

IS THERE A BIOLOGY OF MUSIC, AND WHY DOES IT MATTER?

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Background

There are many reasons to regard human music as a biological adaptation, chief among them being the cross-cultural universality of the ritualistic use of music in human group settings. In every culture known to ethnography or history, humans have gathered in groups to sing and dance together. So characteristic is this behavior of humans that it belongs among the so-called diagnostic features of our species, along with our upright walk, big brain and language.

Aims

The biology of music will be surveyed, and the consequences of regarding music as a biological adaptation will be explored.

Main contribution

The music featured in group rituals tends to be rhythmic, i.e. to base itself upon the even subdivision of time through the musical beat or 'tactus.' This simplest of all structural elements of music turns out to provide surprising leverage for unlocking the biological secret of human music. The capacity to entrain to an isochronous pulse is

unique to humans among the higher animals, but occurs in lower animals in a pattern that permits a reconstruction of why and how humans evolved their capacity to "keep time together." Given this reconstruction, a number of structural features of music such as its ubiquitous use of orthogonal discretization of spectro-temporal space can be given a natural interpretation, with far-reaching consequences for our understanding of the role of music in our subsequent evolutionary and cultural history.

Implications

The above perspective suggests, among other things, that it was on the path of song that early humans overcame the barrier to the evolution of language posed by the sophisticated communicative system of animal calls. In effect, neither human nature, nor the nature of music, can be properly understood without placing human music in biological perspective.