

Effects of the GABA agonists, baclofen and muscimol, on instrumental responding for food reward

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Intra-accumbens administration of the GABA_A agonist muscimol or the GABA_B agonist baclofen strongly stimulates eating behaviour in the rat. However, previous reports have suggested that neither agonist is likely to stimulate instrumental responding for food reward. In the present study, separate groups of Lister hooded rats ($N=12, 12$) were trained on a modified second-order schedule of responding, as a measure of appetitive responding for food, and then implanted with bilateral guide cannulae aimed at the nucleus accumbens shell. They were also habituated to the presentation of chow, as a measure of consummatory behaviour. They were tested on the second-order schedule following administration of vehicle, baclofen (110, 220, 660 pmol) or muscimol (220, 440, 660 pmol). Subsequently, they were given a free feeding test following an identical sequence of drug administration. Baclofen stimulated instrumental responding at an intermediate dose (220 pmol, $p < 0.01$), whereas muscimol had no significant effect on responding at any dose. Baclofen and muscimol stimulated free food intake at both intermediate and higher doses. These data demonstrate that the effects of intra-accumbens administration of baclofen and muscimol on instrumental responding are not equivalent and also show a clear dissociation between the dose-related effects of baclofen on appetitive and consummatory components of feeding behaviour. Baclofen, perhaps through heterosynaptic modulation of other neurotransmitter systems within the accumbens, has broader effects on motivational processing than muscimol.
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Insurance required weight loss regimen led to weight gain in bariatric patients prior to surgery

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Most insurance companies require patients to complete a 6-month medically supervised weight loss regimen to be approved for bariatric surgery. Anecdotal evidence suggests that patients may not lose much weight; but this has not been documented in the literature. Data was collected from 22 (4M, 18F) recent (since 2005) bariatric surgery patients, BMI = 46.7 ± 7.5 S.D., age = 36.3 ± 7.8 S.D., who completed an insurance required weight loss regimen with their primary care physician (PCP). Data was also collected from 12 (2M, 10F) patients, BMI = 46.08 ± 4.5 S.D., age = 39.75 ± 8.1 S.D., who more recently (2007) completed a structured 6-month CBT group weight loss program specially designed for bariatric patients. During the 6-month regimen prior to surgery, those in the PCP group actually gained weight, $+2.3 \text{ kg} \pm 4.9$ S.D. ($t(21) = 2.2, p = 0.042$). In contrast, those in the CBT program lost weight, $-1.1 \text{ kg} \pm 5.0$ S.D. ($t(11) = -0.79, p = 0.44$). A between group comparison showed marginal significance ($F(1, 32) = 3.69, p = 0.06$). All analyses were repeated controlling for sex and age with no significant change in results. Weight gain in the PCP group may be due to patients overindulging in their favorite foods knowing they would no longer be able to do so postsurgery. A structured CBT program may counteract this overindulgence effect, promoting weight loss instead of weight gain presurgery.
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Scent dependent learning: The effects of ambient congruent vs. incongruent scents on recall of coffee information

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A connection between scent and memory has long been recognized. Scent dependent learning exists when the same scent is present in both the learning and assessment phase, which leads to greater performance. The present study assessed scent dependent learning interactions between scent congruent vs. incongruent information. Prior to participation, Ps completed the Profile of Mood States (POMS). They then watched a 50 min video on coffee history under one of three ambient scent conditions (none, coffee and cherry). Following the video, a questionnaire related to the video information was completed under one of three ambient scent conditions (none, coffee and cherry). Following the questionnaire, Ps again completed the POMS, in addition to the NASA-TLX to determine perceived workload and task performance. Between-subjects ANOVAs were conducted controlling for coffee preference and consumption. Scent dependent learning was validated, such that performance was better when the same scent was in both the learning and recall situations. Recall was greater than control when the scent in both the learning and recall situations matched the information presented (i.e. coffee). Recall was greater than control when coffee scent was present in the recall situation, regardless of whether it was presented in the learning condition. Thus, scent dependent learning interacts with the type of information being presented, and can provide greatest performance with congruent testing information, even in the absence of that scent being presented in the learning condition.
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Effects of peppermint scent on appetite control and caloric intake

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Previous research indicates that inhalation of certain scents may reduce hunger levels. The present study evaluated hunger levels during peppermint inhalation vs. non-inhalation, in addition to actual food consumption and dietary evaluation (e.g., fat intake, caloric intake, vitamin and mineral intake, etc.) over a period of 2 weeks. In a within-subjects design, participants completed a peppermint inhalation condition (administered every 2 h) and a non-inhalation condition. Each condition was performed for 5 days during separate weeks. During the protocol, participant rated their hunger level every 2 h and completed a food diary listing everything they consumed for the two 5-day periods. Results indicate participants consumed significantly fewer total calories, calories from saturated fat, total fat, and sugar during the peppermint inhalation condition. Participants also rated their hunger level significantly lower during peppermint inhalation. The primary implication of these results is that peppermint scent can be used as an effective adjunct to decrease appetite, decrease hunger cravings, and consume fewer calories, which may lead to weight reduction and greater overall health.
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