**Supplementary Material**

**Very low-carbohydrate ketogenic diet versus low-fat diet for long-term weight loss: meta-analysis of randomized controlled trials.**

**Search strategy used for MEDLINE (via PubMed)**

#1 ("ketogenic diet"[MeSH Terms] OR ("ketogenic"[All Fields] AND "diet"[All Fields]) OR "ketogenic diet"[All Fields]) OR ("diet, carbohydrate-restricted"[MeSH Terms] OR ("diet"[All Fields] AND "carbohydrate-restricted"[All Fields]) OR "carbohydrate-restricted diet"[All Fields] OR ("low"[All Fields] AND "carbohydrate"[All Fields] AND "diet"[All Fields]) OR "low carbohydrate diet"[All Fields]) OR (very-low[All Fields] AND ("carbohydrates"[MeSH Terms] OR "carbohydrates"[All Fields] OR "carbohydrate"[All Fields]) AND ("diet"[MeSH Terms] OR "diet"[All Fields]))

#2 (("cardiovascular system"[MeSH Terms] OR ("cardiovascular"[All Fields] AND "system"[All Fields]) OR "cardiovascular system"[All Fields] OR "cardiovascular"[All Fields]) AND ("risk factors"[MeSH Terms] OR ("risk"[All Fields] AND "factors"[All Fields]) OR "risk factors"[All Fields]) OR ("weight loss"[MeSH Terms] OR ("weight"[All Fields] AND "loss"[All Fields]) OR "weight loss"[All Fields]))

#3 (randomized controlled trial [pt] OR controlled clinical trial [pt] OR randomized controlled trials [mh] OR random allocation [mh] OR double-blind method [mh] OR single-blind method [mh] OR clinical trial [pt] OR clinical trials [mh] OR ("clinical trial" [tw]) OR ((singl\* [tw] OR doubl\* [tw] OR trebl\* [tw] OR tripl\* [tw]) AND (mask\* [tw] OR blind\* [tw])) OR ("latin square" [tw]) OR placebos [mh] OR placebo\* [tw] OR random\* [tw] OR research design [mh:noexp] OR follow-up studies [mh] OR prospective studies [mh] OR cross-over studies [mh] OR control\* [tw] OR prospectiv\* [tw] OR volunteer\* [tw]) NOT (animal [mh] NOT human [mh])

#4 #1 AND #2 AND #3

**Imputations performed when it was not possible to retrieve data.**

|  |  |  |
| --- | --- | --- |
| Source | Limitation | Action taken |
| Foster et al,(1) | Results shown in percentage | According to Furukawa et al,(2) the values used in the meta-analysis of Noordman et al,(3) which used data from Foster et al,(1) were imputed. |
| McAuley et al,(4) | Did not report means of changes from baseline, only final means. | To avoid confounding in the forest plot, it was preferred to calculate the weight mean differences and to imput standard deviation through analysis of the correlation coefficient of other two studies(5, 6) which had similar length of follow-up and all necessary data. All calculations were according to Higgins et al.(7) Sensitivity analyses were undertaken and there was no evidence of changes in the results. |
| Shai et al,(8) | Did not report final means and its standard deviation, neither the standard deviation from the mean changes from baseline. | Imputation by means of correlation coefficient was not possible, and by means of p-value yielded inconsistent standard deviation values. Therefore, the mean standard deviation of Foster et al(9) and of Iqbal et al(10) which had the same length of follow-up and similar sample size, were imputed for each parameter. |

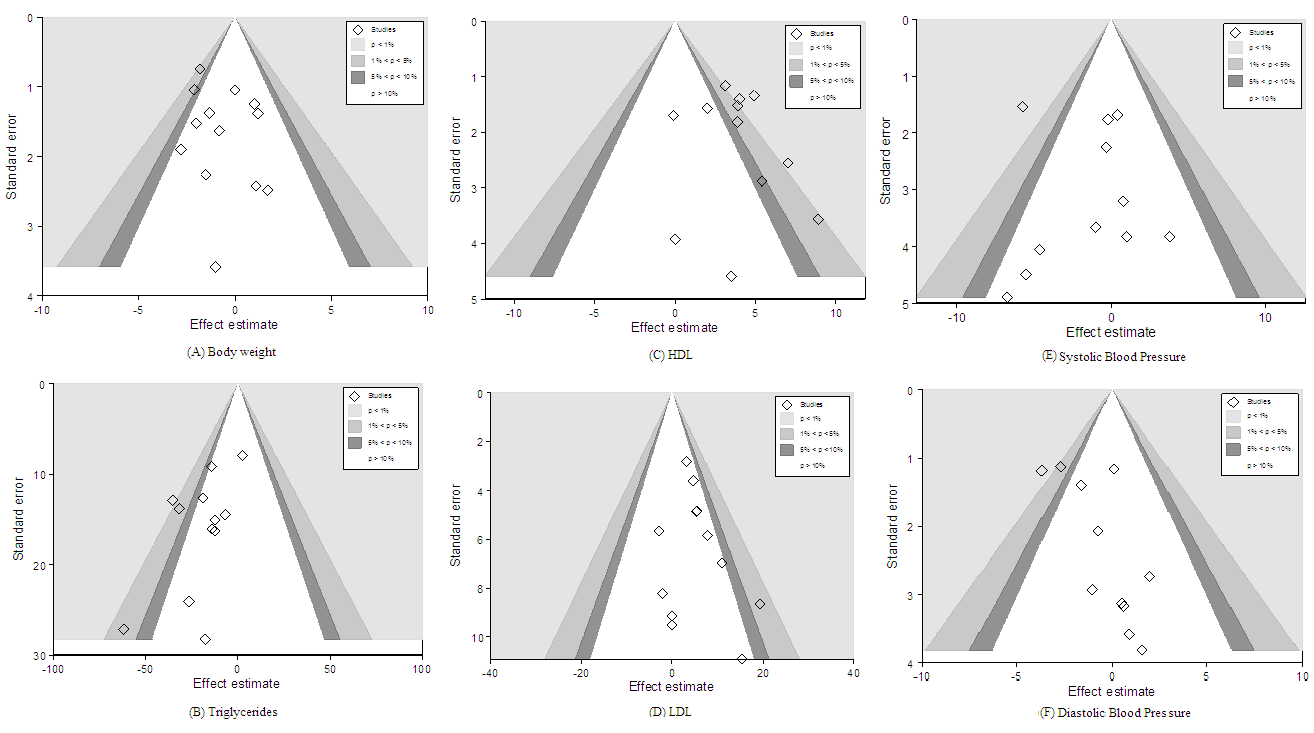
**Full-texts excluded from the analysis and reasons for exclusion**

|  |  |
| --- | --- |
| **Source** | **Reason to exclusion** |
| Aydin et al,(11) | Less than 12 months of follow-up. |
| Bluher et al,(12) | Did not report necessary data. |
| Elhayany et al,(13) | Inadequate carbohydrate intake in the intervention group. |
| Fuentes et al,(14) | Did not report necessary data. |
| Goldstein et al,(15) | Inadequate carbohydrate intake in the intervention group. |
| Honemann et al,(16) | Less than 12 months of follow-up. |
| Keogh et al,(17) | Inadequate carbohydrate intake in the intervention group. |
| Leichtle et al,(18) | Did not report necessary data. |
| Samaha et al,(19) | Less than 12 months of follow-up. |
| Tsai et al,(20) | Same results as Stern et al(6) |
| Yancy et al,(21) | Concomitant pharmacological intervention. |

**Intervention groups of the studies**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Source** | **Group 1** | **Group 2** | **Group 3** | **Group 4** | **Chosen groups** |
| Brinkworth et al,(5) 2009 | CR.<20gCHO/day. Increased to 40g | CR. 46%CHO, 30%LIP | None | None | Groups 1 and 2 |
| Dansinger et al, (22) 2005 | <20g CHO per day, increased until 50g | 40% CHO, 30% PTN, 30%LIP | Point system diet + Exercises | Vegan with 10% LIP | Groups 1 and 4 |
| Davis et al, (23) 2009 | <25g in first two weeks. 5g increase per week | CR. 25%LIP. | None | None | Groups 1 and 2 |
| Dyson et al, (24) 2010 | <40gCHO/d. | 500kcal CR and <30%LIP | None | None | Groups 1 and 2 |
| Foster et al, (1) 2003 | 20gCHO/d. Gradual increases of 5g | CR. 60%CHO and 25%LIP | None | None | Groups 1 and 2 |
| Foster et al, (9) 2010 | 20gCHO/d. Gradual increases of 5g | CR. 55%CHO and 30%LIP | None | None | Groups 1 and 2 |
| Gardner et al, (25) 2007 | <20g CHO per day, increased until 50g | 40% CHO, 30% PTN, 30%LIP | 55%-60% CHO and <10% saturated fat. | Vegan with 10% LIP | Groups 1 and 4 |
| Iqbal et al, (10) 2010 | 30gCHO/d | 500kcal CR and <30%LIP. | None | None | Groups 1 and 2 |
| Lim et al, (26) 2010 | 4% CHO, 60% LIP. | 70% CHO, 10% LIP. | 50% CHO, 30%LIP. | No intervention | Groups 1 and 2 |
| McAuley et al, (4) 2006 | 20g/d (2 weeks); 50g/d (8 weeks); Gradual increase | 40% CHO, 30% PTN, 30%LIP | Conventional diet rich in CHO and fiber. | None | Groups 1 and 3 |
| Shai et al, (8) 2008 | 20g for 2 months. Increased to 120g. | CR. <30% LIP | Caloric restriction. 35% LIP. | None | Groups 1 and 2 |
| Stern et al,(6) 2004 | <30gCHO/d. | 500kcal CR and <30%LIP. | None | None | Groups 1 and 2 |
| Truby et al, (27) 2006 | 20g CHO per day. | Point system diet + Exercises | Meal replacement. | Fat restriction + exercises | Groups 1 and 3 |

CHO = Carbohydrate; CR = calorie-restricted; d = Day; LIP = Lipid; PTN = Protein

**Countour-enhanced funnel-plots for (A) Body Weight, (B) Triglycerides, (C) HDL, (D) LDL, (E) Systolic Blood Pressure and (F)Diastolic Blood Pressure.**

**Absolute changes in [A] Fasting Blood Glucose, [B] Insulin, [C] HbA1c and [D] C-Reactive Protein**

**glucose edited.TIFInsulin edited.TIFHbA1c edited.TIFCRP edited.TIF**

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