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Effects of the GABA-B receptor agonist baclofen on fat intake in non-deprived rats

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Both acute and chronic i.p. administration of the $GABA_B$ receptor agonist baclofen (bac) increases food intake in non-deprived rats (Patel et al., 2010). However, it has been reported that i.p bac reduces intake of fats in rats in various feeding paradigms in which the animals were presented simultaneously with their normal chow and fat (see Wang et al., 2011).The present study was conducted to investigate the effects of bac on fat intake in non-deprived rats.

Experiment 1. Non-deprived male Wistar rats (b.wt. 320 – 380 g; n=8) were injected i.p. with either saline or bac (1, 2, or 4 mg kg^{-1}) and placed separately in experimental cages with free access to lard (pig fat) and water. Cumulative food consumption was measured as described previously (Patel et al., 2010). A repeated measures design was used with each rat receiving all treatments; at least 3 days separated successive trials. Following the 1st set of trials, the rats were injected daily over a period of 4 days with bac (4 mg / kg; i.p.).Two days later the experimental procedure as described for the 1st set of trials was repeated.

Experiment 2. Male Wistar rats (n=5) that had received 4 daily i.p. injections of bac (4 mg kg^{-1}) were given a 30 min preload of their normal rat chow in experimental cages. The rats were injected with either saline or bac (1, 2 or 4 mg kg^{-1}) and given free access to lard and water. The experimental procedure described for Experiment 1 was followed.

The cumulative food intake data at each measurement interval for each experiment was analysed by one way ANOVA with repeated measures and the *post-hoc* Student Newman-Keuls test

The results obtained in Experiment 1 showed that bac had no effects on fat consumption during any of the measurement intervals during the 1st or 2nd set of trails. Thus, for example, mean ± s.e.mean fat intake (g) at 120 min for the 1st set of trials was saline: 5.3±0.8; bac (1 mg kg^{-1}): 4.9±0.7 (ns); bac (2 mg kg^{-1}): 4.3±0.6 (ns); bac (4 mg kg^{-1}): 4.3±0.5 (ns), and for 2nd set of trails was saline: 4.9±0.7; bac (1 mg kg^{-1}): 4.7±0.6 (ns); bac (2 mg kg^{-1}): 4.7±0.8 (ns); bac (4 mg kg^{-1}): 4.0±0.5 (ns). The results from Experiment 2 also showed that baclofen has no effects on fat consumption in rats that were given an oral pre-load. Thus, for example, mean ± s.e.mean fat intake (g) at 120 min was saline: 2.5±1.5; bac (1 mg kg^{-1}): 1.5±1.1 (ns); bac (2 mg kg^{1}): 2.6±1.3 (ns); bac (4 mg kg^{-1}): 2.7±1.4 (ns).

By contrast to reports that bac reduced fat intake when presented simultaneously with their normal chow (see Wang et al., 2011) the findings of the present study show that baclofen does not have any effects of fat intake in rats when presented on its own.

Patel, S.M. *et al*. (2010) Eur. J. Pharmacol. 635, 129 – 134.

Wang, Y. *et al*. (2011) Appetite, 57, 628 – 634