

Effects of the GABA_B receptor agonist baclofen on food intake and the microstructure of feeding behaviours in the rat

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Introduction: It has previously been shown that systemic administration of baclofen (bac) increases food intake in non-deprived rats¹. The present study, which was ethically approved, was undertaken to extend previous observations by examining the dose-related effects of bac on food intake and the microstructure of feeding behaviours in rats.

Methods: Non-deprived male Wistar rats (n=8, body weight: 250 - 360g) were placed individually in experimental cages with free access to food and water immediately after receiving single i.p. injections of either saline, or (±)bac (1 or 2 mg kg⁻¹) for 60 min in a repeated measures design¹. Behaviour was recorded using a video camera, and the amount of food eaten was measured at 60 min. The video recordings were analysed off-line on a computer based data logging system to assess the microstructure of feeding behaviours (latency, duration and number of bouts of feeding). The results were analysed by repeated measures ANOVA and the *post hoc* Fisher's LSD test.

Results: The results are illustrated in Table 1. Bac (1 and 2 mg kg⁻¹) increased food intake in a dose related manner. The 1 mg kg⁻¹ dose increased food intake by increasing the duration and number of bouts of feeding. On the other hand, the 2 mg kg⁻¹ dose increased food consumption by decreasing latency to feed and increasing the duration of feeding, the number of bouts of feeding and the mean amount of food eaten per feeding bout.

Conclusions. The data confirm and extends previous findings¹ and show that both doses of bac increase food intake by producing almost similar increases in the duration and frequency of feeding. Notably, however, the higher dose of bac also increases the mean amount of food eaten per feeding bout leading to higher overall food consumption.

References:

1. Ebenezer IS *et al* (2011) *Eur J Pharmacol* **635**: 129 - 134

Table 1. Effects of bac (mean \pm s.e. mean) on food intake and the microstructure of feeding behaviours in non-deprived rats measured over a 60 min period. *P<0.05, **P<0.01 vs saline.

| | Saline | Bac (1 mg kg ⁻¹) | Bac (2 mg kg ⁻¹) |
|----------------------------------|-----------------|------------------------------|------------------------------|
| Food intake (g) | 1.1 \pm 0.3 | 2.2 \pm 0.3** | 3.55 \pm 0.5** |
| Duration of feeding (min) | 4.3 \pm 1.2 | 8.1 \pm 1.1** | 7.1 \pm 0.6** |
| Number of Feeding bouts | 9.8 \pm 4.2 | 18.3.5 \pm 4.9* | 21.3 \pm 5.9** |
| Mean intake/bout (g) | 0.12 \pm 0.03 | 0.14 \pm 0.02 | 0.23 \pm 0.05** |
| Latency to feed (min) | 14.5 \pm 2.2 | 11.1 \pm 2.3 | 9.6 \pm 2.0* |