Introduction

- Dominance hierarchies exist in most primate species
- To date few physical markers of dominance have been identified
- The facial width-to-height ratio (fWHR) is associated with dominant behaviour in human males
- Higher fWHR is perceived as more dominant in human males
- What about non-human primates?

Predictions for Capuchin monkeys

1. fWHR increases in males during maturation: links to Testosterone
2. fWHR is sexually dimorphic in adults but not juveniles
3. fWHR is linked to alpha-status & dominance

Study Sample: Capuchin Monkeys

- 9 groups
- 29 female, mean age 12.9 SD = 10.1 years
- 35 male, mean age 9.1 SD = 8.6 years
- 43 Adults: age > 6 years
- 18 Alpha individuals (9 female)

Method

- Frontal facial photographs taken within 1 year (mean = 4.7 images per individual)
- Facial width-to-height ratio measured from photographs and averaged per individual (see example images)
- Keeper personality ratings of individuals yielded ‘Assertiveness’ factor – used as measure of dominance

1. fWHR changes with age

   - Males: \( r = .66, p < .001 \)
   - Females: \( r = .17, \text{ns} \)

2. Adult sex differences

   - Males: \( r = .66, p < .001 \)
   - Females: \( r = .17, \text{ns} \)

3a. fWHR and \( \alpha \) status

   - *p < .001

3b. fWHR and assertiveness

   - Males: \( r = .63, p < .001 \)
   - Females: \( r = .42, p < .05 \)

Conclusion

Findings

- fWHR is dimorphic in adult capuchins
- In males fWHR increases with age, perhaps related to testosterone
- fWHR predicts two independent measures of dominance in males, and one measure in females

Interpretations

- fWHR may be associated with masseter muscle size and bite-strength
- fWHR may indicate a robust skull that can withstand impacts
- fWHR cues dominance in primates