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Radiation as an aversive stimulus.

Experiments were conducted conditioning aversions to distinctive taste substances by irradiating rats in the presence of the taste solution. The role of the quality and concentration of the taste substance was studied. It was shown that saccharin solution (1%) yields better conditioning than sucrose (4%) when studying the interval between presentation of the CS (sweetened water) and US (100 r Coγ irradiation). In addition, higher concentrations of sucrose yield better conditioning than lower concentrations.

Also demonstrated was the fact that all preferences could be reversed by one pairing of the Gamma rays with the preferred solution. This included conditioning rats to prefer lower concentrations of sucrose over higher concentrations, to prefer lower concentrations of saccharin over higher concentrations, and to prefer saccharin solution over sucrose. The results of the final experiment indicated that if the rat was irradiated in the presence of a mixture of glucose and saccharin, the subsequent aversion was to the saccharin solution only. Implications of these aversions for the study of basic taste discrimination studies were discussed. (Supported by Contracts AT-(40-1)-2903 and AT-(40-1)-2660 with the Division of Biology and Medicine, U. S. Atomic Energy Commission.)