Background: Preferred interests play a crucial role in the development of autistic children, influencing their motivation, learning, and well-being (Davey, 2020; Jacques et al., 2022; Wood, 2021). Despite their well-documented benefits, the developmental trajectory of these interests remains underexplored.
Objectives: This study aimed to (1) document changes in object exploration from preschool to school-age in autistic and neurotypical children, and (2) compare object exploration between these groups at different developmental stages.
Methods: Using the Montreal Stimulating Play Situation (MSPS), a play-based context tailored to autistic characteristics, we documented preferred interests in 65 age-matched children (32 autistic; 33 neurotypical). Participants were recruited through the Autism clinic at the Rivières-des-Prairies hospital in Montreal, and were first exposed to the MSPS preschool-age version (MSPS-1; M_{ASD} = 51.2 months; M_{NT} = 46.3 months; p = 0.101), then to the school-age version (MSPS-2; M_{ASD} = 129 months; M_{NT} = 132.9 months; p = 0.198). Children freely explored 37 (MSPS-1) and 43 (MSPS-2) objects, including 16 objects common to both versions. Object exploration was coded by two naive raters using Observer XT© with an inter-rater agreement ensured through a systematic process. Object exploration was analysed by frequency, duration and proportion of children. Significant differences were defined by changes/differences in at least two of these metrics. Wilcoxon signed-rank and McNemar tests were used to assess longitudinal changes, while Mann-Whitney U and Fisher tests were used to compare groups. Holm-Bonferroni corrections set the adjusted alpha at .004.
Results: From preschool to school-age, significant decreases are observed in both groups regarding the exploration of three objects: *light and music stars*, *boat* (hammer and balls) and *sound embedding object.* Neurotypical children showed additional decreases in five objects: *big abacus*, *ball with lights and sounds*, *spinning light and sound*, *doll* and *baby bottle*.
Inter-group comparisons revealed few significant differences: neurotypical children explored *hoops* more at preschool-age, while autistic children showed greater interest in the *ball with lights and sounds* at school-age. Descriptive data highlighted school-age autistic children's interest in literacy-related objects and musical instruments, including *letters and numbers*, *piano*, *guitar*, *globe*, and *iPad©*.
Conclusions: Autistic and neurotypical children exhibit both shared and distinct patterns of object exploration across development. This study provides insights into the preferred interests of autistic children and highlights the importance of studying interests individually, as well as the value of using contexts tailored to autistic characteristics.

427.065 Photography-Based Goniometry to Measure Gastrocnemius and Soleus Muscle Lengths in Individuals with Severe Autism Spectrum Disorder and Tip-Toe Behavior

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Background: Tip-toe behavior (TTB) affects about 20%–30% of individuals with Autism Spectrum Disorder (ASD). A previous study found that TTB can manifest with varying degrees of increasing severity (i.e., TTB1 = TTB during running; TTB2 = TTB during walking and running; TTB3 = TTB during standing, walking and running). TTB persistence may lead to shortening of Achilles' tendon, derived from Gastrocnemius muscle (GM) and the Soleus muscle (SM), which in turn influences motor function and quality of life. Traditionally, GM and SM length assessment is performed by measuring ankle dorsiflexion range of movement (ROM) with the knee extended (GM) and the knee 90° flexed (SM) using a manual goniometer placed on the individual's skin. During clinical practice, this could become problematic in individuals with ASD and intellectual disability (ID) and/or sensory hypersensitivity. This limitation could be mitigated using a photography-based goniometry approach. In a previous pilot study, we found this approach feasible in children with ASD.
Objectives: This study aims 1) to apply a validated photography-based goniometry (DrGoniometer® app) to measure GM and SM lengths in subjects with severe ASD and ID; 2) to evaluate the relationship between TTB severity and GM and SM length values.
Methods: We measured SM and GM length values in a sample of 36 individuals with ASD, diagnosed according to the DSM-5 criteria. ASD severity and ID were evaluated by the Childhood Autism Rating Scale - Second Edition (CARS-2) and the Raven's Coloured Progressive Matrices (RCPM), respectively. To determine the presence/absence of TTB and its severity, we applied a standardised qualitative assessment previously described. Photography-based goniometry measurements were conducted using the methodology described by Wang et al. (2019).
Results: Thirteen out of 36 subjects presented TTB. The mean age of the study sample was 8.42 years (SD 2.62), with no significant difference between NO-TTB and TTB individuals. The participants presented moderate to high ASD severity (mean CARS-2 score: 39.61, SD 6.46; range: 24.50-57) and a low IQ (mean RCPM score: 70.83, SD 19.91; range: 50-120), with no significant difference between NO-TTB and TTB individuals.
Performing a comparison between GM and SM length values of NO-TTB and TTB individuals using Mann-Whitney tests, we found that TTB individuals resulted in significantly lower values in all four assessed muscles (GM_left: $U=52.00$, $p<0.001$; GM_right: $U=51.50$, $p<0.001$; SM_left: $U=70.00$, $p=0.008$; SM_right: $U=62.00$, $p=0.003$). Using the Spearman Rho test, we also found a significant inverse correlation between all four muscle lengths and the severity of TTB (GM_left: $r=-0.593$, $p<0.001$; GM_right: r=-0,567, $p<0.001$; SM_left: $r=-0.490$, $p=0.002$; SM_right: $r=-0.506$, $p=0.002$). Details about demographic and clinical characteristic of the study sample and GM and SM length values are summarized in Table 1.
Conclusions: Photography-based goniometry has been used successfully to quantify GM and SM muscle lengths in severe ASD individuals with ID, both with and without TTB. GM and SM length values are reduced in the TTB group. There is a moderate inverse relationship between TTB severity and GM and SM lengths. Further research is warranted to confirm the results.

427.066 Proprioceptive Feedback Processing and Age-Associated Differences in Standing Postural Control in Autistic Individuals

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