CDP Increases Ingestion and Alters Taste Palatability across Specific Tastants in Rats

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Abstract

Anti-anxiety drugs containing benzodiazepines are commonly given to people suffering from Generalized Anxiety Disorder (GAD) and other forms of anxiety. Benzodiazepines are depressants that act on the inhibitory neurotransmitter gamma-amino butyric acid (GABA). GABA is associated with neurotransmitter inhibition in the parabrachial nucleus (PBN), specifically in the gustatory region. Benzodiazepines have been shown to result in hyperphagia and hyperdipsia as a result of their effects on taste palatability. Research has linked the hyperphagia evident after benzodiazepine consumption with obesity and weight gain. The changes in taste palatability observed after benzodiazepine consumption is a likely explanation of hyperphagia and subsequent weight gain. Previous research has focused on sweet and salty tastants such as saccharin and monosodium glutamate (MSG). This study expands that research to include capsaicin and ethanol, two tastants with inconclusive effects on taste palatability, in addition to saccharin and MSG. We predicted that CDP would have less of an effect on the rate of ingestion for the capsaicin and ethanol solutions than for sweet and salty tastants based on evidence from previous studies. Fourteen male Sprague-Dawley rats were tested under water-deplete and water-replete conditions in a Davis Rig to measure rate of ingestion of different concentrations of the four stimuli used. Results showed that CDP decreased aversiveness of the high concentrations of saccharin, MSG, and ethanol, but not of capsaicin. These results support previous research as well as provide new direction for research pertaining to the interaction of taste-mediated stimulants and those with alternative orosensory detection.