

Exploring Groove and Syncopation Preference Development in Infants

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INTRODUCTION

- In musical rhythm, syncopation is a form of complexity commonly used in music and dance music in particular
- Rhythms with a medium amount of syncopation elicit more urge to move than low syncopation rhythms in adults and young children aged 3-6 [1]
- Infants may have the same medium > low syncopation bias as older children and adults, or may have a bias for low syncopation
- Previous work [2] found that infants had a bias for a single low syncopation rhythm compared to a medium syncopated rhythm, but we do not know whether this bias will generalize to a fuller set of rhythms

RESEARCH QUESTION

- **Do infants prefer medium over low syncopation rhythms, as older children and adults do?**
- **Is syncopation bias associated with infant age, or parent or infant musical experience?**

METHODS

- Infants aged 7-18mo (n = 22)
- Stimuli were 4 low and 4 medium syncopation drum rhythms (4.2 s) used previously [1, 3]
- Infants selected which type of rhythm to hear by touching images on a tablet (see Figs 1 & 2.)
- Selection proportions indicate bias (low vs. medium syncopation)
- Video recordings of sessions will be used to assess whether spontaneous movement or affect differ for medium vs. low syncopation rhythms

METHODS



Fig. 1 Infant interacting with touchscreen tablet

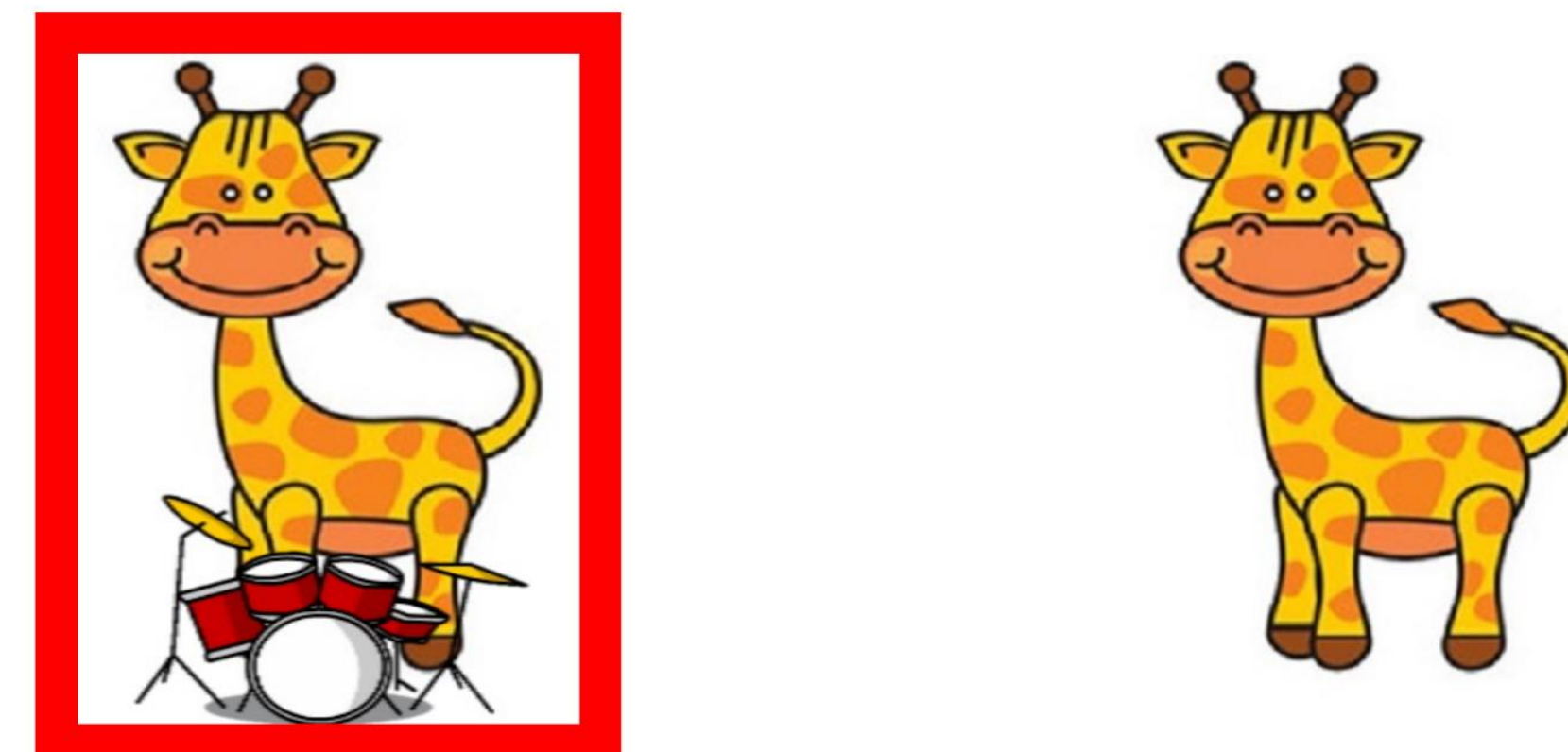
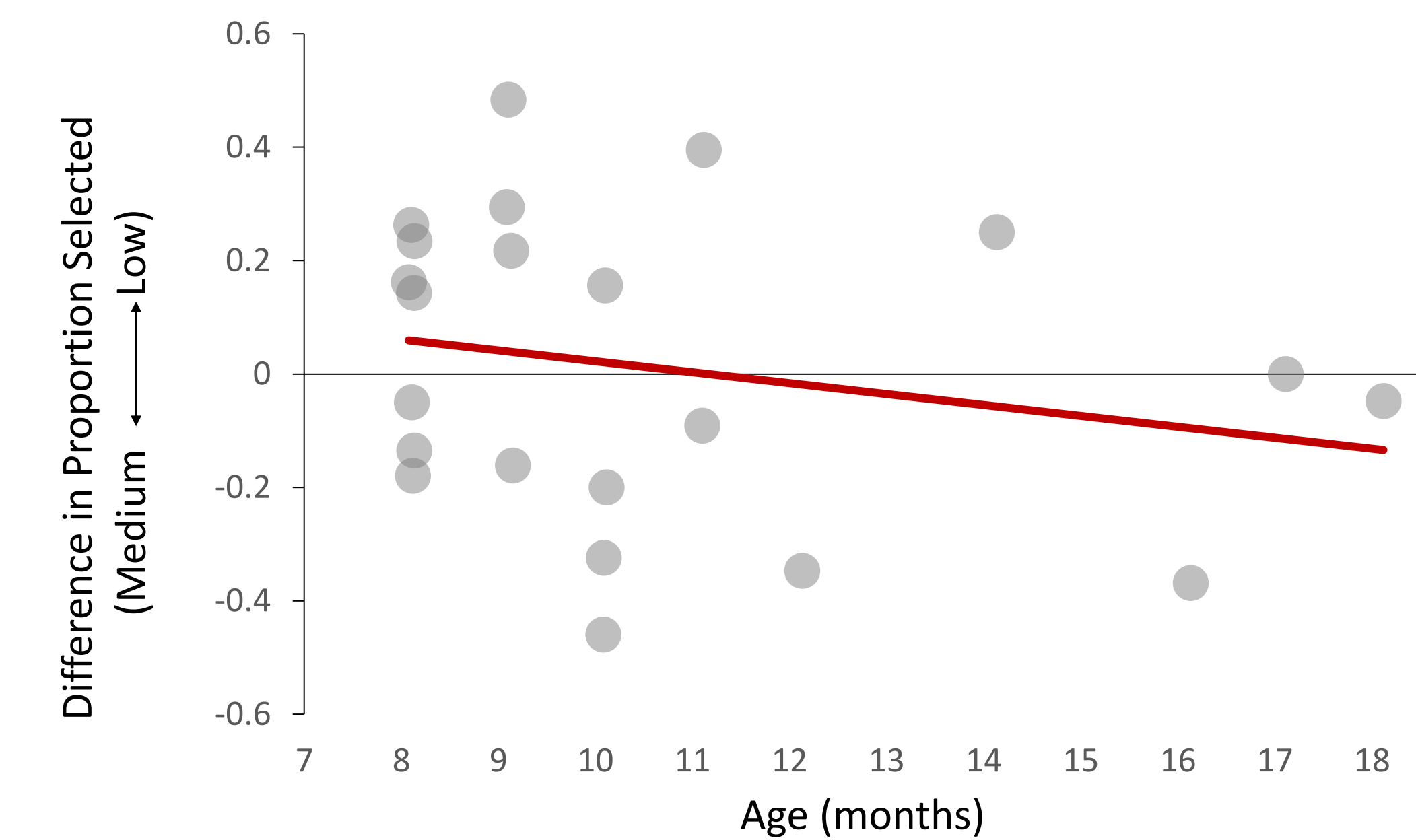
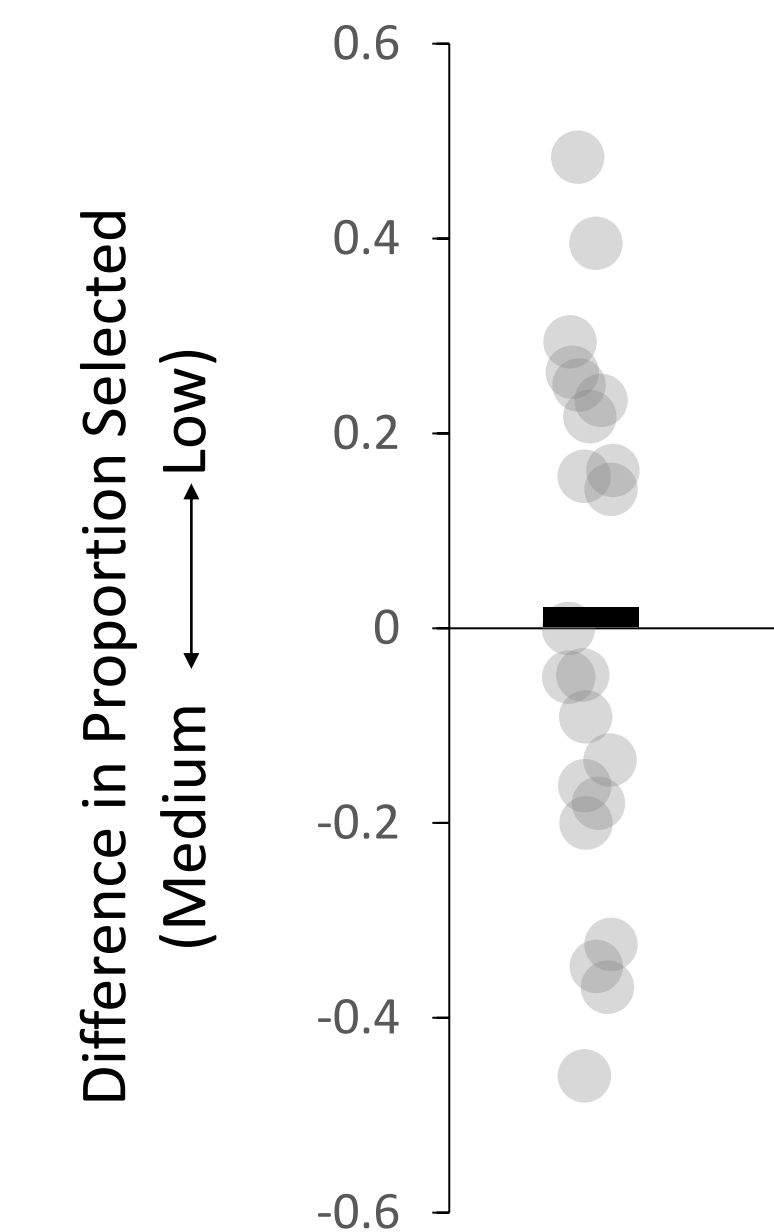


Fig. 2 Example of image displayed on touchscreen tablet

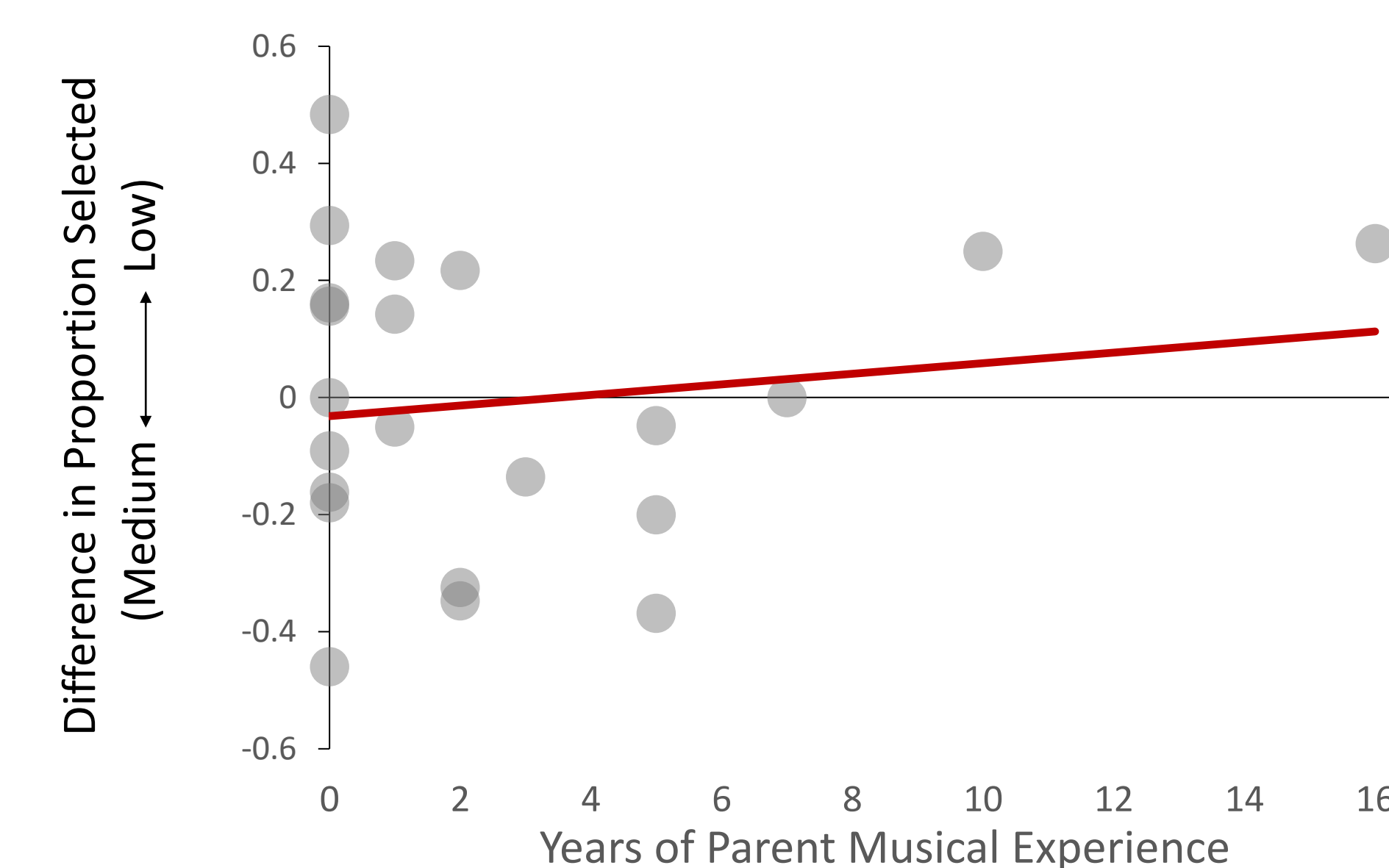
- Touchscreen display presented identical animal images on left and right
- A drumkit and red border appeared around the selection for the duration of the rhythm
- Experimenter demonstrated how to use the tablet (2 demos of each stimulus) before infant began
- Infants sat on parent's lap and parent listened to masking music through headphones

RESULTS

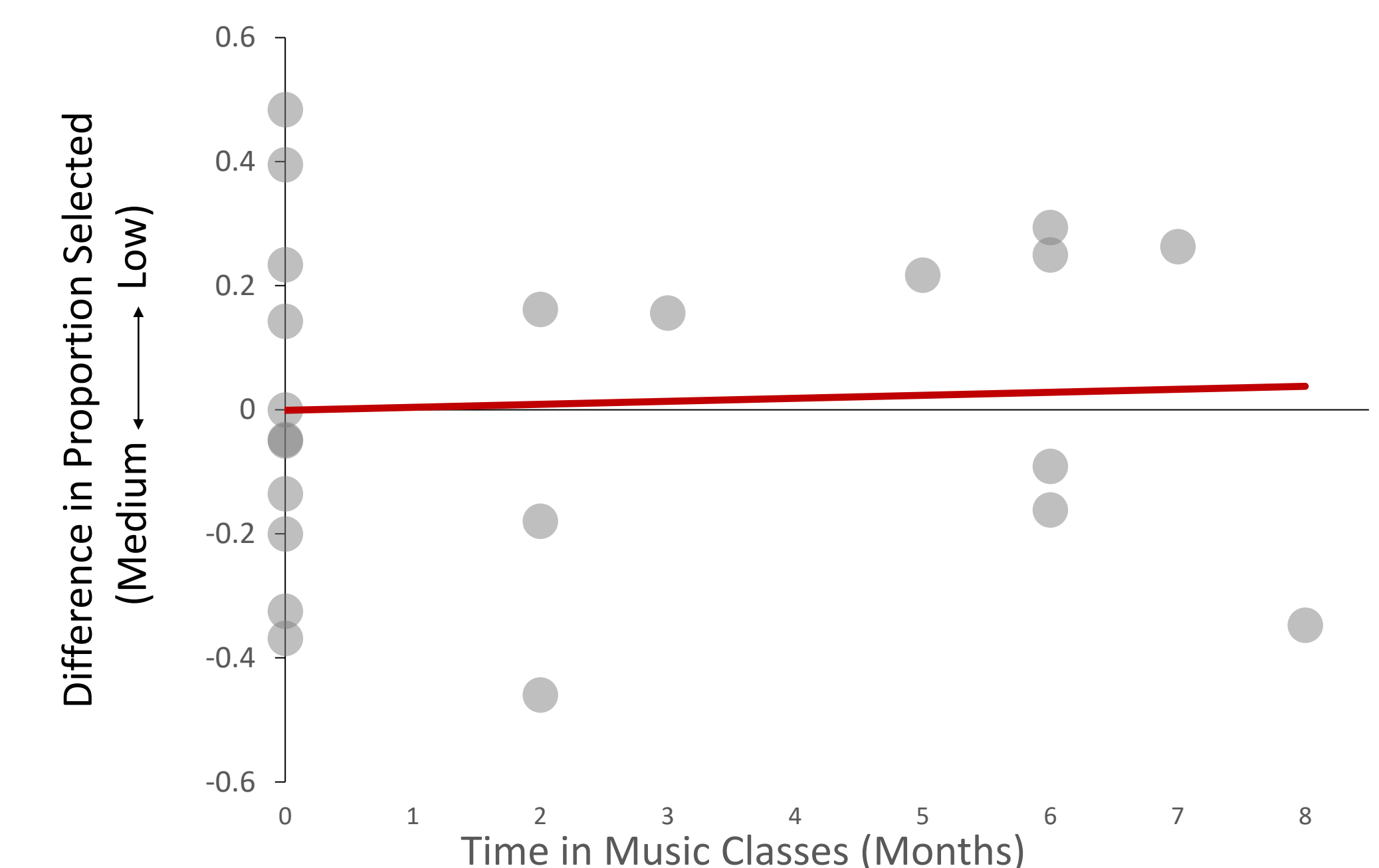


- Infants' selections show no significant bias for low or medium syncopation rhythms ($p > .05$)

- Infant age is not significantly associated with syncopation bias ($r = -.22, p > .05$)



- There is no significant association between years of parental musical experience and syncopation bias ($r = .15, p > .05$)



- There is no significant association between months of infant music class experience and syncopation bias ($r = .05, p > .05$)

DISCUSSION

- **Preliminary results suggest infants have no bias for medium or low syncopation rhythms**
- Because previous work showed that children between 3 and 6 years old have a bias for medium > low syncopation, our preliminary results may suggest that **the syncopation-groove relationship establishes between 1 and 3 years of age.**
- Only 2 infants had prior touchscreen experience (vs. half of the previous experiment's sample) and this inexperience may have inhibited the infants learning and completing the task appropriately
- Future analyses will test whether syncopation influenced infants' spontaneous movement or affect, which could reveal implicit pleasure or movement biases to syncopation even without a selection bias

References

1. Cameron, et al. (2023). The complexity-aesthetics relationship for musical rhythm is more fixed than flexible: Evidence from children and expert dancers. *Developmental Science*, 26(5).
2. Caldarone, N. (2023) Investigating the syncopation-groove relationship in infants using an interactive touchscreen. Honours Thesis, McMaster University
3. Witek, et al. (2014). Syncopation, body-movement and pleasure in groove music. *PLoS ONE*, 9(4).

Acknowledgements

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