characterized sample of youths with ASD. This study explores possible links between individual characteristics and CI as reported by parents.

Methods: The sample consisted of caregivers (n = 186) who completed the Autism Diagnostic Interview - Revised (ADI-R) as part of the Simons Simplex Collection. Caregiver responses on the "circumscribed interests" and "unusual preoccupations" items of the ADI-R were transcribed. Only participants who endorsed pervasive or disruptive interests on these items were included. Using qualitative methodology, transcriptions were coded by selecting dialogue that described CI (e.g., "obsessed with Pokémon cards") and placing responses into categories (e.g., Collecting). Categories were derived from examination of the responses and considering existing measures of youth interests (e.g., The Interest Scale, Cambridge University Obsession Questionnaire). Individual phenotypic data were then associated with the various categories to examine characteristics of individuals with the purported interest.

Results: Interests were grouped into 31 categories, which were consistent with those found in other studies (e.g., Bodfish, 2003; Klin et al., 2007).. Caregivers reported their child's interests falling into an average of 2.8 categories. The most frequent interests reported were Strong Attachment to Fictional Characters (12%) and Televisions/Movies (10%). The least frequent reported were Mechanical Systems (0.4%) and Religion/Occult (0.6%). Youth with mean IQs in the average or above average range endorsed interests such as Building/Construction, Factual Information, and Biology, whereas youth with mean IQs in the impaired range endorsed interests in Rocks/Geology. Those with a high degree of core ASD symptoms by parent report had interests ranging from Religion/Occult, to Fictional Universes, Collecting, and Weather/Natural Disasters. Those with a high degree of core ASD symptoms by clinician report had interests ranging from the Signs, to Mechanical Systems, Reading/Writing, and Music. Older youth endorsed interests in Japanese Culture, Rocks/Geology, and Factual Information, whereas younger youth endorsed interests in Words/Letters and Math/Counting.

Conclusions: Youth with ASD endorse a broad range of CI. Specific interests are endorsed more frequently than others and certain types of interests appear to be associated with level of intelligence and core ASD symptoms, though this may differ based on parent or clinician observation. Further understanding of the etiology and types of CI and how interests relate to phenotypic characteristics will contribute to better evaluating and reducing impairment for individual youth.

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180   **146.180** Latent Constructs Underlying Sensory Subtypes: An Independent Components Analysis

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Background: Sensory features (SF) are atypical responses to sensory stimuli that influence the functioning of children with neurodevelopmental disorders (NDD) including Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactive Disorder (ADHD). Due to the heterogeneous nature of SF, there is a need to define clinically meaningful subtypes, which may differentially respond to intervention. Sensory features are highly relevant to the ASD population due to their recent inclusion in diagnostic criteria. Distinct sensory subtypes have been identified in children with ASD through parent responses on the Short Sensory Profile (SSP) (Lane et al., 2014). Clinical profiles led to the hypothesis that two sensory dimensions underlie SF: 1) sensory reactivity (the intensity of a response to a stimulus), and/or 2) multisensory integration (the ability to process multiple concurrent stimuli). The use of Lane et al.'s sensory subtypes facilitates systematic examination of behavior and symptom profiles associated with each subtype. It is necessary, however, to have a sound understanding of the theoretical basis underlying the subtypes before they can be adopted confidently in clinical settings. As a next step to validate this schema, we performed independent component analysis (ICA) to elucidate the latent constructs underlying sensory subtype classification.

Objectives: To determine the latent constructs that underpin sensory subtype classification.

Methods: Two datasets were analyzed in the present study. The first is a sample of 228 children with ASD aged 2-10. The second included 155 children aged 4-10 years with ADHD, Sensory Processing Disorder or ASD and typically developing controls.

Parents of study participants completed the SSP, which measures behaviors associated with responses to everyday, environmental sensory stimuli in children aged 3–10 years. Parents respond to each item using a 5-point ordinal scale, with higher scores indicating more typical performance.

Independent component analyses (ICA) were conducted via a multistep process using z-scores from the seven SSP domains and item-level data. First, our hypothesis of a two-component structure was tested on domain z-scores. Next, z-scores were analyzed using model-fitting software to determine if any model had superior model fit than the hypothesized solution. The optimal number of components was determined, balancing interpretability with model fit. Lastly, item-level data were analyzed via ICA to determine which specific items on the SSP contribute most to the underlying latent constructs.

Results: A three-component model best explained the data for both samples, each with major contributions from one of the following domains: 1) taste/smell sensitivity, 2) low energy/weak, and 3) underresponsive/seeks sensation and auditory filtering. Key items from those domains that heavily contributed to the corresponding latent components were identified.

Conclusions: We propose that components one and two represent specific *foci* of SF, vis a vis taste/smell sensitivity and low energy/weak. Component three represents the construct of *severity*. Indeed, the Lane et al.'s sensory subtypes can be mapped onto these components in a conceptually meaningful way. The present study asserts a novel conceptual framework of constructs (*focus* and *severity*) that underlie sensory subtypes to guide future research and clinical practice on SF in ASD.

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181   **146.181** Less Efficiency in Execution and Observation, but Not Imitation, of Actions in High-Functioning Young Adults with an Autism Spectrum Disorder

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Background: Autism spectrum disorders (ASDs) are often accompanied by problems in planning and execution of goal-directed actions. The concept of planning movements in order to attain comfort at completion, though sacrificing initial comfort, is known as end-state comfort (ESC) (Rosenbaum et al., 1990). Hence, the application of ESC points to efficient action planning. The bar-transport paradigm is a simple, but very effective measurement tool for providing valuable information on the application of ESC and the efficiency of a persons' motor planning skills (Rosenbaum et al. (1990). Several studies suggest that persons with ASD are impaired in the spontaneous application of ESC (Hughes, 1996; Conson, et al. 2013, Gonzalez et al., 2014), but not when they are allowed to imitate this application (Hamilton, Brindley & Frith, 2007; Jiménez, Lorda, & Méndez, 2014). To the best of our knowledge, there are no studies which have investigated the understanding and prediction of efficient goal-directed actions applying ESC.

Objectives: The present study investigated the efficiency of goal-directed actions in the domains of action execution, imitation and prediction in young adults with an ASD compared to typically developing peers.

Methods: A cross-sectional study was conducted containing 21 persons with ASD and 26 typically developing persons (TDP) between 17 and 29 years of age. In the first experiment, action efficiency was investigated by analyzing the spontaneously application and imitation of ESC in addition with speed and timing of actions. In the second experiment, the prediction of efficient actions was studied.

Results:

Experiment 1 showed that participants with ASD were less able to spontaneously perform efficient actions compared to TDP (U = 98.5; Z = -2.14; p = .03). Results of a mixed model analysis with group, trial and their interaction as fixed factors and individual participants as random factor showed that the timing ranging from stimulus onset to action start (F1,35 = 2.2; p = .14) and from action start to lifting the bar (F1,35 = 3.2; p = .08) did not differ between both groups. In contrast, participants with ASD were significantly slower than TDP in the executive part (F1,35 = 5.2; p = .03; β0 ASD = .91; β0 TDP =.91-.04; β1 = -.005). This was no longer true when their actions were visually guided online in the imitation condition (F1,34 = .03; p = .86; F1,34 = .5; p = .47; and F1,34 = 2.9; p = .10, respectively). Furthermore, in this condition both groups did not differ in their application of ESC when imitating the actions (U = 149.5; Z = -.35; p = .72).

Experiment 2 showed that participants with ASD were less able to predict ESC when they observe efficient actions compared to TDP (U = 177.5; Z = -2.06; p = .04). In contrast, according to mixed model analysis both groups did not differ in their reaction times towards observed actions (F1,45 = 1.5; p = .23).

Conclusions: Persons with ASD were less able to spontaneously execute and predict efficient actions, although they were able to imitate them.

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182   **146.182** Motor Ability and Oculomotor Function in Children with an Autism Spectrum Disorder

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Background: Eye movements provide a window into cognitive processing. Deficits in oculomotor control (i.e. suppressing reflexive saccades) have been shown to relate to language ability in ASD. In addition to language problems, an increasing number of studies have highlighted motor difficulties in this population. Of note, research supports a link between motor skill and aspects of oculomotor control, such as smooth pursuit (e.g. the ability to track an object); as reported in a population of children with a core motor impairment. However, at present, very little is known about the relationship between motor and oculomotor function in ASD.

Objectives: The present study set out to measure motor ability and the integrity of the oculomotor system in ASD. The study aimed to determine if eye movements can differentiate between children with ASD and controls; and to investigate the relationship between motor skill and oculomotor function.

Methods: Twenty-two children with ASD, aged 7-10 years, were compared to 22 typically-developing children matched by age. ASD diagnosis was confirmed using the Autism Diagnostic Observation Schedule (ADOS-2), and Full Scale IQ (WISC-IV) and motor competency were assessed (using the Movement Assessment Battery for Children, MABC-2). Children completed four short tasks designed to assess oculomotor function: fixation, smooth pursuit, pro- and anti-saccades. Eye movements were