## Appendix 2 (as supplied by authors): Details of included studies

| **Study/Location** | Champagne 2011 [1] United States; Companion paper: Svetkey [2] |
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| **Objective** | To compare two weight loss maintenance interventions with a self-directed control group |
| **Methods** | Design: randomized controlled trial<br>Selection: recruited from 4 medical centres/health research sites in the United States; recruitment included mass mailing, posted flyers, radio advertisements, and print media<br>Inclusion Criteria: ≥4 kg weight loss during phase 1 (weight loss) of the intervention<br>Exclusion Criteria: medication-treated diabetes; recent cardiovascular event; medical or psychiatric conditions preventing full participation; weight loss ≥9 kg in past 3 months; recent use of weight loss medications; prior weight loss surgery |
| **Participants** | Sample: 1,032 (weight maintenance study)<br>Intervention 1 (Internet) n=348; Intervention 2 (Personal Contact) n=342; Control n=342<br>Age, Mean (SD) years (at beginning of weight maintenance study): Intervention 1: 55.7 (8.5); Intervention 2: 55.4 (9.1); Control: 55.8 (8.5)<br>Gender [Female n (%)] (at beginning of weight maintenance study): Intervention 1: 220 (63.2%); Intervention 2: 213 (62.3%); Control: 221 (64.6%)<br>Race/Ethnicity (African American) (at beginning of weight maintenance study): 37.5%<br>SES (Education) (at beginning of weight maintenance study): Some college or less: 37.7%; College: 22.5%; Post-college: 39.9%<br>SES (Income) (at beginning of weight maintenance study): <$30,000: 7.3%; $30-59,000: 35.4%; $60-89,999: 31.3%; ≥$90,000: 26.1%<br>Loss to follow-up: Intervention 1 n=15; Intervention 2 n=14; Control n=22 |
| **Intervention** | Description of prior weight loss intervention: followed DASH diet for 6 months (increase intake of fruits, vegetables, low-fat dairy, whole grains); program support delivered in 20 group sessions<br>Description of weight maintenance intervention: 2 strategies for delivering program support: one group received personal contact and the second group received support via interactive technology; both groups encouraged to continue the DASH diet<br>Description of weight maintenance control: self-directed<br>Duration of weight maintenance intervention: 30 months<br>Length of follow-up: immediate post |
| **Study/Location** | Davidson 1999 [3] United States |
| **Objective** | To test whether orlistat plus a dietary intervention is more effective than placebo plus diet for weight loss and maintenance over two years |
| **Methods** | Design: randomized controlled trial |

Appendix to: Peirson L, Fitzpatrick-Lewis D, Ciliska D, Ali MU, Raina P, Sherifali D. Strategies for weight maintenance in adult populations treated for overweight and obesity: a systematic review and meta-analysis. *CMAJ Open* 2015. DOI:10.1503/cmajo.20140050. 

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| | Selection: recruited at 18 clinical research centers in the United States<br><br>Inclusion Criteria (for weight loss phase): >18 years; BMI 30 to 43; adequate contraception in women of childbearing potential; ≤0.4 kg weight loss in past 3 months<br><br>Exclusion Criteria: frequently changed smoking habits or stopped smoking in the past 6 months; history or presence of substance abuse or excessive intake of alcohol; significant cardiac, renal, hepatic, gastrointestinal, psychiatric, or endocrine disorders; drug-treated T2D; use of medications that alter appetite or lipid levels |
| **Participants** | Sample: 576 (weight loss maintenance portion of study) (ITT population randomized in initial weight loss study n=880)<br><br>Intervention 1 (60 mg orlistat) n=152; Intervention 2 (120 mg orlistat) n=153; Control n=153<br><br>Age, Mean (SD) years (orlistat recipients at start of weight loss study run-in): 43.3 (0.6)<br><br>Gender [Female n (%)] (orlistat recipients at start of weight loss study run-in): 544 (82.8%)<br><br>Race/Ethnicity [n (%)] (orlistat recipients at start of weight loss study run-in): White 534 (81.3%); Black 88 (13.4%); Hispanic 28 (4.3%)<br><br>Loss to follow-up (over weight loss and weight loss maintenance phases): Intervention 1 n=44; Intervention 2 n=50; Control n=43 |
| **Intervention** | Description of prior weight loss intervention: placebo plus a controlled-energy diet during a 4-week lead-in; on day 1 of weight loss study, diet continued and participants randomized to intervention received 120 mg dose of orlistat 3 times a day for 52 weeks; participants randomized to control also continued with the diet but were administered a placebo 3 times daily for 52 weeks<br><br>Description of weight maintenance intervention: participants previously treated with 120 mg orlistat were randomized to one of two intervention groups (or the control group); intervention group 1 received a 60 mg dose of orlistat 3 times daily plus they followed a weight-maintenance diet; intervention group 2 continued to receive a 120 mg dose of orlistat taken 3 times daily and followed the weight maintenance diet<br><br>Description of weight maintenance control: control group of patients previously treated with orlistat received placebo plus followed the weight-maintenance diet<br><br>Duration of weight maintenance intervention: 12 months<br><br>Length of follow-up: immediate post |
| **Study/Location** | Hauptman 2000 [4] United States |
| **Objective** | To evaluate the long-term efficacy and tolerability of orlistat for the treatment of obesity within primary care settings |
| **Methods** | Design: randomized controlled trial<br><br>Selection: recruited from 17 primary care centers in the United States<br><br>Inclusion Criteria: >18 years; BMI 30 to 44 |

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| | Exclusion Criteria: pregnant, lactating or women not using adequate contraception; weight loss >4 kg during past 3 months; history of significant cardiac, renal, hepatic, or gastrointestinal disorders; uncontrolled hypertension other clinically significant condition; gastrointestinal surgery for weight-reducing purposes; bulimia or laxative and/or substance abuse; abnormal laboratory measures (values ≥10% reference value for normal range and requiring medical follow-up); changes in smoking habits in past 6 months; drugs that could affect body weight or food intake 8 weeks prior to screening |
| **Participants** | Sample: 427 (weight maintenance portion of study)<br><br>Intervention 1 (60 mg orlistat) n=154; Intervention 2 (120 mg orlistat) n=151; Control n=122<br><br>Age, Mean (SD) years (prior to run in of weight loss portion of study): Intervention 1: 42.6 (0.8); Intervention 2: 43.2 (0.7); Control: 41.6 (0.7)<br><br>Gender [Female n (%)] (prior to run in of weight loss portion of study): Intervention 1: 166 (77.9%); Intervention 2: 166 (79.0%); Control: 165 (77.8%)<br><br>Race/Ethnicity (prior to run in of weight loss portion of study): Intervention 1: White n=200, Black n=9, Hispanic n=2, Other n=2; Intervention 2: White n=184, Black n=19, Hispanic n=6, American Indian n=1; Control: White n=193, Black n=15, Hispanic n=4<br><br>Loss to follow-up (weight maintenance portion): Intervention 1 n=34; Intervention 2 n=34; Control n=31 |
| **Intervention** | Description of prior weight loss intervention: after a 4-week single-blind, placebo run-in participants randomized to placebo, 60 mg of orlistat, or 120 mg of orlistat, all 3 times daily for 52 weeks; followed a reduced-energy diet from beginning of the run-in and throughout the 52 weeks of treatment; participants in all groups were encouraged to engage in physical activities (e.g., brisk walking 20-30 minutes 3-5 times a week)<br><br>Description of weight maintenance intervention: participants received the same placebo or drug treatment for a second year in combination with a weight maintenance diet intended to prevent weight regain rather than induce further weight loss<br><br>Description of weight maintenance control: placebo plus weight maintenance diet (same control group as weight loss)<br><br>Duration of weight maintenance intervention: 12 months<br><br>Length of follow-up: immediate post |
| **Study/Location** | Hill 1999 [5] United States |
| **Objective** | To test the effectiveness of orlistat against placebo in preventing weight regain |
| **Methods** | Design: randomized controlled trial<br><br>Selection: recruited at 17 clinical research centers in the United States<br><br>Inclusion Criteria: lost ≥8% baseline body weight during run-in period<br><br>Exclusion Criteria: history of significant medical disorders (uncontrolled hypertension, recurrent nephrolithiasis, symptomatic cholelithiasis, active gastrointestinal disorders, |

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| | T2D, pancreatic disease, cancer); pregnant or lactating; history or presence of substance abuse or excessive alcohol intake; eating disorders; significantly abnormal laboratory test results; previous gastrointestinal surgery for weight reduction; history of postsurgical adhesions |
| **Participants** | Sample: 729 (weight maintenance period)<br><br>Intervention 1 (30 mg orlistat) n=187; Intervention 2 (60 mg orlistat) n=173; Intervention 3 (120 mg orlistat) n=181; Control (placebo) n=188<br><br>Age Mean (SD) years (at start of 6 month lead in weight loss period): Intervention 1: 46.8 (0.8); Intervention 2: 46.1 (0.7); Intervention 3: 45.9 (0.7); Control: 46.4 (0.7)<br><br>Gender [Female n (%)] (at start of 6 month lead in weight loss period): Intervention 1: 157 (84.4%); Intervention 2: 136 (79.5%); Intervention 3: 156 (87.1%); Control: 156 (84.8%)<br><br>Race/Ethnicity (White) (at start of 6 month lead in weight loss period): Intervention 1: n=164; Intervention 2: n=155; Intervention 3: n=153; Control: n=164<br><br>Loss to follow-up: Intervention 1 n=47; Intervention 2 n=40; Intervention 3 n=55; Control n=50 |
| **Intervention** | Description of previous weight loss intervention: 6 month dietary intervention involving nutritionally balanced, hypoenergetic diet with a deficit of 4,180 kJ/d; encouraged to engage in physical activity (brisk walking 20-30 minutes 5 times/week)<br><br>Description of weight maintenance intervention: 3 intervention groups: group 1 30 mg orlistat 3 times/day, group 2 60 mg orlistat 3 times/day, group 3 120 mg orlistat 3 times/day; dietary and behavioural counseling provided throughout treatment period<br><br>Description of weight maintenance control: placebo and same behavioural components as intervention<br><br>Duration of weight maintenance intervention: 12 months<br><br>Length of follow-up: immediate post |
| **Study/Location** | Richelsen 2007 [6] Scandinavian Countries |
| **Objective** | To investigate the efficacy of orlistat on the maintenance of weight following a major diet induced weight loss in obese patients with metabolic risk factors |
| **Methods** | Design: randomized controlled trial<br><br>Selection: recruited at 9 clinical research centers across Scandinavia<br><br>Inclusion Criteria: 18-65 years; BMI 30-45; waist circumference ≥102 cm (men) or ≥92 cm (women); ≥1 identified risk factors [impaired fasting glucose (plasma glucose ≥6.1 mmol/L), diet-treated T2D (plasma glucose ≥7.0 mmol/L), dyslipidemia (HDL cholesterol ≤0.9 mmol/L [men] or ≤1.1 [women]), serum triglycerides ≥2.0 mmol/L but <10.0 mmol/L]; loss of ≥5% baseline body weight during run-in period |
| **Participants** | Sample: 309 (weight maintenance study)<br><br>Intervention n=153; Control n=156 |

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| | Age, Mean (range) years (after run-in and at randomization for weight maintenance): Intervention: 47.2 (20-64); Control: 46.7 (19-63)<br><br>Gender [Female n (%)]: Intervention: 77 (50.3%); Control: 80 (51.3%)<br><br>Loss to follow-up: not reported |
| **Intervention** | Description of run-in weight loss intervention: 8 weeks on a very low energy diet of 600 to 800 kcal/day<br><br>Description of weight maintenance intervention: 120 mg orlistat three times daily; standard energy restricted diet (600 kcal daily deficit); dietitian provided dietary (reduce fat, increase fruit and vegetable intake) and lifestyle (increase physical activity) counseling (monthly for first 18 months, every 3 months thereafter)<br><br>Description of weight maintenance control: placebo plus the same behavioural components as intervention<br><br>Duration of weight maintenance intervention: 36 months<br><br>Length of follow-up: immediate post |
| **Study/Location** | Rickel 2011 [7] United States; Companion papers: Perri [8], Radcliff [9] |
| **Objective** | To examine ethnic differences in patterns of weight loss and regain in response to an initial behavioural weight loss intervention followed by extended-care maintenance |
| **Methods** | Design: randomized controlled trial<br><br>Selection: study brochures mailed to 15,000 households in 6 rural counties where program offered; using US Census data mailing list included households with women in the designated age range; those interested invited to orientation session<br><br>Inclusion Criteria: rural women aged 50 to 75 years; reside in rural counties designated as health professional shortage areas in Florida; BMI >30; weighed <159.1 kg; no uncontrolled hypertension or diabetes; no diagnosis in past year of cardiovascular, cerebrovascular, renal or hepatic disease; completed 6 month initial lifestyle program |
| **Participants** | Sample: 234 (weight maintenance period)<br><br>Intervention 1 (Telephone Counselling) n=72; Intervention 2 (Face-to-face Counselling) n=83; Control (Education) n=79<br><br>Age, Mean (SD) years (at start of 6 month weight loss intervention): Intervention 1: 59.8 (6.2); Intervention 2: 59.2 (6.2); Control: 58.6 (6.0)<br><br>Gender (Female): 100%<br><br>Race/Ethnicity (Black, Hispanic, White, Asian/Native American/Pacific Islander): Intervention 1: 29.2%, 1.4%, 66.7%, 2.8%; Intervention 2: 15.7%, 1.2%, 83.1%, 0%; Control: 11.4%, 3.8%, 81.0%, 3.8%<br><br>SES (Household Income): Intervention 1: <$35K 48.6%; $35>50K 16.7%; $50>75K 13.9%; ≥$75K 13.9%; Intervention 2: <$35K 53%; $35<50K 21.7%; $50<75K16.9%; ≥$75K 7.2%; Control: <$35K 31.6%; $35<50K 26.6%; $50<75K 22.8%; ≥$75K 17.7% |

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| | Loss to follow-up: no loss |
| **Intervention** | Description of previous weight loss intervention: 6 month group based lifestyle program (modelled after the Diabetes Prevention Program) including low calorie diet, increased physical activity, goal setting, self-monitoring of food intake, cooking demonstrations, support strategies, techniques for eating healthy away from home<br><br>Description of weight maintenance interventions: group 1: 26 biweekly face-to-face group counseling sessions lasting 60 minutes each and addressing barriers to diet and exercise behaviours required for weight maintenance; group 2: 26 biweekly one-on-one telephone counseling sessions lasting 15 to 20 minutes each also addressing barriers<br><br>Description of weight maintenance control: 26 biweekly newsletters containing tips and recipes to help maintain weight loss, sent by mail<br><br>Duration of weight maintenance intervention: 6 months<br><br>Length of follow-up: 12 months post intervention completion |
| **Study/Location** | Sjöström 1998 [10] European Countries |
| **Objective** | To assess the efficacy and tolerability of orlistat in promoting weight loss and preventing weight regain in obese patients |
| **Methods** | Design: randomized controlled trial<br><br>Selection: recruitment from hospital waiting lists and local advertising<br><br>Inclusion Criteria: BMI 28-47; ≥18 years; women using adequate contraception; for weight maintenance phase those demonstrating >75% compliance with treatment<br><br>Exclusion Criteria: serious diseases (e.g., uncontrolled hypertension, pharmacologically treated diabetes); weight loss >4 kg in past 3 months; surgery for weight reduction; history of post-surgical adhesions, bulimia, laxative or drug or alcohol abuse; use of drugs that might have influenced weight or plasma lipids in past month |
| **Participants** | Sample: 261<br><br>Intervention n=133; Control n=126<br><br>Age, Mean (range) years (at randomization for weight loss intervention): Intervention: 45.2 (20-76); Control: 44.3 (18-77)<br><br>Gender [Female n (%)] (at randomization for weight loss intervention): Intervention: 284 (82.8%); Control: 283 (83.2%)<br><br>Loss to follow-up: Intervention n=2; Control n=3 |
| **Intervention** | Description of pre-intervention run-in: 4 weeks of placebo taken 3 times daily plus hypocaloric diet<br><br>Description of one-year weight loss intervention: 120 mg of orlistat three times daily plus continuation of hypocaloric diet<br><br>Description of weight maintenance intervention: 120 mg orlistat three times daily plus eucaloric (weight maintenance) diet |

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| | Description of control: placebo plus eucaloric diet<br>Duration of intervention: 12 months<br>Length of follow-up: immediate post |
| **Study/Location** | Thomas 2011 [11] United Kingdom |
| **Objective** | To assess the effects of diet support via e-mail on weight loss maintenance |
| **Methods** | Design: randomized controlled trial<br>Selection: recruited directly from a weight loss clinic led by a dietician (within a Hospital Trust) twice a week<br>Inclusion Criteria: already lost ≥5% initial body weight; access to e-mail<br>Exclusion Criteria: applying for bariatric surgery; no e-mail access; taking weight loss medication; binge eating disorder; learning difficulties |
| **Participants** | Sample: 55<br>Intervention n=28; Control n=27<br>Age, Mean (SD) years: Intervention: 43.2 (15.2); Control: 46.2 (12.0)<br>Gender: not reported<br>Loss to follow-up: Intervention n=3; Control n=3 |
| **Intervention** | Description of weight maintenance intervention: weekly e-mails from dietitian with dietary, behavioural and exercise advice<br>Description of weight maintenance control: no contact with the dietician<br>Duration of weight maintenance intervention: 6 months<br>Length of follow-up: immediate post |

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