Notes and Comment

Conditioned taste aversion in anesthetized rats: A nonexistent controversy

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A recent *AL&B* paper by B. M. Rabin and J. S. Rabin (1984) presents our contribution to the problem of conditioned taste aversion (CTA) learning under anesthesia in a distorted way.

Rabin and Rabin explain in the introduction that the aim of their study was to resolve the controversy between "reports that rats will learn a radiation-induced CTA while anesthetized with sodium pentobarbital (Roll & Smith, 1972) whereas they will not acquire an LiCl-induced aversion while anesthetized (Burešová & Bureš, 1977)" (p. 439). No such controversy exists. In Experiment 1 of the paper quoted by Rabin and Rabin, rats that were anesthetized with allobarbitol immediately after saccharin drinking, maintained under anesthesia during the 5-h CS-US interval, and given an LiCl injection while still anesthetized acquired as strong a CTA as the unanesthetized controls. This result is essentially similar to that obtained by Rabin and Rabin, who anesthetized rats with pentobarbital immediately after presentation of the gustatory CS (10% sucrose) and applied LiCl 20 min later. The paper by Millner and Palfai (1975) cited in our article comes even closer: rats receiving a combined injection of Nembutal and LiCl 10 min after saccharin drinking developed the same CTA as rats poisoned while awake.

An unimpaired gustatory trace-poisoning association under anesthesia has been reported in several other papers (Berger, 1970; Bureš & Burešová, 1981; Burešová & Bureš, 1979, 1984; Ionescu & Burešová, 1977) not quoted by Rabin and Rabin.

Although Experiment 1 of our 1977 article confirmed the resistance of the gustatory trace-poisoning association to anesthesia, Experiment 2 showed that presentation of the gustatory CS to anesthetized rats does not produce CTA. Rabin and Rabin refer to this part of our paper, but not quite correctly. They claim that "Burešová and Bureš (1977) anesthetized the rats before passively applying the CS to the oral cavity" (p. 439), although, in fact, we applied the CS by intraperitoneal injection (2% saccharin, 1 ml per 100 g body weight).

By not mentioning the results of Experiment 1 and referring only to Experiment 2, Rabin and Rabin create the incorrect impression that we deny the possibility of establishing CTA under anesthesia. In fact, the opposite is true: our paper specifies the conditions under which anesthesia does or does not interfere with CTA acquisition. The attitude of Rabin and Rabin is perhaps most clearly shown in the last paragraph of their article (p. 441): "In summary, the present results show that rats are capable of acquiring either a radiation- or an LiCl-induced CTA when the UCS is presented during anesthesia. As such, these results support the earlier findings of Roll and Smith (1972) in working with a radiation UCS, and suggest that an earlier failure to obtain such an effect with an LiCl UCS (Burešová & Bureš, 1977) was due to procedural differences."

Rabin and Rabin apparently believe that they have demonstrated for the first time acquisition of drug-induced CTA under anesthesia. Overlooking relevant information is understandable in view of the large volume of CTA literature. It is regrettable, however, when such a mistake is due to the failure of the authors to notice information contained in the very study they wish to correct.

REFERENCES

- BERGER, B. D. (1970). Learning in the anesthetized rat. *Federal Proceedings*, 29, 749.
- BUREŠ, J., & BUREŠOVÁ, O. (1981). Elementary learning phenomena in food selection. In G. Ádám, I. Mészáros, & É. I. Bányai (Eds.), *Advances in physiological sciences* (Vol. 17). *Brain and behaviour* (pp. 81-94). Budapest: Akadémiai Kiadó.
- BUREŠOVÁ, O., & BUREŠ, J. (1977). The effect of anesthesia on acquisition and extinction of conditioned taste aversion. *Behavioral Biology*, 20, 41-50.
- BUREŠOVÁ, O., & BUREŠ, J. (1979). Extinction of a newly acquired conditioned taste aversion: Effect of gustatory CS administered under anaesthesia. *Behavioural Processes*, 4, 329-339.
- BUREŠOVÁ, O., & BUREŠ, J. (1984). Central mediation of the conditioned taste aversion induced in rats by harmaline. *Psychopharmacology*, 83, 384-389.
- IONESCU, E., & BUREŠOVÁ, O. (1977). Effects of hypothermia on the acquisition of conditioned taste aversion in rats. *Journal of Comparative & Physiological Psychology*, 91, 1297-1307.
- MILLNER, J. R., & PALFAI, T. (1975). Metrazol impairs conditioned aversion produced by LiCl: A time-dependent effect. *Pharmacology Biochemistry & Behavior*, 3, 201-204.
- RABIN, B. M., & RABIN, J. S. (1984). Acquisition of radiation- and lithium chloride-induced conditioned taste aversions in anesthetized rats. *Animal Learning & Behavior*, 12, 439-441.
- ROLL, D. L., & SMITH, J. C. (1972). Conditioned taste aversion in anesthetized rats. In M. E. P. Seligman & J. L. Hager (Eds.), *Biological foundations of learning*. New York: Appleton-Century-Crofts.

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