

Smelling intentions. Can human chemosignals influence the perception of action intentions?

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Considering that agents are constantly embedded in social contexts and that social interactions require the ability to aptly make inferences on or judge the intentions of others through multiple sources of information, we set out to investigate whether and how odor stimuli could modulate the accuracy and the response times of the judgments discriminating the agent's motor intentions based on the presentation of temporally occluded videos, showing an agent (arm only) performing reach-to-grasp movements in individual (natural speed vs. fast speed) and social (cooperative vs. competitive) conditions. In Experiment 1, we assessed whether and how action intention judgements changed based on the exposure to a common odor or no odor. In Experiment 2, we compared how the common odor influenced the classification of cooperative and competitive action intentions with respect to a human chemosignal, masked with the same common odor. In Experiment 3, we contrasted whether and how human chemosignals collected in either cooperative or competitive situations could bias the detection of action intentions. Experiment 1 showed that the common odor had a facilitatory effect in detecting action intentions in blocks that presented a greater difficulty in the classification, suggesting a modulation of attentional resources. Surprisingly, in Experiment 2 and in Experiment 3 the cooperative human chemosignal enhanced the classification of competitive action intentions, suggesting that a response to a threatening stimulus that might be due to the social distance between the recipient and the donor, i.e. being a stranger. These findings suggest that both common odors and human chemosignals influence the classification of action intention irrespective of the awareness of the olfactory signal. Such effects are interpreted in the context of the hierarchy of information conveyed via human chemosignals.