Canaries: A bad performance is better than no performance at all (w/Audio)

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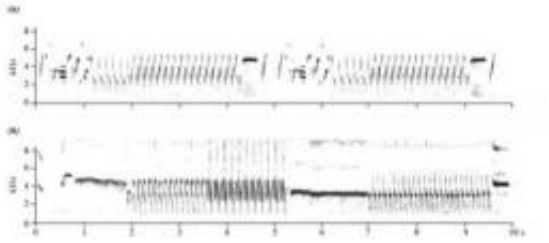
Young male canaries sing normally, despite having heard poor songs as juveniles from role models. Credit: Image: Max Planck Institute for Ornithology

(PhysOrg.com) -- The learning of birdsong resembles the learning of speech in humans. Crucial for the process are acoustic perception and the ability to produce sound. Social isolation leads to a disturbed vocal development both in humans and in birds. When children grow up without contact to other humans they either develop no or a rudimentary form of human language.

A similar scenario occurs in songbirds when juveniles are removed from their parents and are raised apart from the song of conspecifics. Although these birds develop song, it usually contains abnormalities. Whether the descendants of such birds accept these abnormal songs of

their parents as a song model was investigated by researchers around Sandra Belzner and Stefan Leitner from the Max Planck Institute for Ornithology in Seewiesen on domesticated canaries.



This is the sonogram of a tutor (above) and that of a juvenile at 12 months (below). The corresponding audio files are available to listen to below under related links. Credit: Image: Max Planck Institute for Ornithology

The researchers established a group of "poor"-singing tutors by raising young canaries in isolation from adult males but in contact with peers and females.

When these poor singers later on sired offspring, the adult males were removed only after juveniles had reached the age of 60-70 days and thus had started song development already. Detailed song analysis showed that the juveniles did not simply copy the bad songs of their tutors, but rather developed a version that resembled more the song of normal canaries. "Apparently these birds possess an innate template for species-specific song that needs to be activated by hearing song", says Cornelia Voigt, co-author of the study.

When the researchers introduced the male offspring in their second year of life to normally singing canary males, they found that their songs did not contain any changes. Only the syllable repetition rate had slightly

increased, which means, their songs became faster. "This result is particularly interesting, as it shows that the juveniles, by hearing their tutors, had completed their song development after the first year. The song quality of the tutors only played a minor role during this process", concludes Stefan Leitner. In contrast, birds that do not hear songs as juveniles delay the closure of their song development phase and still make corrections when hearing a suitable model later in life".

More information: Belzner, S., Voigt, C., Catchpole, C.K., Leitner, S. Song learning in domesticated canaries in a restricted acoustic environment, *Proceedings of the Royal Society of London, Series B*, Online publication 27.05.2009

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