1. Background & Aim

- **Motor Imagery**: imagining an action without physical execution of the movement1
- Measures of Motor Imagery vary according to the degree of awareness required to solve a task: more implicit vs more explicit measures2-2
- **Dissociations** have been reported between implicit vs explicit measures3
- Confounding factors need to be controlled for4: such as using Visual Imagery instead of Motor Imagery strategies to solve the task.
- Motor Imagery is often explored in hands (e.g., Hand L laterality Task4), the whole body (e.g., Full Body Rotation Task5), and less often in lower body parts (e.g., Foot L laterality Task6)
- Anatomical, functional, and sensory differences7-8 in these body districts suggest that our action-related representations of these body districts might not be the same and we can test this using implicit and explicit measures

**Research Question 1**
Are there differences between hands, feet, and the whole body in more implicit motor imagery tasks?

**Research Question 2**
Are there differences between hands, feet, and the whole body in more explicit motor imagery tasks?

2. Methodology

**I. Sample**
- 60 healthy participants (age, M = 26.68, SD = 8.22) without sensory, neurological or psychiatric impairments

**II. Measures**
- **Screening Questionnaire** to ensure eligibility requirements are met
- **General Questionnaire** to describe sample characteristics
- **Limb Laterality Preference**9 for Hands and Feet
- **Implicit Association Test (IAT)**10 – Action representations for Hands, Feet and Whole Body. Outcome: D Score11-12 from -2 to 2, with |1.15| > : no association, |1.15| - |.35|: weak association, |.35| - |.65|: medium association, |.65| < : strong association
- **Mental Motor Chronometry (MMC)** for Hands2 and adapted for Feet and Whole Body. Outcome: Strength of Isocrony15 (Isocrony: correlation between Reaction Times of Motor Imagery & Motor Execution) through Fisher’s r to z transformation16-17
- **Vividness of Visual Imagery (VVI)** for Hands13-14 and Feet and Whole Body. Outcome: Vividness score (1-5), the higher the score, the higher the image clarity

3. Results

**Research Question 1**
Are there differences between hands, feet, and the whole body in more implicit motor imagery tasks?

Hands: weak association “My hand is moving”

Feet & Whole Body: no associations

A one-way repeated measures ANOVA revealed no main effect of body district $[F(2, 118) = .89, p = .41, n_p^2 = .01]$

**Research Question 2**
Are there differences between hands, feet, and the whole body in more explicit motor imagery tasks?

**I. Vividness of Visual Imagery (VVI)**

A one-way repeated measures ANOVA revealed a significant main effect of body district $[F(1.80, 106.07) = 9.67, p < .001, n_p^2 = .14]$

**II. Mental Motor Chronometry (MMC)**
- **Isocrony** was present in each body district
- Strength of isocrony did not differ between the body districts

4. Discussion

- Our findings suggest that Motor Imagery does not vary between body districts and across tasks (implicit or explicit)
- This finding is not due to Visual Imagery differences, as the visual imagery data indicate clearer imagery for the whole body compared to hands and feet
- The dissociation between the Visual Imagery & Motor Imagery results could be explained by (a) the different imagery ability components involved in the Visual Imagery (image generation) and Motor Imagery (image maintenance)1 and/or (b) the dissociation between Body Schema (Motor Imagery) and Body Structural Description (Visual Imagery)18

References

[3] VIVI Score Means and SEs

(Motor Imagery: imagining an action without physical execution of the movement)

(Imagery: the one and that Body factors Imagery between or Out as (image tasks significant revealed 3 findings suggest 10(4), 507 Visual explicit not psychiatric Visual = Imagery) the Ac sensory, different districts Imagery): across motor imagery tasks? and/or impairs the and/or limbs and/or...