**Supplementary Table 1.** Search strategy in Medline through PubMed

| | |
|---|---|
| 1. | "Diet, Carbohydrate-Restricted" [Mesh] |
| 2. | (Diet [TIAB] OR diets [TIAB] OR dietary [TIAB]) AND ((carbohydrate [TIAB] OR Carbohydrates [TIAB]) AND (Restricted [TIAB] OR Low [TIAB] OR restriction [TIAB] OR restrictive [TIAB] OR Reducing [TIAB] OR Reduction [TIAB] OR Modification [TIAB] OR Modifications [TIAB])) |
| 3. | (Diet [TIAB] OR Diets [TIAB]) AND Ketogenic [TIAB] |
| 4. | (Intermittent [TIAB] OR "time restricted" [TIAB] OR Alternate [TIAB] OR periodic [TIAB] OR ramadan [TIAB]) AND (Fasting [TIAB] OR energy [TIAB] OR feeding [TIAB] OR diet [TIAB] OR diets [TIAB] OR meal [TIAB] OR eating [TIAB] OR caloric [TIAB] OR calorie [TIAB]) |
| 5. | "meal skipping" [TIAB] OR "meal frequency" [TIAB] |
| 6. | 1–5/OR |
| 7. | 6 AND (groups [tiab] OR trial [TIAB] OR randomly [TIAB] OR placebo [TIAB] OR randomized [TIAB] OR "controlled clinical trial" [PT] OR "randomized controlled trial" [PT]) NOT (animals [MH] NOT (humans [MH] AND animals [MH])) |
| 8. | 7 AND Filters applied: from 2000/1/1 – 2021/6/8 |
| 9. | 8 NOT "review" [Publication Type] OR "review literature as topic" [MeSH Terms] |
| 10. | 9 NOT (meta-analysis [Filter] OR systematic review [Filter]) |

**Supplementary Table 2.** The framework of PICO in developing the focused question

| PICO | Description of detail |
|---|---|
| Population (P) | • Obese or overweight adults (BMI ≥ 23 kg/m$^2$) or<br>• Patients with T2DM or<br>• Patients with hypertension |
| Intervention (I) | • PICO1: carbohydrate-restricted diets: moderately-low, low, very-low carbohydrate diet or<br>• PICO2: intermittent fasting: time-restriction eating, alternate-day fasting, intermittent energy restriction |
| Comparator (C) | Isocaloric diets: standard, calorie-restricted, low-fat, Mediterranean, DASH diets, etc. |
| Outcome (O) | Body weight, BMI, WC, fat mass, fat-free mass, blood pressure, lipid profile (TC, LDL-C, HDL-C, TG), HbA1c, fasting plasma glucose, fasting plasma insulin, HOMA-IR, CRP, adiponectin, FMD, adverse effects, etc. |
| Study design (S) | Randomized controlled clinical trials that conducted more than 8 weeks |
| Target | • Obese or overweight adults or<br>• Patients with T2DM or<br>• Patients with hypertension<br>• Healthcare professionals who manage patients with obesity, T2DM, or hypertension |

PICO, population, intervention, comparator, outcome; BMI, body mass index; T2DM, type 2 diabetes mellitus; DASH, dietary approaches to stop hypertension; WC, waist circumference; TC, total cholesterol; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; TG, triglyceride; HbA1c, glycosylated hemoglobin; HOMA-IR, homeostatic model assessment for insulin resistance; CRP, C-reactive protein; FMD, flow-mediated dilation.

**Supplementary Table 3.** Characteristics of randomized controlled trials included in the meta-analysis to evaluate the effects of carbohydrate-restricted diets

| Study | Population | Nationality | Duration of study | Control | Intervention | Follow-up loss rate (control:intervention) (%) | Subject number | Asian (%) | FPG (mg/dL) | TC (mg/dL) | TG (mg/dL) | LDL-C (mg/dL) | HDL-C (mg/dL) | BW (kg) | BMI (kg/m$^2$) | HbA1c (%) | SBP (mmHg) | DBP (mmHg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aronica et al. (2021)[16] | Ob | US | 1 yr | LFD | LCD | 21.0:21.1 | 609 | 9.9 | 98.6 | NA | 128.4 | 112.9 | 49.9 | 96.9 | 33.4 | NA | 122.9 | 81.1 |
| Bazzano et al. (2014)[17,18] | Ob | US | 1 yr | LFD | VLCD | 17.8:21.3 | 148 | 0.7 | 94.0 | 201.5 | 119.0 | 122.6 | 55.1 | 97.1 | 35.4 | NA | 122.6 | 78.4 |
| Bhattacharyya et al. (2012)[19] | Ob | India | 6 mo | SD | VLCD | NA | 150 | NA | NA | NA | NA | NA | NA | NA | 27.1 | NA | NA | NA |
| Brinkworth et al. (2004)[20] | Ob | Australia | 1 yr | SD | MCD | 24.1:27.6 | 43 | NA | 96.3 | NA | NA | NA | NA | 94.0 | 34.1 | NA | NA | NA |
| Brinkworth et al. (2009)[21], Brinkworth et al. (2010)[22], Brinkworth et al. (2011)[23], Wycherley et al. (2011)[24], Tay et al. (2008)[25], Wycherley et al. (2010)[26] | Ob, HTN | Australia | 1 yr | LFD | VLCD | 40.9:42.1 | 118 | NA | 101.8 | 210.8 | 153.9 | 127.7 | 54.3 | 95.3 | 33.7 | NA | 134.0 | 74.8 |
| Cardillo et al. (2006)[27] | Ob | US | 3 yr | LFD | VLCD | NA | 53 | NA | 116.5 | NA | NA | NA | NA | NA | 43.3 | NA | NA | NA |
| Zinn et al. (2017)[28] | Ob | New Zealand | 3 mo | LFD | MCD | 40:33 | 41 | 0 | 92.7 | NA | 128.4 | 112.1 | 44.5 | 91.8 | 31.1 | 5.4 | NA | NA |
| Chen et al. (2020)[29] | Ob, T2DM, HTN | Taiwan | 18 mo | SD | LCD | 6.7:8.5 | 85 | 100 | 160.3 | 177.6 | 170.7 | 103.4 | 45.4 | 69.0 | 26.9 | 8.6 | 130.4 | 75.4 |
| Daly et al. (2006)[30] | Ob, T2DM, HTN | UK | 3 mo | LFD | LCD | 27.5:27.5 | 102 | NA | 209.7 | 189.5 | 224.1 | NA | 46.8 | 102.0 | 36.1 | 9.1 | 142.2 | 79.5 |
| Davis et al. (2009)[31] | Ob, T2DM | US | 1 yr | LFD | LCD | 12:14.6 | 105 | 2.9 | NA | 168.3 | 124.0 | 94.8 | 48.4 | 97.1 | 36.0 | 7.5 | 127.4 | 74.9 |
| de Jonge et al. (2012)[32] | Ob | US | 2 yr | NCD | MCD | 39:39 | 811 | NA | NA | NA | NA | NA | NA | 92.9 | 32.7 | NA | NA | NA |
| de Luis et al. (2007)[33] | Ob | Spain | 3 mo | LFD | MCD | NA | 90 | NA | NA | NA | NA | NA | NA | 93.4 | 35.7 | NA | NA | NA |
| de Luis et al. (2015)[34] | Ob | Spain | 9 mo | CRD | MCD | NA | 193 | NA | 102.0 | 207.2 | 127.6 | 125.8 | 54.5 | 93.7 | 36.2 | NA | 129.0 | 81.2 |
| de Luis et al. (2015)[35] | Ob | Spain | 9 mo | CRD | MCD | NA | 195 | 0 | 101.0 | 209.4 | 124.5 | 128.5 | 54.6 | 93.7 | 35.7 | NA | 129.5 | 82.1 |
| de Luis et al. (2016)[36] | Ob | Spain | 9 mo | CRD | MCD | NA | 283 | NA | 102.6 | 206.0 | 123.0 | 126.1 | 55.9 | 91.1 | 35.1 | NA | 127.3 | 81.1 |
| de Luis et al. (2019)[37] | Ob | Spain | 9 mo | CRD | LCD | NA | 270 | 0 | 103.0 | 208.5 | 123.7 | 127.7 | 55.6 | 92.0 | 34.5 | NA | 127.0 | 82.3 |
| Dyson et al. (2007)[38] | Ob, T2DM | UK | 3 mo | CRD | VLCD | 28.6:0 | 26 | NA | NA | 197.2 | 131.1 | 119.9 | 51.0 | 96.3 | 35.1 | 6.6 | NA | NA |
| Foraker et al. (2014)[39] | Ob | US | 1 yr | LFD | MCD | 0 | 79 | NA | NA | 194.2 | NA | 123.1 | 53.0 | NA | 30.3 | NA | 121.8 | 74.5 |
| Forsythe et al. (2008)[40,41] | Ob | US | 3 mo | LFD | LCD | 0 | 40 | NA | NA | 206.0 | 199.0 | 129.2 | 37.3 | NA | NA | NA | NA | NA |
| Foster et al. (2010)[42] | Ob | US | 2 yr | CRD | LCD | 32:42 | 307 | <1 | NA | 190.5 | 118.7 | 122.1 | 45.8 | 103.4 | 36.1 | NA | 124.5 | 95.0 |
| Foster et al. (2003)[43] | Ob | US | 1 yr | CRD | VLCD | 39:43 | 63 | 0 | NA | 197.3 | 127.1 | 124.9 | 48.0 | 98.5 | 34.1 | NA | 121.8 | 76.0 |
| Frisch et al. (2009)[44] | Ob | Germany | 1 yr | LFD | MCD | 20:15 | 200 | 0 | 1.0 | 213.5 | 119.6 | 137.3 | 57.2 | 99.6 | 33.7 | 5.6 | 127.0 | 86.0 |
| Gardner et al. (2007)[45] | Ob | US | 1 yr | NCD | MCD/VLCD | 2.6:22.8:11.7 | 311 | 10.0 | 94.0 | NA | 121.0 | 110.0 | 52.0 | 85.0 | 32.0 | NA | 116.0 | 75.0 |
| Goday et al. (2016)[46] | Ob, T2DM | Spain | 4 mo | CRD | VLCD | 18.2:11.1 | 89 | NA | 139.8 | 190.8 | 155.2 | 106.3 | 53.0 | 90.5 | 33.1 | 6.9 | NA | NA |
| Goldstein et al. (2011)[47] | Ob, T2DM | Israel | 1 yr | CRD | VLCD | 38.5:46.2 | 52 | NA | 188.5 | 197.0 | 200.5 | NA | 44.0 | 92.0 | 33.2 | 8.9 | 138.0 | 79.5 |
| Guldbrand et al. (2012)[48], Jonasson et al. (2014)[49] | Ob, T2DM | Sweden | 2 yr | LFD | LCD | 10:13 | 61 | NA | NA | 168.7 | 155.3 | 97.7 | 42.6 | 95.2 | 32.7 | 7.3 | 135.5 | 76.5 |
| Haufe et al. (2011, 2012)[50,51] | Ob | Germany | 6 mo | LFD | LCD | 40:35 | 102 | NA | 94.5 | 87.8 | 103.6 | 117.6 | 53.4 | 92.6 | 33.0 | NA | NA | NA |

(*Continued to the next page*)

**Supplementary Table 3.** Continued

| Study | Population | Nationality | Duration of study | Control | Intervention | Follow-up loss rate (control:intervention) (%) | Subject number | Asian (%) | FPG (mg/dL) | TC (mg/dL) | TG (mg/dL) | LDL-C (mg/dL) | HDL-C (mg/dL) | BW (kg) | BMI (kg/m$^2$) | HbA1c (%) | SBP (mmHg) | DBP (mmHg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Iqbal et al. (2010)[52] | Ob, T2DM, HTN | US | 2 yr | LFD | VLCD | 43:60 | 144 | 0.0 | 151.4 | 180.4 | 161.1 | 107.7 | 40.7 | 116.9 | 37.5 | 7.7 | 139.9 | 79.4 |
| Jabekk et al. (2010)[53] | Ob | Norway | 10 wk | SD | VLCD | 11:11 | 16 | NA | NA | NA | NA | NA | NA | 90.9 | 32.3 | NA | NA | NA |
| Jenkins et al. (2014)[54] | Ob | Canada | 7 mo | NCD | MCD | 32:50 | 39 | 4.5 | 88.2 | 263.0 | 194.9 | 174.0 | 50.3 | 84.5 | 31.1 | 5.3 | 125.1 | 76.0 |
| Keogh et al. (2007)[55] | Ob | Australia | 1 yr | CRD | LCD | NA | 25 | NA | 106.2 | 5.5 | 1.6 | 3.7 | 1.3 | 94·2 | 32·9 | NA | 122.0 | 75.0 |
| Kimura et al. (2018)[56] | T2DM | Japan | 3 mo | CRD | MCD | 4.3:4 | 48 | 100 | NA | NA | 140.3 | 114.4 | 60.5 | 62.8 | 24.8 | 7.0 | NA | NA |
| Kreider et al. (2011)[57] | Ob | US | 10 wk | SD | LCD | NA | 221 | NA | 99.8 | 199.6 | 136.3 | 120.2 | 52.8 | 90.3 | 33.8 | NA | 124.6 | 81.8 |
| Larsen et al. (2011)[58] | Ob, T2DM | Australia | 1 yr | NCD | MCD | 2.2:9.4 | 99 | NA | NA | 182.5 | 210.8 | 95.1 | 46.2 | 95.0 | NA | 7.8 | 129.8 | 81.5 |
| Liu et al. (2018)[59] | T2DM | China | 3 mo | SD | MCD | 16.3:16.3 | 122 | 100 | 150.6 | 153.9 | 116.9 | 79.9 | 56.7 | 58.5 | 21.4 | 7.1 | 105.0 | 76.6 |
| Liu et al. (2013)[60] | Ob | China | 3 mo | LFD | LCD | 4:4 | 50 | 100 | 109.4 | 197.2 | 133.8 | 130.3 | 51.8 | 65.9 | 26.7 | NA | 132.7 | 86.0 |
| Meckling et al. (2004)[61] | Ob | Canada | 10 wk | CRD | LCD | 20:25 | 40 | 0 | 105.5 | 229.0 | 135.0 | 167.0 | 50.5 | 91.7 | 32.2 | NA | 123.1 | 77.8 |
| Morris et al. (2020)[62] | Ob, T2DM | UK | 3 mo | SD | LCD | 8.3:0 | 33 | 0 | 168.8 | 166.7 | 172.7 | NA | 45.2 | 101.0 | 35.4 | 7.7 | 140.0 | 82.0 |
| Noakes et al. (2006, 2010)[63,64] | Ob | Australia | 15 mo | VLFD | VLCD | 0 | 67 | NA | 95.9 | 227.4 | 145.4 | 149.3 | 49.5 | NA | 32.8 | NA | NA | NA |
| Perna et al. (2019)[65] | Ob, T2DM | Bahrain | 3 mo | CRD | LCD | 0 | 17 | 100 | 108.5 | 178.9 | 156.5 | 100.2 | 47.4 | 85.3 | 31.4 | 6.0 | NA | NA |
| Ruth et al. (2013)[66] | Ob | US | 3 mo | LFD | VLCD | 37.9:42.3 | 55 | NA | 84.0 | 182.3 | 106.5 | 109.4 | 51.6 | 99.9 | 36.5 | 5.7 | 119.9 | 76.6 |
| Saslow et al. (2017)[67] | Ob, T2DM | US | 1 yr | LFD | VLCD | 16.7:12.5 | 34 | 14.7 | NA | NA | 132.4 | 93.7 | 47.0 | 98.6 | 36.4 | 6.8 | 128.2 | 79.2 |
| Sato et al. (2017)[68] | Ob, T2DM | Japan | 6 mo | CRD | LCD | 3:9 | 66 | 100 | 126.1 | NA | 145.5 | 99.3 | 45.3 | 73.8 | 26.6 | 8.2 | NA | NA |
| Shai et al. (2008)[69], Yokose et al. (2020)[70] | Ob | Israel | 2 yr | LFD | LCD | 9.6:22.0 | 213 | NA | 91.3 | NA | 170.8 | 119.0 | 38.5 | 91.4 | 30.9 | NA | 131.3 | 79.7 |
| Soenen et al. (2012)[71] | Ob | Nether-lands | 1 yr | CRD | LCD | 4.3:5.7 | 132 | NA | 97.7 | 191.4 | 143.9 | 112.1 | 52.2 | 106.7 | 36.8 | NA | 130.5 | 82.3 |
| Stern et al. (2004)[72], Samaha et al. (2003)[73] | Ob, HTN | US | 1 yr | LFD | VLCD | 36.8:31.3 | 132 | 0 | 126.1 | 186.3 | 182.2 | 115.9 | 41.0 | 130.9 | 42.9 | NA | 134.0 | 79.0 |
| Struik et al. (2020)[74], Wycherley et al. (2016)[75], Tay et al. (2015)[76], Tay et al. (2018)[77], Tay et al. (2014)[78] | Ob, T2DM, HTN | Australia | 2 yr | LFD | LCD | 18:21 | 115 | NA | 145.8 | 166.3 | 132.9 | 92.8 | 51.0 | 101.6 | 34.6 | 7.3 | 131.4 | 80.7 |
| Tsai et al. (2005)[79] | Ob | US | 1 yr | SD | VLCD | 4.4:0 | 129 | 0 | 125.9 | NA | NA | 115.0 | NA | NA | 42.9 | NA | 134.0 | NA |
| Wang et al. (2018)[80] | T2DM | China | 3 mo | LFD | MCD | 4.3:4 | 48 | 100 | NA | NA | 140.3 | 114.4 | 60.5 | 62.8 | 24.8 | 7.0 | NA | NA |
| Yancy et al. (2004)[81] | Ob | US | 6 mo | LFD | VLCD | 43.3:23.7 | 119 | NA | NA | 242.2 | 174.4 | 152.6 | 54.7 | 97.3 | 34.3 | NA | NA | NA |

FPG, fasting plasma glucose; TC, total cholesterol; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; BW, body weight; BMI, body mass index; HbA1c, glycosylated hemoglobin; SBP, systolic blood pressure; DBP, diastolic blood pressure; Ob, obesity or overweight; LFD, low fat diet; LCD, low carbohydrate diet; NA, not available; VLCD, very-low carbohydrate diet; SD, standard diet; MCD, moderately-low carbohydrate diet; HTN, hypertension; T2DM, type 2 diabetes mellitus; NCD, normal carbohydrate diet; CRD, calorie-restricted diet; VLFD, very-low fat diet.

**Supplementary Table 4.** Characteristics of randomized controlled trials included in the meta-analysis to evaluate the effects of intermittent fasting

| Study | Population | Nationality | Duration of study | Control | Intervention | Follow-up loss rate (control:intervention) (%) | Subject number | Asian (%) | FPG (mg/dL) | TC (mg/dL) | TG (mg/dL) | LDL-C (mg/dL) | HDL-C (mg/dL) | BW (kg) | BMI (kg/m$^2$) | HbA1c (%) | SBP (mmHg) | DBP (mmHg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barnosky et al. (2017)[82,83] | Ob | US | 6 mo | CER | ADF | 17.1:26.4 | 100 | 2 | 90.0 | 187.0 | 98.0 | 111.0 | 56.0 | 96.0 | 35.0 | NA | 123.0 | 81.0 |
| Bowen et al. (2018)[84] | Ob | Australia | 4 mo | CER | ADF | 16.0:18.3 | 163 | 0 | 97.3 | 201.1 | 124.0 | 127.6 | 50.3 | 100.1 | 35.6 | NA | 120.0 | 75.2 |
| Carter et al. (2018, 2016)[85,86] | Ob | Iran | 4 mo | CER | IER | 7.5:5.0 | 75 | 100 | NA | NA | NA | NA | NA | 88.3 | 31.3 | NA | 135.5 | 85.5 |
| Kunduraci et al. (2020)[87] | Ob | Turkey | 3 mo | CER | IER | 5.7:8.6 | 65 | 100 | 117 | 228.5 | 204.8 | 147.7 | 44.6 | 92.9 | 34.7 | 6.5 | 136.4 | 86.6 |
| Panizza et al. (2019)[88] | Ob | US (East Asians in Hawaii) | 3 mo | DASH | IER | 7:13 | 60 | 100 | 103.3 | 243.5 | 133.7 | 183.6 | 35.1 | 80.2 | 30.7 | NA | 133.3 | 85.2 |
| Phillips et al. (2021)[89] | Ob | Swiss | 6 mo | SD | TRE | 23.1:10.7 | 54 | 0 | 93.4 | NA | 113.3 | NA | 56.5 | 77.8 | 28.3 | 5.27 | 125 | 80.1 |
| Razavi et al. (2021)[90] | T2DM/Ob | Australia | 1 yr | CER | ADF | 31.3:27.1 | 137 | NA | 153 | 186 | 147 | 111 | 47 | 101 | 36 | 7.3 | NA | NA |
| Varady et al. (2013)[91] | Ob | US | 3 mo | SD | ADF | 6.3:6.3 | 30 | 0 | NA | 206 | 108.5 | 123 | 56.5 | 77 | 26 | NA | 121.5 | 80 |

FPG, fasting plasma glucose; TC, total cholesterol; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; BW, body weight; BMI, body mass index; HbA1c, glycosylated hemoglobin; SBP, systolic blood pressure; DBP, diastolic blood pressure; Ob, obesity or overweight; CER, continuous energy restriction; ADF, alternate-day fasting; NA, not available; IER, intermittent energy restriction; DASH, dietary approaches to stop hypertension diet; SD, standard diet; TRE, time-restricted eating; T2DM, type 2 diabetes.

**Supplementary Table 5.** Classification of carbohydrate-restricted diets

| Diet | Carbohydrate composition |
|---|---|
| Normal carbohydrate diet (NCD) | >45% of 2,000 kcal/day or >225 g/day |
| Carbohydrate-restricted diet | |
| Moderately-low or low carbohydrate diet (mLCD) | |
| Moderately-low carbohydrate diet (MCD) | 26%–45% of 2,000 kcal/day or 130–225 g/day |
| Low carbohydrate diet (LCD) | 10%–25% of 2,000 kcal/day or 50–130 g/day |
| Very-low carbohydrate diet (VLCD) | <10% of 2,000 kcal/ day or <50 g/day |

**Supplementary Table 6.** Quality of the evidence assessment for included studies evaluating the effects of carbohydrate-restricted diets in adults with overweight/obesity: mLCD

| Quality assessment | | | | | | | No. of patients | | Effect | | Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | mLCD | Control | Relative (95% CI) | Absolute | |
| BW (kg, follow-up mean 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 24 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecise ion | Reporting bias | 1,826 | 1,834 | - | MD, 1.03 lower (1.68–0.39 lower) | Low |
| BMI (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 15 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | Reporting bias | 1,360 | 1,390 | - | MD, 0.23 lower (0.46 lower–0.00 higher) | Very low |
| WC (cm, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 15 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 1,281 | 1,059 | - | MD, 0.65 lower (1.16–0.14 lower) | Moderate |
| Fat mass (kg; better indicated by lower values) | | | | | | | | | | | |
| 14 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 1,059 | 1,021 | - | MD, 0.44 lower (0.83–0.04 lower) | Moderate |
| Fat free mass (kg, follow-up 12–24 wk; better indicated by higher values) | | | | | | | | | | | |
| 10 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 585 | 554 | - | MD, 0.17 lower (0.49 lower–0.14 higher) | Low |
| Fat mass (%, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 4 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 184 | 261 | - | MD, 0.09 higher (0.45 lower–0.64 higher) | Low |
| SBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 19 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 1,290 | 1,322 | - | MD, 0.56 lower (1.69 lower–0.56 higher) | Low |
| DBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 19 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 1,294 | 1,321 | - | MD, 0.69 lower (1.39 lower–0.01 higher) | Low |
| TG (mg/dL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 24 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | Reporting bias | 1,437 | 1,459 | - | MD, 13.76 lower (19.78–7.74 lower) | Low |
| LDL-C (mg/dL, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 21 | Randomized trials | Serious | Serious | No serious indirectness | Serious | None | 1,345 | 1,376 | - | MD, 2.29 higher (0.41 lower–4.99 higher) | Very low |
| HDL-C (mg/dL, follow-up 8–24 wk; better indicated by higher values) | | | | | | | | | | | |
| 20 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 1,211 | 1,237 | - | MD, 2.61 higher (1.34–3.89 higher) | Moderate |
| HbA1c (%, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 373 | 366 | - | MD, 0.20 lower (0.39–0.01 lower) | Low |
| Fasting insulin (μU/mL, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 13 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 916 | 939 | - | MD, 0.94 lower (1.73–0.16 lower) | Moderate |
| Fasting glucose (mg/dL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 17 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 1,060 | 1,083 | - | MD, 0.32 lower (1.23 lower–0.58 higher) | Low |
| CRP (mg/L, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 11 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | Reporting bias | 701 | 690 | - | MD, 0.34 lower (0.67–0.01 lower) | Low |
| Adiponectin (μg/mL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 685 | 671 | - | MD, 0.45 higher (0.15–0.76 higher) | Moderate |

mLCD, moderately-low or low carbohydrate diet; CI, confidence interval; BW, body weight; MD, mean difference; BMI, body mass index; WC, waist circumference; SBP, systolic blood pressure; DBP, diastolic blood pressure; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; HbA1c, glycosylated hemoglobin; CRP, C-reactive protein.

**Supplementary Table 7.** Quality of the evidence assessment for included studies evaluating the effects of carbohydrate-restricted diets in adults with overweight/obesity: VLCD

| Quality assessment | | | | | | | No. of patients | | Effect | | Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | VLCD | Control | Relative (95% CI) | Absolute | |
| BW (kg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 14 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 591 | 675 | - | MD, 3.67 lower (4.84–2.51 lower) | Moderate |
| BMI (kg/m$^2$, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 5 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 160 | 228 | - | MD, 1.88 lower (3.11–0.65 lower) | Moderate |
| WC (cm, copy; follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 120 | 113 | - | MD, 4.11 lower (8.70 lower –0.49 higher) | Low |
| Fat mass (kg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 85 | 83 | - | MD, 3.01 lower (6.29 lower –0.27 higher) | Low |
| Fat free mass (kg, follow-up 8–24 wk; better indicated by higher values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 85 | 83 | - | MD, 1.05 lower (1.75–0.35 lower) | Low |
| Fat mass (%, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 4 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 219 | 296 | - | MD, 1.88 lower (2.87–0.89 lower) | Moderate |
| SBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 9 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 4 | 502 | - | MD, 1.97 lower (3.68–0.25 lower) | Moderate |
| DBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 9 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 404 | 502 | - | MD, 0.68 lower (1.79 lower –0.44 higher) | Low |
| TG (mg/dL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 13 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | Reporting bias | 488 | 571 | - | MD, 21.33 lower (30.46–12.21 lower) | Low |
| LDL-C (mg/dL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 12 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 469 | 554 | - | MD, 7.52 higher (3.34–11.70 higher) | Moderate |
| HDL-C (mg/dL, follow-up 8–24 wk; better indicated by higher values) | | | | | | | | | | | |
| 13 | Randomized trials | Serious | Serious | No serious indirectness | No serious imprecision | None | 488 | 570 | - | MD, 30 higher (1.79–6.82 higher) | Low |
| HbA1c (%, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 6 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 179 | 175 | - | MD, 0.23048 lower (2.87 lower–0.01 higher) | Low |
| Fasting insulin (μU/mL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 6 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 255 | 348 | - | MD, 1.37 lower (2.89 lower –0.15 higher) | Low |
| Fasting glucose (mg/dL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 9 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 382 | 348 | - | MD, 0.44 lower (2.66 lower –1.78 higher) | Low |
| CRP (mg/L, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 5 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 178 | 193 | - | MD, 0.63 lower (1.41 lower –0.15 higher) | Low |
| Adiponectin (μg/mL, follow-up 8–24 wk; better indicated by higher values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 93 | 88 | - | MD, 0.75 higher (0.29–1.21 higher) | Low |

VLCD, very-low carbohydrate diet; CI, confidence interval; BW, body weight; MD, mean difference; BMI, body mass index; WC, waist circumference; SBP, systolic blood pressure; DBP, diastolic blood pressure; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; HbA1c, glycosylated hemoglobin; CRP, C-reactive protein.

**Supplementary Table 8.** Quality of the evidence assessment for included studies evaluating the effects of IF in adults with overweight/obesity

| Quality assessment | | | | | | | No. of patients | | Effect | | Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | IF | Control | Relative (95% CI) | Absolute | |
| HbA1c (follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 88 | 85 | - | MD, 0.11 higher (0.04 lower–0.26 higher) | Very low |
| Fasting glucose (mg/dL, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 5 | Randomized trials | No serious risk of bias | No serious inconsistency | Serious | Serious | None | 179 | 180 | - | MD, 0.89 lower (4.3 lower–2.53 higher) | Low |
| Fasting insulin (μU/mL, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 4 | Randomized trials | No serious risk of bias | No serious inconsistency | Serious | Serious | None | 154 | 160 | - | MD, 0.43 lower (1.99 lower–1.14 higher) | Low |
| BW (kg, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 274 | 280 | - | MD, 1.22 lower (3.49 lower–1.05 higher) | Very low |
| HOMA-IR (follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 57 | 62 | - | MD, 0.22 lower (1.48 lower–1.05 higher) | Very low |
| BMI (kg/m$^2$, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 5 | Randomized trials | No serious risk of bias | No serious inconsistency | Serious | Serious | None | 192 | 188 | - | MD, 0.49 lower (1.13 lower–0.14 higher) | Very low |
| BW (kg, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | No serious risk of bias | No serious inconsistency | Serious | Serious | None | 274 | 280 | - | MD, 1.22 lower (3.49 lower–1.05 higher) | Low |
| WC (cm, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 93 | 87 | - | MD, 1.95 lower (4.09 lower–0.2 higher) | Very low |
| SBP (mmHg, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 6 | Randomized trials | No serious risk of bias | Serious | Serious | Serious | None | 203 | 201 | - | MD, 0.87 higher (2.56 lower–4.39 higher) | Very low |
| DBP (mmHg, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 6 | Randomized trials | No serious risk of bias | Serious | Serious | Serious | None | 203 | 201 | - | MD, 0.16 lower (2.89 lower–2.56 higher) | Very low |
| Fat free mass (kg, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 269 | 271 | - | MD, 0.36 lower (0.87 lower–0.16 higher) | Very low |
| Fat mass (kg, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 269 | 271 | - | MD, 0.67 lower (1.95 lower–0.62 higher) | Very low |
| Fat mass (%, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 73 | 69 | - | MD, 0.27 higher (0.48 lower–1.01 higher) | Very low |
| HDL-C (mg/dL, follow-up 12–24 wk; better indicated by higher values) | | | | | | | | | | | |
| 6 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 218 | 214 | - | MD, 0.17 lower (3.27 lower–2.89 higher) | Very low |
| LDL-C (mg/dL, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 5 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 193 | 194 | - | MD, 0.24 lower (5.08 lower–4.59 higher) | Very low |
| TG (mg/dL, follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 6 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 218 | 214 | - | MD, 1.51 lower (17.06 lower–14.04 higher) | Very low |
| HbA1c (Copy; follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 88 | 85 | - | MD, 0.11 higher (0.04 lower–0.26 higher) | Very low |
| BW (kg, Copy; follow-up 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 274 | 280 | - | MD, 1.22 lower (3.49 lower–1.05 higher) | Very low |

IF, intermittent fasting; CI, confidence interval; HbA1c, glycosylated hemoglobin; MD, mean difference; BW, body weight; HOMA-IR, homeostatic model assessment for insulin resistance; BMI, body mass index; WC, waist circumference; SBP, systolic blood pressure; DBP, diastolic blood pressure; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; TG, triglyceride.

**Supplementary Table 9.** Quality of the evidence assessment for included studies evaluating the effects of carbohydrate-restricted diets in adults with diabetes: mLCD

| Quality assessment | | | | | | | No. of patients | | Effect | | Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | mLCD | Control | Relative (95% CI) | Absolute | |
| HbA1c (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 10 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 383 | 375 | - | MD, 0.21 lower (0.32–0.10 lower) | Moderate |
| HOMA-IR (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 10 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | Reporting bias | 128 | 120 | - | MD, 0.53 lower (0.96–0.11 lower) | Very low |
| Fasting glucose (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 6 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 172 | 165 | - | MD, 9.88 lower (18.04–1.71 lower) | Low |
| Fasting insulin (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 128 | 120 | - | MD, 2.11 lower (3.70–0.52 lower) | Low |
| BW (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 320 | 299 | - | MD, 1.54 lower (3.11 lower–0.02 higher) | Low |
| SBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 6 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 262 | 248 | - | MD, 2.99 lower (5.48–0.49 lower) | Moderate |
| DBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 6 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious5 | None | 266 | 247 | - | MD, 1.07 lower (2.43 lower–0.29 higher) | Low |
| TG (mg/dL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 10 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | Reporting bias | 380 | 362 | - | MD, 17.22 lower (34.27–0.18 lower) | Low |
| LDL-C (mg/dL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 308 | 299 | - | MD, 0.35 higher (3.03 lower to 3.72 higher) | Low |
| HDL-C (mg/dL, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 8 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 283 | 264 | - | MD, 2.30 higher (0.23–4.37 higher) | Moderate |

mLCD, moderately-low or low carbohydrate diet; CI, confidence interval; HbA1c, glycosylated hemoglobin; MD, mean difference; HOMA-IR, homeostatic model assessment for insulin resistance; BW, body weight; SBP, systolic blood pressure; DBP, diastolic blood pressure; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol.

**Supplementary Table 10.** Quality of the evidence assessment for included studies evaluating the effects of carbohydrate-restricted diets in adults with diabetes: VLCD

| Quality assessment | | | | | | | No. of patients | | Effect | | Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | VLCD | Control | Relative (95% CI) | Absolute | |
| HbA1c (follow-up mean 24 wk; better indicated by lower values) | | | | | | | | | | | |
| 5 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 161 | 160 | - | MD, 0.32 lower (0.57–0.06 lower) | Moderate |
| HOMA-IR (follow-up mean 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 61 | 58 | - | MD, 1.07 lower (3.13 lower–0.98 higher) | Low |
| Fasting glucose (follow-up mean 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 135 | 132 | - | MD, 9.64 lower (19.54 lower–0.26 higher) | Low |
| BW (follow-up mean 12–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 4 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 147 | 144 | - | MD, 3.84 lower (7.55–0.13 lower) | Moderate |
| Fasting insulin (better indicated by lower values) | | | | | | | | | | | |
| 1 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 16 | 18 | - | MD, 2.80 lower (5.84 lower–0.24 higher) | Low |
| SBP (mmHg; better indicated by lower values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 106 | 112 | - | MD, 0.34 higher (3.61 lower–4.28 higher) | Low |
| DBP (mmHg; better indicated by lower values) | | | | | | | | | | | |
| 3 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 106 | 112 | - | MD, 1.38 higher (0.90 lower–3.67 higher) | Low |
| TG (mg/dL, better indicated by lower values) | | | | | | | | | | | |
| 5 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 158 | 155 | - | MD, 11.40 lower (27.01 lower–4.22 higher) | Low |
| LDL-C (mg/dL, better indicated by lower values) | | | | | | | | | | | |
| 4 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | No serious imprecision | None | 139 | 138 | - | MD, 7.19 higher (0.02–14.36 higher) | Moderate |
| HDL-C (mg/dL, better indicated by lower values) | | | | | | | | | | | |
| 5 | Randomized trials | Serious | No serious inconsistency | No serious indirectness | Serious | None | 158 | 154 | - | MD, 0.43 higher (1.98 lower–2.84 higher) | Low |

VLCD, very-low carbohydrate diet; CI, confidence interval; HbA1c, glycosylated hemoglobin; MD, mean difference; HOMA-IR, homeostatic model assessment for insulin resistance; BW, body weight; SBP, systolic blood pressure; DBP, diastolic blood pressure; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol.

**Supplementary Table 11.** Quality of the evidence assessment for included studies evaluating the effects of carbohydrate-restricted diets in adults with hypertension: mLCD

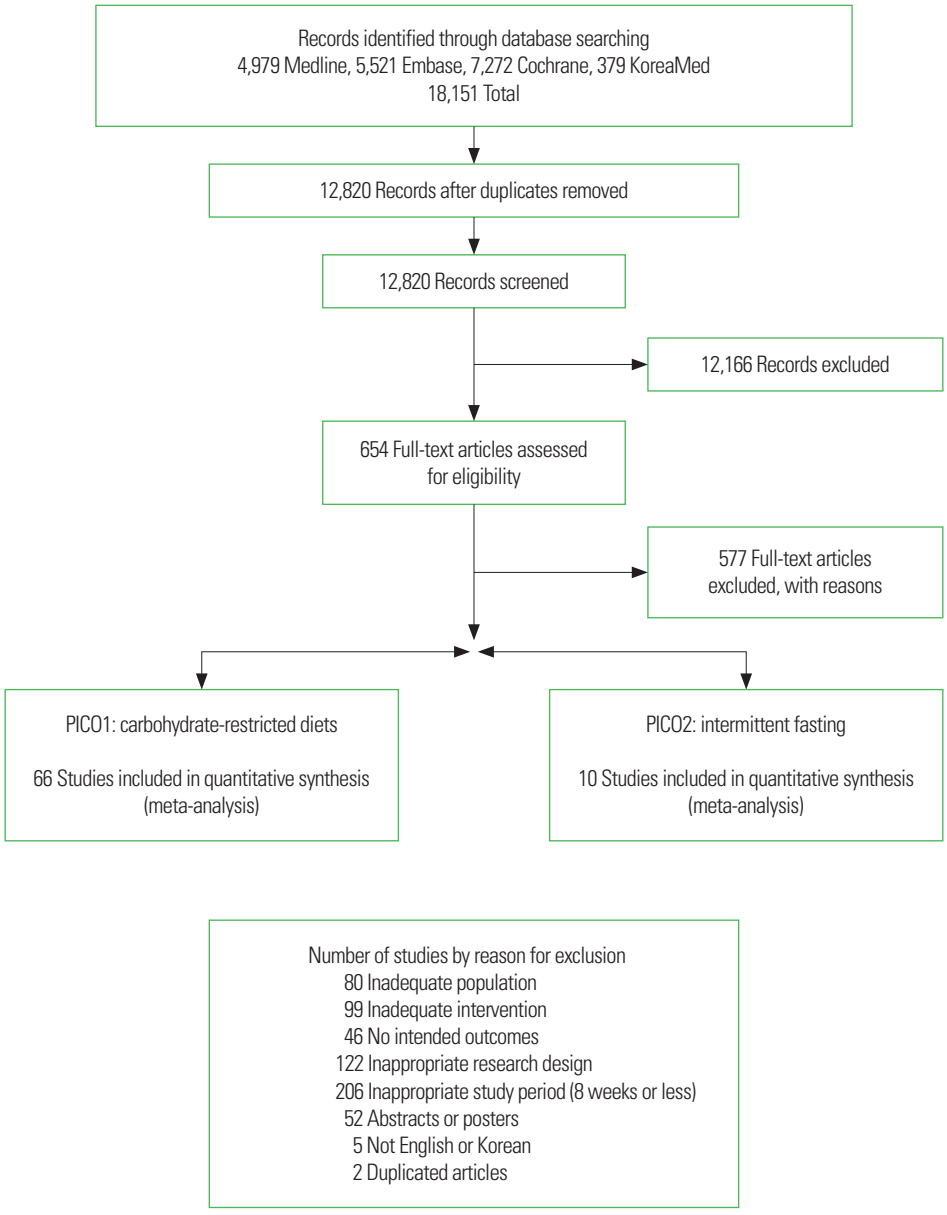
| Quality assessment | | | | | | | No. of patients | | Effect | | Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | mLCD | Control | Relative (95% CI) | Absolute | |
| SBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 97 | 98 | - | MD, 3.25 lower (7.28 lower–0.77 higher) | Very low |
| DBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 1 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 46 | 47 | - | MD, 1.80 lower (4.56 lower–0.96 higher) | Very low |
| LDL-C (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 1 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 46 | 47 | - | MD, 0.00 higher (9.55 lower–9.55 higher) | Very low |
| TG (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 97 | 98 | - | MD, 35.58 lower (52.84–18.33 lower) | Very low |
| BW (kg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 97 | 98 | - | MD, 1.81 lower (3.93 lower–0.30 higher) | Very low |
| HDL-C (follow-up 36–52 wk; better indicated by higher values) | | | | | | | | | | | |
| 1 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 46 | 47 | - | MD, 1.60 higher (1.13 lower–4.33 higher) | Very low |
| FMD (follow-up 36–52 wk; better indicated by lower values) | | | | | | | | | | | |
| 1 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 46 | 47 | - | MD, 0.30 higher (0.58 lower–1.18 higher) | Very low |

mLCD, moderately-low or low carbohydrate diet; CI, confidence interval; SBP, systolic blood pressure; MD, mean difference; DBP, diastolic blood pressure; LDL-C, low-density lipoprotein cholesterol; TG, triglyceride; BW, body weight; HDL-C, high-density lipoprotein cholesterol; FMD, flow-mediated dilation.

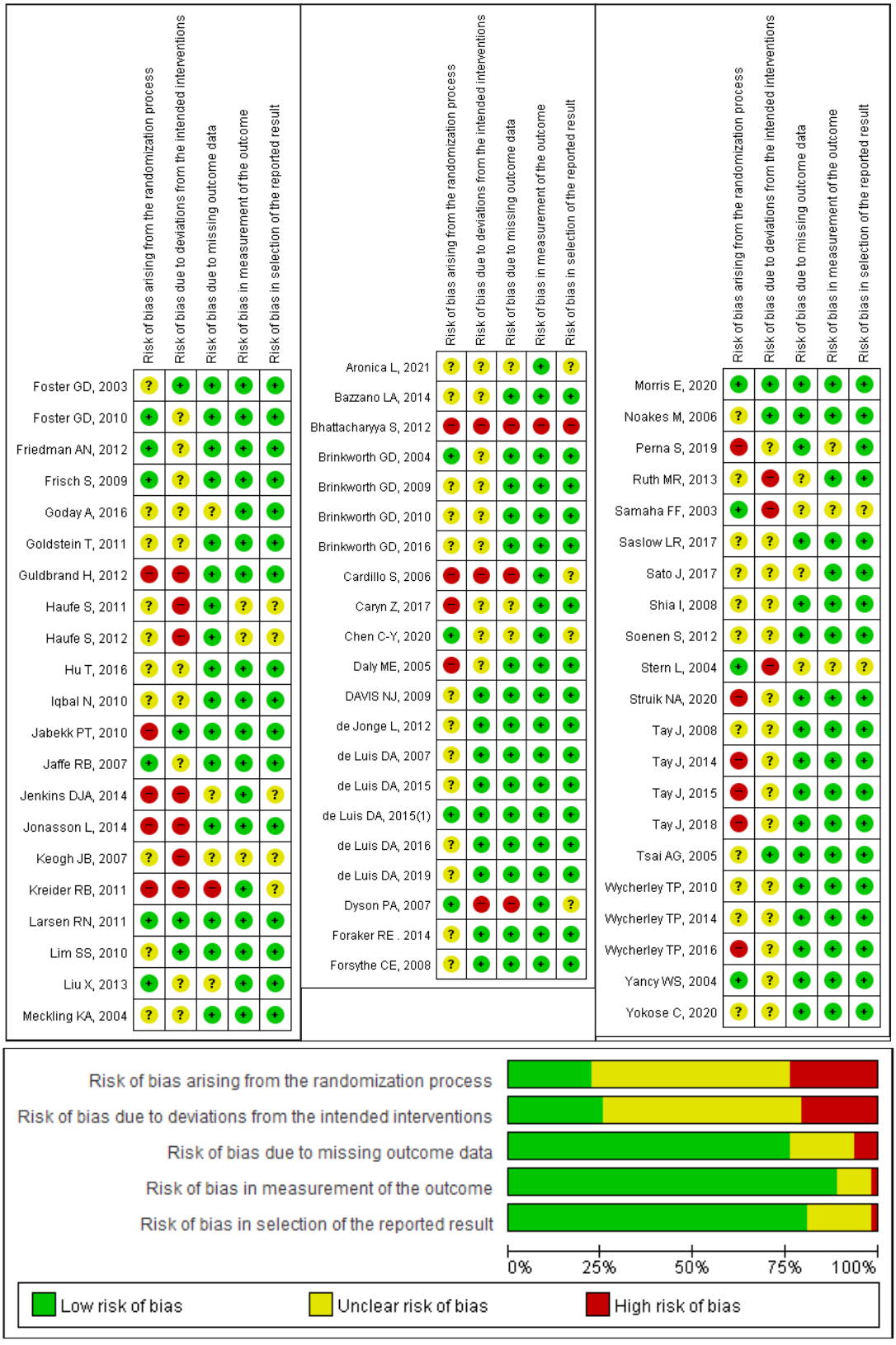
**Supplementary Table 12.** Quality of the evidence assessment for included studies evaluating the effects of carbohydrate-restricted diets in adults with hypertension: VLCD

| Quality assessment | | | | | | | No. of patients | | Effect | | Quality |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | VLCD | Control | Relative (95% CI) | Absolute | |
| SBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 115 | 117 | - | MD, 1.34 lower (5.20 lower–2.51 higher) | Very low |
| DBP (mmHg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 115 | 117 | - | MD, 2.01 higher (0.61 lower–4.63 higher) | Very low |
| LDL-C (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | Serious | Serious | Serious | None | 115 | 117 | - | MD, 8.91 higher (9.27 lower–27.08 higher) | Very low |
| TG (follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | Serious | Serious | Serious | None | 115 | 117 | - | MD, 10.17 lower (43.00 lower–22.67 higher) | Very low |
| BW (kg, follow-up 8–24 wk; better indicated by lower values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 115 | 117 | - | MD, 1.16 lower (2.65 lower–0.34 higher) | Very low |
| HDL-C (follow-up 8–24 wk; better indicated by higher values) | | | | | | | | | | | |
| 2 | Randomized trials | Serious | Serious | Serious | Serious | None | 115 | 117 | - | MD, 1.85 higher (5.98 lower–9.69 higher) | Very low |
| FMD (follow-up 36–52 wk; better indicated by lower values) | | | | | | | | | | | |
| 1 | Randomized trials | Serious | No serious inconsistency | Serious | Serious | None | 26 | 23 | - | MD, 180 lower (3.48–0.12 lower) | Very low |

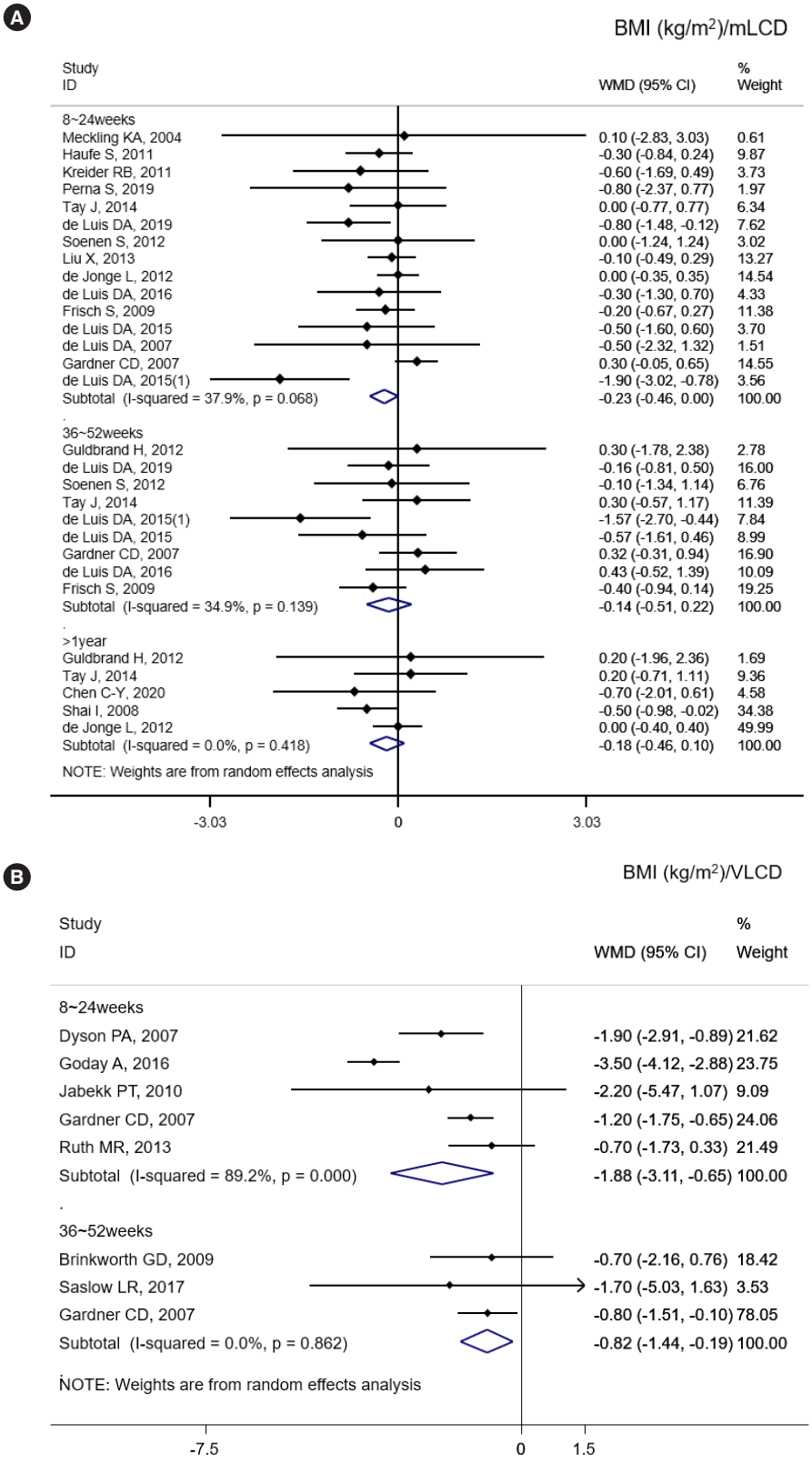
VLCD, very-low carbohydrate diet; CI, confidence interval; SBP, systolic blood pressure; MD, mean difference; DBP, diastolic blood pressure; LDL-C, low-density lipoprotein cholesterol; TG, triglyceride; BW, body weight; HDL-C, high-density lipoprotein cholesterol; FMD, flow-mediated dilation.



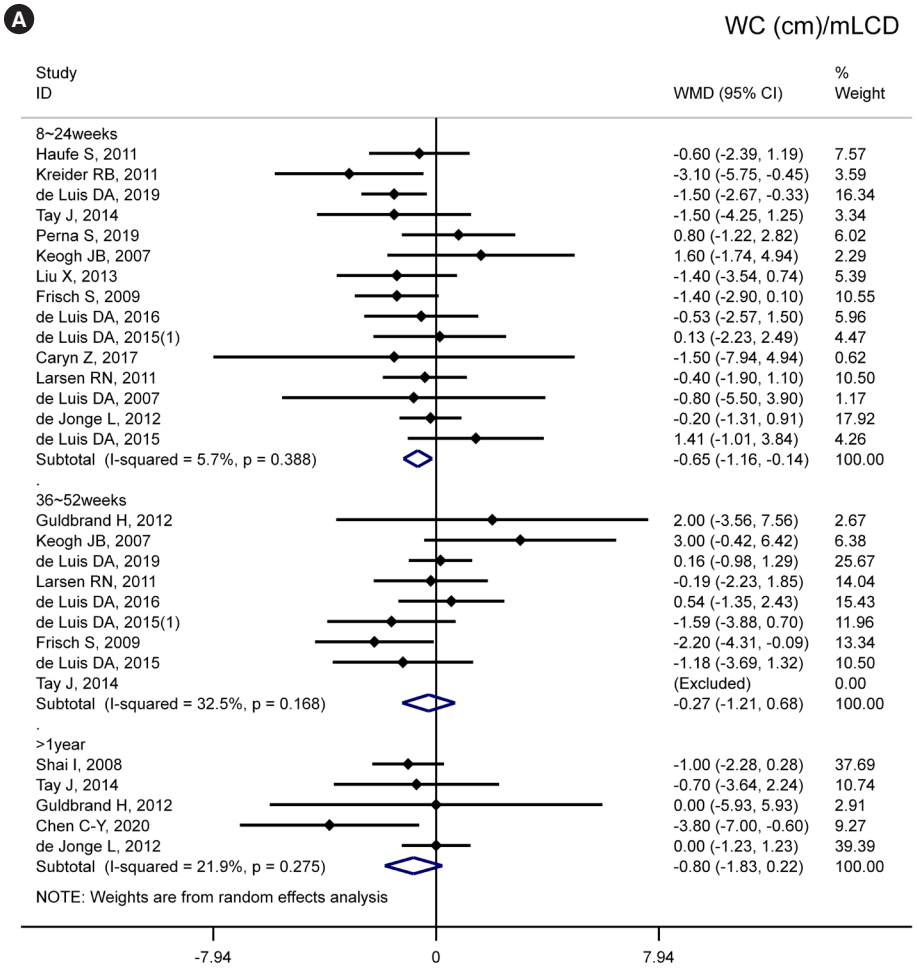

**Supplementary Figure 1.** Preferred reporting items for systematic reviews and meta-analyses (PRISMA) study flow for literature selection and exclusion process. PICO, population, intervention, comparator, outcome.



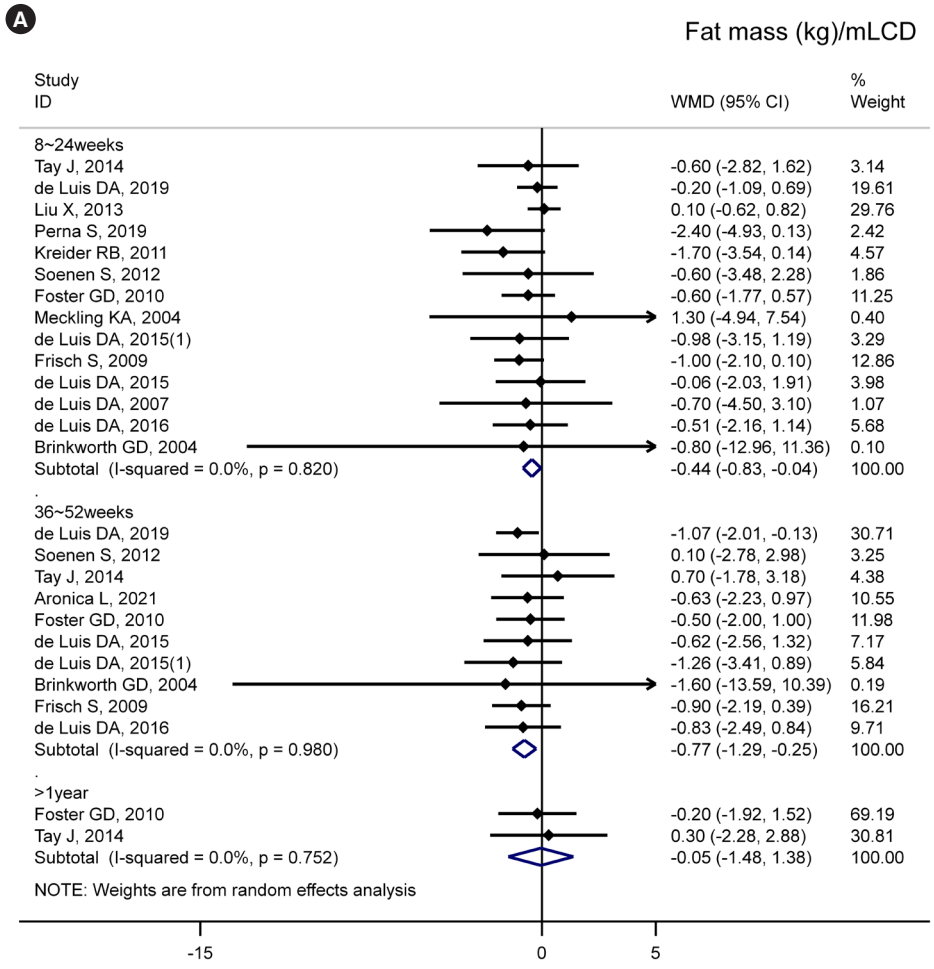

**Supplementary Figure 2.** Risk of bias assessment in studies evaluating the effects of carbohydrate-restricted diets in adults with overweight/obesity.

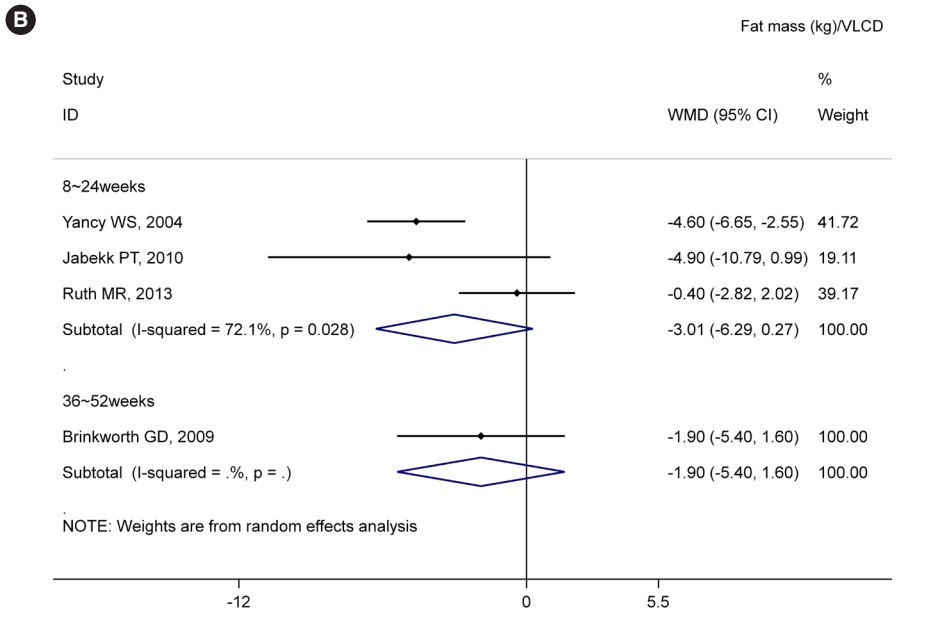



**Supplementary Figure 3.** Effects of carbohydrate-restricted diet on body mass index (BMI) in adults with overweight/obesity. (A) Moderately-low or low carbohydrate diet (mLCD). (B) Very-low carbohydrate diet (VLCD). WMD, weighted mean difference; CI, confidence interval.

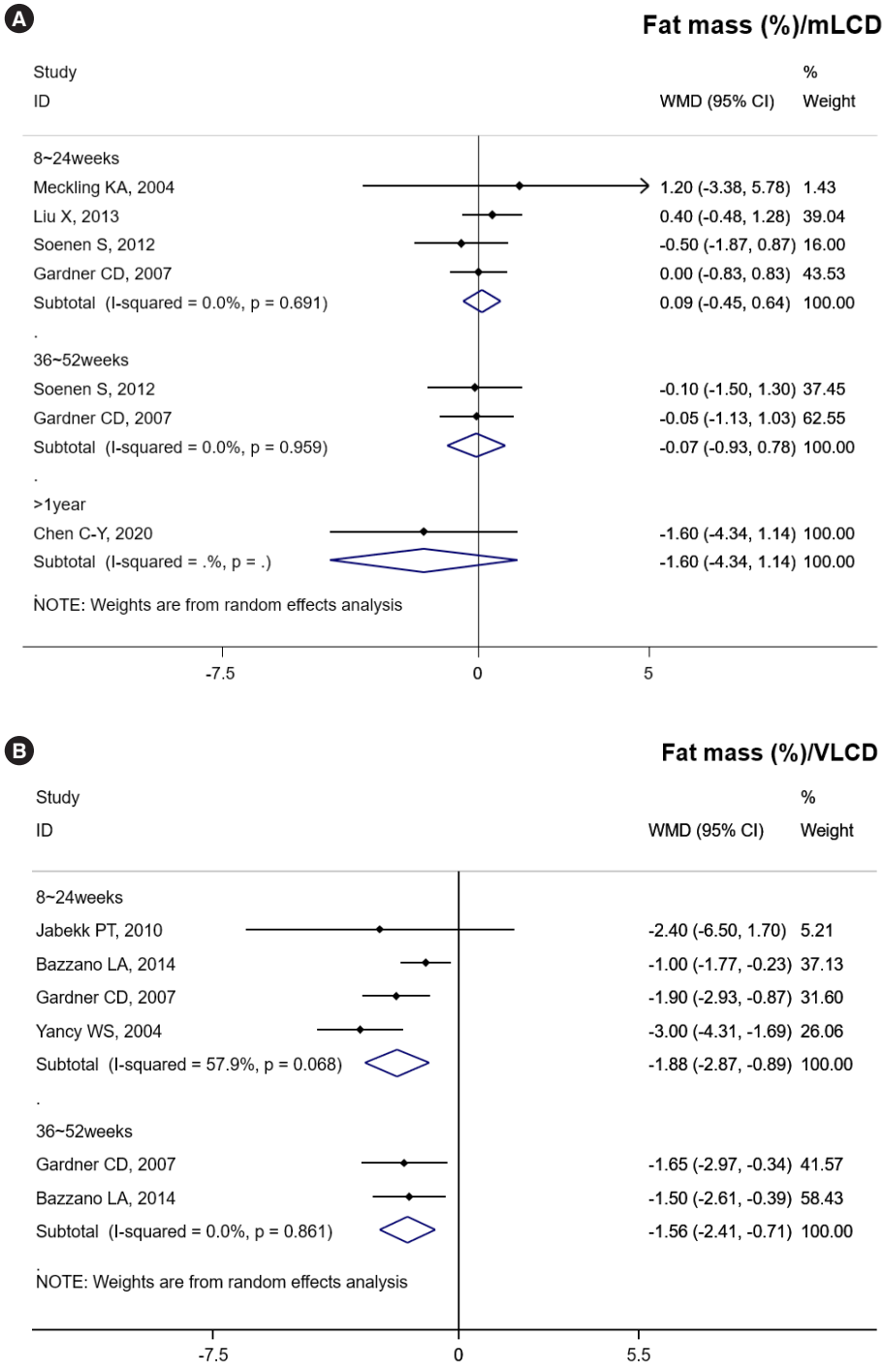



**Supplementary Figure 4.** Effects of carbohydrate-restricted diets on waist circumference (WC) in adults with overweight/obesity. (A) Moderately-low or low carbohydrate diet (mLCD). (B) Very-low carbohydrate diet (VLCD). WMD, weighted mean difference; CI, confidence interval.

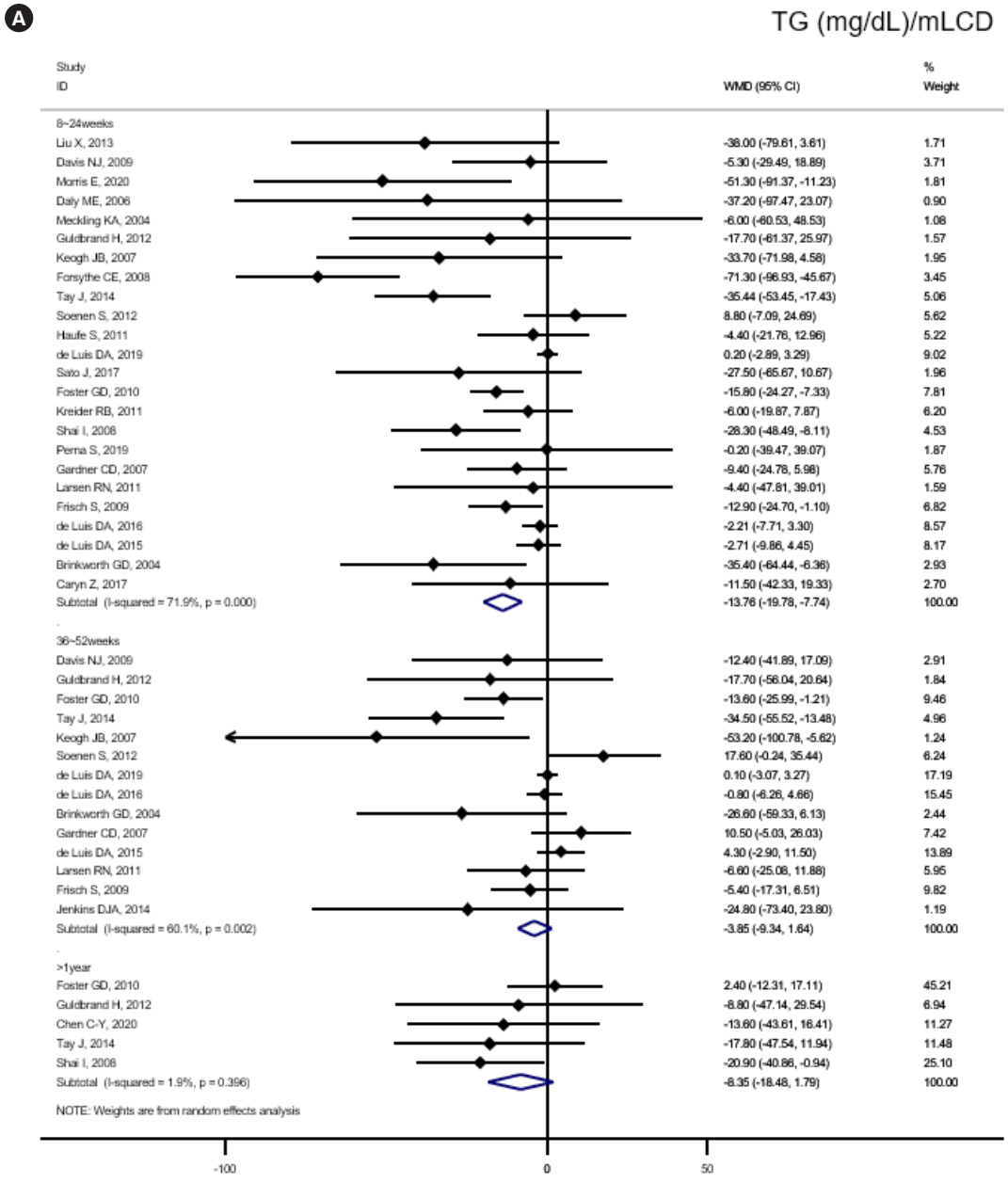



**Supplementary Figure 5.** Effects of carbohydrate-restricted diets on fat mass in adults with overweight/obesity. (A) Moderately-low or low carbohydrate diet (mLCD). (B) Very-low carbohydrate diet (VLCD). WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 6.** Effects of carbohydrate-restricted diets on body fat percentage in adults with overweight/obesity. (A) Moderately-low or low carbohydrate diet (mLCD). (B) Very-low carbohydrate diet (VLCD). WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 7.** Effects of carbohydrate-restricted diets on serum lipid profile in adults with overweight/obesity. (A) Moderately-low or low carbohydrate diet (mLCD) on triglycerides (TG).

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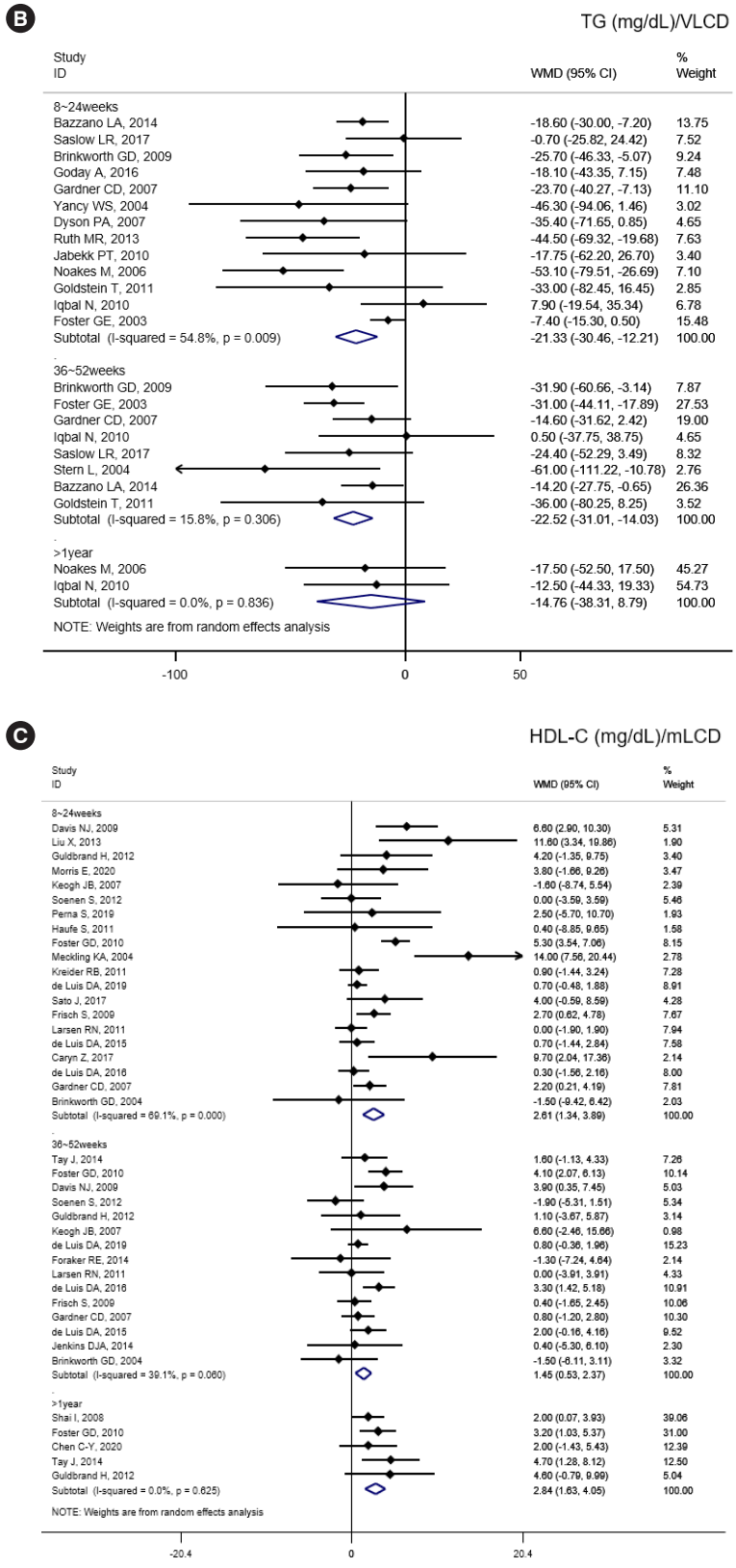


**Supplementary Figure 7.** (Continued) (B) Very-low carbohydrate diet (VLCD) on TG. (C) mLCD on high-density lipoprotein cholesterol (HDL-C).

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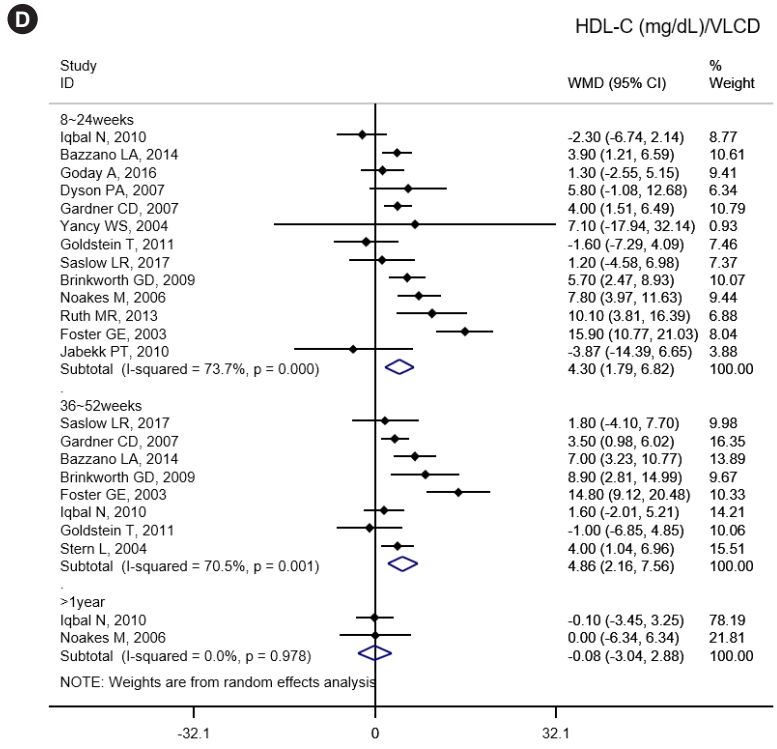


**Supplementary Figure 7.** (Continued) (D) VLCD on HDL-C. (E) mLCD on low-density lipoprotein cholesterol (LDL-C).

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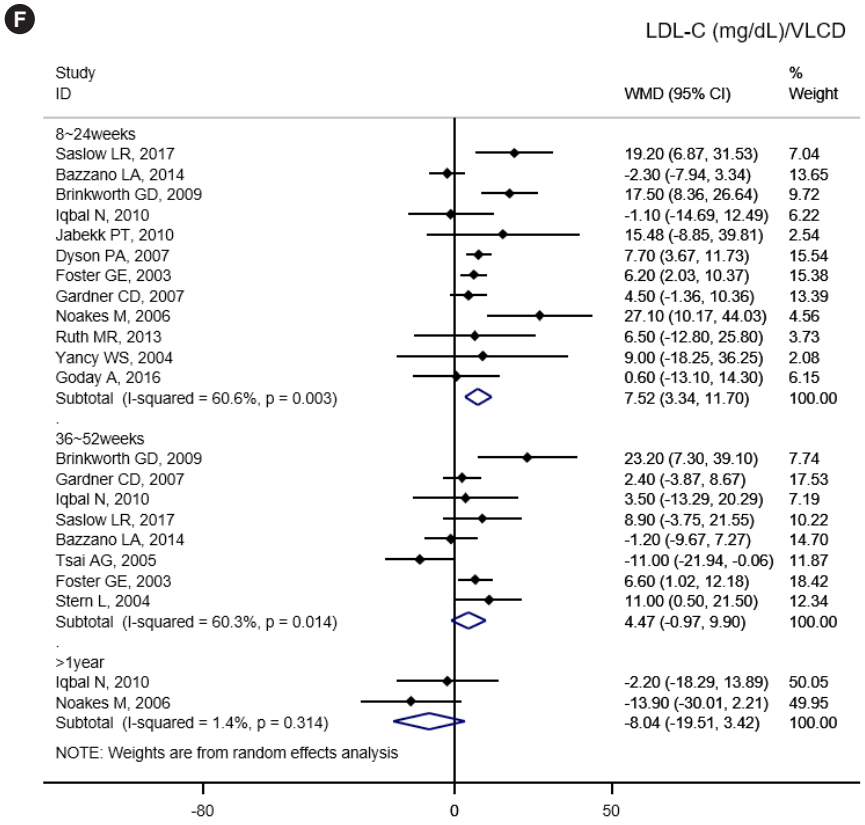
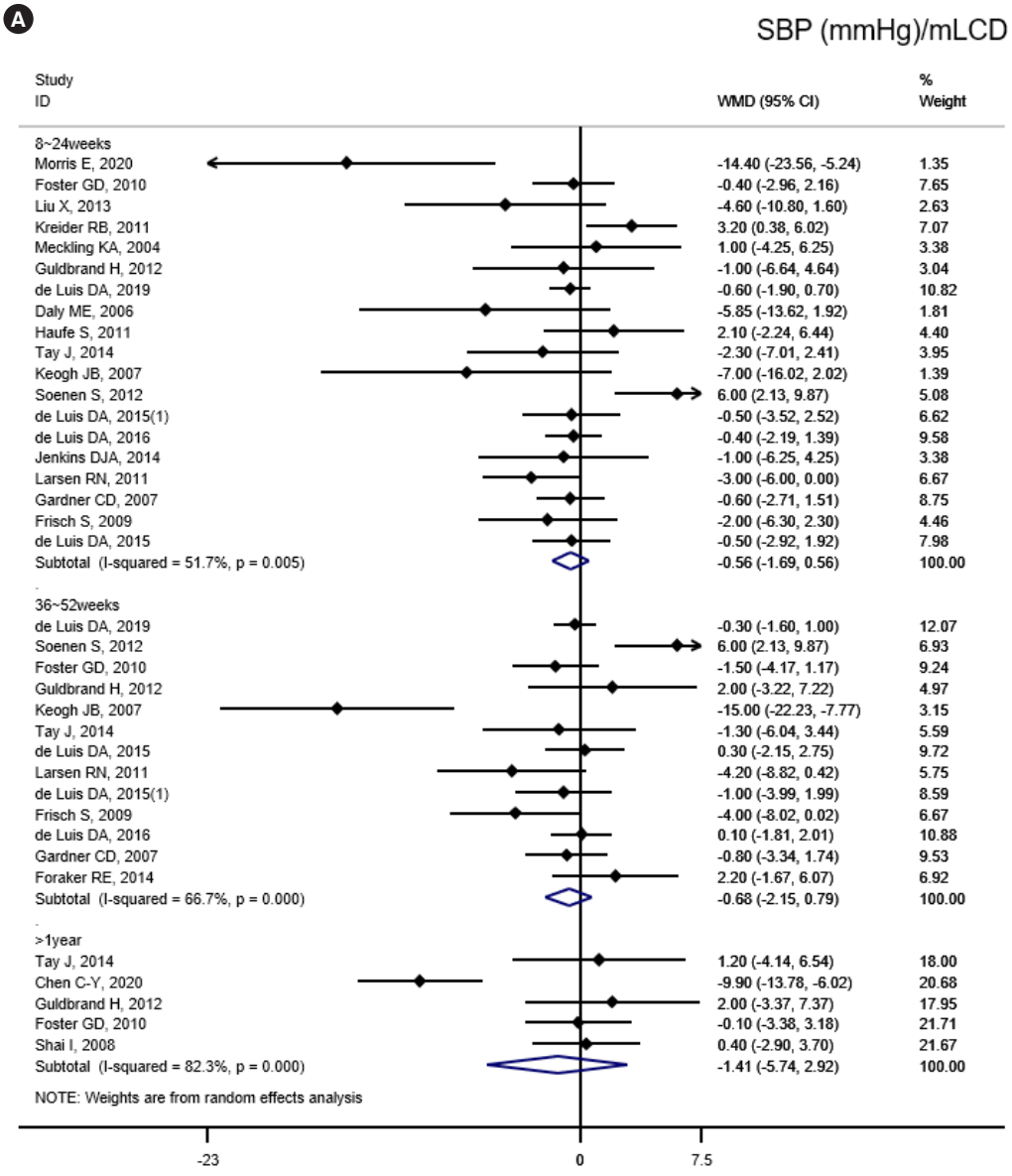



**Supplementary Figure 7.** (Continued) (F) VLCD on LDL-C. WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 8.** Effects of carbohydrate-restricted diets on blood pressure in adults with overweight/obesity. (A) Moderately-low or low carbohydrate diet (mLCD) on systolic blood pressure (SBP).

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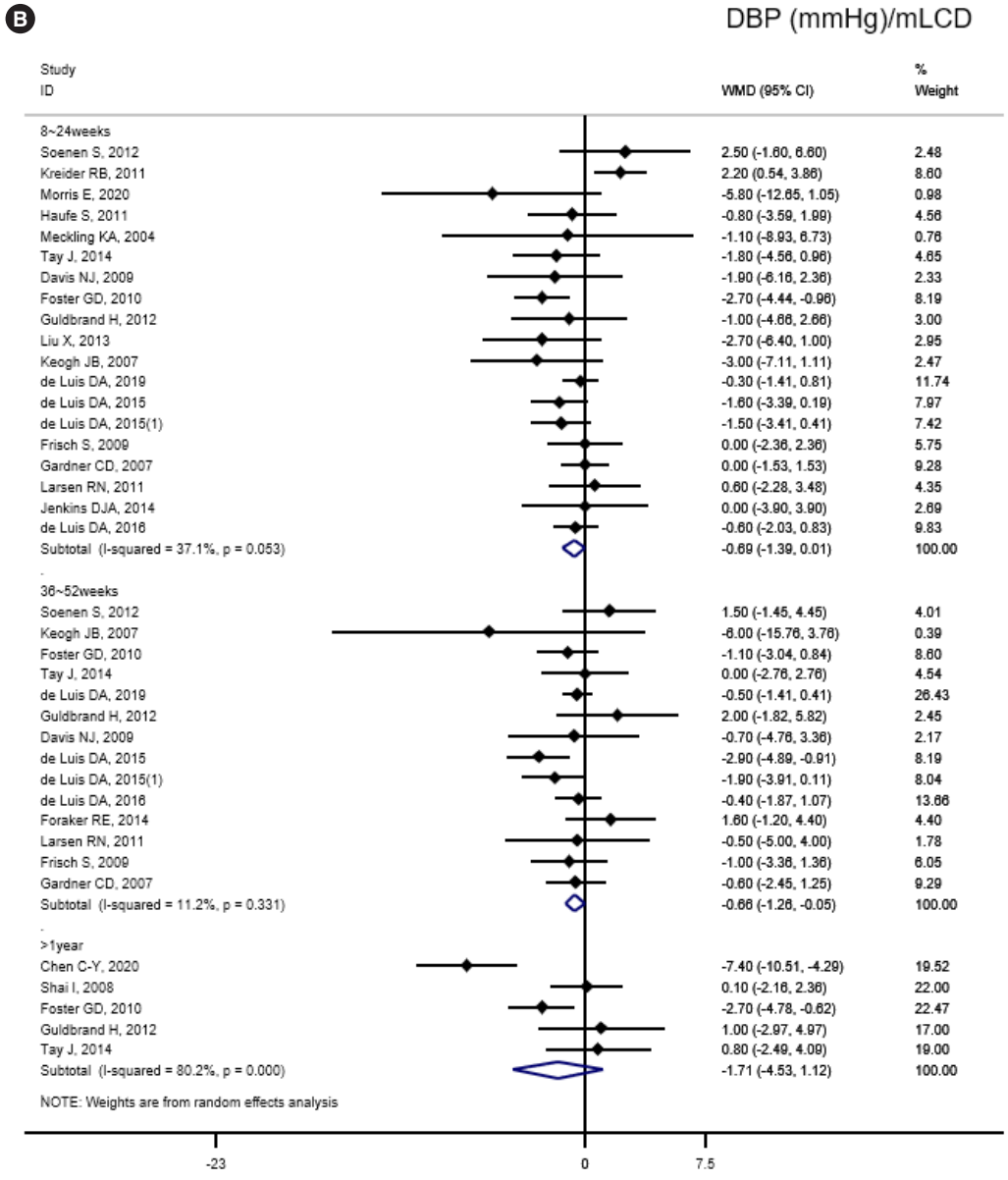


**Supplementary Figure 8.** (Continued) (B) mLCD on diastolic blood pressure (DBP).

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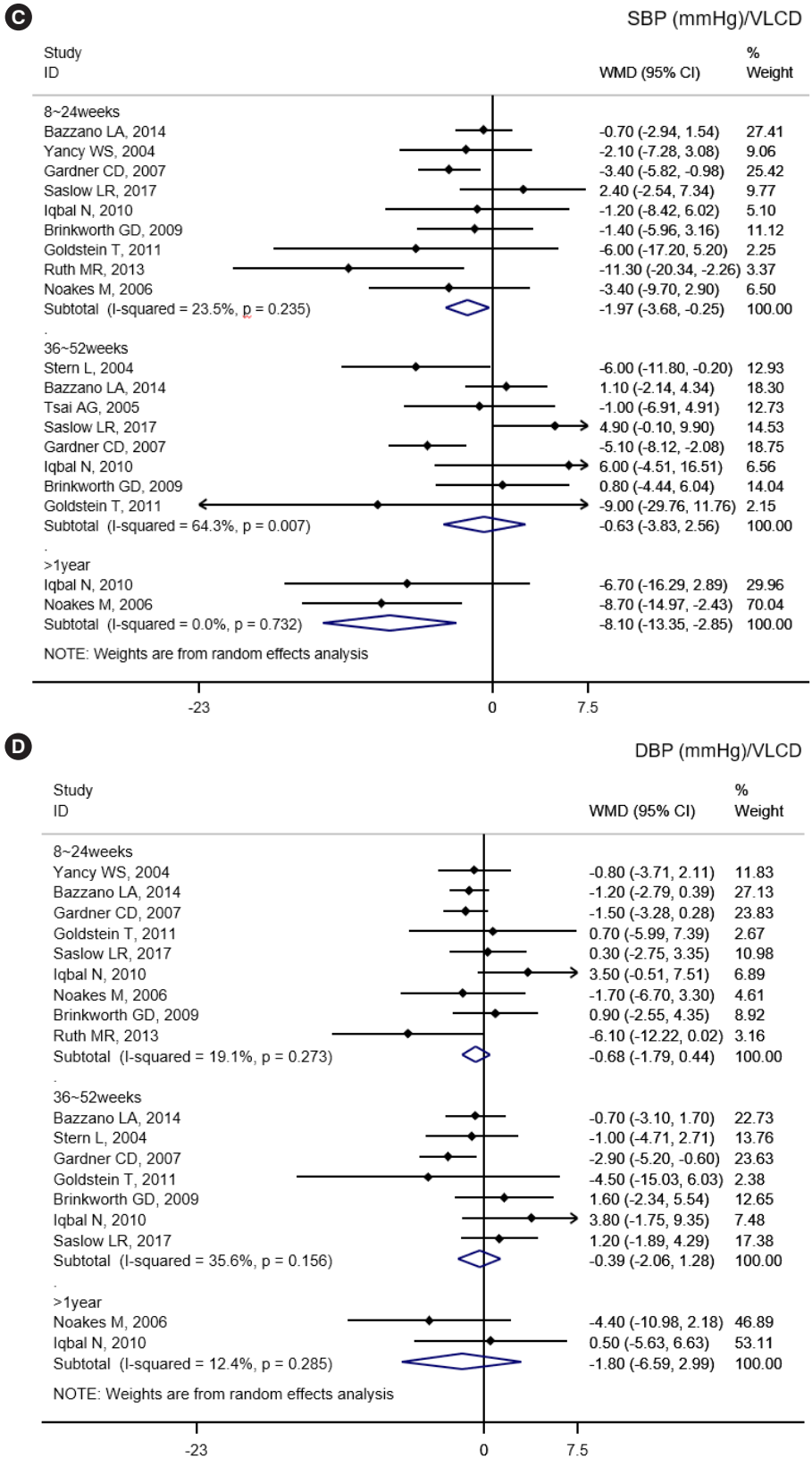
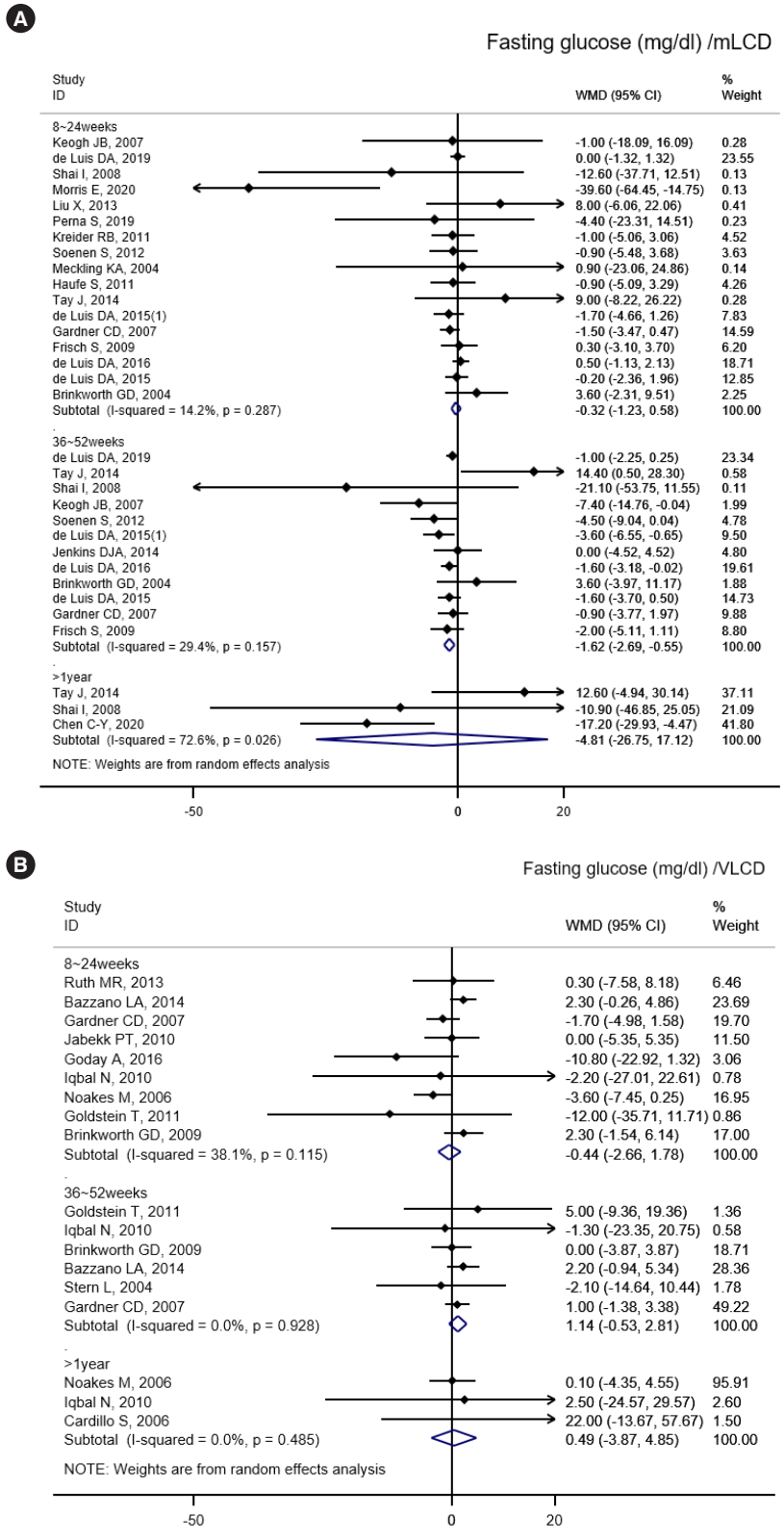



**Supplementary Figure 8.** (Continued) (C) Very-low carbohydrate diet (VLCD) on SBP. (D) VLCD on DBP. WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 9.** Effects of carbohydrate-restricted diets on fasting glucose, glycosylated hemoglobin (HbA1c), and fasting insulin levels in adults with overweight/obesity. (A) Moderately-low or low carbohydrate diet (mLCD) on fasting blood glucose. (B) Very-low carbohydrate diet (VLCD) on fasting blood glucose.

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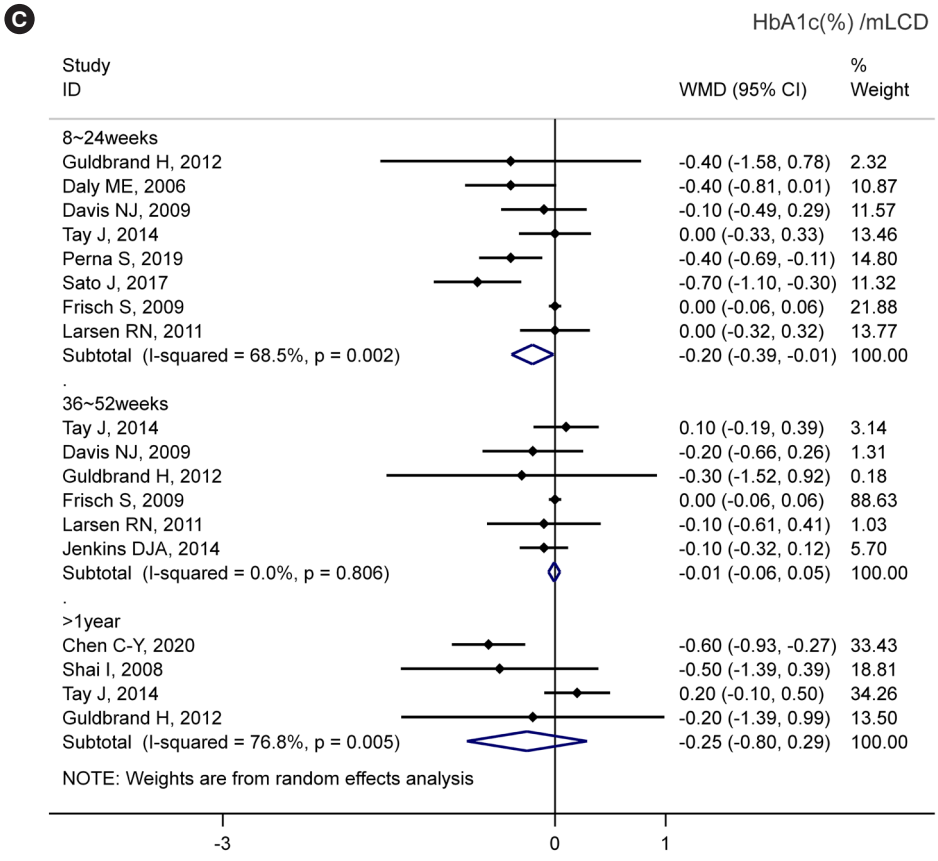


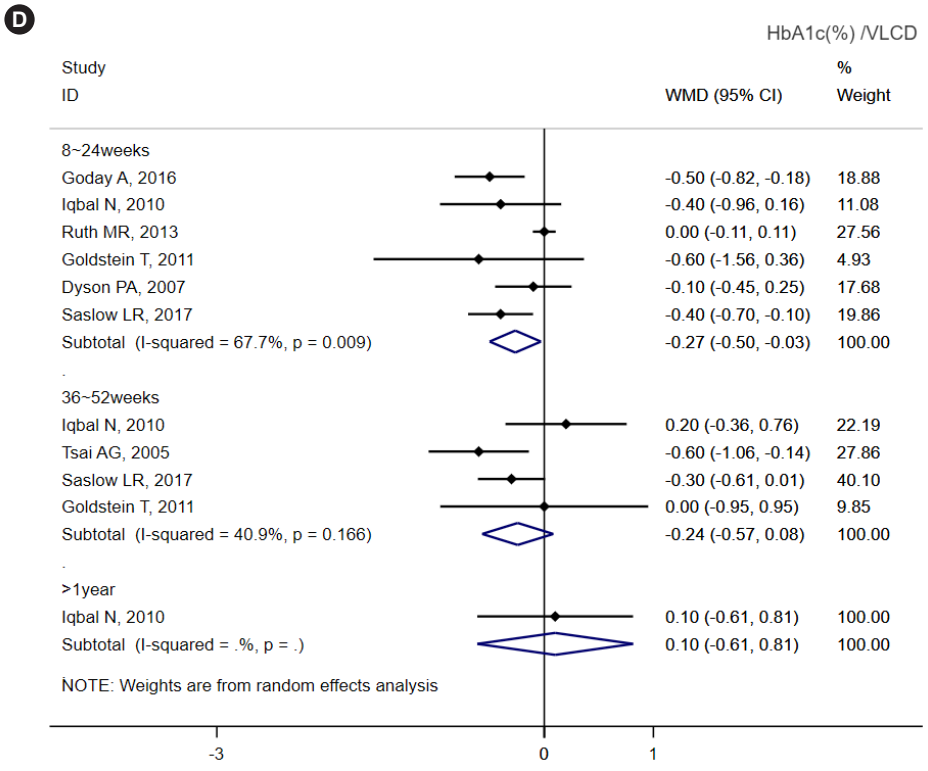


**Supplementary Figure 9.** (Continued) (C) mLCD on HbA1c. (D) VLCD on HbA1c level.

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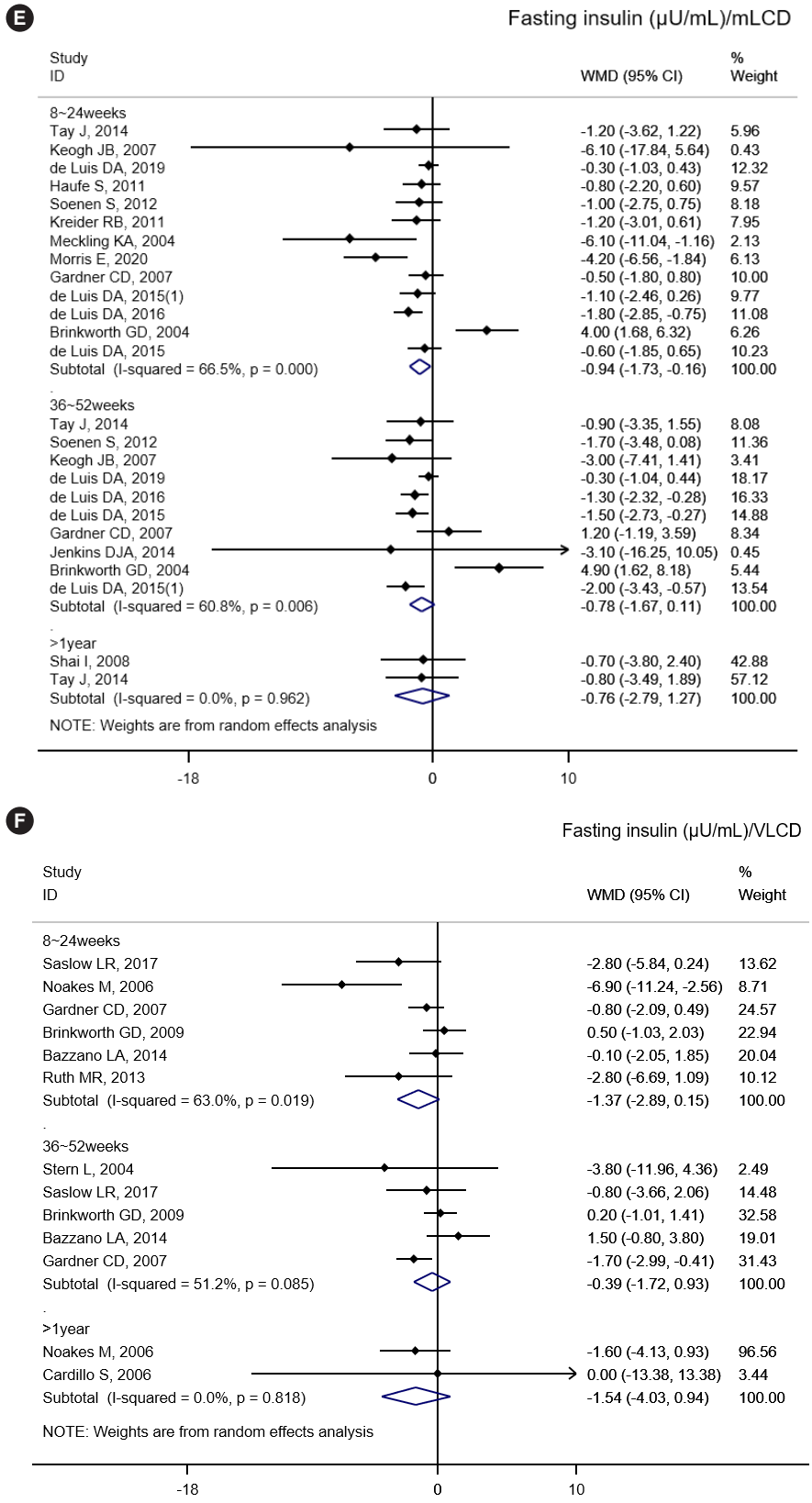
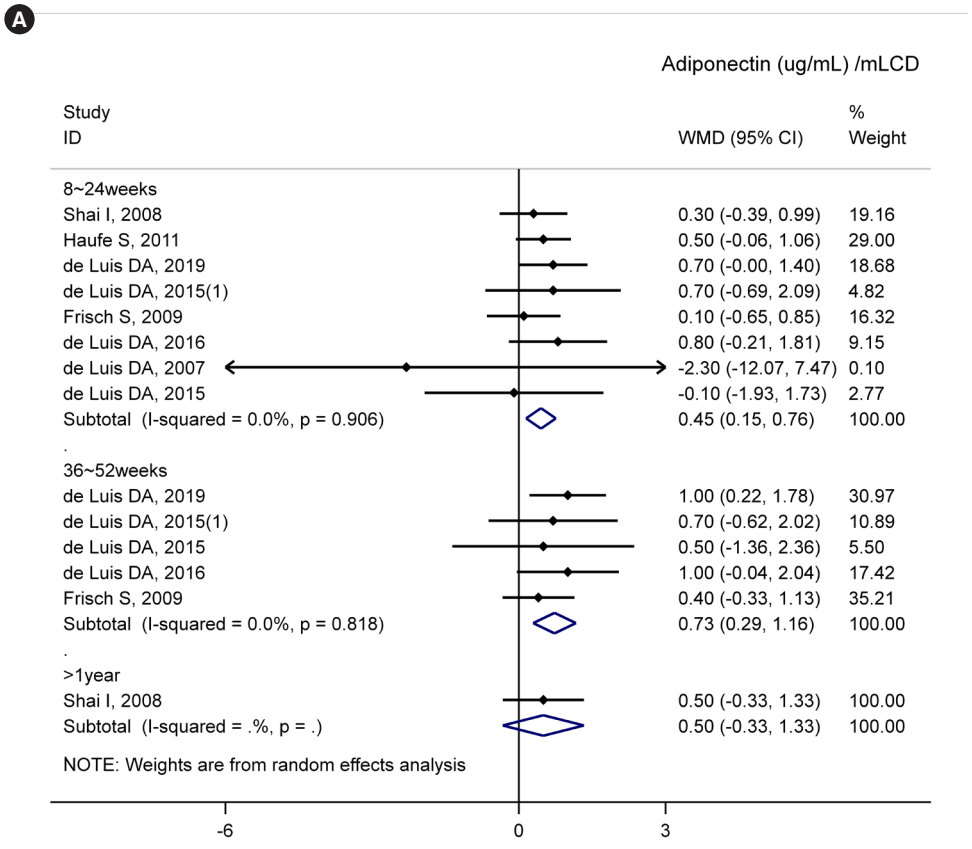
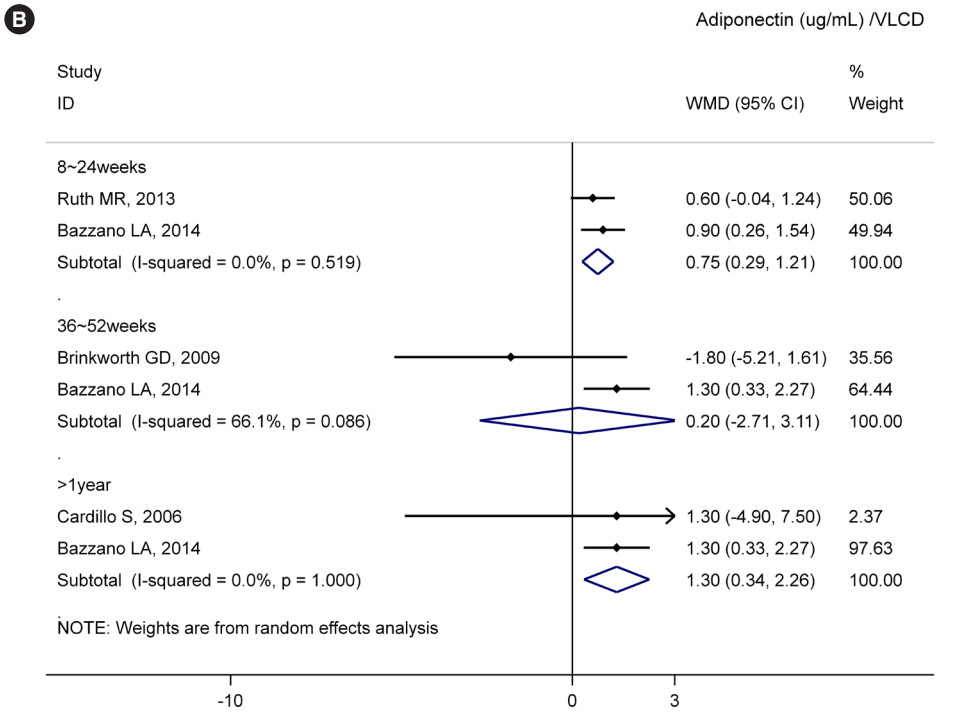
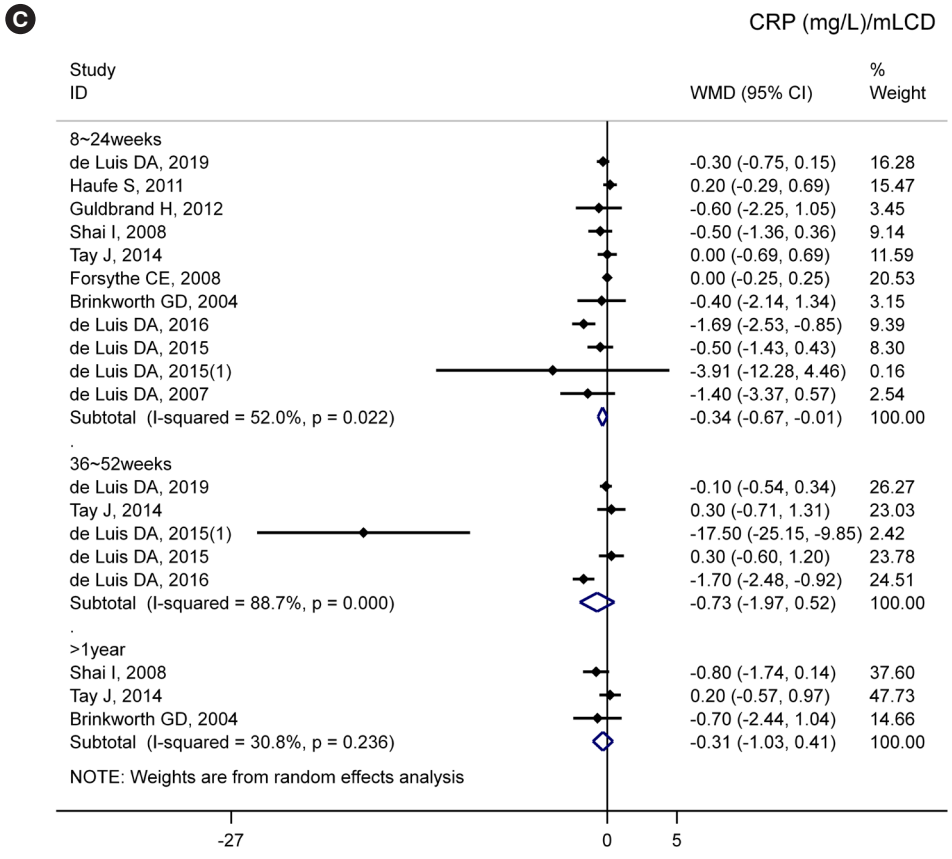


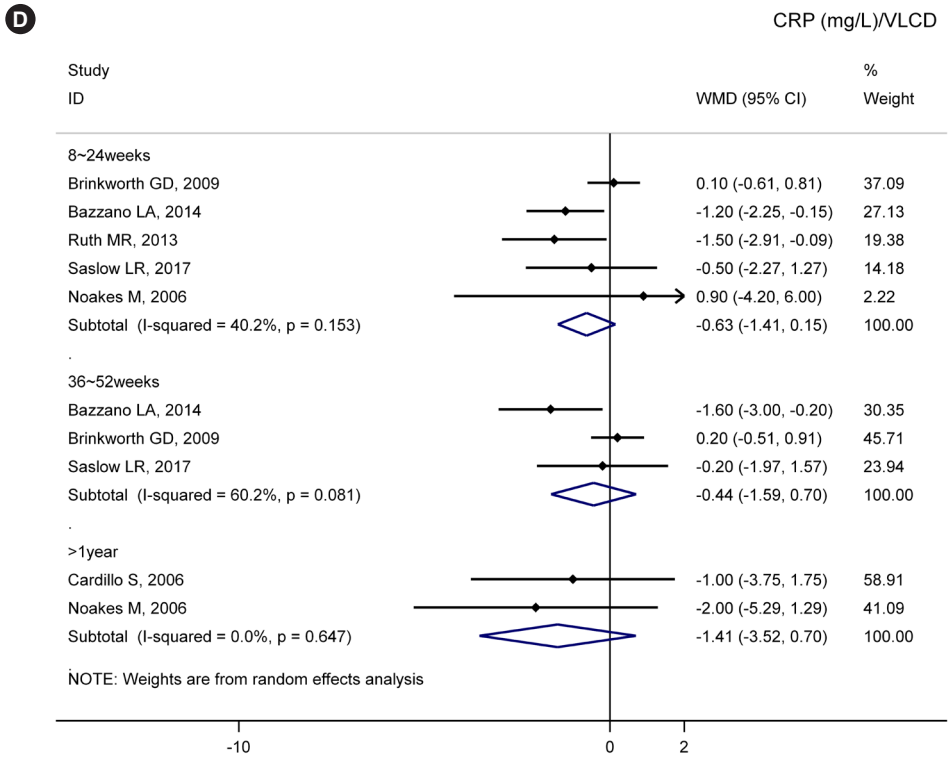

**Supplementary Figure 9.** (Continued) (E) mLCD on fasting insulin. (F) VLCD on fasting insulin. WMD, weighted mean difference; CI, confidence interval.



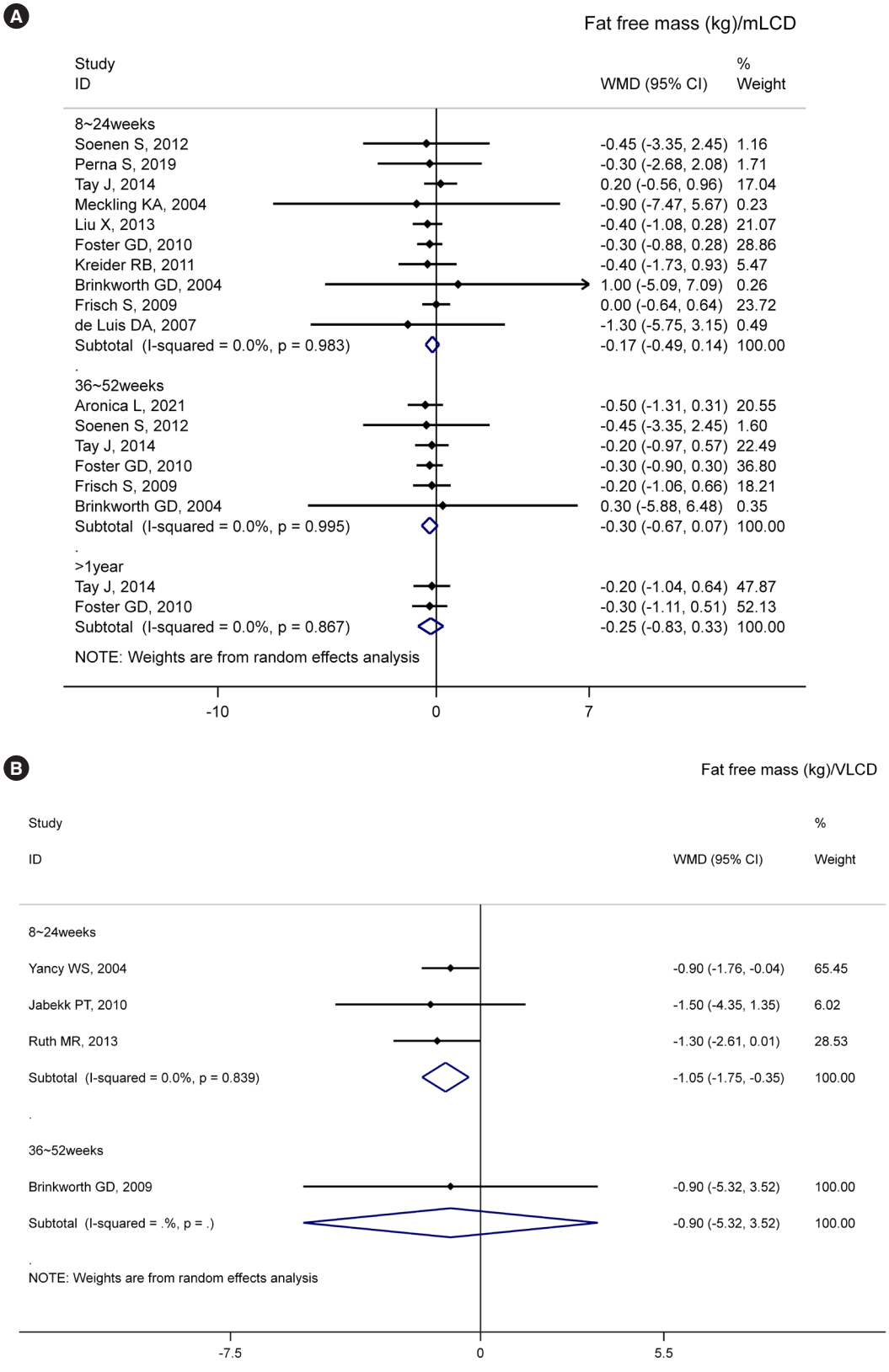




**Supplementary Figure 10.** Effects of carbohydrate-restricted diets on serum adiponectin and C-reactive protein (CRP) levels in adults with overweight/obesity. (A) Moderately-low or low carbohydrate diet (mLCD) on adiponectin. (B) Very-low carbohydrate diet (VLCD) on adiponectin. (*Continued to the next page*)

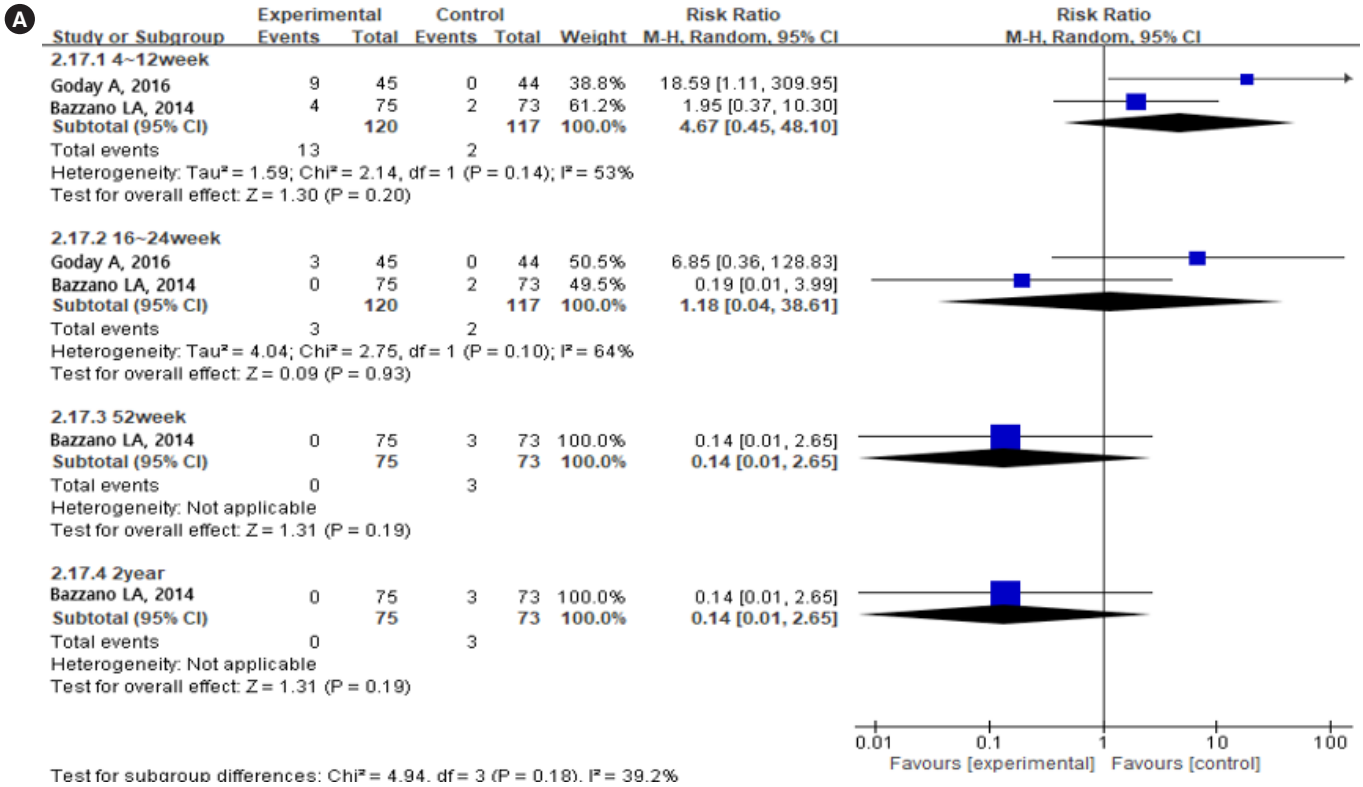


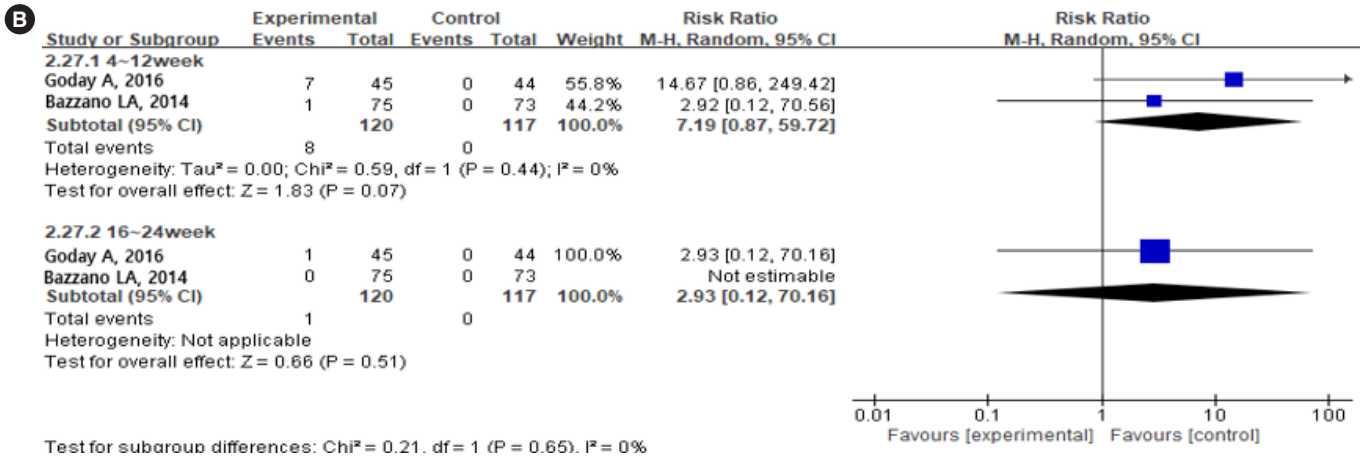




**Supplementary Figure 10.** (Continued) (C) mLCD on C-reactive protein (CRP). (D) VLCD on CRP.




**Supplementary Figure 11.** Effects of carbohydrate-restricted diets on fat free mass in adults with overweight/obesity. (A) Moderately-low or low carbohydrate diet (mLCD). (B) Very-low carbohydrate diet (VLCD). WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 12.** Adverse events reported regarding carbohydrate-restricted diets in adults with overweight/obesity. (A) Nausea. (B) Vomiting.

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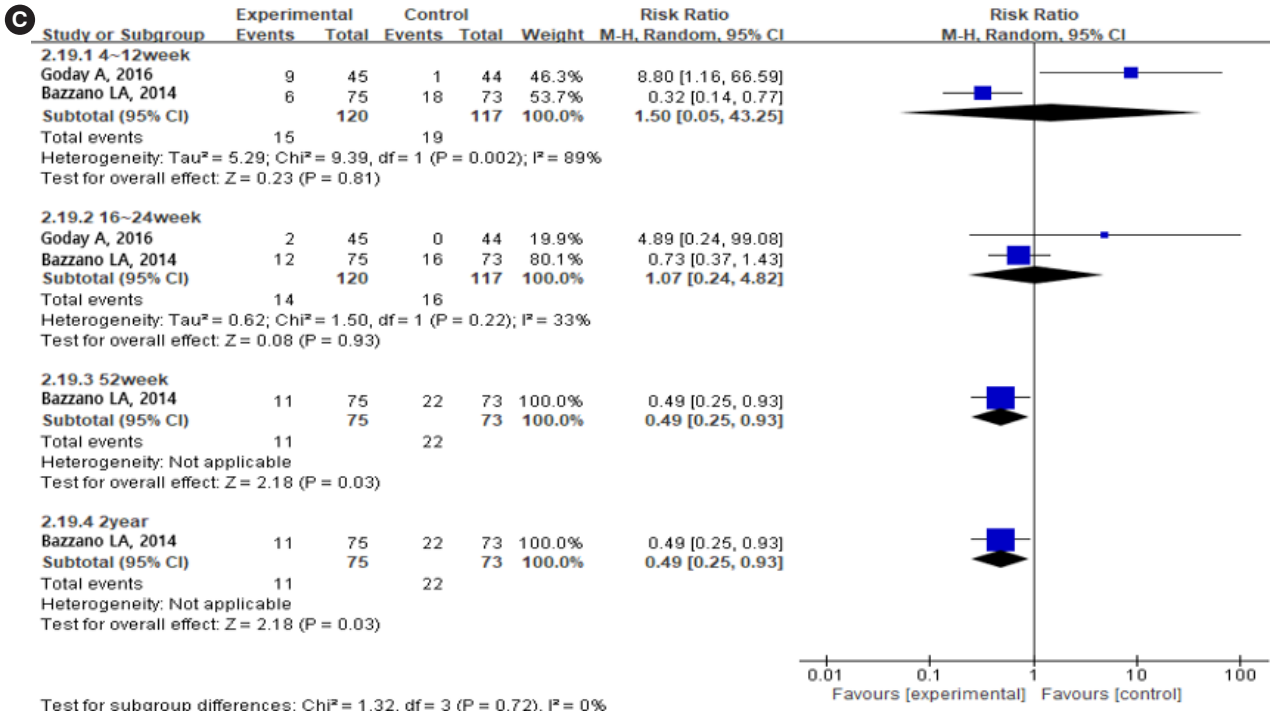
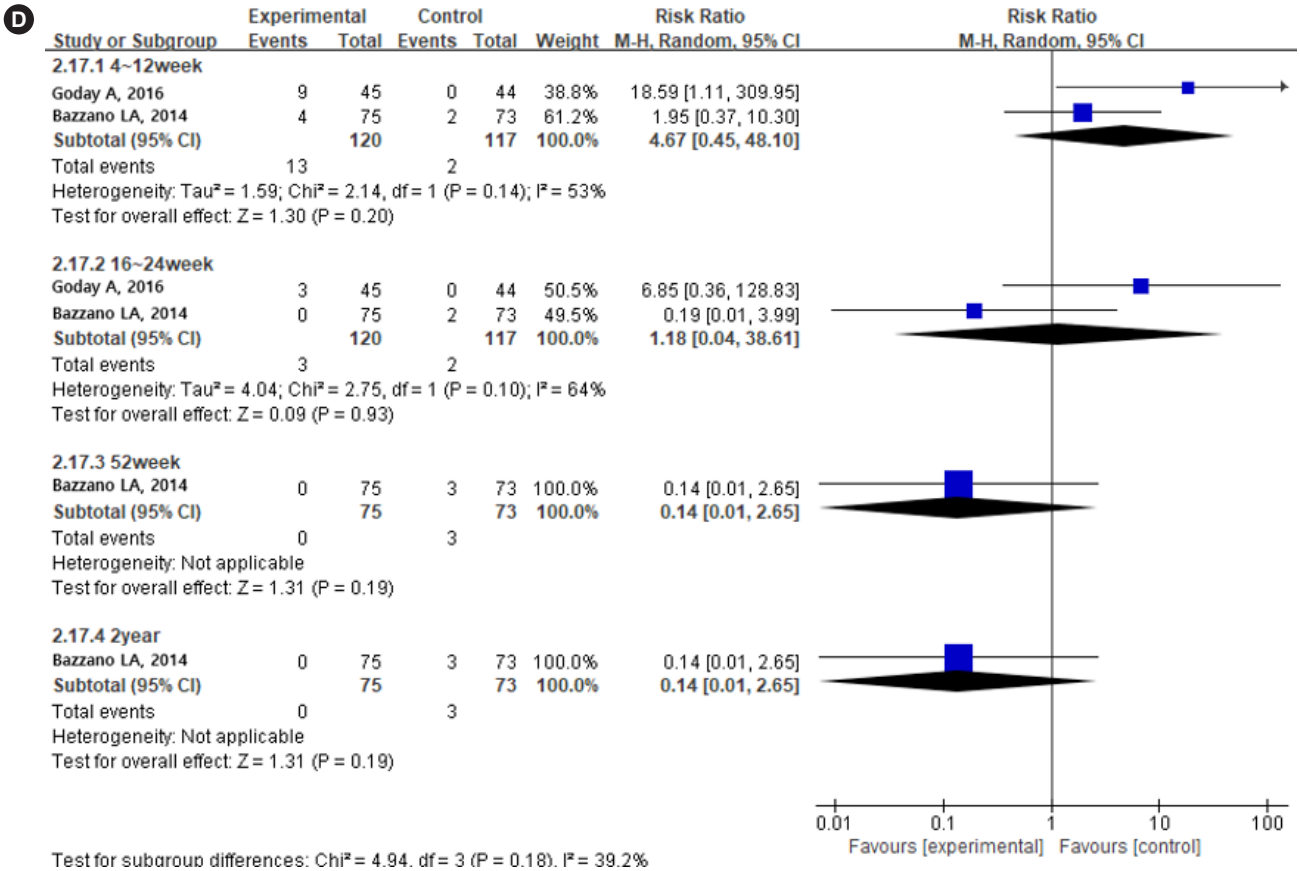
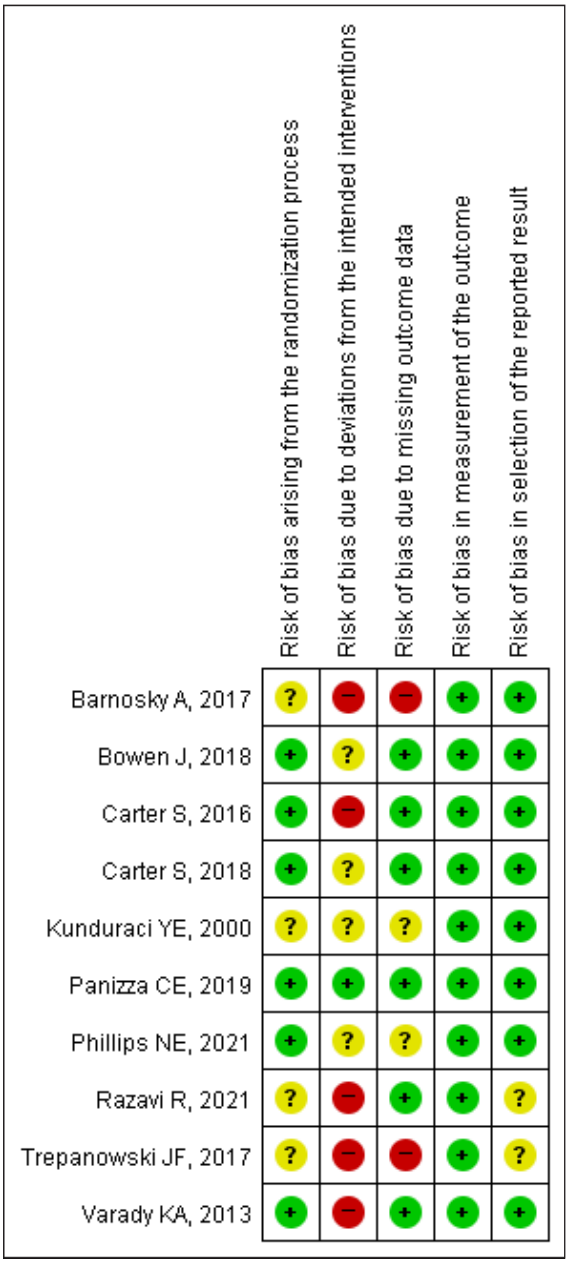
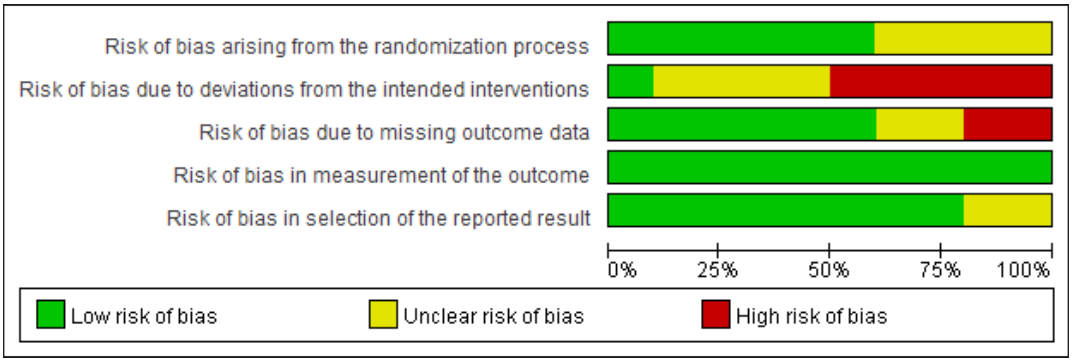


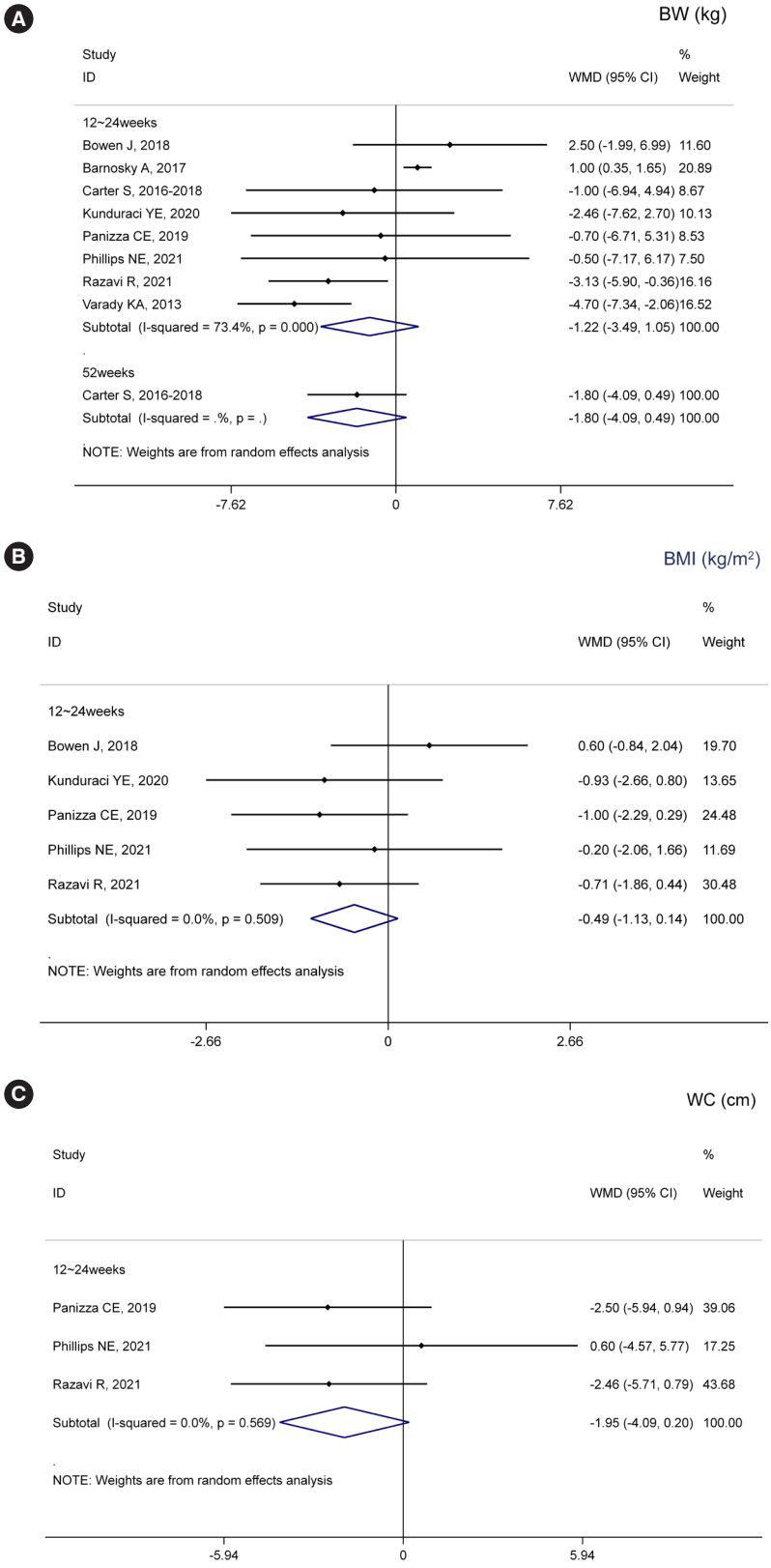




**Supplementary Figure 12.** (Continued) (C) Headache. (D) Constipation. M-H, Mantel-Haenszel; CI, confidence interval.




**Supplementary Figure 13.** Risk of bias assessment in studies evaluating the effects of intermittent fasting in adults with overweight/obesity.




**Supplementary Figure 14.** Effects of intermittent fasting on (A) body weight (BW), (B) body mass index (BMI), (C) waist circumference (WC).

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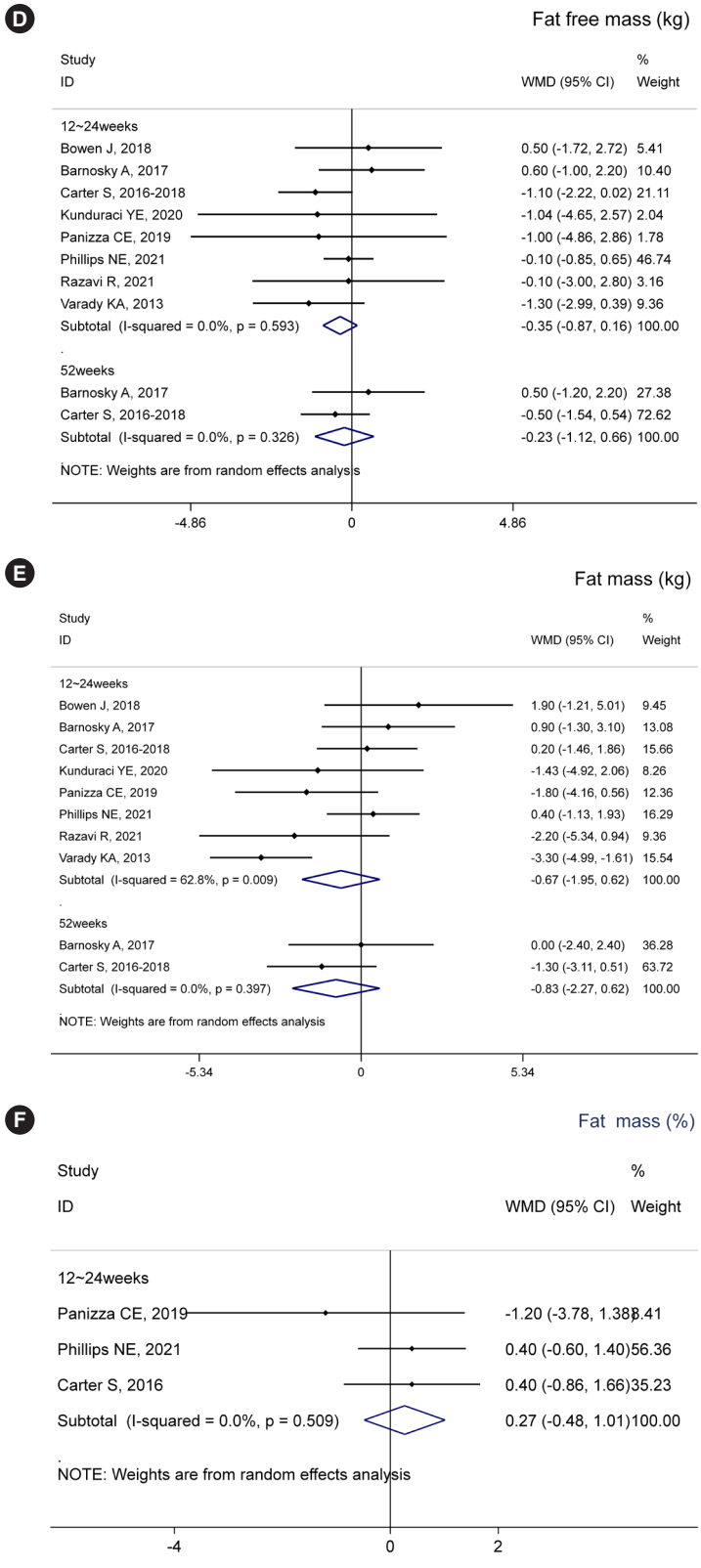
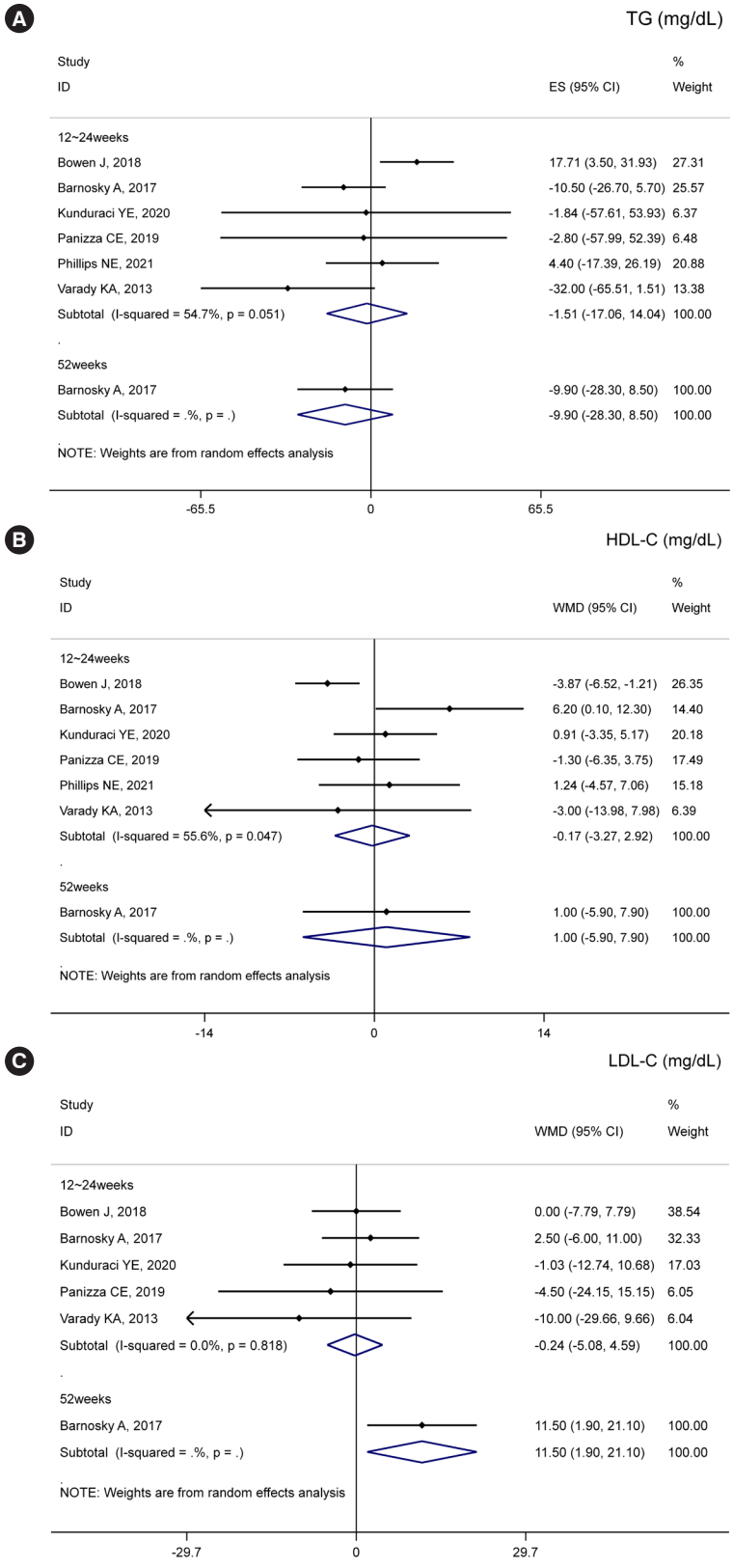



**Supplementary Figure 14.** (Continued) (D) fat free mass, (E) fat mass, and (F) fat mass percentage in adults with overweight/obesity. WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 15.** Effect of Intermittent fasting on (A) triglyceride (TG; mg/dL), (B) high-density lipoprotein cholesterol (HDL-C; mg/dL), (C) low-density lipoprotein cholesterol (LDL-C; mg/dL).

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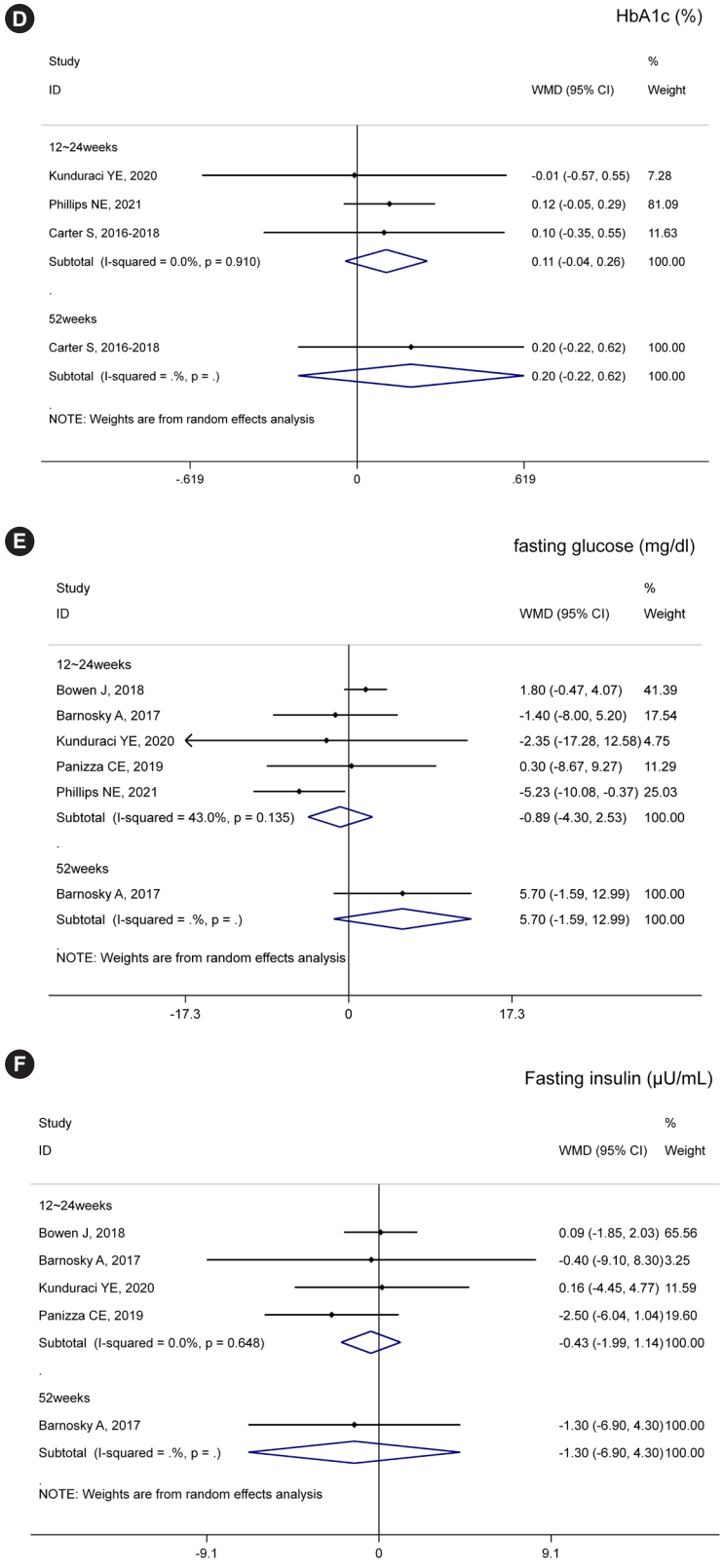


**Supplementary Figure 15.** (Continued) (D) glycosylated hemoglobin (HbA1c; %), (E) fasting glucose (mg/dL), (F) fasting insulin (μU/mL).

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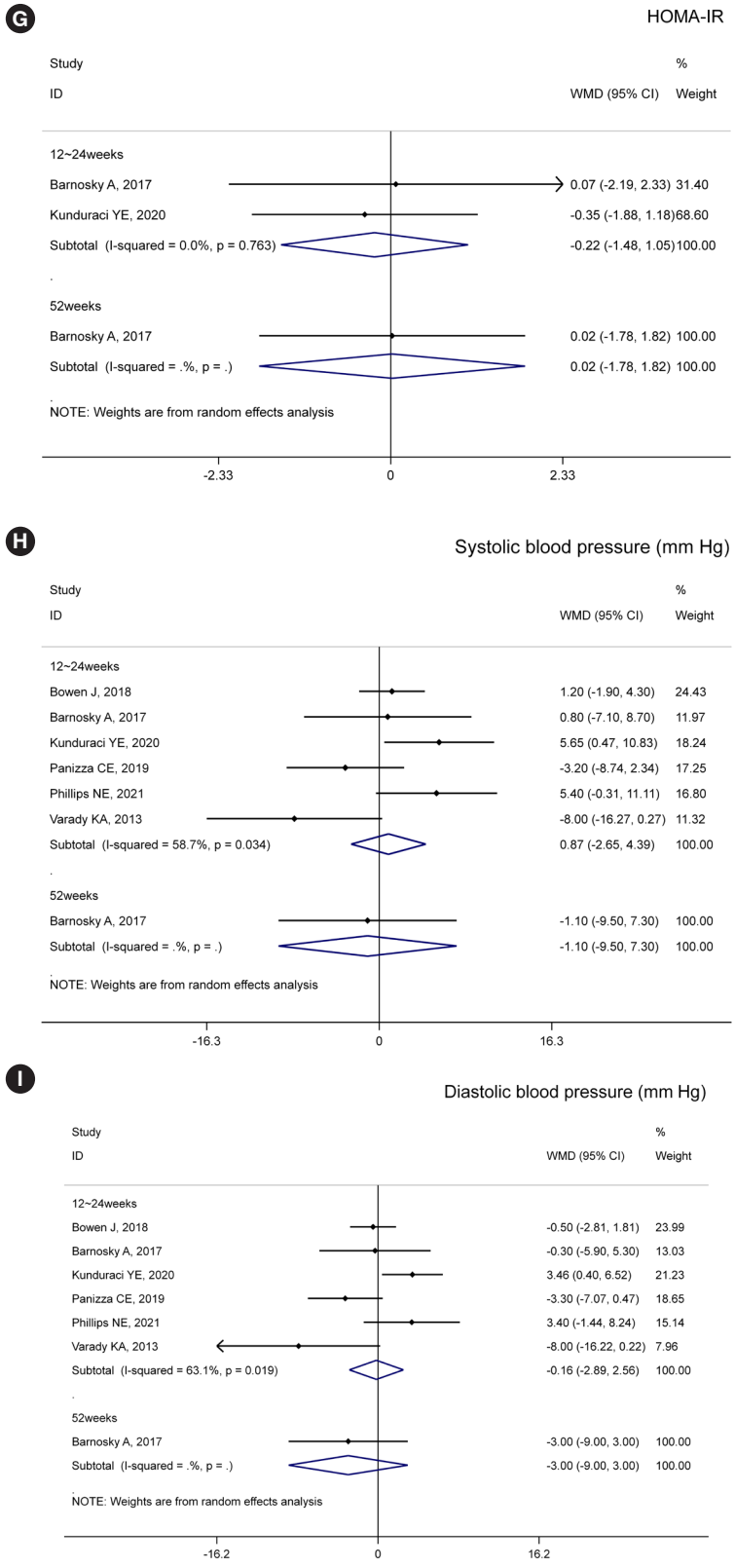
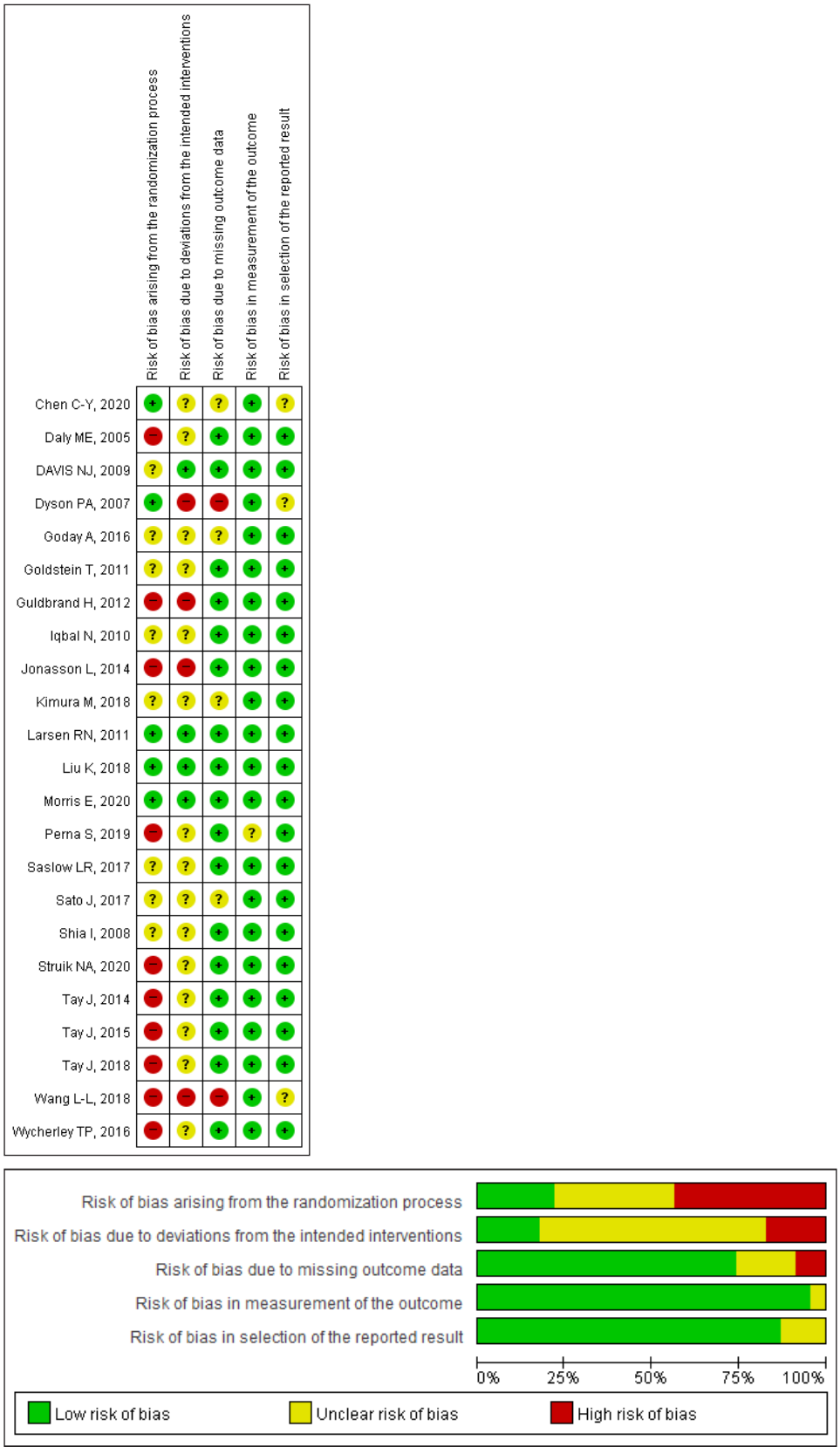
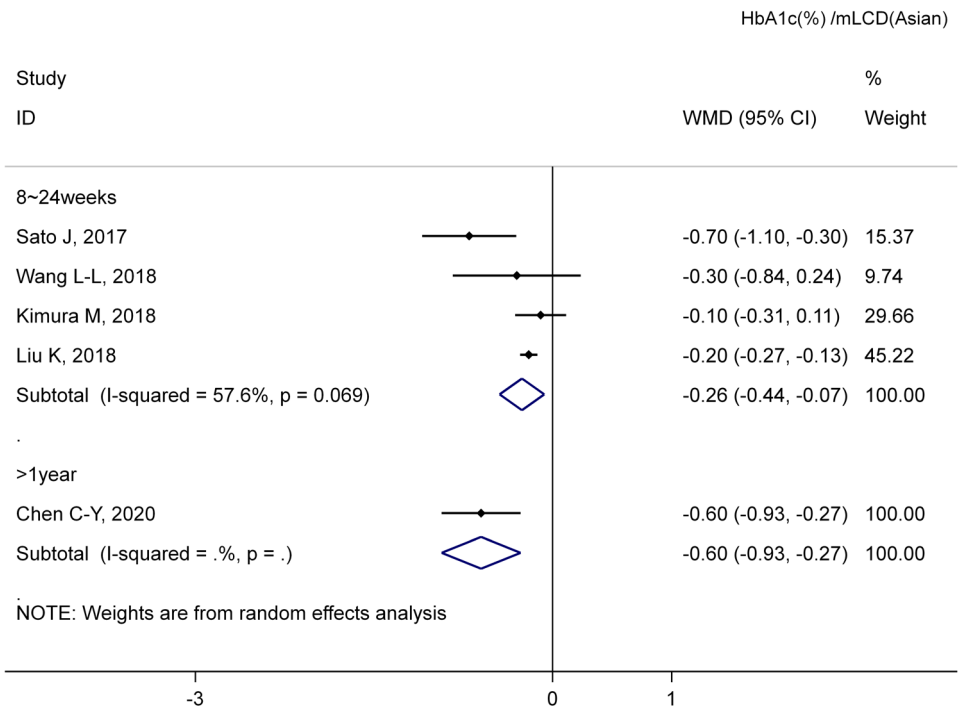


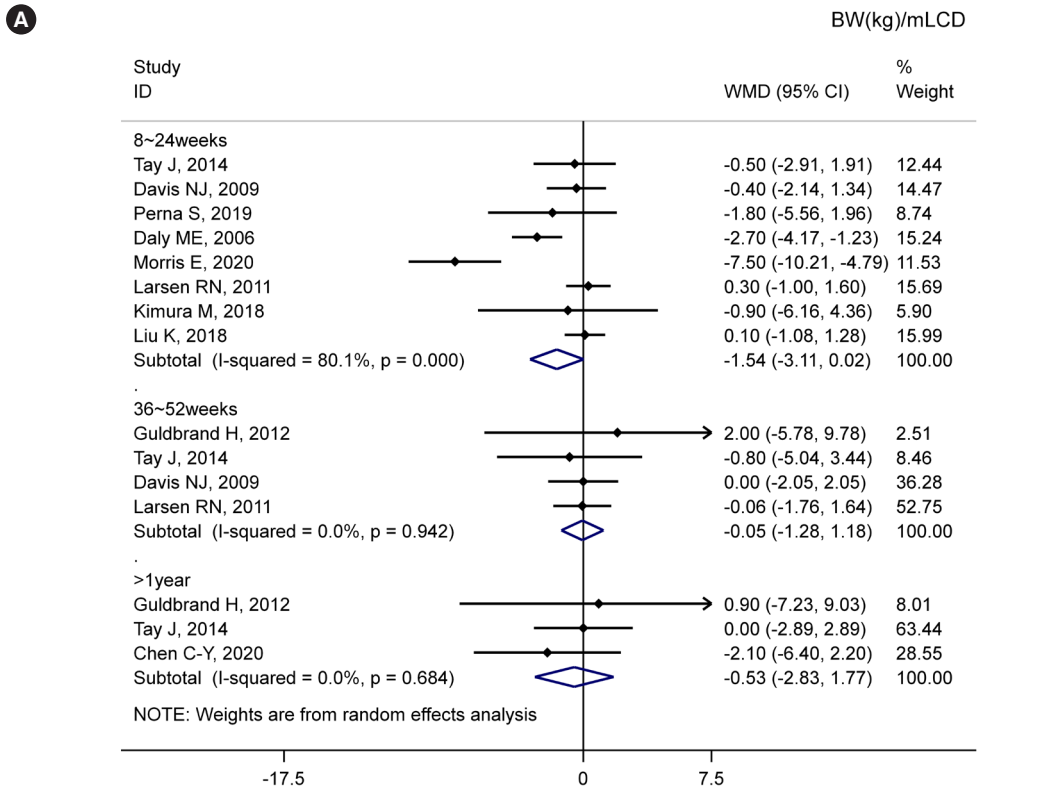

**Supplementary Figure 15.** (Continued) (G) homeostatic model assessment for insulin resistance (HOMA-IR), (H) systolic blood pressure (SBP; mmHg), and (I) diastolic blood pressure (DBP; mmHg) in adults with overweight/obesity. ES, effect size; CI, confidence interval; WMD, weighted mean difference.

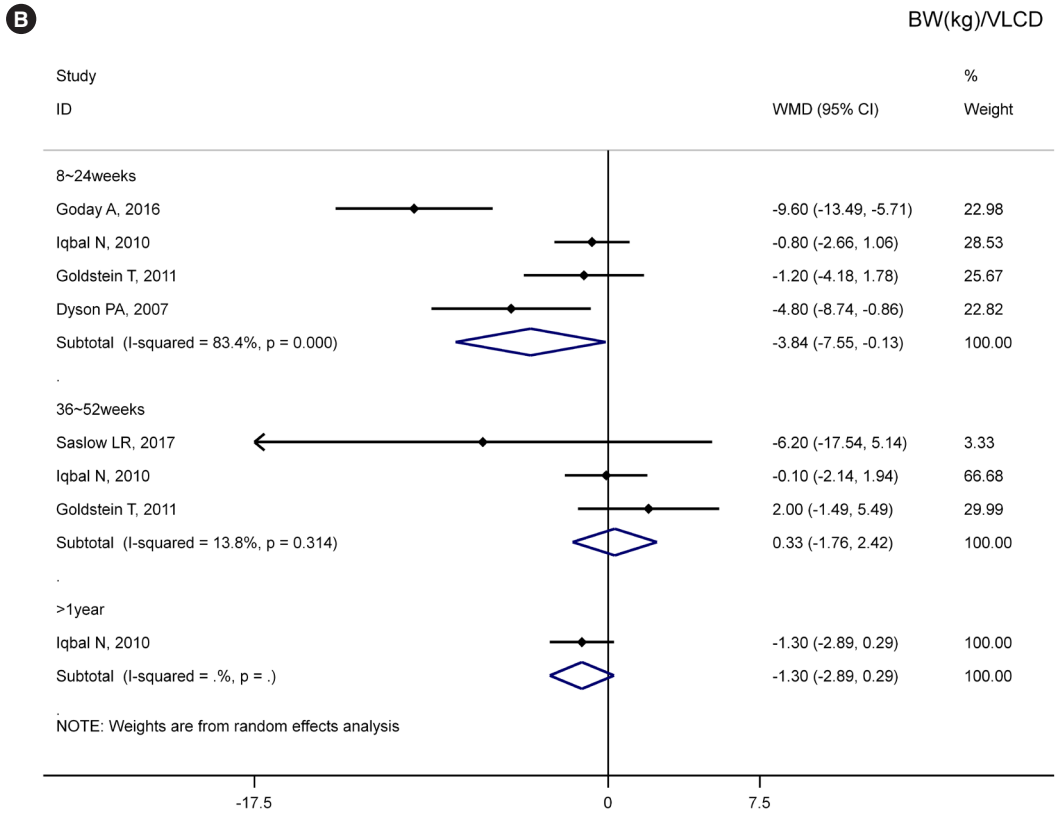



**Supplementary Figure 16.** Risk of bias assessment in studies evaluating the effects of carbohydrate-restricted diets in adults with diabetes.

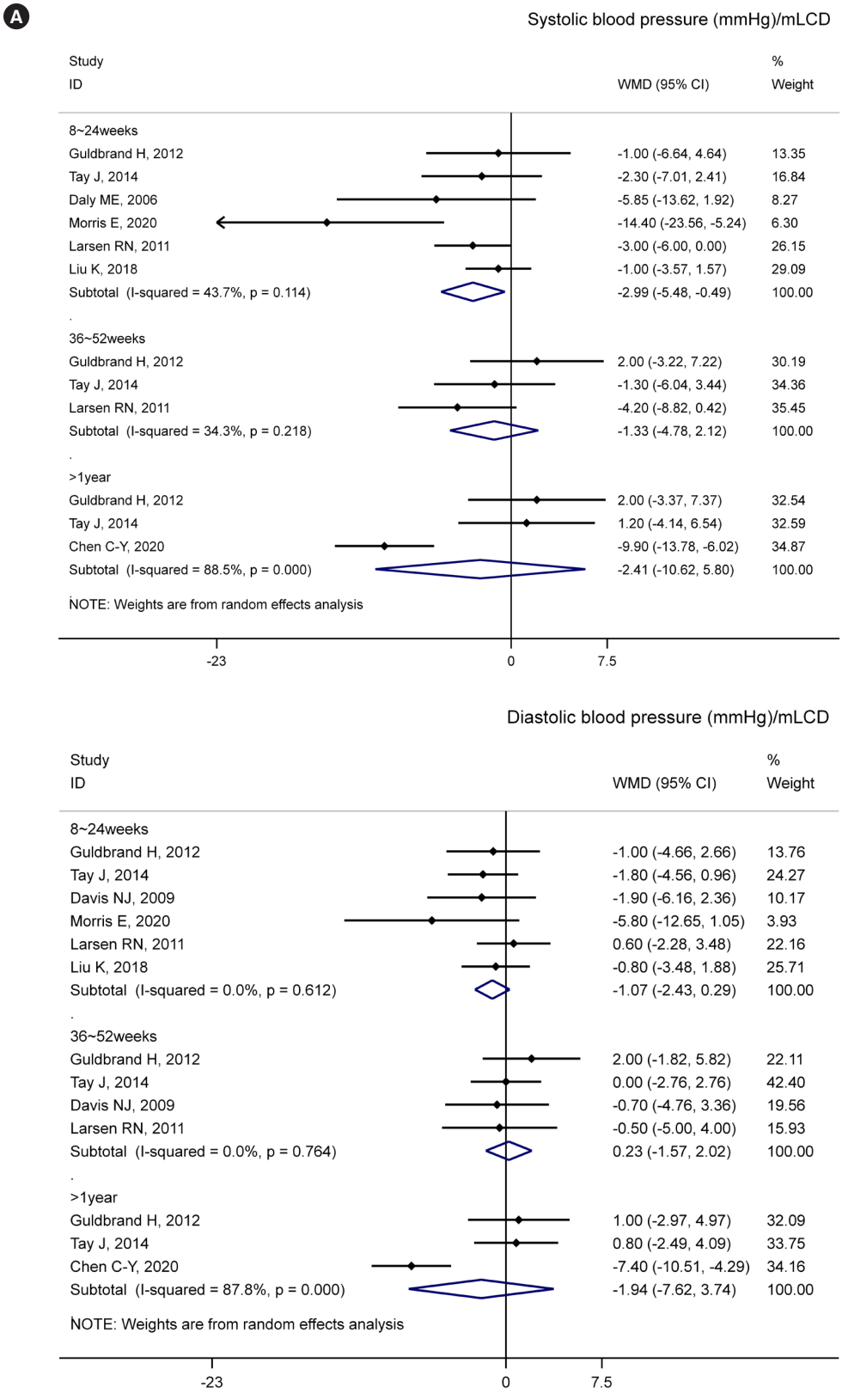



**Supplementary Figure 17.** Effects of carbohydrate-restricted diets on glycosylated hemoglobin (HbA1c) in adults with diabetes in East-Asian countries (China, Japan, Taiwan). mLCD, moderately-low or low carbohydrate diet; WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 18.** Effects of carbohydrate-restricted diets on body weight (BW) in adults with diabetes. (A) Moderately-low or low carbohydrate diets (mLCD). (B) Very-low carbohydrate diets (VLCD). WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 19.** Effect of carbohydrate-restricted diets on blood pressure in adults with diabetes. (A) Moderately-low or low carbohydrate diets (mLCD).

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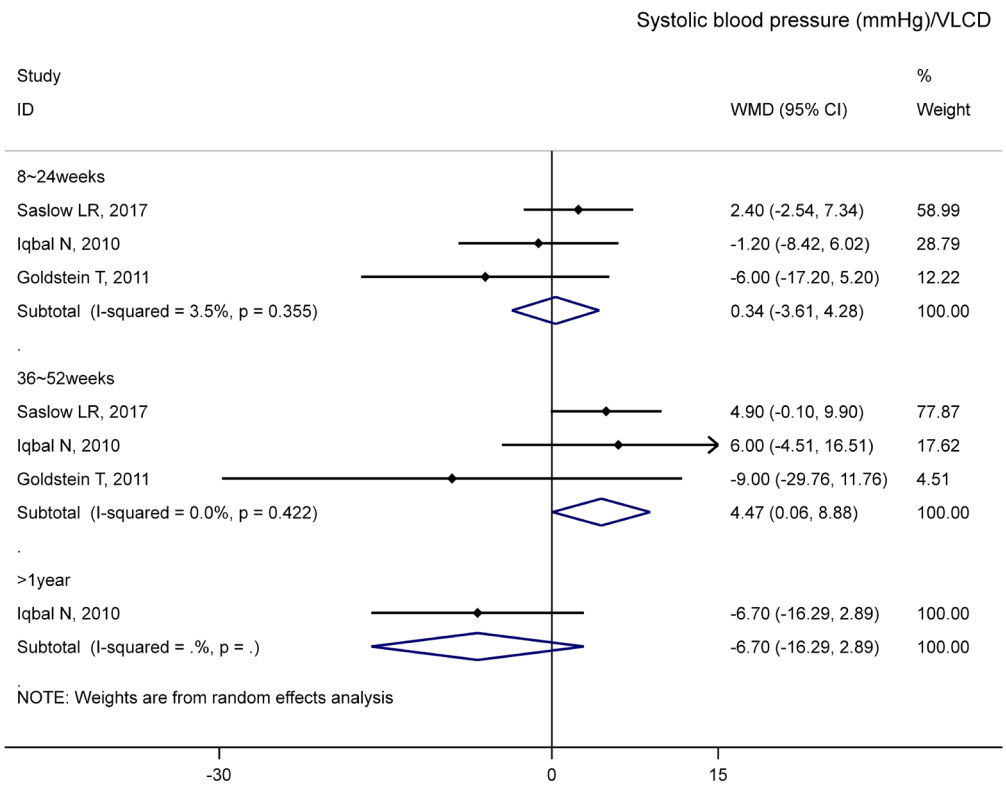
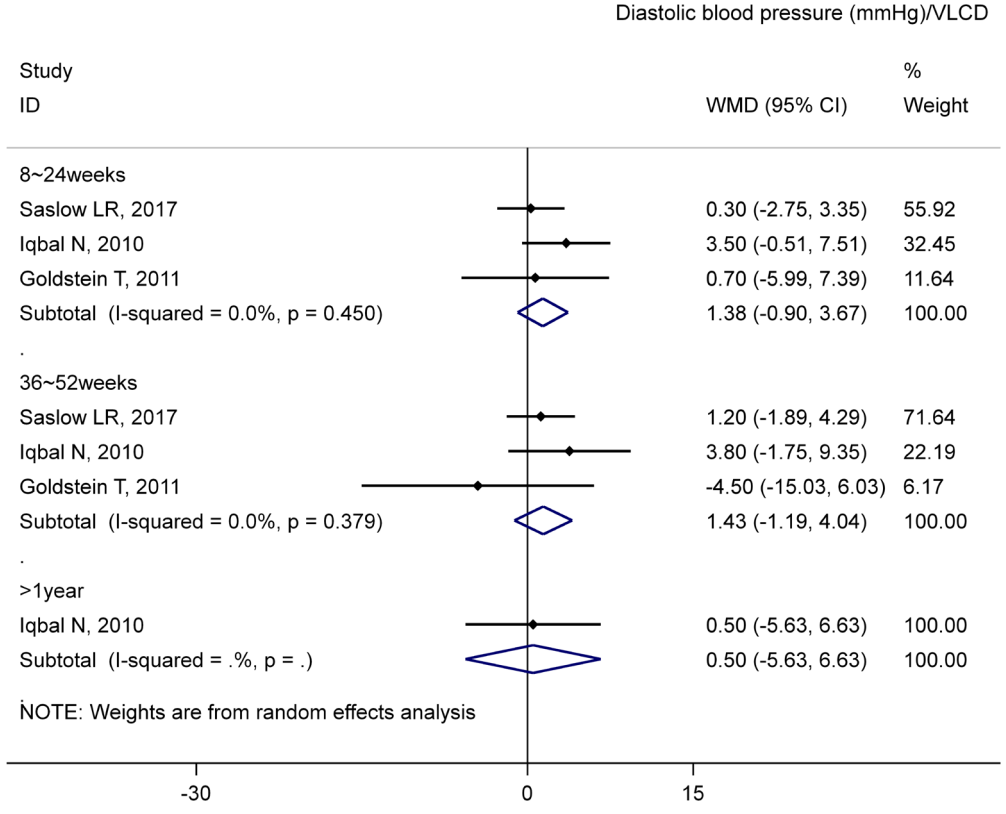
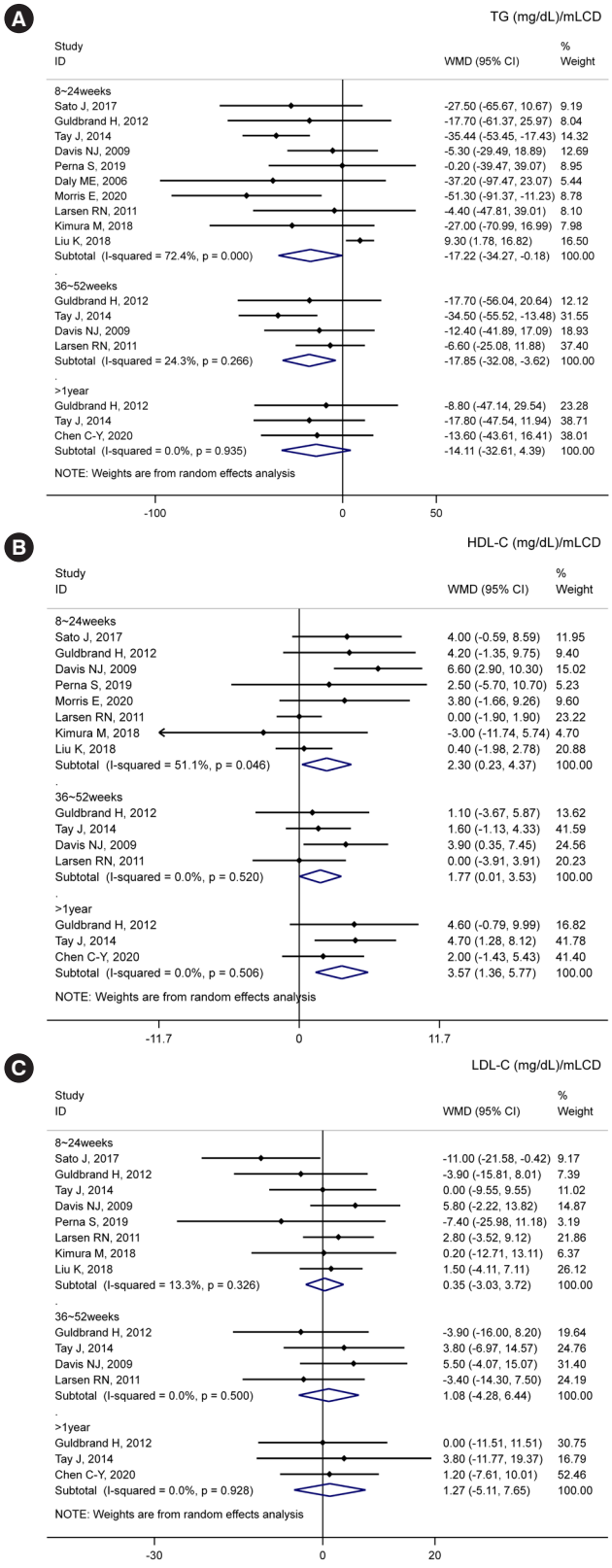



**Supplementary Figure 19.** (Continued) (B) Very-low carbohydrate diets (VLCD). WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 20.** Effects of carbohydrate-restricted diets on lipid profiles in adults with diabetes. (A) Moderately-low or low carbohydrate diets (mLCD) on triglyceride (TG). (B) mLCD on high-density lipoprotein cholesterol (HDL-C). (C) mLCD on low-density lipoprotein cholesterol (LDL-C).

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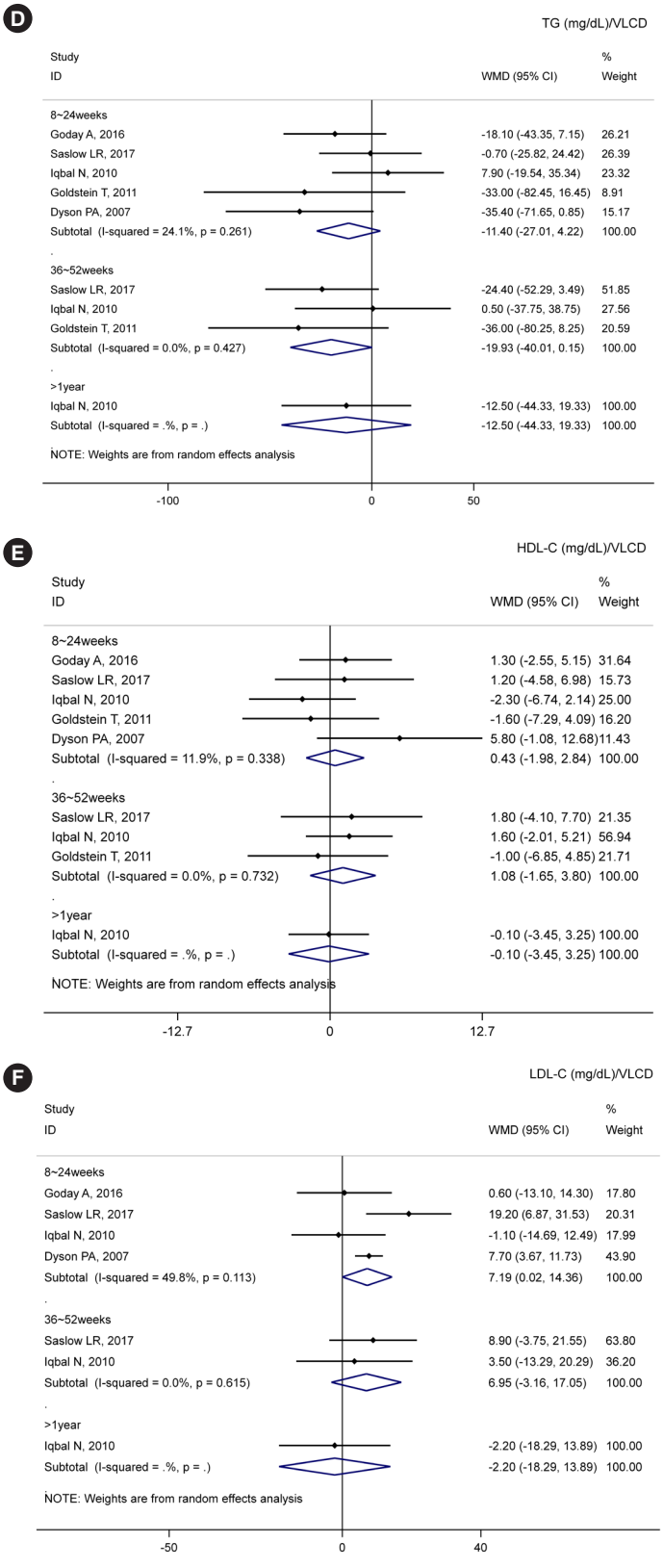
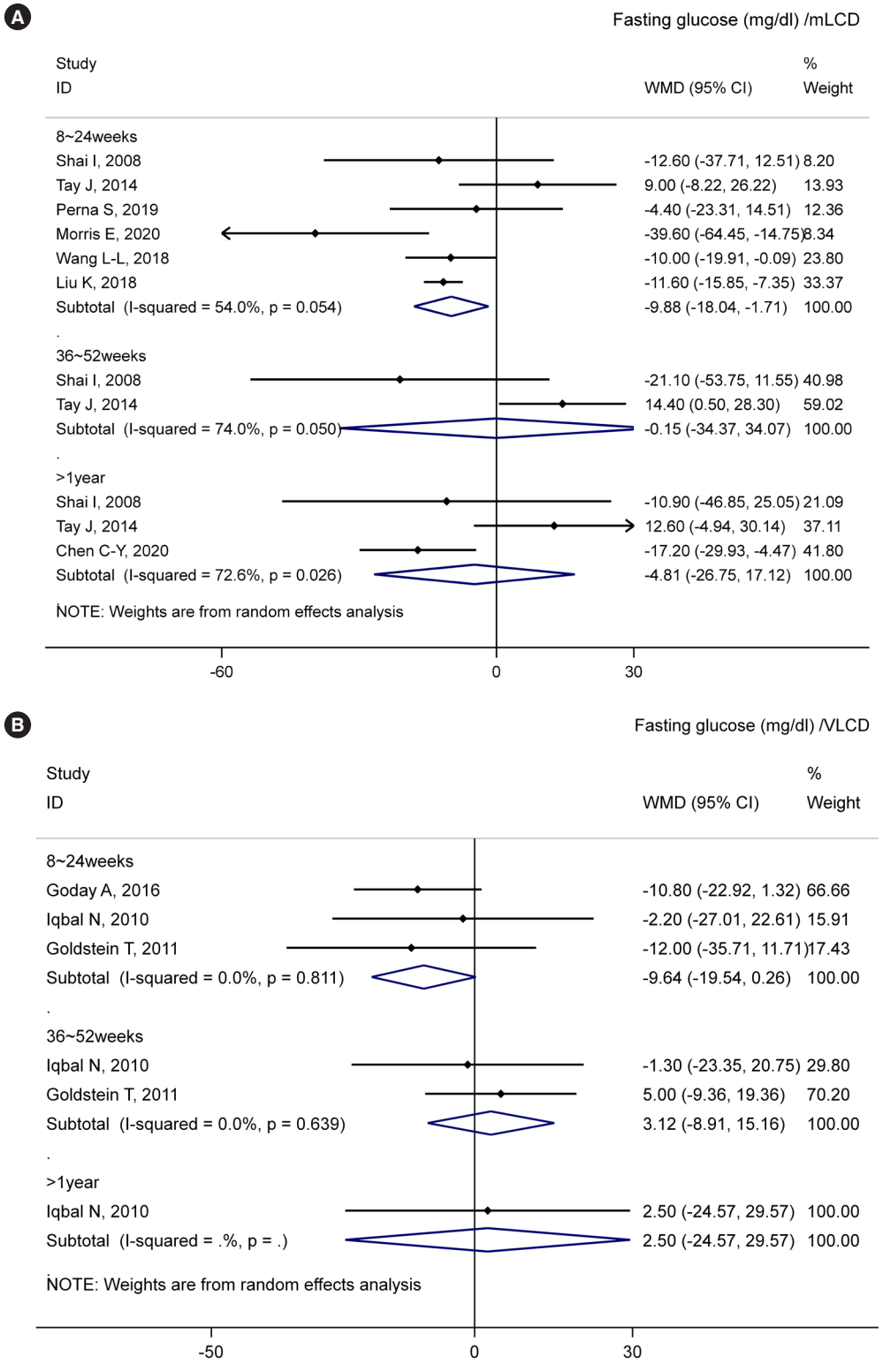
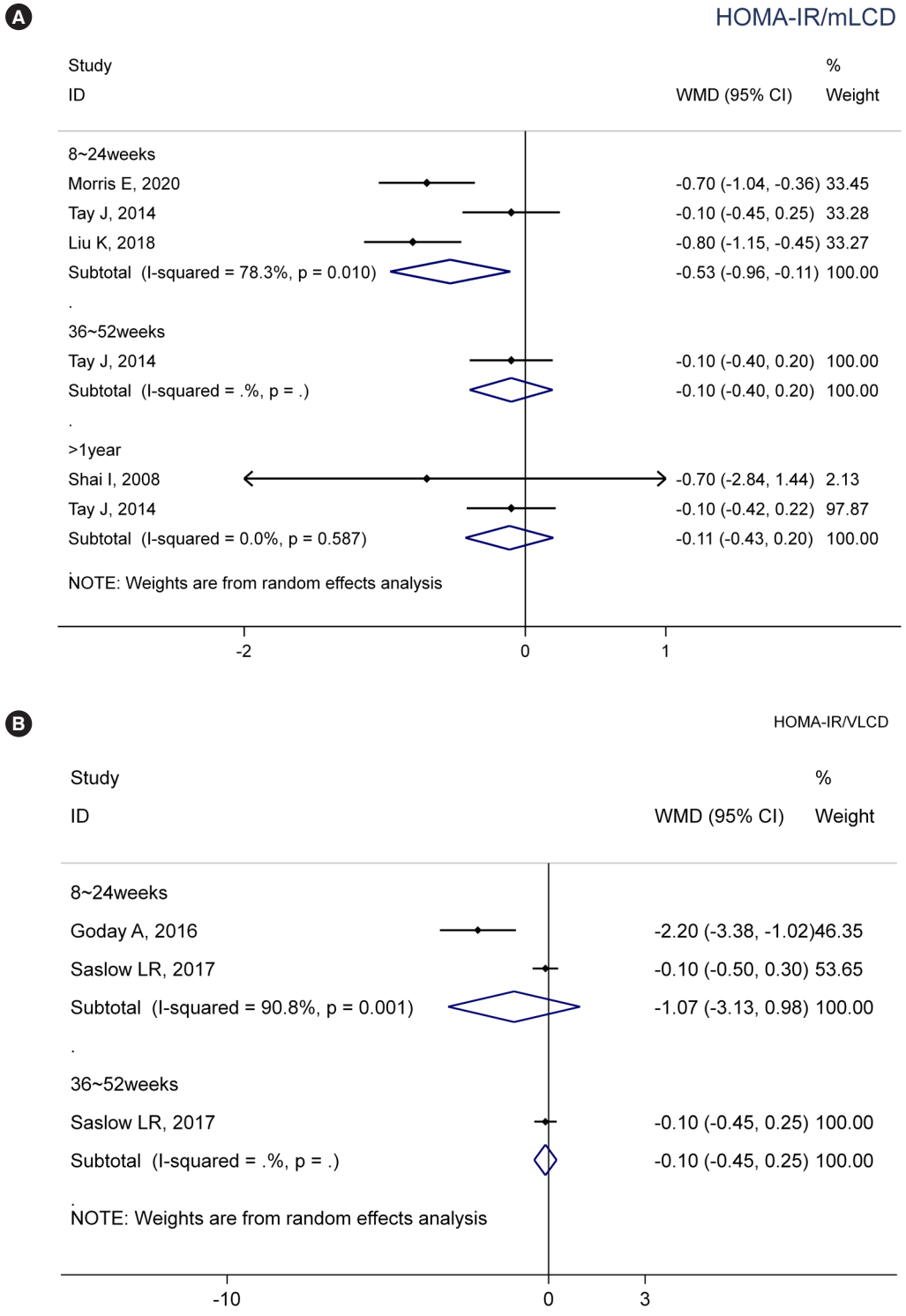



**Supplementary Figure 20.** (Continued) (D) Very-low carbohydrate diets (VLCD) on TG. (E) VLCD on HDL-C. (F) VLCD on LDL-C. WMD, weighted mean difference; CI, confidence interval.

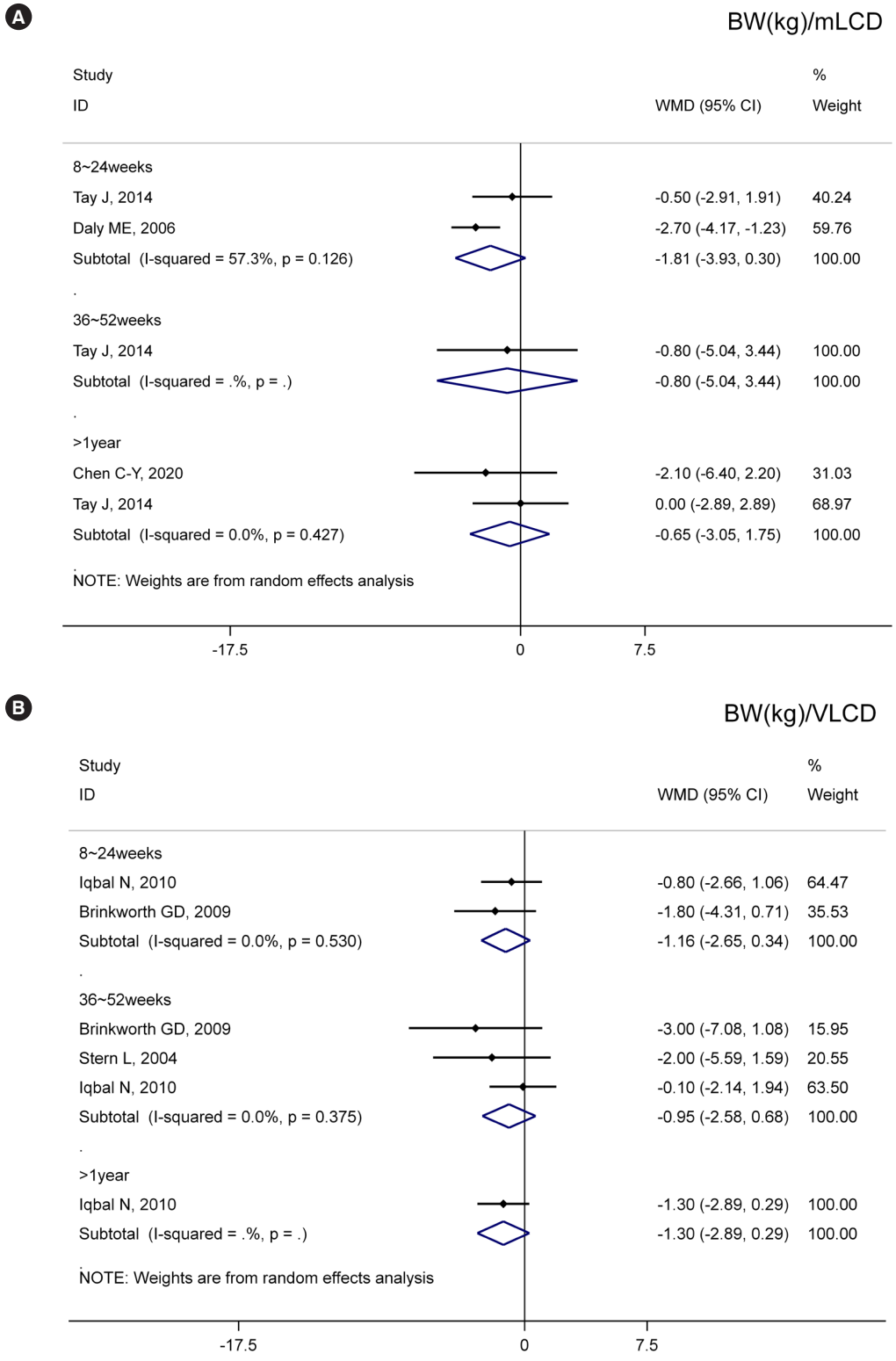



**Supplementary Figure 21.** Effects of carbohydrate-restricted diets on fasting glucose in adults with diabetes. (A) Moderately-low or low carbohydrate diets (mLCD). (B) Very-low carbohydrate diets (VLCD). WMD, weighted mean difference; CI, confidence interval.

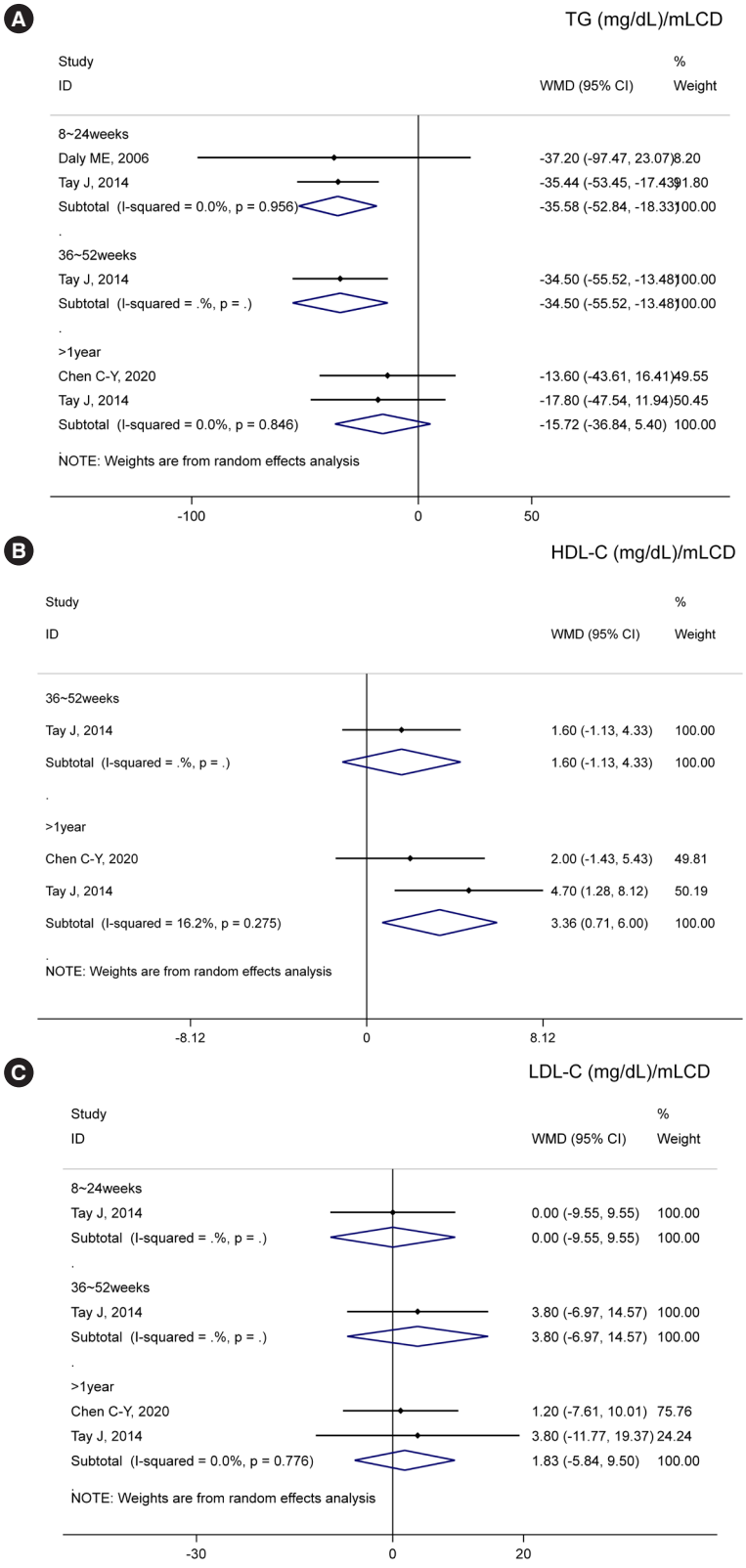



**Supplementary Figure 22.** Effects of carbohydrate-restricted diets on insulin resistance (HOMA-IR) in adults with diabetes. (A) Moderately-low or low carbohydrate diets (mLCD). (B) Very-low carbohydrate diets (VLCD). WMD, weighted mean difference; CI, confidence interval.


**Supplementary Figure 23.** Risk of bias assessment in studies evaluating the effects of carbohydrate-restricted diets in adults with hypertension.




**Supplementary Figure 24.** Effects of carbohydrate-restricted diets on body weight (BW) in adults with hypertension. (A) Moderately-low or low carbohydrate diets (mLCD). (B) Very-low carbohydrate diets (VLCD). WMD, weighted mean difference; CI, confidence interval.




**Supplementary Figure 25.** Effects of carbohydrate-restricted diets on lipid profile in adults with hypertension. (A) Moderately-low or low carbohydrate diets (mLCD) on triglyceride (TG). (B) mLCD on high-density lipoprotein cholesterol (HDL-C). (C) mLCD on low-density lipoprotein cholesterol (LDL-C).

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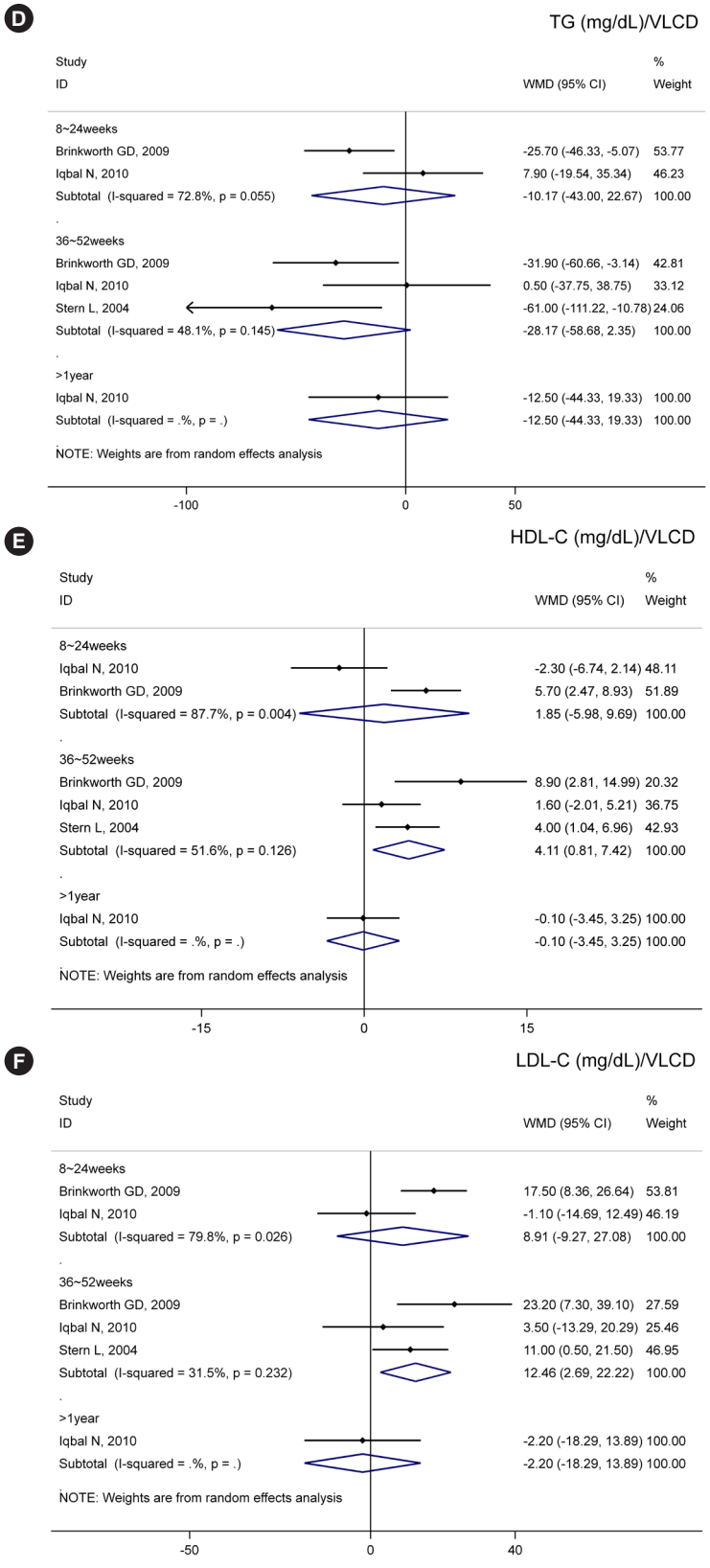


**Supplementary Figure 25.** (Continued) (D) Very-low carbohydrate diets (VLCD) on TG. (E) VLCD on HDL-C. (F) VLCD on LDL-C. WMD, weighted mean difference; CI, confidence interval.