analysis set. Placebo data are shown only for proportion of ERs/ENRs.

Results: Of those with W16 data, for liraglutide 3.0 mg ($n = 1302$) 68.0% were ERs and 32.0% ENRs; for placebo ($n = 640$), 22.3% were ERs and 77.7% ENRs. At W160, greater WL (−8.6% and −9.1 kg change in ER body-weight versus −2.9% and −3.1 kg for ENRs), reduced proportions of subjects developing T2D (0.5% ERs, 3.2% ENRs) and greater regression to normoglycaemia (69.8% in ERs, 55.4% in ENRs) were observed in ERs to liraglutide 3.0 mg vs ENRs. ERs showed greater clinical improvements (FPG, HbA_{1c}, SBP levels) and patient-reported improvements compared with ENRs (SF-36 score +3.68 vs +1.81 and IWQOL-Lite score +13.40 vs +9.53 for ERs and ENRs, respectively. Increase in score = improvement). Adverse events (AEs) and GI AEs were similar between groups (87.1% and 75.3% for ERs; 95% and 71.6% for ENRs) while serious AEs and gallbladder disorders were more frequent in ERs (17.7% and 6.3% vs 12.7% and 2.2% for ENRs).

Conclusions: Among those treated with liraglutide 3.0 mg for 160 weeks, greater benefits were seen in ERs vs ENRs; overall AE rates were similar.

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78

Liraglutide 3.0 mg reduces body weight and improves cardiometabolic risk factors in adults with obesity or overweight, but without diabetes: The SCALE Obesity and Prediabetes randomised, double-blind, placebo-controlled 3-year trial

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Aims/objectives: Obesity and prediabetes are risk factors for developing T2D. 5—10% weight-loss can reduce risk of developing T2D by >50%. This phase-3 trial investigated effects of liraglutide 3.0 mg, as adjunct to diet + exercise, on delaying onset of T2D over 3 years (primary endpoint), body-weight and cardiometabolic risk factors.

Methods: Individuals (BMI $\geq 30\,kg/m^2$, or $\geq 27\,kg/m^2$ with ≥ 1 comorbidity) were randomised 2:1 to once-daily subcutaneous liraglutide 3.0 mg ($n = 1505$) or placebo ($n = 749$) and advised on a 500-kcal/day deficit diet and 150-min/week exercise. Efficacy data are observed means, with last-observation-carried-forward (LOCF) imputation. Clinicaltrials.gov NCT01272219.

Results: Baseline characteristics were (mean ± SD): age 47.5 ± 11.7 years, 76.0% female, weight 107.6 ± 21.6 kg, BMI 38.8 ± 6.4 kg/m^2. With continued treatment over 160 weeks, time to T2D onset was 2.7-fold longer with liraglutide 3.0 mg than placebo [95%CI 1.9;3.9, $p < 0.0001$], corresponding to a hazard ratio of 0.2; 3% vs 11% of patients, respectively were diagnosed with T2D. More individuals on liraglutide (66%) than placebo (36%) regressed from prediabetes

(ADA2010 criteria) to normoglycaemia by week 160 (OR 3.6 [3.0;4.4], $p < 0.0001$). Individuals on liraglutide 3.0 mg lost more weight than on placebo (6.1% vs 1.9%; estimated treatment difference [ETD] −4.3% [95%CI −4.9;−3.7]), accompanied by greater mean reductions in waist circumference (ETD −3.5 [−4.2;−2.8] cm), SBP (ETD −2.8 [−3.8;−1.8] mmHg), triglycerides (ETD −6%[−9;−3]) and high-sensitivity C-reactive protein (ETD 29% [−34;−23]) (all $p < 0.001$). Mean pulse increased with liraglutide 3.0 mg vs placebo (ETD 2.0 [1.2;2.7] beats/min, $p < 0.0001$). AE incidence was 94.7% with liraglutide 3.0 mg vs 89.4% with placebo, SAEs 15.1% vs 12.9%. Adjudicated major adverse cardiovascular events (non-fatal myocardial infarction, stroke, cardiovascular death) were low overall (0.19 vs 0.20 events/100 patient-years-of-observation for liraglutide 3.0 mg vs placebo).

Conclusion: Liraglutide 3.0 mg, as adjunct to diet + exercise, delayed the onset and reduced the risk of T2D over 3 years in adults with prediabetes, reduced body weight and improved cardiometabolic risk factors.

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79

Effects of exercise on appetite and gut hormones: Implications for weight management

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Background: Regular exercise is essential for long-term weight maintenance; however, the role of exercise in weight loss is sometimes questioned due to the potential compensatory increases in hunger and food intake, associated with changes in appetite hormones. We examined the effects of exercise training on appetite and gut hormones, in addition to energy intake, subcutaneous adipose tissue (SAT) and visceral adipose tissue (VAT) in adults with overweight/obesity.

Methods: Twenty-three inactive adults with overweight/obesity (BMI $33.3 \pm 5.5\,kg/m^2$) aged 47 ± 9 years were randomised to 8-weeks of aerobic ($n = 17$, 30—60 min per session at 50—70% of VO_{2peak}, 3—4 days/week) or resistance exercise training ($n = 5$, 8—10 exercises per session, 8—12 repetitions, 2—3 sets per exercise at 80—85% of 1-repetition maximum, 3 days/week). Intervention group data (aerobic and resistance exercise training) were combined for data analyses. Participants were instructed not to alter their diet. Before and after the intervention, fasting subjective appetite sensations (using visual analogue scale) and plasma for gut hormone assays were collected after an overnight fast. Energy intake was recorded using 3-day food diaries, and VAT and SAT were measured via magnetic resonance imaging. Changes from baseline were analysed using paired *t*-tests.