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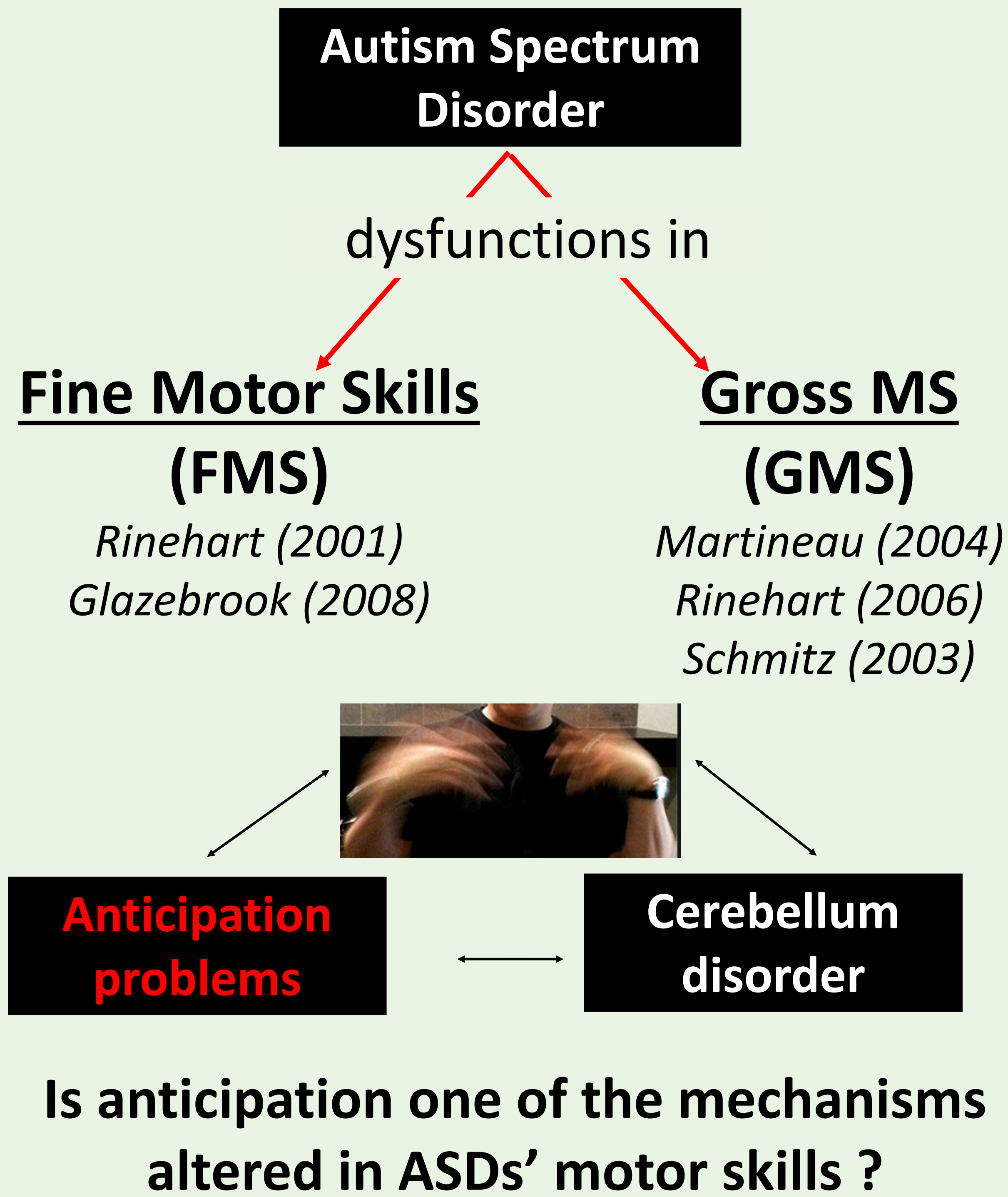
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# Motor anticipation is disrupted during fine and gross motor control in ASD children

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## Introduction



## Method

**30 ASD** (8,8 years; 11 girls) | **30 TD** (8,6 years; 17 girls)

**Tasks**

**FMS : Writing Anticipation (WA)**  
2 digrams :  
10 ll + 10 ln  
Kandel & Perret (2015)

**GMS : gait initiation, Anticipatory Postural Adjustments (APA)**  
3D motion-capture (Vicon)  
2 force plates

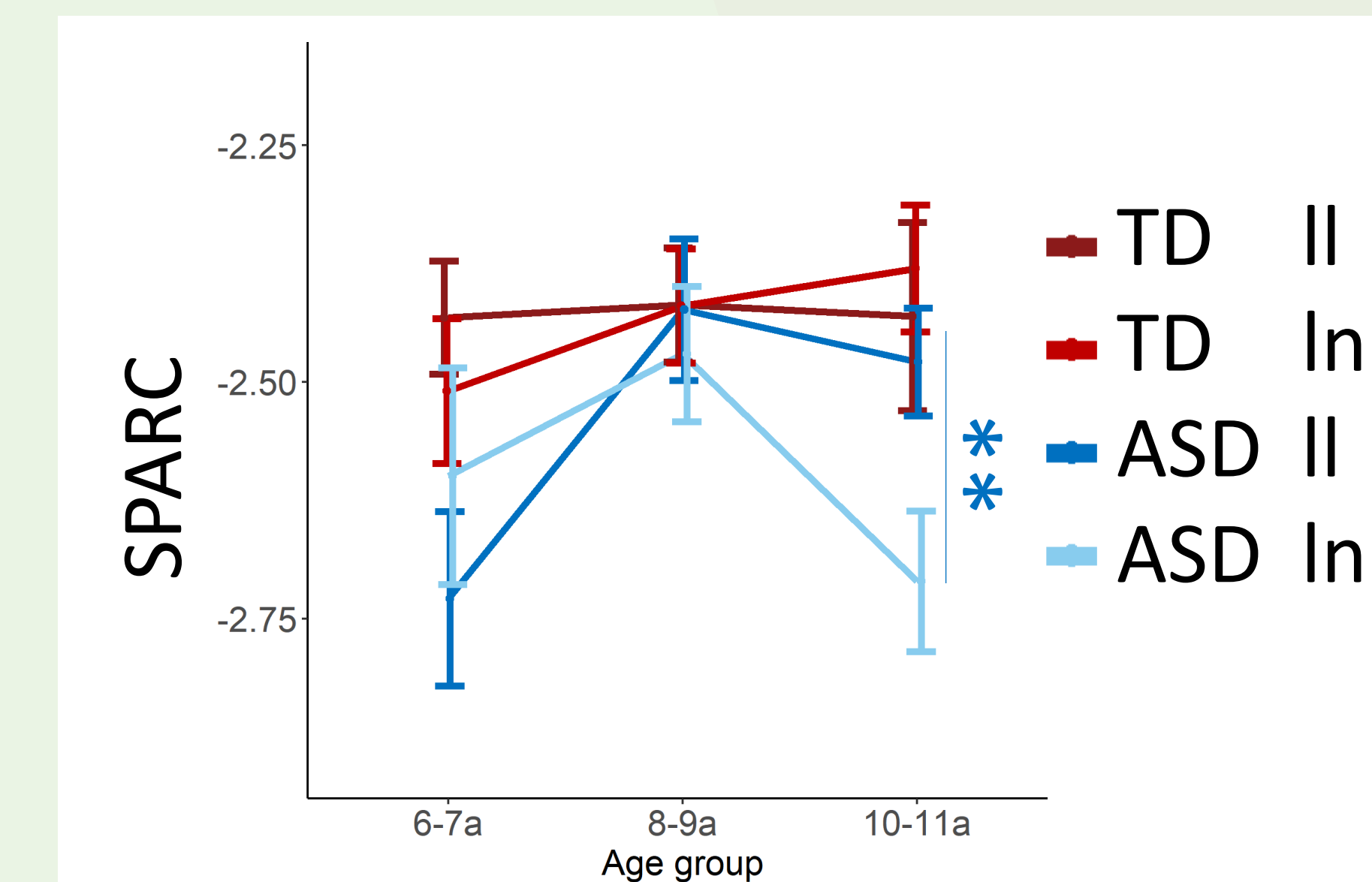
**MoS : Margin of Stability (MoS = XcoMp - CoP) at Foot-Off (FO)**  
Hof et al. (2008)

Fluidity 1<sup>st</sup> L : SPARC (Balasubramanian et al., 2012)

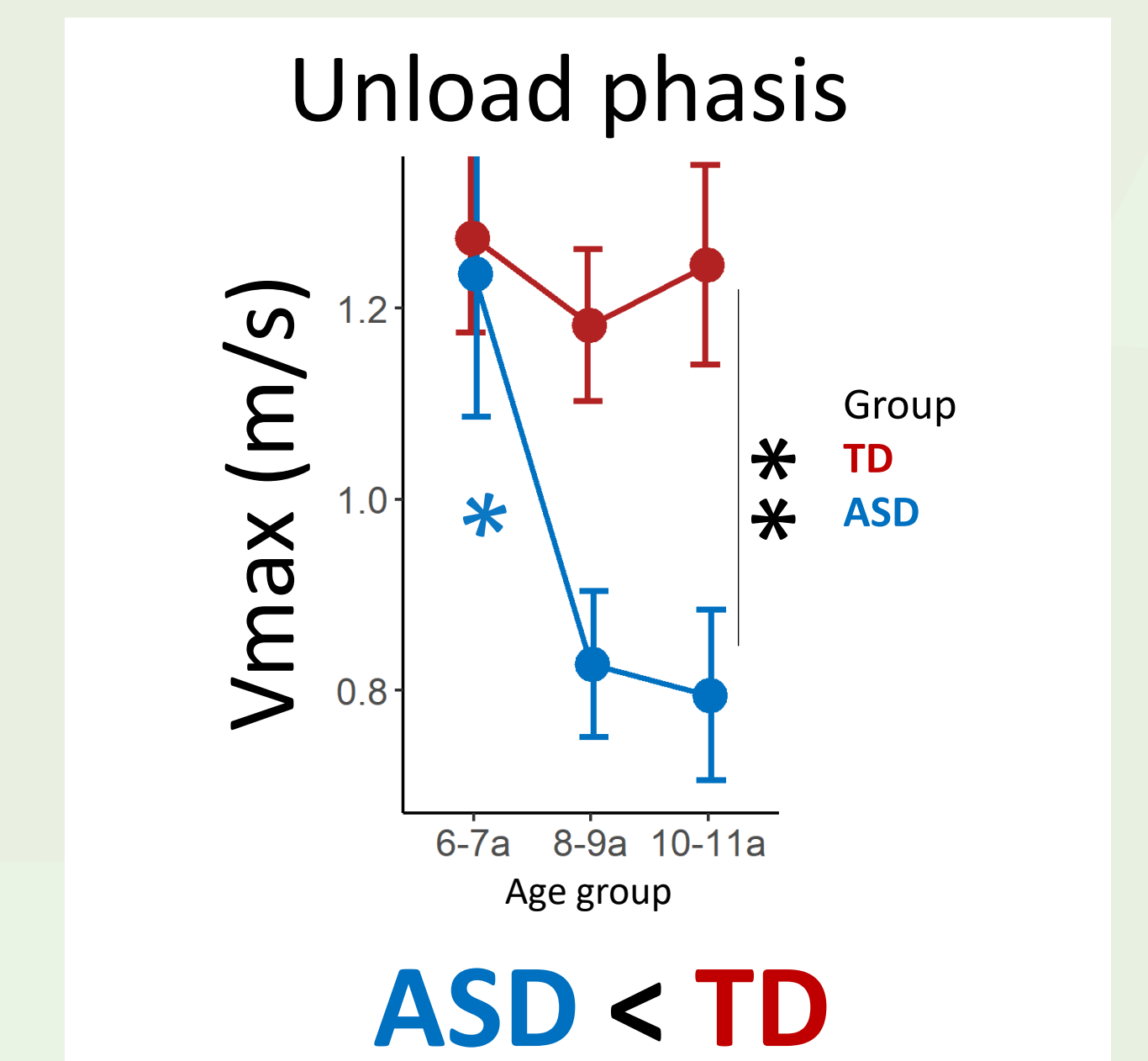
FMS + GMS: duration, velocity, length for the different task phases  
Stats: ANOVA (FMS) ; Mann-Withney (GMS)

## Results

### WA: SPARC

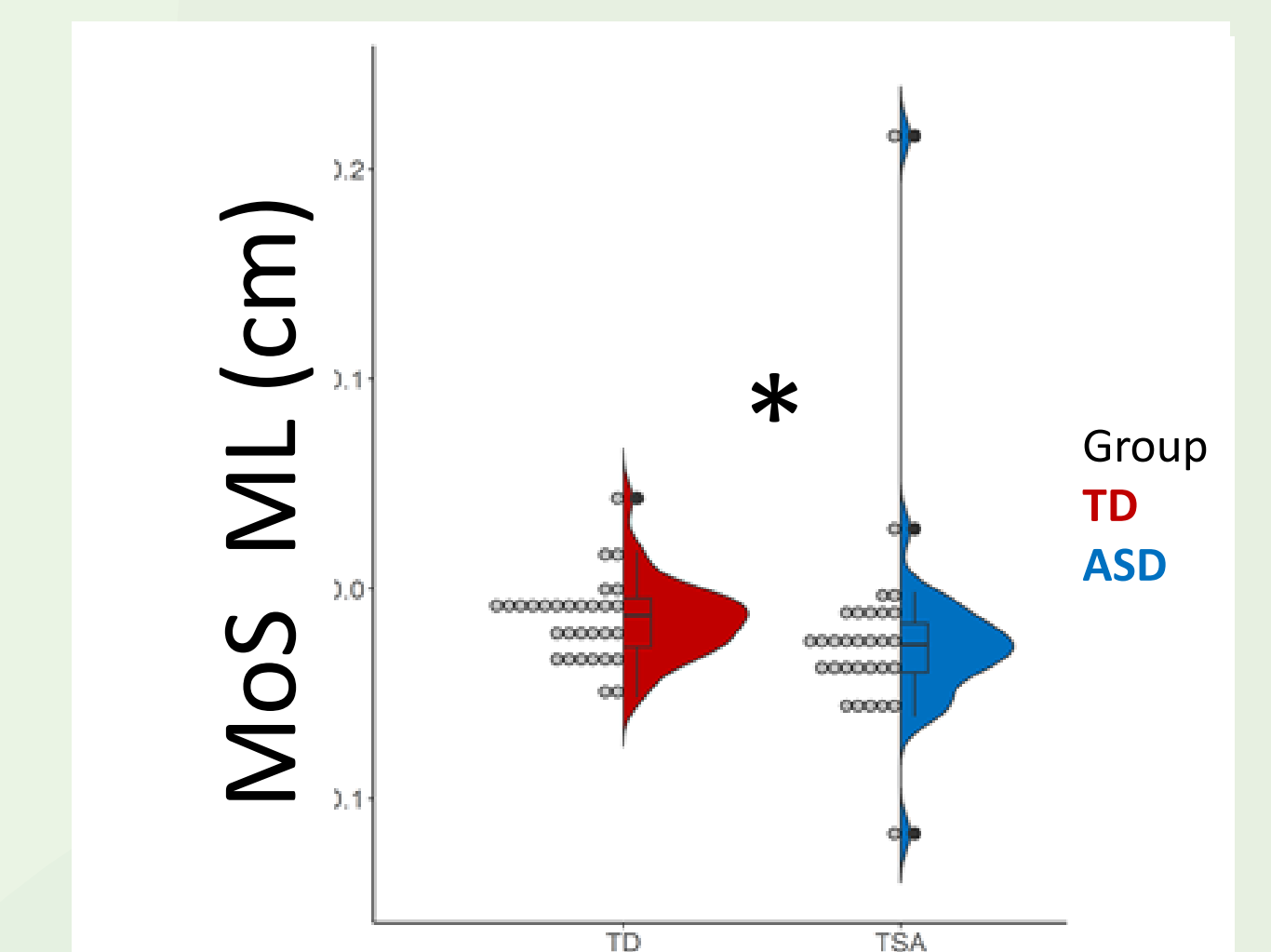


### APA: Velocity max MedioLat



ASD < TD

### MoS ML



ASD > TD

\*\* p < .01

\* p < .05

- **WA** : ASD children can anticipate the difficulty of the 2<sup>nd</sup> digram, but they produce less smooth gesture than TD children.
- **APA** : greater distance between the Centre of foot Pressure and the Centre of Mass = ASD children encountered greater instability at foot-off.
- ➔ **Anticipatory adjustments in FMS and GMS are atypical in ASD children.**



Since the cerebellum interferes with the execution of anticipated motor programs (Mosconi, 2015), might it be at the origin of the deficient anticipated control?