhood Lead Exposure Litigants Who Pass Symptom Validity Tests

Low level lead exposure in early childhood is reported to be associated with a modest and inconsistent pattern of deficits in neuropsychological functioning. Recent studies have suggested that attention-related functions may be particularly sensitive to the effects of low level lead exposure. However, a concurrent study by the present authors suggest that the relationship between blood lead level and intellectual functioning dissipates once subjects who fail symptom validity tests are eliminated from analysis. It was hypothesized that there would similarly be scant relationship between blood lead level and measures of attentional functioning in subjects who pass symptom validity tests. Subjects were 236 inner city residents aged 12–24 involved in lawsuits over their low level (10–30 μg/dl) childhood lead
exposures. All underwent comprehensive neuropsychological evaluation following defense referral, including administration of two symptom validity procedures: the Word Memory Test and the Victoria Symptom Validity Test. Exaggeration was determined when a claimant’s performance fell below cut-offs on both the WMT and the VSVT. 78 subjects were eliminated from subsequent data analysis. We examined the relationship between blood lead level and performance on the Working Memory and Processing Speed subtests of the applicable version of the WISC or WAIS, the age appropriate version of the Trail Making Test, and elements of the Conners’ Continuous Performance Test in the remaining 158 subjects. There were no statistically significant relationships between measures of working memory, psychomotor efficiency, vigilance, and response inhibition and indices of low level lead exposure. Across subjects, level of performance on the attention-related variables was within or above the range predicted by subjects’ IQ scores. Once the effects of test-taking effort are controlled-for, there was no consistent or meaningful relationship between measures of attention-related functioning and indices of low level lead exposure in early childhood.

#159
SPECTOR, J., & LEWANDOWSKI, A.G.
No Meaningful Deficits in Memory Skills in Adolescent and Young Adult Early Childhood Lead Exposure Litigants Who Pass Symptom Validity Tests.

Low level lead exposure in early childhood is reported to be associated with a modest and inconsistent pattern of deficits in neuropsychological functioning. It has been suggested that memory-related functions may be sensitive to the effects of low level lead exposure. However, a concurrent study by the present authors suggest that the relationship between blood lead level and intellectual functioning dissipates once subjects who fail symptom validity tests are eliminated from analysis. It was hypothesized that there would similarly be scant relationship between blood lead level and measures of memory functioning in subjects who pass symptom validity tests. Participants and Methods: Subjects were 236 inner city residents aged 12–24 involved in lawsuits over their low level (10–30 μg/dl) childhood lead exposures. All underwent comprehensive neuropsychological evaluation following defense referral, including administration of two symptom validity procedures: the Word Memory Test and the Victoria Symptom Validity Test. Exaggeration was determined when a claimant’s performance fell below cut-offs on both the WMT and the VSVT. 78 subjects were eliminated from subsequent data analysis. We examined the relationship between blood lead level and performance on General Memory, Verbal Memory, Visual Memory, and Delayed Verbal Memory subscales of the applicable version of the CMS or TOMAL in the remaining 158 subjects. There were no statistically significant relationships between measures of general, verbal, visual, or delayed verbal memory and indices of low level lead exposure. Once the effects of test-taking effort are controlled-for, there was no consistent or meaningful relationship between measures of memory-related functioning and indices of low level lead exposure in early childhood.
#160S
STEPANSKY, M., DAVIS, A., & DORFLINGER, J.
Adaptive Functioning in Children with Autism Spectrum Disorders

The current study explored the relationship between intellectual functioning and adaptive functioning in children diagnosed with an autism spectrum disorder. Participants were 29 children between the ages of 6 and 14, who received an extensive diagnostic assessment at a community medical center. Regression analyses were conducted to examine the relationship between the five indices of the Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV) and the domains of adaptive functioning from the Vineland Adaptive Behavior Scales-Second Edition (VABS-2). The Full-Scale IQ score from the WISC-IV predicted the overall adaptive behavior composite on the VABS-2 ($F = 9.352$, $p < .005$). IQ indices also predicted communication skills on the VABS-2. However, only the Verbal Comprehension Index predicted daily living skills ($F = 5.679$, $p < .05$), and only the Perceptual Reasoning Index predicted socialization skills ($F = 4.530$, $p < .05$). These findings suggest that the relationship between intellectual functioning and adaptive functioning is complex for children with autism spectrum disorders. Difficulties in daily living skills may be due to poor verbal comprehension between the child and their caregiver. On the other hand, deficits in socializing with peers may be due to poor nonverbal skills. These results have implications for behavioral interventions that can improve adaptive functioning for children on the autism spectrum.

#161S
STUDWELL, E.M., HAMILTON, E.A., & KONOPKA, L.M.
Correlations Between Psychometric and Neurometric Tests: A qEEG Study on Pediatric Patients

When looking at the assessment and treatment of pediatric patients, few studies have examined a multidimensional approach, including both psychometric assessment tools and neurometric tests, in particular qEEG. This study evaluates the correlation between functional brain imaging and psychometric testing in an effort to improve the efficacy of overall assessment and increase the effectiveness of individualized treatment. We reviewed data of ten patients administered EEG and a psychological battery taken from a local psychiatric hospital. Six patients were chosen for this study based on availability of raw EEG measures, ages thirteen to seventeen, with four females and two males. Data was then compared to a normative database equivalent in age and gender. Naive to behavioral presentation, a ranked order was decided by neuronal abnormality according to qEEG measures of symmetry, coherence, and excess or deficit electrical activity seen in absolute power and relative power. Psychometric assessment was then analyzed and compared according to neurometric ranking. Findings showed a positive correlation between neuronal abnormality and personality assessment, with intellectual ability moderating the overall pathological presentation. Future research should continue to examine a multidimensional approach to increase the efficacy of assessment and treatment for pediatric populations.
#162S
SWARTZ, B.J., HAGAN, H., KOLBERG, B., & LAATSCH, L.K.
Cognitive Strengths and Weaknesses in Individuals with Sickle Cell Disease: The Effects of Gender and Stroke History

Previous literature revealed significantly variable results when evaluating cognitive impairments (intelligence, working memory, language, and executive function) in individuals with Sickle Cell Disease (SCD). In this study, individuals with SCD were evaluated with a comprehensive neuropsychological battery to determine cognitive strengths and weaknesses, and also broken down by gender (male N = 11, female N = 9) and stroke history. All subjects (N = 20), ranging in age from 8–20 years, were referred by an urban SCD clinic and were neurologically stable at the time of the evaluation, conducted in an outpatient clinic. MRI and medical history were used to confirm stroke history. Basic descriptive statistics and ANOVA were used to evaluate the impact of gender and stroke history. Gender did not have a significant impact on basic neuropsychological measures, which is consistent with a previous study by Schatz and Roberts (2005). Working memory was significantly more impaired in subjects with a stroke history. Examining the mean test scores of all SCD subjects revealed that executive functioning scores were within the broad range of average, intelligence scores were generally in the borderline range, and impairments were seen in working memory, processing speed, and language.

#163
SWEET, J.J., GIUFFRE MEYER, D.E., NELSON, N.W., & MOBERG, P.J.

Recurrent professional practice surveys of clinical neuropsychologists have provided a means of identifying common practices, beliefs, and economic trends within the field. Survey development began in autumn of 2009, with many items maintained or modified from the 2005 salary survey, and new items included to address current issues in clinical neuropsychology. The web-based survey was launched in February, 2010. Participants were recruited by postcards and/or e-mails sent to doctoral level members and affiliates of the American Academy of Clinical Neuropsychology, American Psychological Association’s Division 40, and National Academy of Neuropsychology, as well as listserv announcements sponsored by these and other neuropsychology organizations. Excerpts presented from the numerous analyses from the survey include: salaries for entry-level positions; productivity requirements and their effect on income; duration of assessment by patient variables (e.g., age, disorder, referral question, inpatient versus outpatient status); practice characteristics and income associated with pediatric versus adult specialization, use of testing assistants, work setting, gender, years of experience, forensic practice, and other variables; income and job satisfaction; journal rankings. Comparison of present findings with those obtained in prior surveys is also included.
#164S
TAJIRI, T.N., BURNS, T.G., DEFILIPPIS, N.A., HILL, F.F., & ILARDI, D.
Neuropsychological and Behavioral Side-Effects of Monotherapy with Antiepileptic Medication Among Seizure Controlled Epileptic Children

Neuropsychological side effects are well-documented in literature examining adult epileptic patients who are prescribed antiepileptic drugs (AEDs); however, there is a dearth of knowledge regarding the effects of various AEDs in pediatric populations. The objective of this study was to measure and compare symptoms of neuropsychological dysfunction across a sample of children diagnosed with epilepsy (n = 110). These children were matched for age, type of seizure and type of focal epilepsy (frontal lobe or temporal lobe), and were further subdivided by which single AED they were prescribed (i.e., divalproex sodium, levetiracetam, lamotrigine, oxcarbazepine, and topiramate). A control group was also included in this study (n = 42). Results of a MANOVA revealed significant differences across the AED cohorts and the control group within the following areas of neuropsychological functioning: attention, working memory, motor processing speed, verbal category fluency, verbal phonemic fluency, and parent report of behavioral and executive functioning (F = 4.7, p = .001; Wilk’s Lambda = .269). Additionally, post hoc analyses indicated significant differences (p < .01) in the aforementioned areas of neuropsychological functioning between almost all AED cohorts and the controls. Furthermore, participants prescribed topiramate and divalproex sodium performed significantly (p < .001) less well in areas of neuropsychological functioning when compared to the other AED cohorts. In contrast, the performance of the oxcarbazepine cohort and the control group did not differ significantly in the areas of attention, working memory and verbal fluency (semantic and phonemic), suggesting that oxcarbazepine monotherapy has minimal side effects and may be an optimal choice in pediatric epilepsy.

#165S
TUCHSCHERER, V.N., NOVITSKI, J., MICHELLE, S.A., LANCASTER, M., & STANFORD, L.
Neurocognitive Differences Between Pediatric Mood Disorders and Autism Spectrum Disorders

Considerable symptom overlap is seen in the clinical presentation of Autism Spectrum Disorders (ASD) and Pediatric Mood Disorders (PMD), including cognitive/behavioral rigidity, irritability, emotional reactivity, compulsive behaviors, and interpersonal and social difficulties. Neuropsychological evaluations are frequently requested to characterize the cognitive presentation of these disorders and for diagnostic clarity. Literature regarding neurocognitive differences between ASD’s and PMD is limited. Sixty-two patients referred to a Pediatric Neuropsychology Clinic who received a diagnosis of Bipolar Disorder, Mood Disorder NOS, Asperger’s Disorder, or Autistic Disorder were included in the current study. Patients with a comorbid diagnosis of Mood Disorder and ASD were
excluded from the current analyses. Mean comparisons of IQ, memory, and parent report questionnaires were conducted. Results revealed similar IQ and visual memory performance, with statistically significant suppression of verbal memory for the PMD group (t = -2.98, p < .01). On parent report measures, similar elevations were noted on the attention, working memory, set-shifting, monitoring, and planning/organization subscales, while ratings of the PMD group revealed significantly higher elevations on more externalizing behaviors such as emotional reactivity, aggression, and delinquent behavior (p < .01). Implications for differential diagnoses of ASD and PMD and need for additional neuropsychological comparisons will be discussed.

#166S
TURNBULL, J., WALKER, J., MUNOFF, A., & WHITESIDE, D.M.
The Effects of Handedness, Gender, and Age on Intellectual Development

Research suggests conflicting evidence regarding the influence of gender and handedness on intellectual development (Molenaar, Dolan, & Whicherts, 2009). This study investigated the impact of these variables on intellectual development in healthy children. The research utilized a cross-sequential design utilizing data from the National Institute of Health (NIH) Magnetic Resonance Imaging (MRI) Study of Normal Brain Development. Participants comprised three groups of children age 6 (N = 33), age 11 (N = 89), and age 16 (N = 70) at the time of initial assessment who were screened for neurological, developmental, or genetic abnormalities and completed three separate administrations of the Wechsler Abbreviated Scale of Intelligence (WASI) at least one year apart. Verbal IQ (VIQ), performance IQ (PIQ) and full scale IQ (FSIQ) scores were analyzed using a mixed factorial design. ANOVA results indicated no main effect or interaction effects for age, gender, handedness or time of testing (e.g., first, second, or third administration of the WASI) on VIQ, PIQ or FSIQ. Thus, the data do not support the hypothesis that gender or handedness are associated with development of intellectual functioning, indicating that development of intelligence in healthy, normally developing children is not related to these demographic factors.

#167S
VASSERMAN, M.
Early Maltreatment Related Stress and Later Neuropsychological Functioning: Three Case Studies.

Research has demonstrated multiple structural and functional differences in brain development between children with histories of maltreatment and normal healthy controls (Vasterling & Brewin, 2005). More recently, studies have begun to investigate the impact of early stress and maltreatment on neuropsychological functioning of children (De Bellis, Hooper, Spratt, & Woolley, 2009). Our aim is to demonstrate, through clinical case studies, how trauma and early life stress can contribute to the cognitive and functional impairments these children often present with. We present three cases with histories of early trauma of different severity. One
child suffered significant neglect and maltreatment for a prolonged period of time, prior to his adoption at age 8. The second child witnessed domestic violence and reported being a victim of such violence, while the third child’s early stress was related to his mother’s severe depression during his early childhood. Neuropsychological data is presented for all children. Weaknesses in language functioning, visual learning, attention, inhibition and theory of mind were found in all three cases. The importance of early identification of cognitive deficits in maltreated children, even in the absence of PTSD, is discussed. In addition, ideas for development of screening procedures are presented.

#168S
WEINFELD, J., BENDER, H., GRANADER, Y., & MACALLISTER, W.
The Relationship Between Psychomotor Speed and Behavioral Phenotype in Children with Epilepsy and Comorbid Attention Deficit Hyperactivity Disorder

Measures of processing speed are highly sensitive to cerebral dysfunction in children. Although individuals with ADHD or epilepsy have historically demonstrated deficits in this area, the combined effect of both diagnoses has received comparatively less attention. The relationship between psychomotor speed and behavioral phenotype was examined in a population with epilepsy and comorbid ADHD. The WISC-IV Digit Symbol Coding (DSC) subtest was administered to 61 participants between the ages of 6–17 years (Mean = 12.91 and S.D. = 3.47) with IQs > 70. ADHD diagnosis was determined using parent-report SNAP-IV ratings and epilepsy diagnosis via ILAE criteria and EEG evidence. Findings indicate that 44% of children with comorbid epilepsy and ADHD exhibit greater rates of impairment (> 3 SDs below normative mean) than those with ADHD-only (28%) or epilepsy-only (23%) on DSC. Although the DSC scaled score was significantly correlated with ratings of inattention (p < .047) and hyperactivity/impulsivity (p < .05) in children with ADHD-only, the relationship between processing speed and behavioral phenotype was not significant in those with comorbid diagnoses. Findings suggest that processing speed difficulties in children with epilepsy (with or without ADHD) may be attributed to factors beyond those captured by traditional measures of inattention and hyperactivity/impulsivity.

#169S
WHITMAN, L., BENDER, H., GRANADER, Y., & MACCALLISTER, W.
Material Specific Memory Deficits in Children and Adolescents with Temporal Tumors and Epilepsy: A Report on Five Cases

In adults, the left temporal structures have clearly been associated with verbal memory. Although research regarding the material specificity of memory associated with the right temporal lobe is mixed, nonverbal/visual memory is often implicated. The purpose of the present investigation is to assess material specific memory in children and adolescents with documented temporal tumor and epilepsy. Three individuals with right temporal tumors were evaluated, including an 8-year-old female with a partially cystic medial parenchymal abnormality, a 14-year-old male
with a neoplasm, and a 9-year-old male with a partially resected ganglioglioma. Left temporal participants include a 10-year-old female diagnosed with a tumor (pathology unknown) and a 16-year-old male with suspected cavernous angioma or benign tumor. Memory was evaluated via the WRAML-2. Participants with right temporal lesions showed stronger verbal memory compared to nonverbal memory. However, participants with left temporal lesions also showed stronger nonverbal memory compared to verbal memory. Though results should be cautiously interpreted given that the magnitude of the discrepancies between verbal and nonverbal indices among left temporal participants were not particularly unusual, they suggest that youngsters with left temporal lesions may show seemingly contradictory findings, likely reflecting functional reorganization of verbal skills.

#170
WILLIAMS, T.S., SHERMAN, E.M., BLACKMAN, M., DUNSEITH, C., LATTER, J., MAH, J.K., MOHAMED, I., SLICK, D.J., & THORNTON, N.
Medical Autonomy and Executive Functioning Among Adolescents with Epilepsy.

Few studies specifically address medical autonomy and transition readiness among adolescents with epilepsy. Given the neurological and neurocognitive issues associated with epilepsy, typical increases in autonomy in an adolescent’s medical management may be compromised. The objectives of this preliminary study were to examine perceived medical autonomy and readiness to transition to adult health care facilities among adolescents with epilepsy in relation to indices of executive functioning. Participants included 36 Canadian youth (19 with epilepsy, 17 with non-neurological chronic health conditions; ages 13–19) and their parents from clinics at the Alberta Children’s Hospital. Youth and parents completed The Self-Management Skills Assessment Guide, a transition readiness questionnaire. Parents also completed the Behavior Rating Inventory of Executive Function (BRIEF) and adolescents completed the Biber Cognitive Estimation Test (BCET). Adolescents with epilepsy reported less medical autonomy than youth with non-neurological chronic conditions. Parent-reported executive functioning challenges were negatively associated with medical autonomy ($r = -0.37$) and lower scores on the cognitive estimation task were associated with less medical autonomy ($r = 0.47$). These results provide initial support for the role of executive functioning in medical autonomy and transition issues in youth with epilepsy, and provide a potential avenue for the development of interventions for maximizing transition success.

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WILSON, K.R., & DONDERS, J.
Differences in Self-report and Parent-report of Executive Functioning following Pediatric Traumatic Brain Injury

Self and parent report versions of the Behavior Rating Inventory of Executive Function (BRIEF) were compared in a prospective, 4-year series of consecutively referred 11–16 year-old outpatients with traumatic brain injury (TBI; $n = 98$; 61% male, 39% with positive neuroimaging findings) within 1–12 months after injury.
Parent ratings were statistically significant higher (i.e., reflecting more pathology) than self ratings on all three BRIEF summary T scores; $p < .01$, median effect size $d = 0.5$. Parent-self T score discrepancies on the Metacognition and General Executive Composite indexes were positively correlated with coma duration ($p < .05$), but did not vary significantly with the presence / absence of prior ADHD or psychiatric history. It is concluded that adolescents with TBI under-report difficulties with executive functioning, compared to their parents’ ratings. Although the effect sizes were modest, the findings suggest possible limitations of deficit awareness after pediatric TBI.

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YULISH, N.E., & KESSLER, D.L.
Improving Clinical Practice: Is the Etiology of Attention Deficit Hyperactivity Disorder Influenced by Trauma?

A better understanding of the role environment, specifically trauma, plays in the etiology of Attention Deficit Hyperactive Disorder could provide better avenues for diagnosis and treatment in the future. The objective of this study is to clarify the relationship between Attention Deficit Hyperactive Disorder (ADHD) and Posttraumatic Stress Disorder (PTSD); specifically, we are looking at the overlap of symptom formation. Our central premise is that ADHD is better characterized as a reaction to trauma, and that it is caused by traumatic stressor(s). A meta-analysis was conducted on over 40 articles examining the separate literature of etiological factors of ADHD and PTSD to illustrate a relationship. Within each disorder there was an initial emphasis on identifying the structural and functional parts of the brain that are affected. Followed by an exploration of how trauma can change the brain in a use-dependant fashion. Finally, possible environmental factors were investigated to understand causal variables that lead to the development of each disorder. After comparing data taken from each disorder’s literature, this paper found bridges linking ADHD and PTSD across multiple domains. The evidence displayed in these commonalities suggests a shared etiology, and contextual relationship between these disorders.