Visual perception of mechanical motion: A comparison of methods that disrupt biological motion

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Abstract

Previous work shows that visual perception of biological motion is supported by a specialized neural system and is distinct from non-biological or mechanical motion. However, there has been no systematic characterization of what construes mechanical motion, especially in the context of complex actions performed by humans and non-human agents like robots. In the present study, we proposed four different methods that disrupt biological motion and investigated to what extent the altered motion stimuli were perceived mechanical by human observers (N=230). The methods manipulated the pattern of motion trajectories, their timing, and the number of the limbs used in the performed actions. The results show that the motion stimuli were found most mechanical when the pattern of the motion trajectory was changed. We also found that as the number of limbs whose motion trajectory was changed increased, the perceived mechanicalness increased.

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