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O-1918 does not alter food intake, body weight or adiposity but reduces appetite hormones and increases certain pro-inflammatory cytokines in a diet induced obesity model

Anna C. Simcocks[1], Lannie O'Keefe[1], Kayte A. Jenkin[2], Michael L. Mathai[1], Deanne H. Hryciw[3], Andrew J. McAinch[4,*]

[1] *Centre for Chronic Disease Prevention and Management, College of Health and Biomedicine, Victoria University, Melbourne, Vic, Australia*
[2] *Department of Digestive Diseases, Emory University, Atlanta, GA, United States*
[3] *Department of Physiology, The University of Melbourne, Parkville, Vic, Australia*
[4] *Centre for Chronic Disease Prevention and Management, College of Health and Biomedicine, Victoria University, St Albans, VIC, Australia*

Introduction: O-1918 is a synthetic compound structurally similar to the plant constituent cannabidiol, and is an antagonist for GPR55 and GPR18. While the role of GPR18 in obesity is unknown, GPR55 knockout mice have increased adiposity and insulin resistance. In humans, the expression of GPR55 is increased in visceral fat and positively correlated with obesity and T2D. Both receptors are classified as putative cannabinoid receptors. The endocannabinoid system is involved in regulating energy homeostasis. Therefore modulation of these receptors may be a useful obesity target.

Aim: To determine the role that O-1918 has on the regulation of body weight and circulating hormones and cytokines.

Methodology: Male Sprague Dawley rats were fed a high fat diet (41% energy from fat) for 9 weeks to induce obesity, then treated with 1 mg/kg of O-1918 or vehicle for a further 6 weeks. Weight and food intake were monitored daily. Body composition using EchoMRI was measured at baseline, during week-3 and week-6 of treatment. Following treatment, rats were anaesthetised, blood was collected via cardiac puncture and fat pads collected and weighed immediately post-mortem. Plasma concentrations of hormones and cytokines were determined using commercially available Bioplex Diabetes and Cytokine kits.

Results: In obese rats, O-1918 treatment did not change food intake, body weight, body composition or fat pad weight compared to obese control. Despite no alteration in food intake or body weight, O-1918 reduced plasma leptin and ghrelin compared to obese control. O-1918 also increased pro-inflammatory cytokines including IL-1a, IL2, IL17a, IL18 and RANTES, some of which are linked with insulin resistance and T2D.

Discussion/conclusion: These results demonstrate that GPR55/GPR18 antagonist, O-1918 did not alter food intake, body weight or adiposity suggesting it is not an effective anti-obesity therapeutic. The changes observed in the circulating hormones and cytokines require further investigation into any tissue-specific effects.

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Investigation into availability of kilojoule information in Victorian chain food outlets

Alison McAleese[1,*], Kathryn Merrington[2], Craig Sinclair[1]

[1] *Cancer Council Victoria, Melbourne, Victoria, Australia*
[2] *Deakin University, Melbourne, Victoria, Australia*

Background: Fast food is often high in fat and sugar and can be a significant contributor to weight gain. Provision of consistent nutrition information at point of purchase has been shown to be effective in reducing kilojoules purchased. Several Australian states have mandatory kilojoule labelling in chain outlets but Victoria does not. In the absence of local regulations we investigated whether Victorian chains were implementing kilojoule labelling consistent with other states.

Methods: This study was an instore survey of 129 chain stores in 5 areas across metro and regional Victoria. All fast food, café, takeaway drink and snack, supermarket and bakery chains covered by kilojoule menu labelling legislation in NSW and a major convenience store chain in the survey areas were assessed. Data collection involved observations of kilojoule labelling on menu boards, product tags and takeaway brochures. Stores were scored for consistency with NSW regulations around font size, legibility and labelling on all items.

Results: 94 of 129 stores surveyed were covered by the labelling legislation in NSW. Of the stores surveyed only 11% ($n = 14$) provided kilojoule labelling consistent with NSW regulations. The most common

inconsistencies were legibility (60%) and font size (56%). All (100%) fast food outlets and large supermarkets had some kilojoule information available instore. Some casual dining (40%), takeaway drink and snack outlets (75%) and coffee outlets (87%) had some kilojoule information instore. No (0%) bakeries or convenience stores had any kilojoule information instore. Overall only three of the 25 chains had labelling consistent with NSW regulations.

Conclusions/recommendations: The study findings indicate kilojoule information is available in many Victorian food chains. However it is inconsistent and often difficult to read reducing its impact. Mandatory consistent kilojoule menu labelling and accompanying education is more likely to help consumers make healthier choices in chain food outlets.

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Add health stars to reduce kilojoules? Effects of health star labelling on the kilojoule content of adults' fast food meal selections

Philippa Niven [1,*], Belinda Morley [1], Helen Dixon [1], Jane Martin [2], Alexandra Jones [3], Kristina Petersen [3], Melanie Wakefield [1]

[1] *Centre for Behavioural Research in Cancer, Cancer Council Victoria, Melbourne, VIC, Australia*
[2] *Obesity Policy Coalition, Melbourne, VIC, Australia*
[3] *Food Policy Division, The George Institute for Global Health, Sydney, NSW, Australia*

Background: People substantially underestimate the energy content of fast food meals.

Aim: To test whether the addition of Health Star Rating (HSR) labelling to kilojoule (kJ) labelling on menus at fast food outlets would prompt consumers to select meals with fewer kJs.

Methods: A between-subjects experimental design, whereby 1,007 NSW adults aged 18—49 were allocated to one of four menu labelling conditions: (i) no labelling; (ii) kJ labelling; (iii) HSR labelling; and (iv) kJ + HSR labelling. Using an online methodology, respondents were presented with their menu boards and instructed to select an evening meal as they would at a fast food restaurant. Programming required participants to select at least one item overall, and up to five mains and sides, two drinks and three desserts. A one-way ANOVA, with Bonferroni adjustment, was conducted to test for differences in the total mean kJ content of respondents' evening meal selections by menu labelling condition.

Results: Overall, the mean kJ content of meals selected did not differ significantly by menu labelling condition ($p > 0.05$). This was consistent across demographic characteristics, BMI, perceived weight status, usual frequency of eating at fast food restaurants, and self-reported importance of nutrition when eating out. However, among respondents who reported using menu board nutrition information to assist meal selection ($n = 343$, 34%), mean kJ content of meals differed significantly by condition ($p = 0.034$). Respondents shown kJ + HSR menu labelling selected meals with a significantly lower kJ content compared to those shown HSR labelling only (4751 kJ cf. 5745 kJ, $p = 0.038$).

Conclusion: For the sample as a whole, the addition of HSR to kJ labelling on menus did not afford a clear reduction in the mean kJ of meals selected. However, among the minority of respondents who made use of nutrition information, it enabled them to select less energy-dense meals.

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