Body-based mental imagery and body image disturbances

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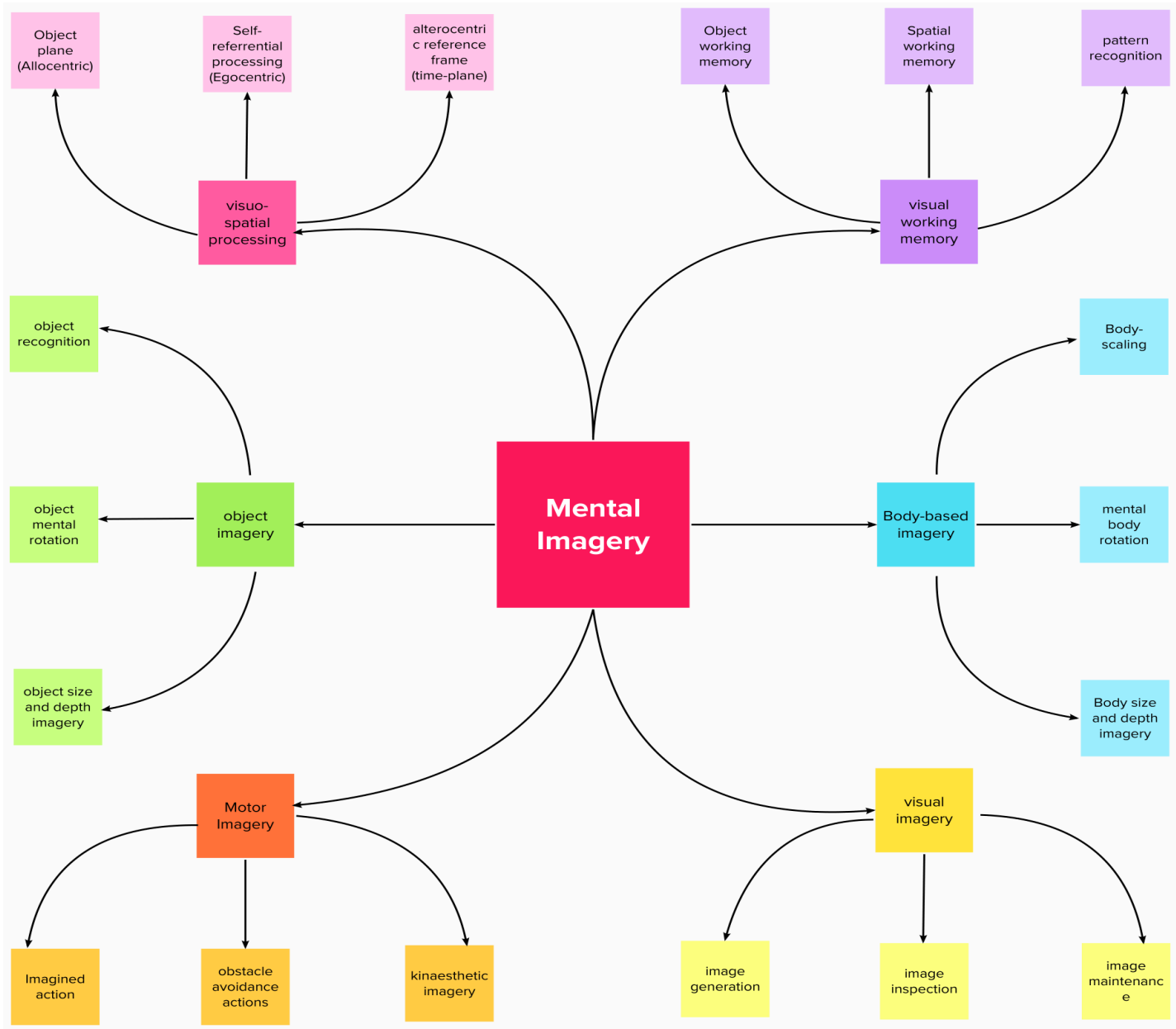
What is mental imagery?



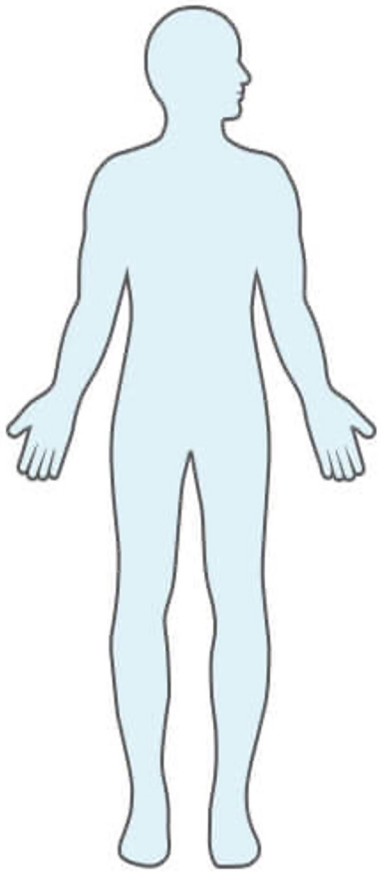
Akansha Mahesh Naraindas, Sarah Maeve Cooney. Assessing body-related mental imagery in individuals with Anorexia Nervosa and Bulimia Nervosa. PROSPERO 2022 CRD42022358412 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022358412

Pubmed, Psycinfo, EBSCO

The Allocentric lock Theory: (Riva 2012; Riva 2018)

EXTERNAL:
e.g. Perception

Sociocultural factors
- Self surveillance
- Body shame
- Body shape concern



Body representation:
Sensory inputs update body representation in memory: mental imagery

INTERNAL:

Interoception:
Awareness of perception of sensations from inside the body

Proprioception:
postural and spatial information of the body

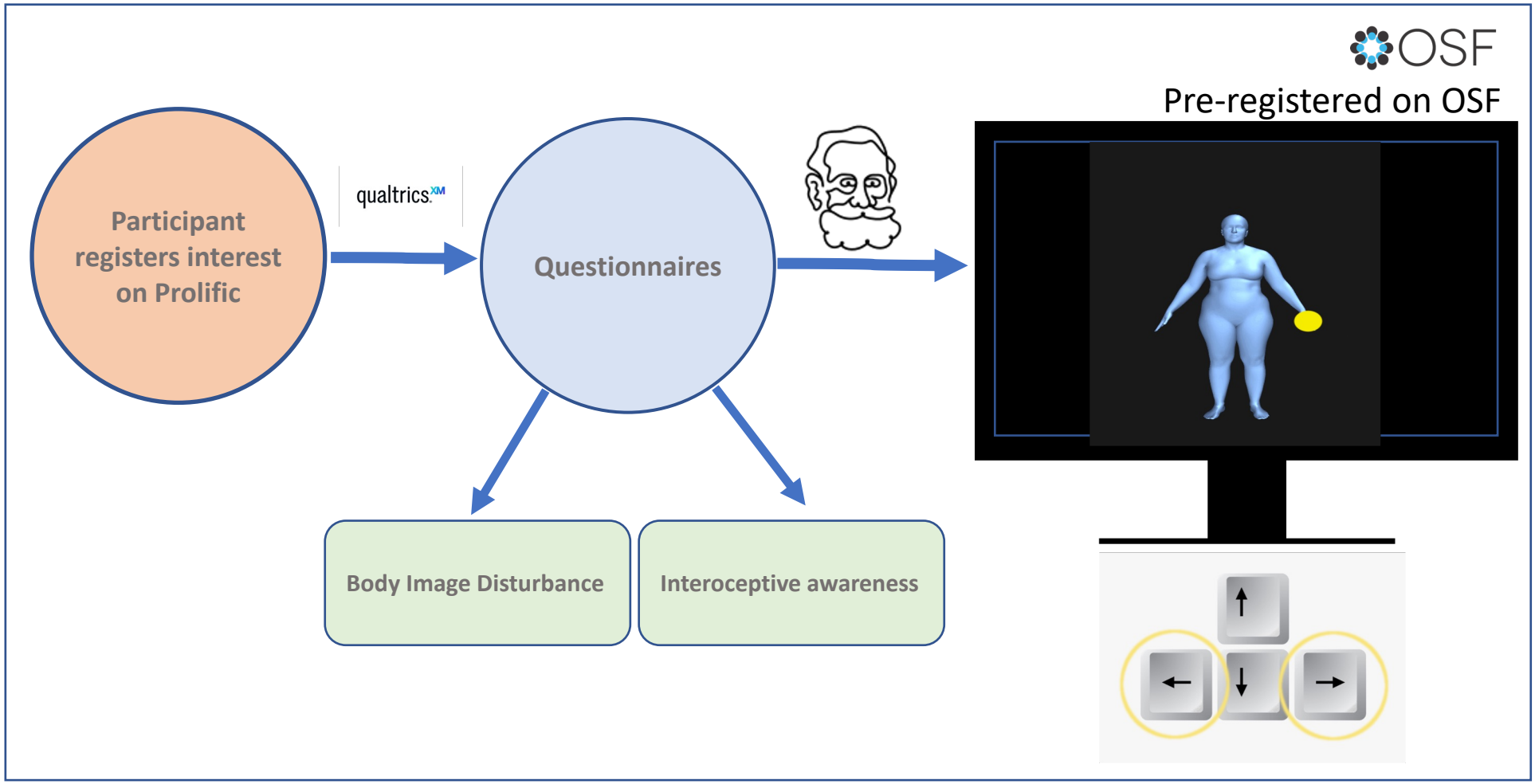
Body image disturbance is the outcome of misprioritization of sensory signals:
Dysfunction in Internal body state *(Tsakiris, 2011)* +
External body state *(Keizer et al, 2011)* =
Disturbed stored representation of the body in memory.

The Allocentric lock Theory: (Riva 2012; Riva 2018)

Age groups

N= 1500

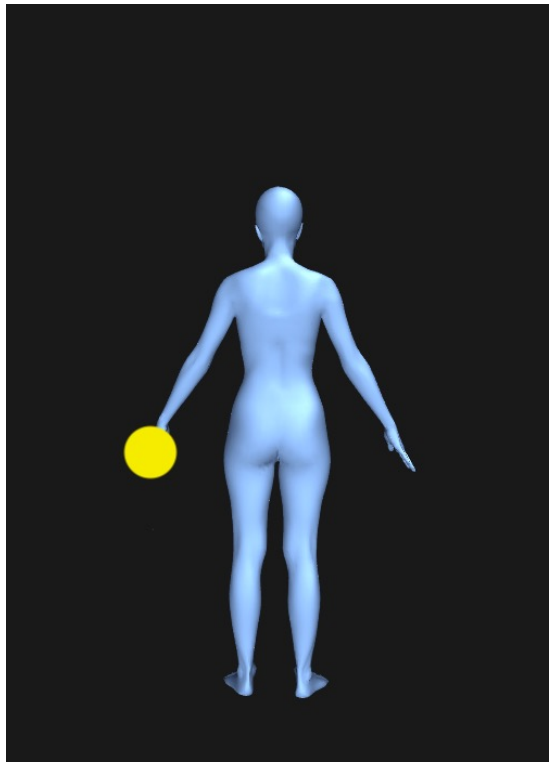
- Young Adults (18-24)
- Adults (25-39)
- Middle adults (40-59)
- Older adults (60-75)

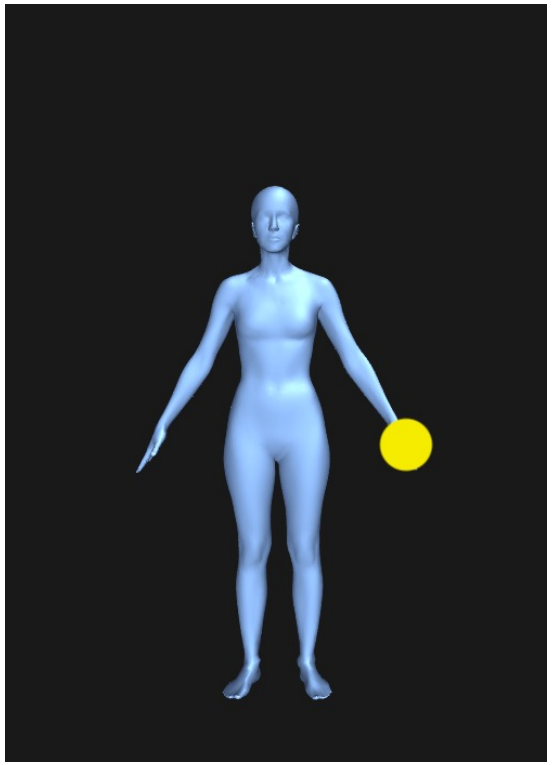


THE BIAS-S STUDY

Project funded by UCD Ad Astra Studentship

Which hand?





Blanke O, Mohr C, Michel CM, Pascual-Leone A, Brugger P, Seeck M, Landis T, Thut G. Linking out-of-body experience and self processing to mental own-body imagery at the temporoparietal junction. J Neurosci. 2005 Jan 19;25(3):550-7. doi: 10.1523/JNEUROSCI.2612-04.2005. PMID: 15659590; PMCID: PMC6725328.

How does body image disturbance change across female adulthood?

N=1500

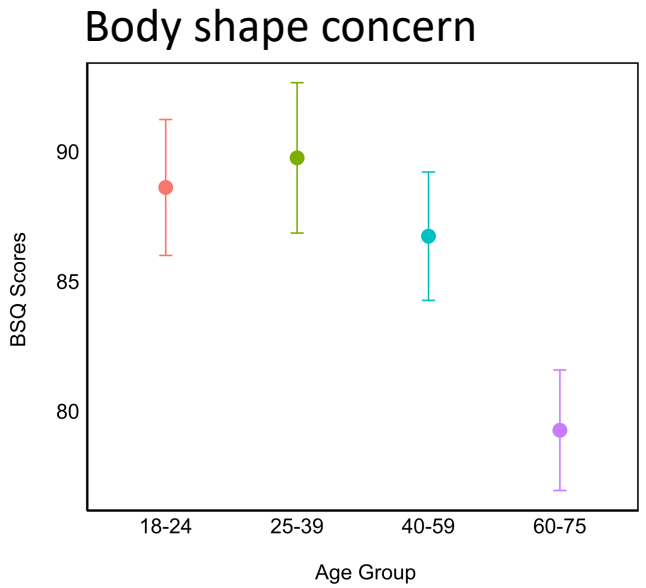


Figure 2. Mean body shape concern scores by age group

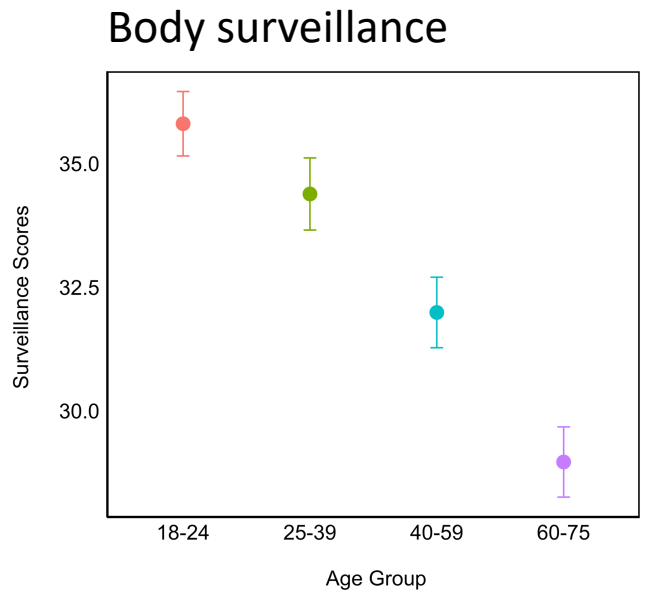


Figure 3. Mean body surveillance scores by age group

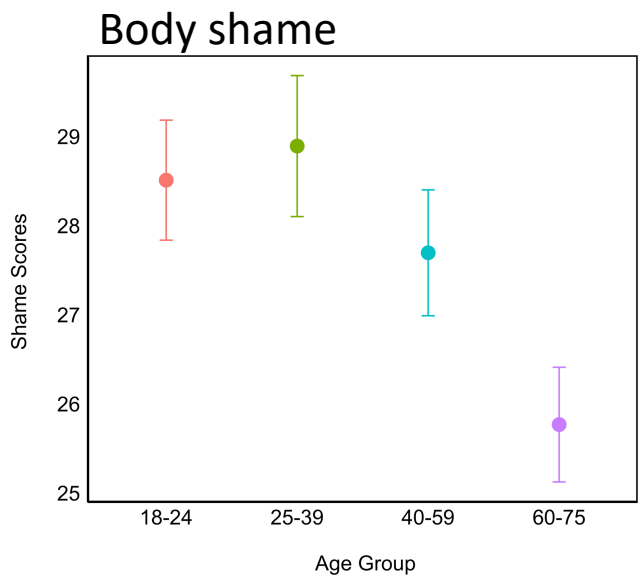


Figure 4. Mean body shame scores by age group

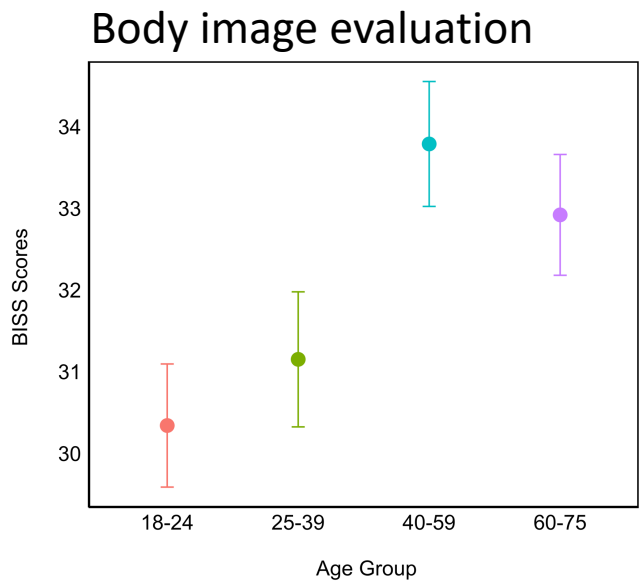
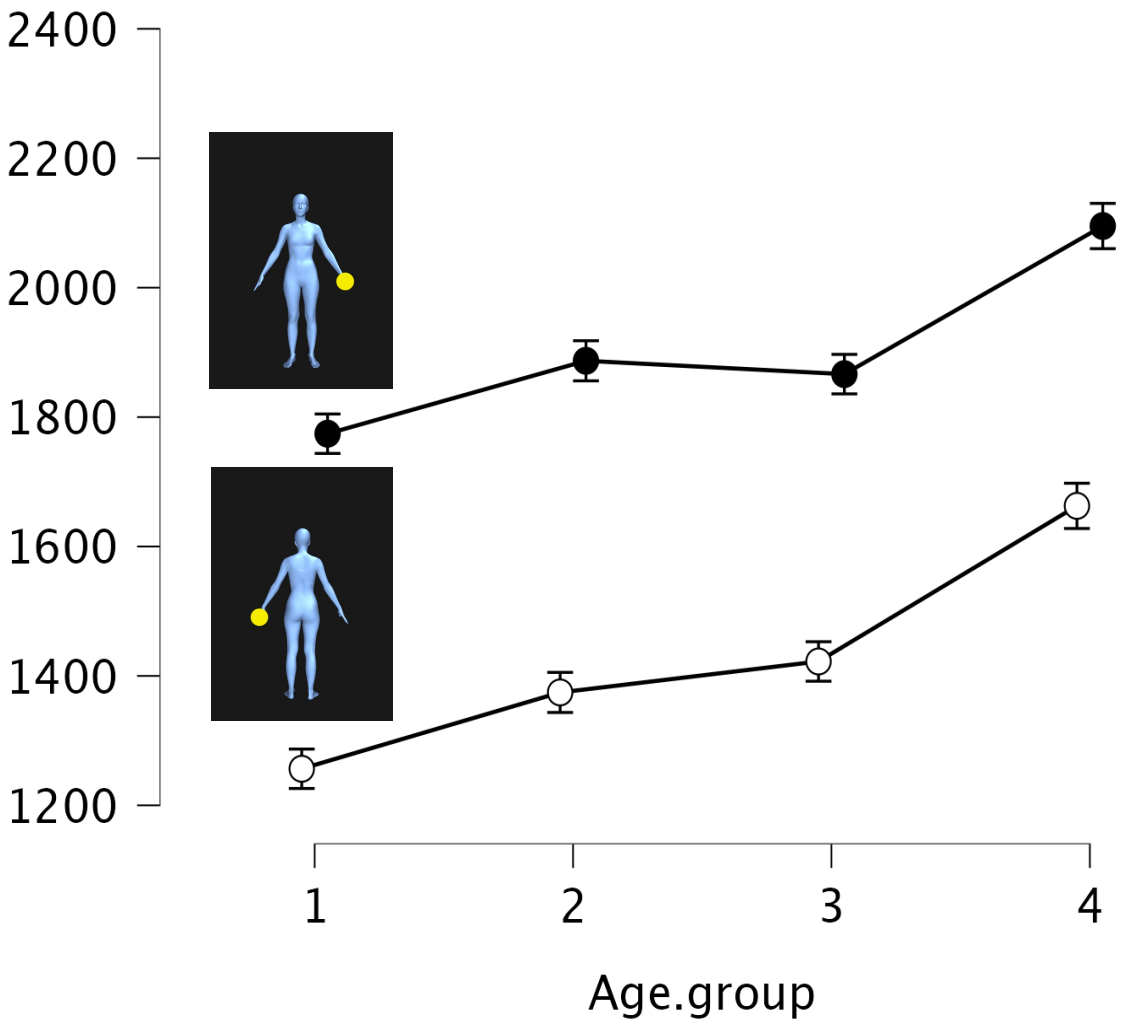


Figure 5. Mean body image state scale scores by age group



Composite BID (Z) predicted transformation cost R^2 = .09, F(4, 1500) = 65.276, p=0.01)

Figure 6. plot showing Mean reaction times (ms) and 95 CI for Frontfacing and Backfacing figures across 4 age groups; 1 = Young Adults, 2 = Adults, 3 = Middle Adults and 4 = Older Adults

Mental imagery considerations

- How has body based mental imagery been measured?

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- Are surface based markers related to how accurate healthy individuals are in estimating their body size and shape from mental imagery, as measured on a 3D avatar?

Mapping body size estimation accuracy to brain regional cortical thickness – size and shape imagery - how accurately can we imagine our bodily dimensions.

How best do we measure online mental imagery/motor imagery/ visuospatial ability? What physiological indices can we use? (some advice for my study 3)

- Eye tracking studies for low level visual imagery
- Virtual reality – apertures, gait, rotation
- EEG?

How best can we capture body based mental imagery (accuracy estimation indices)

If you have an idea

- Email: akansha.maheshnaraindas@ucdconnect.ie
- Tweet: 02_akansha

Thanks!