Questions on Vision and Action

Read the following article and ask the questions below.

Land, M. F. and McLeod, P. (2000). From eye movements to actions: how batsmen hit the ball. *Nature Neuroscience*, 3(12):1340-1345.

1. Does a good batsment “keep his eye on the ball”?

2. How precisely must a good batsman judge the time of arrival of the ball?

3. Why is the estimation of the height of the ball and the time taken to travel from the bounce position a difficult problem for the batsman?

4. Why must the batsman select an appropriate trajectory for his bat based only on the first 2/3 of the flight of a ball from a fast bowler?

5. Why is it unlikely that a batsman uses image expansion or changes in binocular disparity to judge the arrival time of the ball?

6. How many fixations does the batsman have to make in order to have enough information to hit the ball?

7. What variable do the authors suggest controls the time of the delay before the initial downward saccade?

8. Does the amount of smooth pursuit eye movement increase or decrease with the length of the delivery? Why do you think this is so?

9. Does the amount of smooth tracking accompanying the first saccade increase or decrease with skill level?

10. Is smooth pursuit or saccade used to track the ball after the bounce?

11. Why is it important that the batsman is not in the middle of a saccade when the ball bounces?

12. Batsmen track the very earliest part of the ball’s trajectory. What is the information from this tracking period used for?