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**24. Detection of roll by halteres and visual system of flies
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The halteres are unique balance organs which stabilise flies during flight.

They are known to elicit compensatory head movements when the flying animals are rotated about yaw.

With imposed roll, flying animals perform compensatory head movements, controlled by mechanosensory and visual inputs.

Removal of halteres, and of visual cues, abolishes such head movements.

Unilateral haltere ablation suggests that, as in other compensatory systems, the inputs from the two sides are poised against each other. The classical analogy between a gyroscope and the fly halteres is revised in the light of these findings, and the halteres are better described as rapidly oscillating pendulums. The physical properties are subtly but significantly different from a gyroscope, and afford the animal a way of monitoring motion about all three axes by one sense organ without confusion.