

## Factors associated with motor skills of individuals with high-functioning autism (IHFA)

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**Aim:** The aim of this study was to explore factors that were associated with good and poor complex fine-motor skills for individuals with High-Functioning Autism (IHFA) and typically developing individuals (TDI).

### Methods:

**Participants:** One hundred ten participants met the inclusion and exclusion criteria for this study (IHFA = 55 and TDI = 55). IHFA and TDI were matched on age, gender, and IQ.

**Variables:** Performance on the Grooved Pegboard (GP) by the dominant hand was the target variable. The predictor variables included several neuropsychological measures from motor, sensory-perceptual, language, memory, problem solving/executive functioning, and visual spatial domains, demographic variables of age, socioeconomic status (SES), gender, handedness, and education level, as well as IQ.

**Data analyses:** Two models were generated using Exhaustive Chi-Square Automatic Interaction Detection (CHAID), one for IHFA and one for TDI, to identify factors associated with good and poor performance on the GP using SPSS AsnwerTree 3.1.

**Results:** We found different factors to be associated with complex fine-motor skills for IHFA versus TDI. The patterns of association for IHFA were also different from TDI. In the IHFA model, the factor most strongly associated with performance on the GP was education level with time needed to perform the GP which decreased as education level increased followed by different predictors for each of the generated groups. However, for TDI age (years) was the factor most strongly associated with performance on the GP with increased speed as age increased followed by performance on the GP by the non-dominant hand.

**Conclusion:** The most prominent finding of this study was the strong association between complex fine-motor skills and educational level in the IHFA model versus the strong association between complex fine-motor skills and age in the TDI model. Our findings suggested that IHFA rely on structured experiences (such as those provided in schools) to acquire complex fine-motor skills which are acquired with age (a variable independent from structure) in TDI. This finding has a significant clinical implication reflecting on the importance of early intervention for IHFA, because the development of complex fine-motor skills for IHFA appears to necessitate structured experiences that utilize such skills in order for them to fully mature. In addition, the models generated by CHAID illustrate which factors are associated with complex fine-motor skills, and how they are related to each other. The model has the potential to provide guidance on factors that need to be assessed in IHFA, as well as for the development of intervention planning.

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