The Influence of Posture on Taste Evaluations

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Four studies examine the effects of physical body posture on food taste evaluations. We show that maintaining a sitting (vs. standing) posture while eating leads to more favorable taste evaluations. The effect of posture on taste is due to increased physiological stress associated with standing postures.

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EXTENDED ABSTRACT

In some contexts, individuals eat while maintaining a seated posture (e.g., at restaurants, in-home dining). However, in other contexts individuals eat while maintaining a standing posture (e.g., at cocktail parties, grocery store sampling stations). Would eating the same food while sitting (vs. standing) influence taste evaluations? That is, how does posture influence taste?

Given that restaurants are beginning to experiment with the standing only concept that has long been popular outside of the United States (Fujita 2013), this finding has important practical implications. In addition, while prior research has examined how the effects of body orientation on consumer decision making much of this work has been done through the lens of embodied cognition (Labroo and Nielsen 2010; Strack, Martin and Stepper 1988). We know of no research that has examined the effects of posture on taste.

We build on literature that shows that standing leads to greater physiological stress than sitting (Abalan et al. 1992) and link it with work that shows that stress decreases the reward value (i.e., liking) of hedonic stimuli (Pizzagalli et al. 2007). We predict that because standing increases physiological stress and stress decreases reward value of hedonic stimuli, consumers will rate the same food as better tasting if they sample while maintaining a sitting (vs. standing) posture. We test this hypothesis and the mediating effect of stress in a series of four experimental studies.

Study 1 examined the basic effect of posture on taste using a single factor between subjects design (posture: sitting vs. standing). Participants (M_age = 24.39; 50% females) sampled a cookie and rated the taste (Elder and Krishna 2010). Participants also rated their physiological stress/tension and hunger levels. We measured hunger because hunger influences food evaluations (Lozano, Crites and Aikman 1999). The results of an ANCOVA with hunger as a covariate showed that individuals who ate the cookie while seated perceived it as better tasting than individuals who ate the cookie while standing (M_sitting = 4.96 vs. M_standing = 4.22; F(1, 81) = 5.44, p < .05). Tests for mediation using Preacher and Hayes’ (2008) 5,000 bootstrap samples showed that the indirect effects of posture on taste evaluations through the mediator perceived stress/tension (with hunger included as a covariate) yielded a confidence interval that did not include zero (B = .1497, SE = .099, 90% CI: .008, .4193) suggesting that stress/tension mediates the effect of posture on taste.

Then, Study 2 replicated the basic effects of posture on taste and also provided physiological evidence that standing postures were associated with greater stress by measuring participants’ heart rate. Study 2 had a one-factor between subjects design and was conducted in two phases because prior research shows that consuming indulgent foods increase heart rate (Brown et al. 2008). The first phase involved individuals sampling a cookie while standing (vs. sitting) and then rating the taste. The second phase, which occurred approximately 3 weeks later involved capturing individuals pulse while they were maintaining the same posture they had in the first phase of the study. Eighty undergraduate students participated in this study however two students did not complete both phases leaving a final sample of seventy-eight (M_age = 24.01, 47.4% females). An ANCOVA with hunger as a covariate showed that participants perceived the cookie as better tasting when they ate it while sitting (M_sitting = 4.35 vs. M_standing = 3.86; F(1, 75) = 3.39, p = .07). There was also a significant effect of posture on heart rate with heart rate being higher for standing (vs. sitting) postures (M_sitting = 72.13 vs. M_standing = 83.28; F(1, 76) = 13.13, p < .01).

If standing is influencing taste by increasing stress then this effect should persist in the absence of a stress prime, but should be attenuated when stress is primed due to decreases in perceived taste when individuals are stressed and seated. Study 3 tested this prediction with a 2 (posture: sitting vs. standing) x 2 (stress: present vs. absent) between subjects design. One hundred and twenty undergraduate students participated in this study (M_age = 22.62; 40.9% females); however, four individuals did not complete the key dependent measures leaving a final sample of one hundred sixteen. To manipulate stress individuals completed a timed word jumble task (Zellner et al. 2006). Subsequently, individuals sampled a cookie sitting or standing. The results a 2 (posture) x 2 (stress) ANCOVA with hunger as the covariate revealed a significant interaction (F(1, 111) = 12.156, p = .001). In the absence of a stress prime, participants who ate the cookie when sitting perceived it as better tasting (M_sitting = 5.79 vs. M_standing = 4.60; F(1, 112) = 12.63, p < .01). However, when stress was primed there was no difference in taste based on whether participants sampled while sitting (vs. standing) (M_sitting = 4.74 vs. M_standing = 4.86; F(1, 112) = .112, p = .738).

Finally, in Study 4 we wanted to show that relaxation can relieve the stress associated with standing and attenuate the effects of posture on taste by increasing taste evaluations when individuals are standing. Study 4 had a 2 (posture: sitting vs. standing) x 2 (relaxation: present vs. absent) between subjects design. Posture was manipulated through the presence or absence of chairs. Relaxation was manipulated through the presence of different types of ambient music (Pham, Hung and Gorn 2011). Participants (N = 111; M_age = 21.86; 64.9% females) sampled and evaluated a cream-filled wafer cookie. The results showed that, in the absence of relaxation participants perceived the cookie as better tasting when they were sitting (M_sitting = 5.70 vs. M_standing = 4.79; F(1, 107) = 6.22, p < .05). However, when relaxation was primed taste evaluations when standing increased and there was no significant difference in taste based on posture (M_sitting = 5.48 vs. M_standing = 5.67; F(1, 107) = .266, p = .607).

Collectively, the results of four studies show that posture systematically effects taste evaluations by increasing physiological stress.

REFERENCES

