Bat Vision:

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**Misconception**

- **Blind as a bat = FALSE**
  - Can see to some extent
  - Acoustic orientation to catch pray
    - **Echolocation**
    - Bats use echolocation to find food and guide them as they fly
    - Supersonic cries through the mouth or the nose
    - Orient themselves through echolocation but also use vision.
Differences in Bats

- Two Types:
  - Megachiroptera (megabats)
    - Well-developed eyes and visual pathway
  - Microchiroptera (microbats)
    - Use acoustic orientation or echolocation
    - More than vision as the major means of perceiving their environment
  - Different sensory modalities for perceiving their environment.
Research

- Sequenced the visual cone opsin genes in 33 species of bat

Results

- Long-wave opsin gene was conserved in all species
- Short-wave opsin gene has undergone divergence among lineages.
  - The occurrence of gene defects
  - Loss in S wave opsin
    - Origin of echolocation
    - Due to tradeoff by subtle shifts in ecological specialization
    - Nocturnal life with the evolution of opsin genes are linked