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FACIAL SYMMETRY AND SEXUAL DIMORPHISM ARE CORRELATED IN FOUR NON-HUMAN PRIMATE SPECIES

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Many animals both display and assess multiple signals. Two prominently studied traits are symmetry and sexual dimorphism, which, for many animals, are proposed cues to heritable fitness benefits. These traits are associated with other potential benefits, such as fertility. Faces have the potential to be advertisements of mate quality and both symmetry and sexual dimorphism have been linked to the attractiveness of human face shape. In human faces symmetry and sexual dimorphism are linked, suggesting an underlying biological quality underpins the two traits. Here we examine whether facial measurements of symmetry and sexual dimorphism are correlated in great ape species using chimpanzee, bonobo, gorilla, and orangutan face images (total N=49). Points on the faces were marked to measure symmetry and calculate proportions relating to sexual dimorphism based on previous work. Discriminant analysis for sex was conducted on proportions to create a score for each image relating to degree of masculinity/femininity (% chance discriminant analysis classified as male). Symmetric males had more masculine facial proportions and symmetric females had more feminine facial proportions. These data support the claim that sexual dimorphism and symmetry in non-human primate faces might be signals advertising quality by providing evidence that there must be a biological mechanism linking the two traits during development. Overall, these data suggest that the signalling properties of face traits might be phylogenetically old and shared across primate species.

Keywords: faces, symmetry, sexual dimorphism, sexual selection