In cordon bleus, song develops independently of sex differences in the brain

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In parallel the scientists investigated the birds' neuroanatomical properties. Most remarkably, volume and neuron number of the song control regions HVC and RA were smaller in females compared to males from the first point of investigation at day 20 and persisted throughout the entire developmental period. "These anatomical sex differences are present already in a very early developmental stage and precede the sex differences in song behaviour", says Manfred Gahr. However, this is not the only amazing result. Despite these different anatomical prerequisites there is a parallel brain development in both sexes. Although the song control centers are up to 55% smaller and have 30-50% fewer neurons, females develop a song comparable to that of males. At least for song learning, these sex differences do not seem to have a functional role.

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Provided by Max Planck Society

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