

Vision during head-bobbing: are pigeons capable of shape discrimination during the thrust phase?

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Many birds show a characteristic forward and backward head movement, while walking, running and sometimes during landing after flight, called head bobbing. During the hold phase, the head of the bird remains stable in space, while during the thrust phase, the head is rapidly moved forward. Three main functions for head bobbing have been proposed: Head bobbing might have a biomechanical cause, it might serve depth perception via motion parallax, or it might be an optokinetic response that primarily serves in image stabilization for improved vision during the hold phase. To investigate vision during the different phases and in particular to test for visual suppression during the saccadic thrust phase, we tested pigeons on a shape discrimination task, presenting the stimuli exclusively either in the hold phase, thrust phase or at random times. Visual stimuli were presented either in a frontal or in a lateral position. Results clearly demonstrate that shape discrimination is as good during the thrust phase as it is during the hold phase.