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Reduction in the risk of developing type 2 diabetes (T2D) with liraglutide 3.0 mg in individuals with prediabetes and obesity or overweight from the SCALE Obesity and prediabetes randomised, double-blind, placebo-controlled trial

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Background: The 3-year part of this trial investigated the effect of liraglutide 3.0 mg, as an adjunct to diet + exercise, in delaying onset of T2D (primary endpoint) in adults with prediabetes and obesity (BMI $\geq$30 kg/m^2) or overweight ($\geq$27 kg/m^2) with comorbidities.

Methods: Participants were randomised 2:1 to once-daily subcutaneous liraglutide 3.0 mg or placebo plus 500 kcal/day deficit diet and 150 min/week exercise. Efficacy data are observed means, with last observation carried forward for missing values. Clinicaltrials.gov ID: NCT01272219.

Results: Of 2254 randomised individuals with prediabetes (age 47.5 $\pm$ 11.7 years, 76.0% female, weight 107.6 $\pm$ 21.6 kg, BMI 38.8 $\pm$ 6.4 kg/m^2, mean $\pm$ SD), 1128 completed 160 weeks (52.6% on liraglutide, 45.0% on placebo). At Week 160, mean weight loss (WL) was 6.1% with liraglutide vs. 1.9% with placebo (estimated treatment difference −4.3% [95%CI −4.9;−3.7], $p < 0.0001$). More individuals achieved $\geq$5% WL (estimated odds ratio [OR] 3.2 [2.6;3.9]) receiving liraglutide vs placebo (49.6% vs 23.7%) and more achieved >10% WL (OR 3.1 [2.3;4.1]) (24.8% vs 9.9%), both $p < 0.0001$. Based on the Kaplan–Meier plot of cumulative probability of a diagnosis of diabetes taking censoring into account, 3% of individuals in the liraglutide group vs. 11% in the placebo group were diagnosed with diabetes by week 160 while on treatment. At week 160, the estimated time to onset of diabetes was 2.7 times longer with liraglutide than with placebo while on treatment (95% CI 1.9; 3.9, $p < 0.0001$), corresponding to a hazard ratio of 0.2. Liraglutide was generally well tolerated. Gallbladder-related events (2.9 vs 1.2/100 patient-years of observation [PYO]) and confirmed pancreatitis (0.29 vs 0.13 events/100 PYO) were low, but more frequent with liraglutide.

Conclusion: Liraglutide 3.0 mg, plus diet + exercise over 3 years was associated with greater weight loss and reduced risk of T2D compared to placebo.

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A novel probiotic for glucose management: A randomised double-blind placebo controlled pilot study

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Background: Type 2 diabetes Mellitus (T2DM) is characterised by a persistent low-grade inflammatory response associated with the development of insulin resistance [1]. Variations in the type, diversity and metabolic capacity of gastrointestinal gastro-intestinal microbial communities have been shown to alter these metabolic and inflammatory

pathways by shifting energy balance and storage and promoting metabolic endotoxaemia [2,3].

Aim: The aim of this study is to assess the therapeutic effect of a novel probiotic on glucose metabolism in adults diagnosed with prediabetes and early T2DM.

Methods: Sixty adults with a BMI $\geq$25 kg/m^2 and diagnosed with pre-diabetes or T2DM (within the previous 12 months) have been enrolled in a double-blind controlled clinical trial and randomised to a multi-strain probiotic or placebo for 12 weeks. Both groups received lifestyle advice. Measurements and samples are collected at baseline and 12 weeks after treatment. Outcome measures include fasting plasma glucose, 2-hour glucose tolerance, insulin, lipids, inflammatory markers, gut permeability, and faecal microbial and metabolomics profiles.

Results: Recruitment is complete and the study will be concluded in September 2016. The primary outcome of fasting blood glucose will be reported as well as secondary outcomes including insulin sensitivity, lipid profiles and inflammatory and permeability markers.

Discussion: Intentional manipulation of gastrointestinal microbial profiles may be useful for regulating T2DM and its associated metabolic disorders.

Trial registration: Australian New Zealand Clinical Trials Registry: ACTRN12613001378718.

Competing interests: LV and SC participate in research on probiotics at Medlab Clinical. The authors CM, IC and TP declare that there are no conflicts of interest.

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Recruiting young women with obesity to weight management trials: Barriers and enablers

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Background and significance: Young women are difficult to recruit to weight management trials (WMT). Limited research has explored these challenges. This study aimed to examine barriers and enablers influencing WMT participation by young obese women.

Methods: Young (18—35 y) women with obesity (BMI >30-40 kg/m^2) were recruited to 90 min focus groups (3—5 participants/group) to discuss barriers and enablers influencing participation in WMT. Participants were required to have undertaken at least two previous serious weight loss attempts. Discussion was recorded and transcribed verbatim. Recruitment continued until thematic saturation occurred with qualitative content analysis conducted using NVivo.

Major findings: Eight groups (5 urban; 3 regional) including 27 women (16 urban; 11 regional) were conducted. Age and BMI was (mean $\pm$ SD) 29.2 $\pm$ 5.8y and 36.0 $\pm$ 2.8 kg m^{-2} respectively. Barriers were psychological, physical or program-related. Strong psychological barriers included, feeling stigmatised about obesity, especially the fear of judgement by health professionals/researchers (or other participants) as well as the challenge of overcoming the denial of needing to lose weight. Physical barriers included the time commitment, other participation costs and access (transport/parking). Perceived program barriers included the lack of WMT tailoring to younger women and the need to eat specific foods. Financial incentives were a strong enabler. Advertising other WMT benefits (health, fitness, well-being) rather than weight loss and use of private (toilet door, e-mail, e-newsletters, social media and websites with self-assessment of eligibility) rather than public advertising (noticeboards