but these reductions were no associated with performance on the NPR. However, abundances of specific OTUs within *Bacteroides* and *Lactobacillus* were associated with place task performance. Minocycline did not affect gene expression of IL-1B, TNF or IL6 in retroperitoneal white adipose tissue, although rats fed cafeteria diet and minocycline exhibited significantly increased expression of TLR-4. In summary, cafeteria diet produced persistent deficits in NPR that were prevented by minocycline cotreatment. The differences in behaviour observed correlated with differences in microbiome composition, but not with inflammatory gene expression in retroperitoneal fat.

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Genetic architecture of a healthy diet in *Drosophila*

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Obesity is the strongest risk factor for type 2 diabetes, however, excess body fat does not fully explain the etiology of diabetes as several human populations develop diabetes at a lower level of obesity than others, and about 20% of obese people display normal metabolism. A major recommendation is to reduce calorie intake, yet the contribution of individual macronutrients to individuals risk of developing metabolic diseases is poorly understood. There is no clear consensus on what comprises the optimal healthy diet, and emerging evidence shows tremendous variation on health effects of different diets between individuals and populations. The aim of this study was to understand how the genetic background defines a framework for a healthy diet. To this end, we have used the Drosophila Genetic Reference Panel (DGRP), a collection of 200 inbred fly strains derived from a single outbred natural population, to dissect the gene-diet interaction across various macronutrients. Our study shows that genetic background determines the survival of flies on different diets. Functional validation of candidate SNPs identified a large number of genes previously unknown to control the metabolism and utilization of macronutrients. Isolating genes that predispose to better health outcomes in response to different nutrients will have considerable impact on public health and provides a first step towards the development of personalized nutrition as a practice to manage metabolic diseases.

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Metformin and dietary advice for pregnant women who are overweight or obese: the GROW randomised trial

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Introduction: Maternal overweight and obesity is associated with well-recognised pregnancy complications. Our aim was to evaluate the role of metformin in addition to dietary and lifestyle advice for pregnant women who were overweight or obese.

Methods: We conducted a double blind, placebo controlled, randomised trial. Eligible women with a live singleton pregnancy between 10^{+0} and 20^{+0} weeks gestation, and were overweight or obese (BMI $\geq$25.0 kg/m^2) at their first prenatal visit were recruited from public maternity hospitals in Adelaide, South Australia.

All women received an antenatal dietary intervention and were randomly allocated to receive either metformin to a maximum dose of 2000 mg per day, or an identical appearing placebo.

The primary outcome was the proportion of infants with birth weight > 4000grams. Secondary outcomes included gestational weight gain (GWG), maternal pregnancy, labour and birth, and infant outcomes. Statistical analyses adopted intention to treat principles.

Results: 524 women were randomized (261 Metformin; 263 Placebo). There was no significant difference in the proportion of infants with birth weight >4000 g (15.63% Metformin versus 14.34% Placebo; aRR 0.97; 95% CI 0.65–1.47; $p = 0.899$). Women receiving metformin had lower weekly GWG (0.38 + 0.34 kg Metformin vs 0.47 + 0.35 kg Placebo; aMD −0.08; 95% CI −0.14–0.02; $p = 0.007$), and were more likely to gain below the Institute of Medicine recommendations (39.2% Metformin vs 27.0% Placebo; aRR 1.46; 95% CI 1.10–1.94; $p = 0.008$). Total GWG was not statistically significantly different (7.48 + 6.95 kg Metformin versus 8.72 + 6.91 kg Placebo; aMD −1.18; 95% CI −2.37 to 0.01; $p = 0.053$). There was no evidence of impact on pregnancy and birth outcomes.

Conclusion: There was some evidence that metformin as an adjuvant therapy to a dietary and lifestyle intervention in overweight and obese pregnant women reduced GWG measures, but there was no evidence of an impact on pregnancy and birth outcomes.

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The importance of good dialogue between healthcare professionals and people with obesity

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Background: The ACTION (Awareness, Care, and Treatment In Obesity maNagement) study examined perceptions, attitudes and behaviours related to obesity management among people with obesity (PwO) and healthcare professionals (HCPs).

Methods: A cross-sectional, US-based, stratified sampling of 3008 adults with obesity and 606 HCPs completed an online survey assessing perceptions, attitudes and behaviours associated with obesity management. Both groups self-reported on their height and weight and perceptions of obesity-related discussions between PwO and HCPs.

Results: Most PwO (82%) agreed weight loss (WL) is completely their responsibility and most HCPs (72%) agreed they are responsible to contribute to PwO WL efforts. PwO believe reaching a target weight is central to success. Half of PwO reported receiving a formal obesity diagnosis; however, PwO were more likely to have an obesity diagnosis if they were actively seeking treatment (57% vs. 51%)

or reported successful WL (69% vs. 53%). Half of HCPs reported not discussing weight issues with PwO because of lack of appointment time. Of PwO who discussed weight with HCPs, 24% are scheduled for follow-up appointments to discuss weight. Most PwO reported they would keep the appointment and would trust HCPs' weight management advice. Despite recent treatment developments, clinical discussions about WL focused more on healthy eating and physical activity and less on behavioural modifications and medical options like specialist visits, medications or surgery. Eighty per cent of PwO wanting to lose weight would commit to general improvements in eating habits and physical activity increases; 40% would commit to prescription WL medication.

Conclusions: HCPs can activate PwO using simple solutions: initiating discussions instead of waiting for patients to do so, scheduling follow-up appointments and formally diagnosing obesity. HCPs can improve dialogue by comprehensively discussing all treatment modalities and setting goals according to obesity guidelines.

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Real-world clinical effectiveness of liraglutide 3.0 mg for weight management in Canada

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Objectives: Real-world clinical effectiveness of liraglutide 3.0 mg, in combination with diet and exercise, was investigated at 4 and 6 months post-initiation. Changes in absolute and percentage body weight, and in cardiometabolic markers, were examined from baseline.

Methods: Using a database of de-identified electronic medical records from six Canadian weight management clinics, a cohort of liraglutide 3.0 mg initiators during 2015–2016 was identified. Post-initiation values at 4 and 6 months were compared to respective baseline values using a paired *t*-test.

Results: The full cohort comprised 311 subjects, with 210 subjects in the ≥4-month and 167 subjects in the ≥6-month persistence groups. For all subjects, average age was 49.7 years and subjects were predominantly white (77.5%) and female (83.0%). Average BMI was 40.7 kg/m^2, weight was 114.8 kg. At baseline, 74.9%, 19.9% and 5.1% of subjects had normoglycaemia, prediabetes, and diabetes, respectively. Average baseline values for HbA1c and blood pressure were 5.8% and 127/77 mmHg. There was a significant change in body weight 6 months after initiation of treatment in persistent subjects (≥6-month: −8.1 kg, $P < 0.001$). Weight loss was also significant for subjects persistent on treatment for ≥4 months (−6.9 kg, $p < 0.001$) and in all subjects, regardless of persistence (−7.5 kg, $p < 0.001$). Percentage change in body weight from baseline for the ≥6-month group was −7.1%, with 63.4% and 35.2% of subjects having lost ≥5% and >10% body weight, respectively. Overall percentage change in body weight was also observed in the ≥4-month group (−6.2%) and in all subjects (−6.6%). For the ≥6-month treatment group, there was a statistically significant change in HbA1c (−0.35%, $p < 0.001$) and SBP (−3.0 mmHg, $p < 0.01$), but not DBP (0.1 mmHg, $p = 0.90$).

Conclusions: In a real-world setting, liraglutide 3.0 mg, when combined with diet and exercise, was associated with clinically meaningful weight loss and with improvements in cardiometabolic markers.

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Comparison of clinicians' views for managing children with obesity in the primary, secondary and tertiary settings

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Introduction: In Australia, approximately one quarter of school-aged children are overweight or have obesity. Early identification and treatment of children with obesity is important for improving outcomes. Healthcare professionals have a pivotal role in early identification and treatment. The aim of this study was to compare perceptions of the assessment and management of children between primary, secondary and tertiary care clinicians across two health districts in Western Sydney and the Sydney Children's Hospitals Network.

Methods: Participants were 304 clinicians (medical, nursing and allied health workers) in primary, secondary and tertiary paediatric level services. An online questionnaire was developed to capture the training, assessment and management approaches and barriers to managing paediatric patients with obesity. Chi-squared tests and logistic regressions were used to examine the difference in responses between primary, secondary and tertiary practitioners.

Results: Overall, clinicians had low rates of training in obesity (48%), did not routinely measure tandem heights and weights (80%), and did not refer children to other services. Only 25% of clinicians frequently referred children to weight management services (most frequently the Dietitian) and very few (7%) frequently referred patients to a free, community-based intervention for children. When comparing across healthcare settings, those in secondary level services had higher rates of training (70%) and more frequently initiated treatment for obesity.

Conclusion: Frequencies of clinicians who routinely identify and initiate treatment for a child with obesity are low among health professionals in primary, secondary and tertiary healthcare settings, with some exceptions for secondary care clinicians, who were more frequently trained and more often initiated treatment. This suggests that more health professional training may be a key factor in increasing healthcare for obesity.

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