

- **Facial expressions and autonomous nervous system responses elicited by tasting different juices**

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Abstract:

The aim of this study was to get a better understanding of reactions elicited by the taste of foods using the example of different juices. The reactions investigated were the rating behavior of self-reported spontaneous liking, various autonomous nervous system (ANS) responses and implicit as well as explicit facial expressions. Therefore, the following four hypotheses were tested: 1) Different sensory stimuli of juices elicit different ANS responses. 2) Differences in facial expressions elicited by sensory stimuli of juices used in an implicit and explicit measurement approach can be detected by using FaceReader 5.3) Self-reported liking is correlated with the measured ANS parameters and the elicited facial expressions. 4) The measured ANS parameters, facial expressions and self-reported liking allow identical differentiations between samples. Skin conductance level (SCL), skin temperature (ST), heart rate (HR), pulse volume amplitude (PVA) and the facial expressions of 81 participants were analyzed during and shortly after tasting juice samples (implicit measurement approach). Additionally, participants were asked to show how much they liked the tasted sample with an intentional facial expression (explicit measurement approach). Banana, grapefruit, mixed vegetable, orange and sauerkraut juices were used as sensory stimuli. The juices elicited significant differences in SCL and PVA responses and intensities of several facial expressions. For these parameters a moderate correlation with self-reported liking was found, allowing a differentiation between liked, disliked and neutral rated samples. The results show that self-reported liking cannot simply be explained by the measured ANS and implicit facial expression parameters, instead providing different information. Significant differences in facial expressions between the implicit and explicit approach were observed. In the implicit approach participants showed hardly any positive emotions when tasting samples they liked, whereas in the explicit approach they displayed a high degree of positive emotions. In both cases negative emotions were shown more intensely for disliked samples.

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