Rapid category selectivity for animal versus man-made objects: an N2pc study

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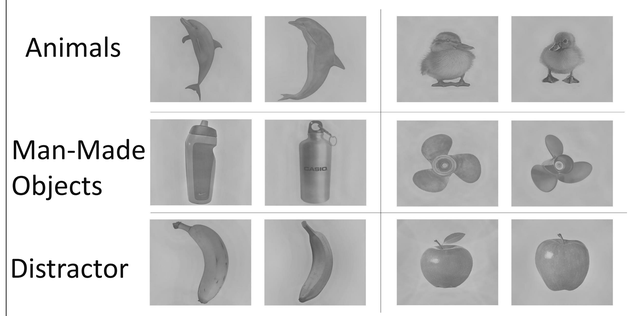
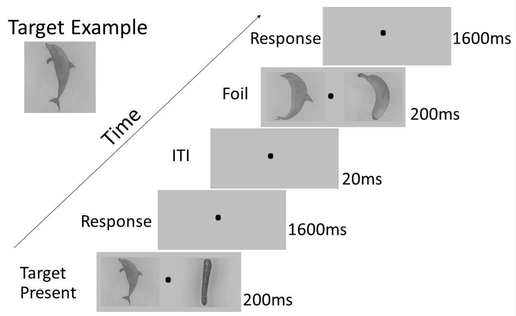
INTRODUCTION

Prior visual search studies suggest there is an advantage for processing images of animals than for man-made objects. What role do higher-level processes play in category preference for animals over objects, when images are controlled for low/mid-level visual features? The present study examined whether this behavioral advantage can be observed early in visual search via **N2pc** event-related potential, the fastest marker for target selection. Three visual search tasks were used: Image Search (an exact dolphin), Item Search (any dolphins), and Category Search (all animals).

METHOD

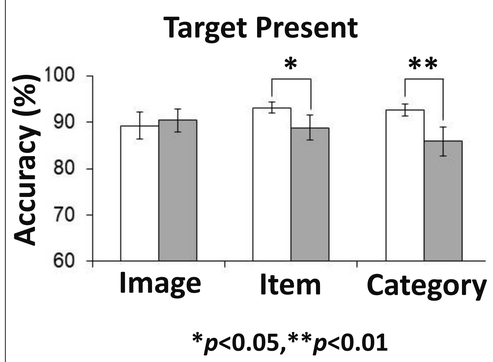


Examples of stimuli (elongated, round)



Visual Search Paradigm

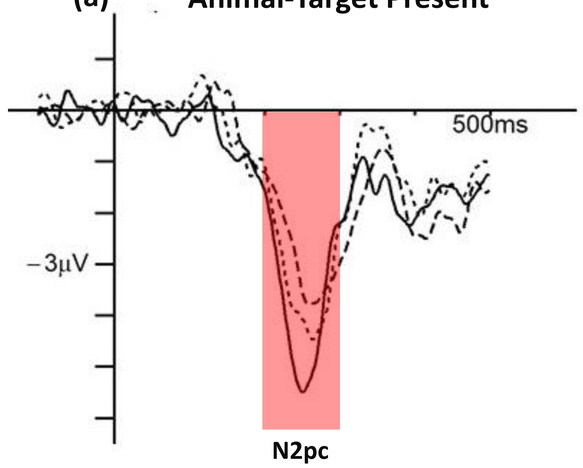
BEHAVIORAL RESULTS

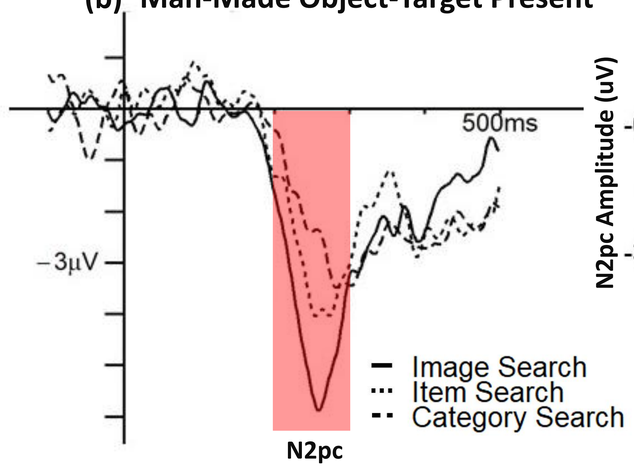


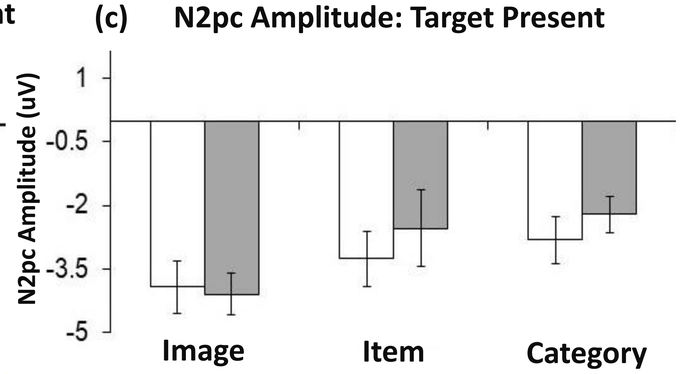
p*<0.05,*p*<0.01**

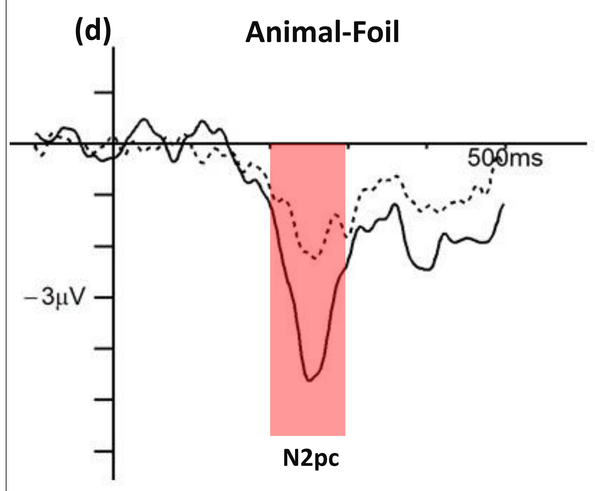
Accuracy for animal search was higher for Item Search and Category Search compared to man-made objects.

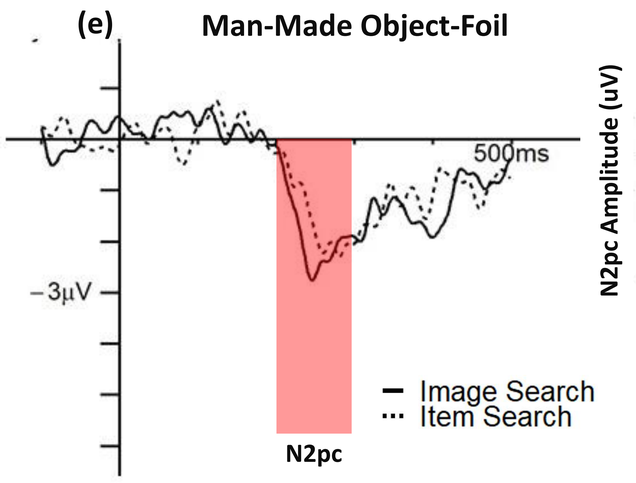
EEG RESULTS

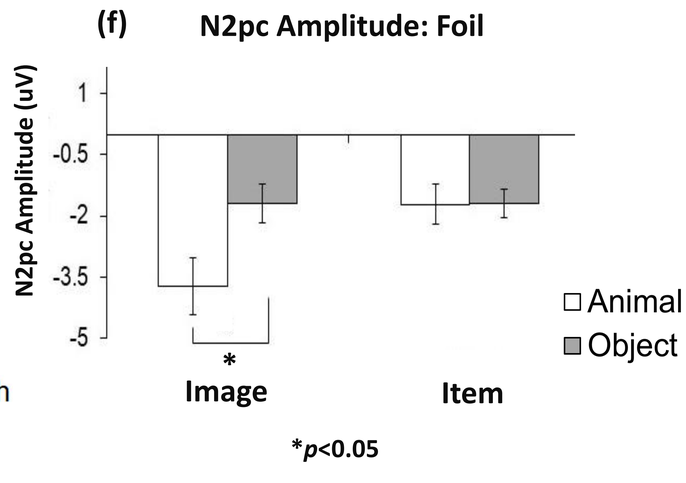












***p*<0.05**

CONCLUSION

During Target Present trials, N2pc amplitude was not significantly different between animal search (c, white bar) and man-made object search (c, grey bar) for any search tasks (i.e., no difference in waveforms; a vs. b, black line).

During Foil trials, N2pc for Image Search was larger for animals (d, black line; f, white bar) than for man-made objects (e, black line; f, grey bar). This finding suggests that there were stronger task-irrelevant activations of category representations for animals compared to man-made objects.

Behavioral results suggest search for animals was more efficient than for man-made objects when searching for any type of items (e.g., all dolphins) and any animals.

These results suggest that category selectivity for animals emerged differently between behavioral and neural responses.

REFERENCES

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2. Nako, R., Wu, R., & Smith, T. J., & Eimer, M. (2014)... *Journal of Experimental Psychology: Human Perception and Performance*, 40(4), 1283-1288

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