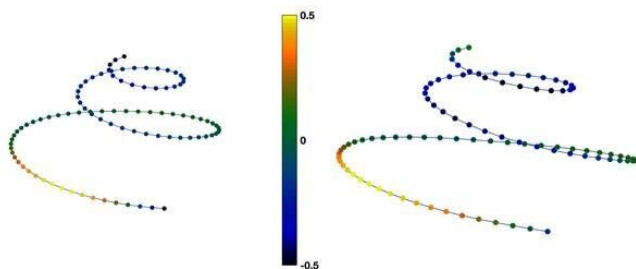


In the inner depths of the ear: The shape of the cochlea is an indicator of sex

5 August 2019



This research was featured in an article published by *Scientific Reports*.

More information: J. Braga et al. Cochlear shape reveals that the human organ of hearing is sex-typed from birth, *Scientific Reports* (2019). [DOI: 10.1038/s41598-019-47433-9](https://doi.org/10.1038/s41598-019-47433-9)

Average female (left) and male (right) shapes for the cochlear spiral curve, whose torsion has been coded on a coloured scale. While the two forms are oriented in the same way, the geometric differences are visible. Credit: C. Samir, A. Fradi, and J. Braga

The auditory section of the inner ear, or the "cochlea," does not have the same shape from birth depending on whether one is a man or a woman. This is due to the torsion of the cochlear spiral, which differs based on gender, especially at its tip.

Demonstrated by a French-South African collaboration, an interdisciplinary effort evolving scientists primarily from the CNRS, UT3 Paul Sabatier, and l'Université Clermont Auvergne, these results have helped develop the first reliable method for [sex determination](#), including among children and cases where DNA is missing or too altered.

Until now, it was impossible to determine the sex of a child from its skeleton, while for adults this could be done reliably only from studying the pelvis, which is not always preserved. Since the [cochlea](#) is among the hardest bones in the skull—a bone that is found very frequently at [archaeological sites](#)—this technique can determine the sex of very old fossils, even when fragmentary or immature.

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