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Big song repertoire makes male sparrows sexier, says study

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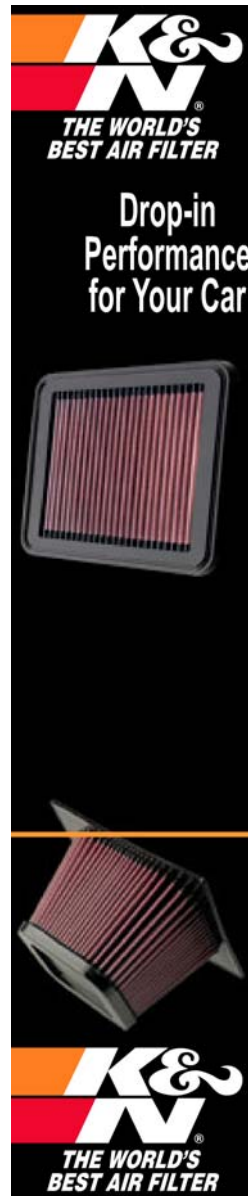
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The number of different songs that a bird can sing is a good indicator of its health, according to a new study. Scientists have found that male sparrows with big song repertoires have larger brains, stronger immune systems and are in overall better shape than their less-talented counterparts.

Scientists have long suspected that the number of songs a male bird is capable of singing can signal his suitability as a mate. Previous research has shown that males with complex song repertoires find mates earlier in the breeding season.

"Males with large repertoires may provide direct benefits to females, such as superior parental care or territorial defence and/or indirect benefits in the form of good genes for their offspring," write a team of researchers, led by Jeremy Pfaff of the University of Western Ontario in Canada, in today's issue of the Proceedings of the Royal Society B, the society's main biological research journal.

The researchers analysed more than 500 songs from more



than 70 male sparrows and correlated the complexity of the singing with a range of physical characteristics, including diversity of the birds' genes and quality of their immune systems. They also measured the size of the birds' HVC, the part of the bird brain mainly responsible for singing.

Their results showed that birds that sang more songs had larger HVCs and had tougher immune systems, as measured by the ratio of white blood cells (which kill bugs) to red blood cells (which carry oxygen around the body) in their body. Birds that were healthier had a higher ratio of white cells to red cells.

The researchers also found that birds with the biggest repertoires had the greatest genetic diversity.

Prof Pfaff said that complex birdsong was a good example of an ornamental trait used in sexual selection, the acoustic equivalent to a peacock's tail. "In many species females prefer males with large song repertoires, possibly because repertoire size is limited by the size of song control nuclei [in the brain] which reflect developmental success."

He added that birds that had been deprived of food as chicks were more likely to grow up smaller and weaker, with less well-developed brains.

"Neural systems responsible for foraging and prey detection or learning to forage efficiently also may be superior in males with large song repertoires. Males that experience a great deal of developmental stress or that are particularly susceptible to it probably will have smaller brains overall in addition to a diminished song system incapable of supporting a large song repertoire."

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