

# Coordination difficulties in autistic adults: Raising the profile

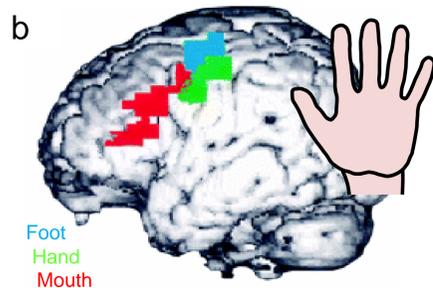
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## INTRODUCTION

- Coordination difficulties occur in >70% of autistic individuals.<sup>1</sup>
- They can include poor eye-hand coordination (e.g. difficulties with writing, ball catching, grasping objects), altered walking patterns and unstable balance.
- Occur in early childhood<sup>2</sup> and persist into adulthood.<sup>1</sup>
- Reduced coordination is important because it:
  - Affects daily living skills - dressing, preparing food, moving around.
  - Is linked to anxiety.
  - Good coordination skills support social interactions.
    - For taking part in joint activities (Fig 1a) and participation in social sports games.
    - Our brains motor circuitry is involved in interpreting other people's actions.<sup>3</sup> The coloured areas in Fig.1b show parts of our brain that are used to make actions with different body parts. If we see someone waving their hand, the part of our brain that is used to make our own hand actions will also become active, helping us to understand that action.
- Despite this significance, the cause and impact for autistic adults is unknown. Here are some ideas we would like to research.



**?** What did you know about coordination difficulties in autism before you read this poster?

Fig 1. Good coordination supports social interactions

## THEME 1: WHAT ARE THE CHARACTERISTICS?

- Current methods of measuring coordination skills lack detail (e.g. measuring how long a person can stand on one leg).
- We plan to measure coordination in autistic adults using detailed motion tracking devices (Fig. 2) in order to find out:
  - Is there a specific pattern of coordination difficulties that could be used to help autism diagnosis?
  - Can coordination difficulties be grouped into specific types? This is useful to know when deciding on therapy and support.

**?** Have you noticed particular coordination difficulties that seem to be common in autistic individuals?



Fig. 2. Motion tracking will be used to record people picking objects up, imitating, balancing and walking

## THEME 2: WHAT ARE THE CAUSES?

- We will look at whether coordination difficulties are due to problems combining incoming sensory information such as vision with an action (Fig.3).

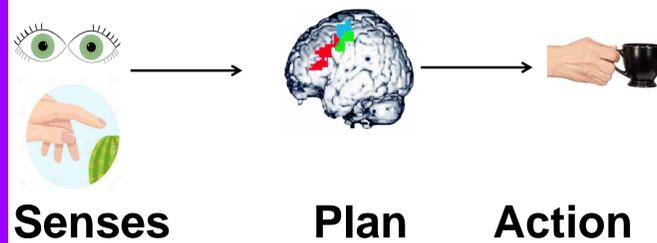


Fig. 3. Our brains combine sensory input (e.g. vision/touch) to make a plan of how to perform an action. Coordination difficulties might arise because the way the brain processes sensory information is altered or the mechanisms used to change this sensory information into a plan for action are faulty.

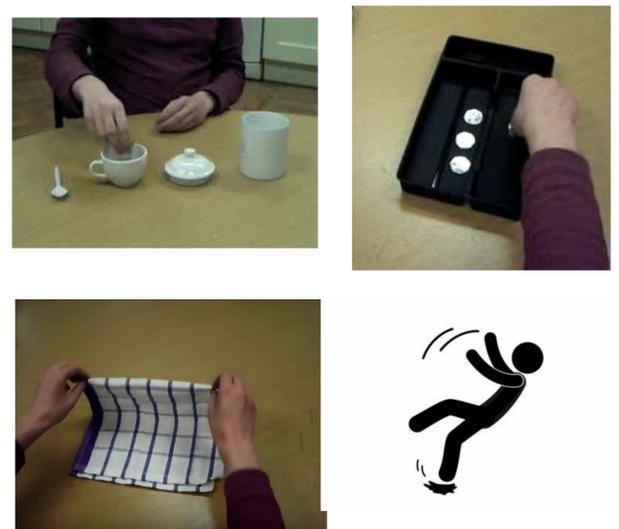
**?** Are there particular tasks or situations when coordination difficulties are more or less noticeable for autistic individuals?

## REFERENCES

1.Gowen & Hamilton (2013). J Autism Dev Disord. 43(2), 323-344; 2. Landa et al. (2013). Child Development. 84 (2),429-442  
3.Avenanti, A., Candidi, M., & Urgesi, C. (2013). Front Hum Neurosci, 7,185

## THEME 3: WHAT IS THE IMPACT FOR AUTISTIC ADULTS?

- The consequences of poor coordination is unknown, but could have a significant impact on ability to carry out daily living skills as well as increase the risk of falls due to poor balance.



**?** What daily living tasks do you or your family find difficult? What aspects of coordination would you like to improve? Do you think falls are more common in autistic than non autistic-adults?