

Is There a Critical Age or Period for Learning Languages? | Dr. Erich Jarvis & Dr. Andrew Huberman

<https://silosolo.com/955638>

Summary

The brains of humans and vocal learning birds, such as songbirds and parrots, have remarkable similarities in the areas controlling speech and language. Behavioral parallels include the ability to imitate sounds, critical periods for language learning, and speech deterioration when deaf. Research has also found similarities in brain circuits and gene expression patterns between humans and vocal learning birds. Mutations in genes associated with speech deficits in humans can cause similar deficits in vocal learning birds. Hummingbirds are capable of singing using their syrinx and can also create a slapping sound with their wings that coordinates with their song. Vocal communication in birds is influenced by both genetics and cultural learning.

Silo sample questions

- How similar are the brain areas controlling speech and language in humans and vocal learning birds?
- What are some behavioral parallels between humans and vocal learning birds?
- What has research found regarding brain circuits and genes in vocal learning birds and humans?
- Do hummingbirds sing?
- What is the relationship between genetics and vocal communication in birds?

Topics

Brain areas

Behavioral parallels

Brain circuits and genes

Hummingbird vocalization

Genetics and vocal communication

Key Takeaways

- There are remarkable similarities between the brain areas controlling speech and language in humans and vocal learning birds.
- Vocal learning birds, like songbirds and parrots, can imitate sounds similar to humans. They also have critical periods for language learning and experience speech deterioration when deaf, similar to humans.
- Research has found that vocal learning birds have brain circuits and gene expression patterns similar to humans. Mutations in genes associated with speech deficits in humans also cause similar deficits in vocal learning birds.
- Hummingbirds do sing using their syrinx. They can also create a slapping sound with their wings that is coordinated with their song.
- There is a genetic influence on vocal communication in birds, in addition to cultural

learning. Birds have a balance between genetic control and cultural control of their vocalizations.

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