

The effect of alcohol-paired contextual cues on responses to a novel alcoholic drink

K.S. BIRAK*, P. TERRY, S. HIGGS. *School of Psychology, University of Birmingham, Birmingham, United Kingdom*

The study tested whether the repeated pairing of contextual cues with the unconditioned effects of an alcoholic drink results in such cues eliciting conditioned compensatory responses to the disinhibitory effects of alcohol. Sixteen social drinkers (mean age 20.1 yrs, male $n=8$) alternated over days between consuming a non-alcoholic placebo drink in one context, and consuming the same drink containing vodka at doses of 0.65 g/kg body weight for males and 0.57 g/kg for females, in a different context. Half of the participants received alcohol in one context, and the other half placebo in that context. Also, half received alcohol first, and the other half placebo first. At baseline and 8 min post-consumption, participants completed computer-based tests of response inhibition. The procedure was repeated over six separate conditioning sessions (3 placebo and 3 alcohol sessions). On the subsequent session (test for a conditioned response), participants received alcohol in a novel drink in either their alcohol-paired context or in their placebo-paired context. Alcohol increased the number of false alarms committed on an affective go/no-go task, and tolerance was shown to this effect over conditioning sessions. At test, participants who received the novel alcoholic drink in their alcohol-paired context committed fewer false alarms than did participants who received the same drink but in their placebo-paired context. These data suggest that contexts associated with the consumption of alcohol can condition compensatory responses to the disinhibitory effects of alcohol.

doi:10.1016/j.appet.2008.04.037

The greater superficial petrosal nerve is unnecessary for normal responsiveness to sucrose by rats in a brief-access test, regardless of trial length

G.D. BLONDE*, Y. TREESUKOSOL, E. JIANG, A.C. SPECTOR. *Department of Psychology & Program in Neuroscience, Florida State University, Tallahassee, USA*

Of all the gustatory nerves in rats, the greater superficial petrosal (GSP) nerve is the most sensitive to sugars placed on its palatal taste receptors, but the literature is mixed concerning its importance in behavioral responsiveness to sugar. In a recent study from our laboratory, transection of the GSP (GSPx) did not affect concentration-dependent licking to sucrose in a brief-access test, but total trials (5 s) taken decreased, suggesting that the absence of input may have selectively affected appetitive behavior but spared consummatory responses. Here, rats were tested before and after bilateral GSPx or sham surgery ($n=8$ /group) in 30 min brief-access tests with 6 concentrations of sucrose quasi-randomly delivered for either 5 s or 30 s trials to determine the effect of trial length. There was no difference between surgical groups in either licks/concentration or total number of trials taken. Histological confirmation of the transection is in progress. In sum, the GSP appears unnecessary for maintaining the affective response to sucrose as measured here, but it might be important for other behaviors related to taste quality identification. The fact that combined GSP and chorda tympani transection has been shown to markedly reduce sucrose licking in a brief-access test while individual nerve cuts have little effect supports the view that affective taste processing involves convergent peripheral input from disparate taste receptor fields.

Acknowledgment: Supported by R01-DC01628.

doi:10.1016/j.appet.2008.04.038

Nintendo Wii vs. Microsoft Xbox: Differential effects on mood, physiology, snacking behavior, and caloric burn

J. BLOOM*, R. HUNKER, K. MCCOMBS, B. RAUDENBUSH, T. WRIGHT. *Wheeling Jesuit University, Wheeling, USA*

Prior research has investigated the link comparing childhood obesity with activity participation, television viewing, and video game use. The current study used 27 participants to compare performance, mood, cognition, physiological measures, and snacking behavior between the Nintendo Wii and the Microsoft Xbox gaming systems. Each participant played a boxing game on both the Wii and the Xbox, and also completed a control condition where no game was played. During play, participants wore an Actiwatch monitor, which measured their movement and caloric expenditure. The results showed that there was a significantly higher blood pressure and pulse with the Wii than with either the Xbox or control conditions. The results also showed mental demand, physical demand, and self-evaluated performance were highest in the Wii condition. Furthermore, there were greater total and mean activity scores in the Wii condition which led to a greater calorie expenditure. Finally, when a snack food (M&Ms) was available during game play, those participants in the Wii condition ate the least amount of the snack. These results are particularly salient regarding the positive benefits of video game play.

doi:10.1016/j.appet.2008.04.039

Mediobasal hypothalamic leucine metabolism inhibits food intake and leucine activates POMC and LepR neurons

C. BLOUET*, Y.H. JO, S.C. CHUA, G.J. SCHWARTZ. *Albert Einstein College of Medicine, Bronx, USA*

In response to nutrient stimuli, the mediobasal hypothalamus (MBH) engages multiple neuroendocrine mechanisms to regulate behavioral and metabolic determinants of energy balance. Recent data indicate that brain leucine sensing contributes to the regulation of food intake and body weight but the neurobiological substrates and physiological effectors mediating central leucine's actions are unknown. Consequently, we characterized the effects of MBH leucine in male C57/B16 mice. MBH leucine injection (206 pmol in 100 nl) induced a significant 20% reduction in 24 h food intake, decreased 24 h body weight change but did not affect oxygen consumption, respiratory quotient, physical activity or core temperature compared to aCSF vehicle injections. The decrease in food intake was due to both a 50% reduction in first meal size and a sustained decrease in meal number beginning 8 h after injection. Acute MBH injection of α -ketoisocaproic acid, the product of leucine transamination, recapitulated the effects of MBH leucine injections. Chronic MBH activation of branched-chain amino acid decarboxylation via minipump delivery of α -chloroisocaproic acid also decreased food intake, solely by reducing meal size, and reduced body weight gain. MBH leucine injection in POMC-GFP and LepR-GFP mice increased c-fos immunoreactivity in arcuate POMC and LepR neurons, and leucine depolarized POMC-GFP neurons in perfused arcuate slices. Taken together, these data suggest that MBH leucine metabolism inhibits food intake by activating POMC and LepR neurons.

doi:10.1016/j.appet.2008.04.040