

What makes us left or right handed? New study rules out strong genetic factors

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Around 10 per cent of the UK is left handed—and that percentage remains consistent in many populations around the world. But why exactly someone is left or right handed remains unclear.

New research from The University of Nottingham's Professor John Armour and Dr Angus Davison, in collaboration with UCL's Professor Chris McManus, has ruled out a 'strong genetic determinant' in influencing handedness.

The researchers conducted a twin study examining the whole genome—which contains hereditary information—of nearly 4,000 subjects from the London Twin Research Unit to compare left and right handed participants.

The study—'Genome-wide association study of handedness excludes

simple genetic models'—has been published in the journal *Heredity*.

The study was unable to find a strong genetic factor in determining handedness. If there was a single major genetic determination of handedness, there should be a detectable shift between left and right handed people in the frequency of variants in that part of the genome—and this isn't the case.

Professor Armour, Professor of Human Genetics at The University of Nottingham, said: "There should be a detectable shift between right and left handed people because modern methods for typing genetic variation cover nearly all of the genome. A survey that compared the whole-genome genotypes for right and left handed people should leave such a gene nowhere to hide."

Despite the absence of a strong genetic factor, it is widely believed that handedness is not only a matter of choice or learning. This study suggests, therefore, that genetic factors in handedness must be relatively weak and subtle, which has ramifications for future studies.

Professor Armour said: "It is likely that there are many relatively weak [genetic factors](#) in handedness, rather than any strong factors, and much bigger studies than our own will be needed to identify such genes unambiguously. As a consequence, even if these genes are identified in the future, it is very unlikely that handedness could be usefully predicted by analysis of human DNA."

More information: The findings of the study can be viewed on the *Heredity* website: www.nature.com/hdy/journal/vao...full/hdy201393a.html

Provided by University of Nottingham

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