

# SEX DIFFERENCES IN TOY PREFERENCE IN CHILDREN WITH AUTISM SPECTRUM DISORDER AND TYPICAL DEVELOPMENT

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## Background

- The social camouflage theory posits that girls with Autism Spectrum Disorder (ASD) more commonly and successfully camouflage their symptoms compared to boys with ASD.<sup>1</sup>
- Girls with ASD may play with more female-typical toys compared to boys with ASD, more closely aligning with the social profile of typically developing (TD) girls.<sup>2</sup>
- Examining differences in toy play across girls and boys may clarify how sex influences phenotypic heterogeneity in ASD.
- Moreover, exploring how ASD symptoms relate to toy play may reveal whether behaviors during play are associated with individual differences in symptom severity.

## Objective

- To investigate sex differences in toy preference during play in TD children and children with ASD and explore whether symptom severity predicts toy preference during play.

## Methods

### Participant Demographics

	<i>n</i> (female)	Age (SD)	IQ (SD)
TD	15 (5)	7.8 years (1.4 years)	113.3 (11.6)
ASD	10 (4)	8.5 years (1.5 years)	97.5 (17.4)

### Methods

- Videos of the ADOS-2 Module 3 were coded for duration of toy play (amount of time spent touching a toy) using ELAN software.
- Toys were separated into categories (Vehicles, Figurines, Miscellaneous, Tools/Weapons, and Domestic).<sup>2</sup>
- Percent play with each category was calculated by dividing duration of toy play with each category by duration of the play session.

### Statistical Analysis

- 2x2 ANOVAs tested the influence of sex and diagnosis on percent play within each toy category.
- Independent samples t-tests determined differences in play with each category across groups separated by sex and diagnosis (TD girls, TD boys, girls with ASD, and boys with ASD).
- Correlations between ADOS-2 Overall Comparison Score and play with each category were calculated.

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## Results

### Symptom Severity

- Higher ADOS-2 Overall Comparison Scores were associated with less play with the Domestic category ( $r=-.458, p=.021$ ) and more play with the Tools/Weapons category ( $r=.461, p=.020$ ).

### Vehicles, Figurines, and Miscellaneous Categories

- For the Vehicles, Figurines, and Miscellaneous categories, there were no significant main effects of sex, diagnosis, or sex x diagnosis interactions (all  $p>.124$ ).

### Tools/Weapons Category

- Children with ASD played with the Tools/Weapons category significantly more than TD children ( $F(1,21)=6.124, p=.022$ ).
  - This effect was carried by boys with ASD, who played with the Tools/Weapons category significantly more than girls with ASD ( $p=.032$ ), TD girls ( $p=.016$ ), and TD boys ( $p=.010$ ).
  - Girls with ASD did not differ in play with the Tools/Weapons category compared with TD girls ( $p=.427$ ) and TD boys ( $p=.719$ ).
- Boys played with the Tools/Weapons category more than girls ( $F(1,21)=4.155, p=.054$ ).

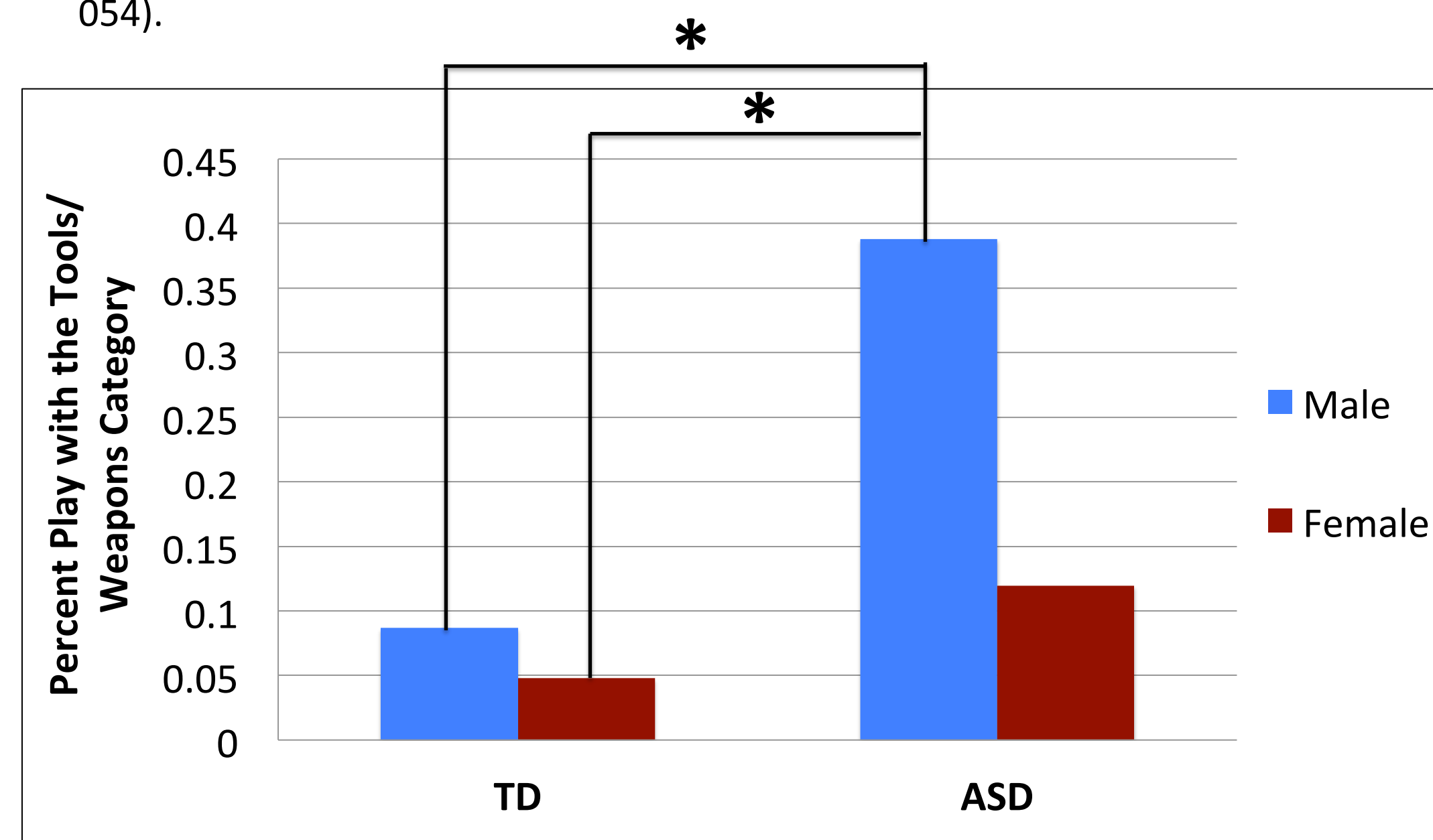


Figure 1: The relationship between sex, diagnosis, and percent play with the Tools/Weapons category.

## Results, Cont.

### Domestic Category

- Children with ASD played with the Domestic category significantly less than TD children ( $F(1,21)=4.954, p=.037$ ).
  - Boys with ASD played with the Domestic category significantly less than TD girls ( $p=.017$ ) but did not differ from TD boys ( $p=.159$ ) or girls with ASD ( $p=.271$ ).
  - Girls with ASD did not differ in their play with the Domestic category when compared with TD girls ( $p=.239$ ) and TD boys ( $p=.879$ ).
- Boys played with the Domestic category less than girls ( $F(1,21)=4.139, p=.055$ ).

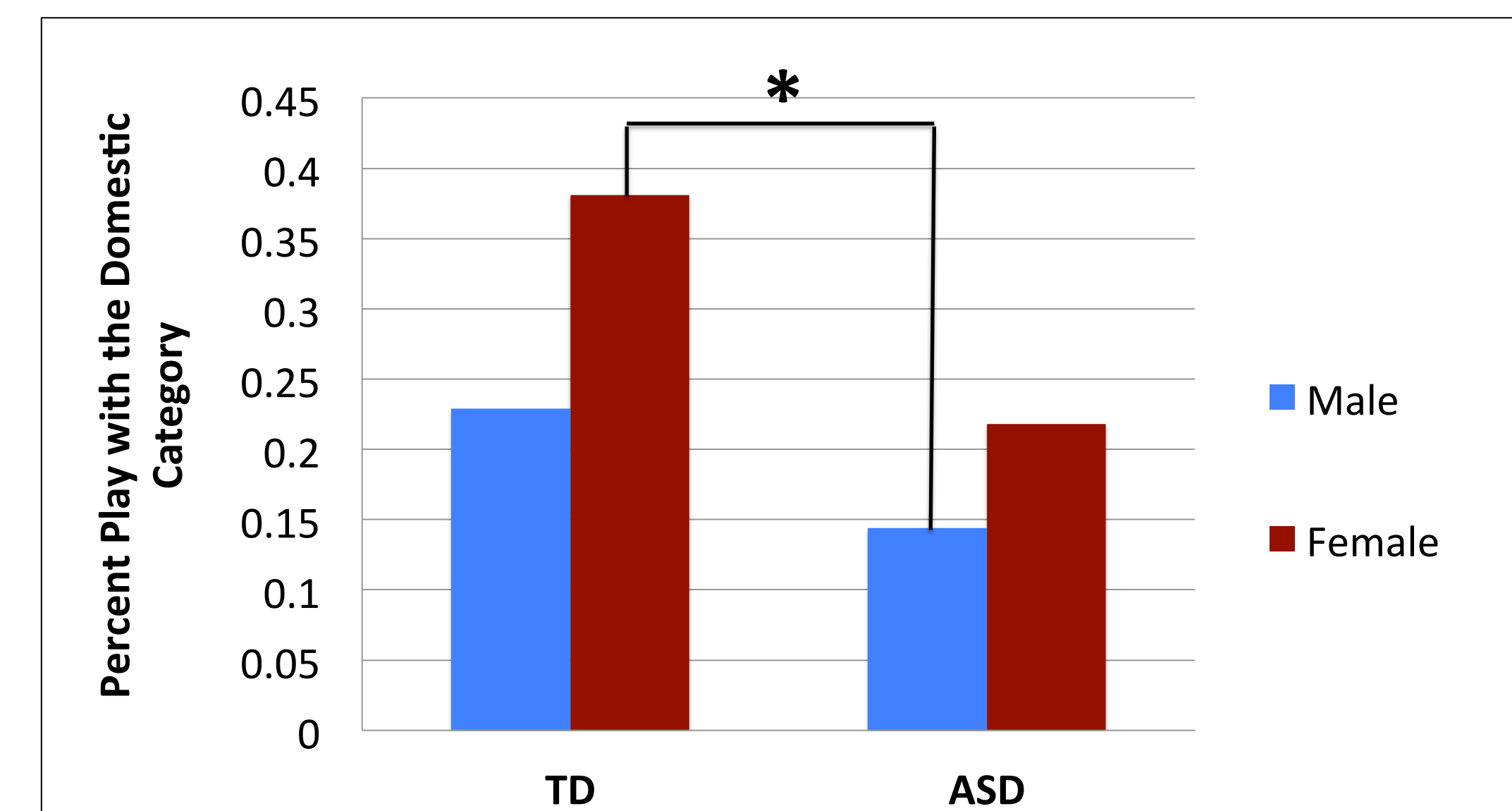


Figure 2: The relationship between sex, diagnosis, and percent play with the Domestic category.

## Discussion

- More play with the Tools/Weapons category and less play with the Domestic category appear to characterize both ASD and male groups, suggesting that the phenotypic profile of ASD may resemble male-typical behavior during toy play.
- Boys with ASD played significantly more with the Tools/Weapons category and less with the Domestic category compared to TD girls.
- Unlike boys with ASD, girls with ASD did not differ from TD girls or TD boys during toy play.
- This finding supports the social camouflage theory, suggesting that girls with ASD resemble the behavioral profile of TD girls and TD boys more closely than boys with ASD during toy play.

## References

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