

DEPARTMENT OF MOVEMENT AND SPORT SCIENCES

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# GAZE BEHAVIOUR DURING DAILY TASKS IN YOUNG ADULTS WITH DEVELOPMENTAL COORDINATION DISORDER

## INTRODUCTION

Individuals with **Developmental Coordination Disorder (DCD)** have a lower level of execution and acquisition of coordinated motor skills and this interferes with their activities of daily life. Until now, the **etiology** of the impairments remains **unclear**. Although, previous research indicated some contributing factors of which **impaired visuospatial processing**<sup>1</sup> and **impaired oculomotor function**<sup>2</sup> seem to be very important.

### What has been found in laboratory tasks<sup>3</sup>

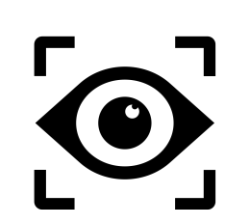
- Longer foveation periods
- Breakdown in close eye-hand coupling
- Slower and less accurate movements



Impaired oculomotor processes



Impaired motor coordination



No research has been done into the oculomotor behaviour of individuals with DCD in a **daily setting**.

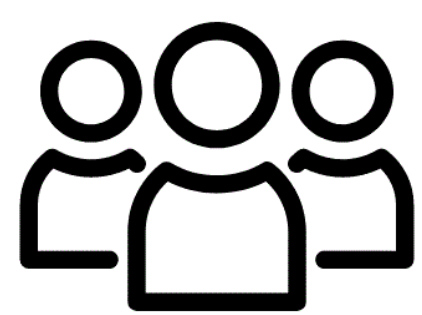


## AIM OF THE STUDY

Explore differences and similarities in gaze behaviour between typically developed individuals and those with DCD during daily tasks.

## METHODS

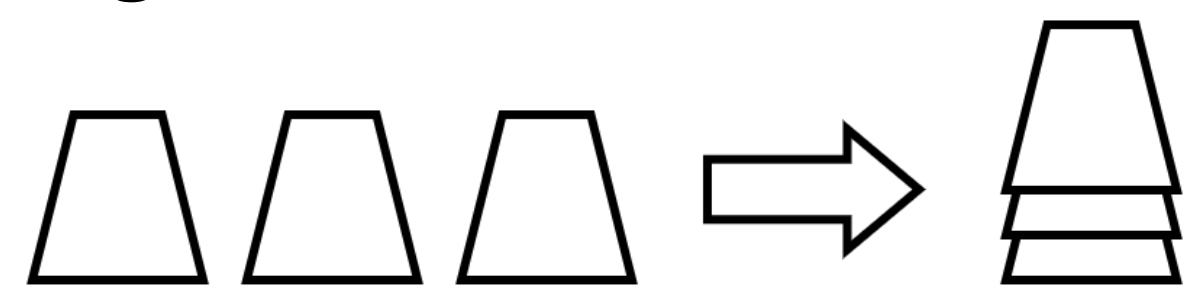
### PARTICIPANTS



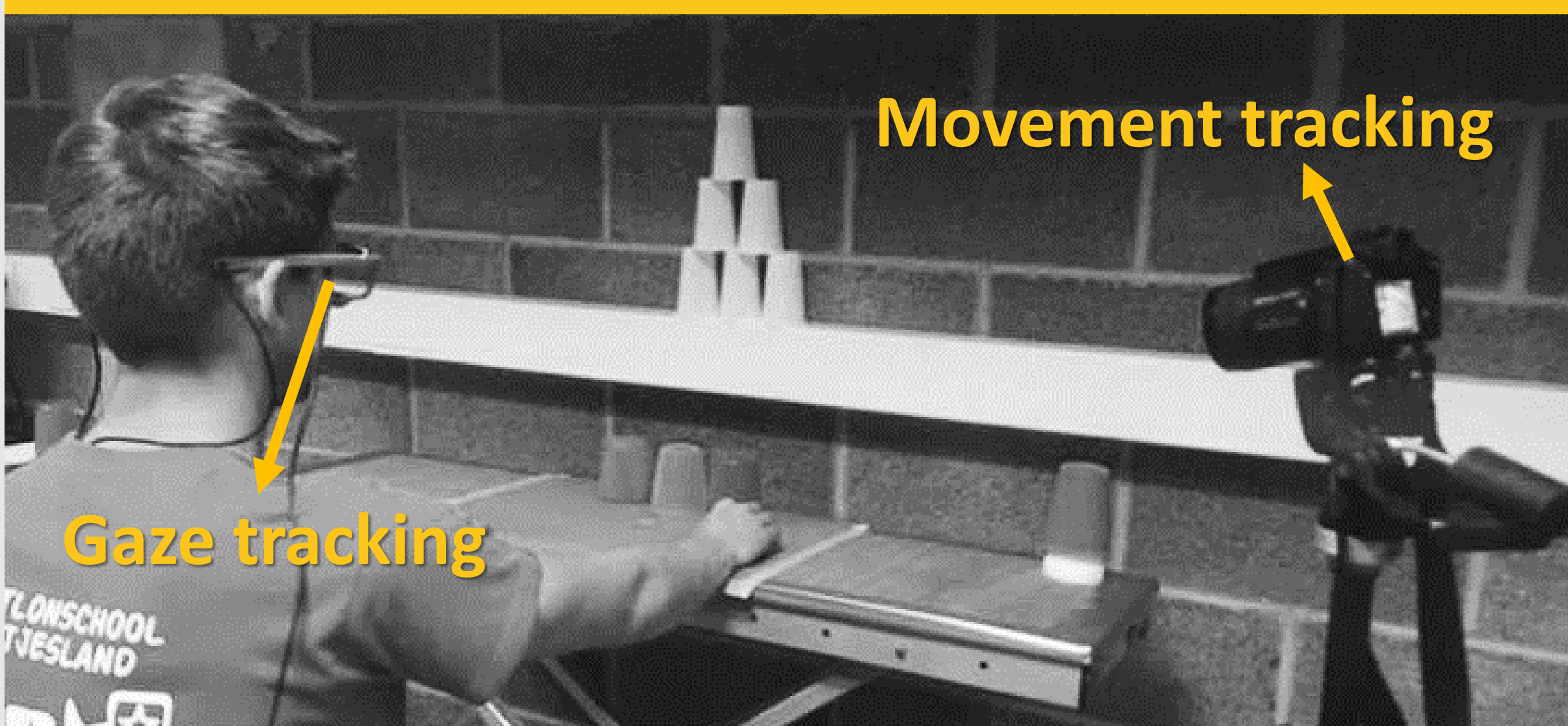
6 individuals with DCD  
6 typically developed individuals

### TASK

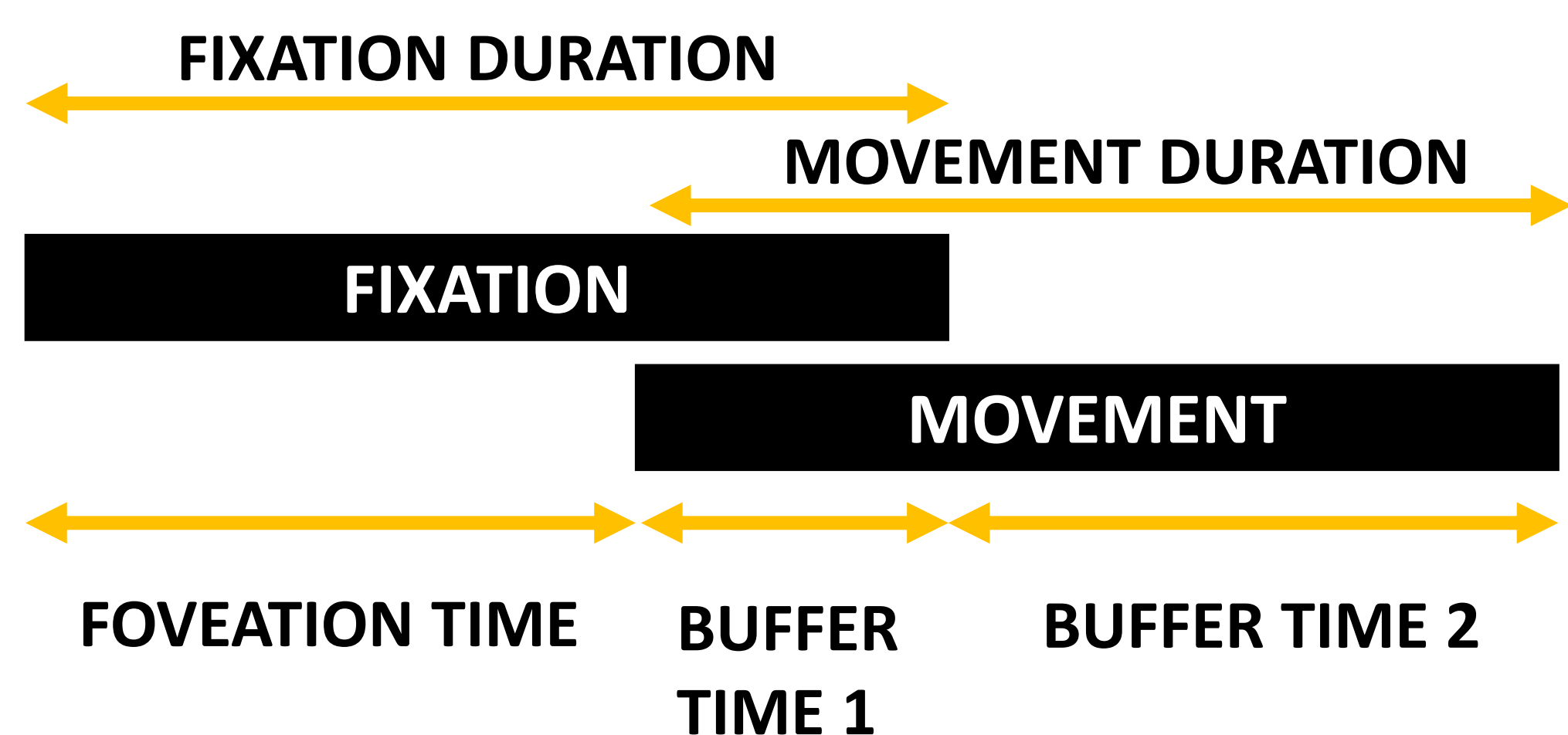
#### One-handed cup stacking task



### SET-UP



### VARIABLES



## RESULTS

### DCD:

- Slower movement execution
- Less stable fixations



Individuals with DCD do not need more time and/or visual information to start their action

Hand starts to move before gaze shifts to the next target

No need to memorize visual information of the target, **no buffering of information**

**DCD:** postpone the saccade to the following target longer

Large within and between group variability

→ **Inconsistent eye-hand coupling**

## CONCLUSIONS

- ✓ Except for foveation time, the results of this study are **consistent** with previous research
- ✓ **Slower execution** of action in daily tasks might be due to **differences in oculomotor behaviour** in young adults with DCD
- ! Further research on **larger samples** is required

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<sup>1</sup> Wilson, P. H., & McKenzie, B. E. (1998). Information Processing Deficits Associated with Developmental Coordination Disorder : A Meta-analysis of Research Findings. *J. Child Psychol.*, 39(6), 829–840.

<sup>2</sup> Sumner, E., Hutton, S. B., Kuhn, G., & Hill, E. L. (2016). Oculomotor atypicalities in Developmental Coordination Disorder. *Developmental Science*, 1–12.

<sup>3</sup> Wilmut, K., Wann, J. P., & Brown, J. H. (2006). Problems in the coupling of eye and hand in the sequential movements of children with Developmental Coordination Disorder. *Child: Care, Health and Development*, 32, 665–678.