SUPPLEMENTARY DATA

Supplementary Figure 1.

PubMed

((((((type 2 diabetes[Title/Abstract] OR type II diabetes[Title/Abstract] OR non-insulin diabetes[Title/Abstract]) AND (monounsaturated[Title/Abstract] OR polyunsaturated[Title/Abstract] OR fat[Title/Abstract] OR fatty acid[Title/Abstract] OR MUFA[Title/Abstract] OR PUFA[Title/Abstract] OR omega-6[Title/Abstract] OR n-6[Title/Abstract])) AND (glycemic[Title/Abstract] OR glucose[Title/Abstract] OR hba1c[Title/Abstract] OR lipid[Title/Abstract] OR cholesterol[Title/Abstract])) NOT (exercise[Title/Abstract] OR physical activity[Title/Abstract] OR metformin[Title/Abstract] OR acarbose[Title/Abstract] OR pioglitazone[Title/Abstract] OR rosiglitazone[Title/Abstract] OR sitagliptin[Title/Abstract] OR bi-guanide[Title/Abstract] OR troglitazone[Title/Abstract] OR fish oils[Title/Abstract] OR omega-3[Title/Abstract] OR n-3[Title/Abstract] OR marine[Title/Abstract] OR simvastatin[Title/Abstract] OR pravastatin[Title/Abstract] OR supplements[Title/Abstract])) NOT (children[Title/Abstract] OR adolescent[Title/Abstract])) NOT (type 1 diabetes[Title/Abstract] OR type I diabetes[Title/Abstract] OR impaired glucose tolerance[Title/Abstract] OR prediabetes[Title/Abstract])) AND (trial[Title/Abstract] OR randomized[Title/Abstract]) AND (Clinical Trial[ptyp] AND hasabstract[text] AND ("0001/01/01"[PDAT] : "2015/03/31"[PDAT]) AND "humans"[MeSH Terms] AND English[lang]) AND (Clinical Trial[ptyp] AND hasabstract[text] AND ("0001/01/01"[PDAT] : "2015/03/31"[PDAT]) AND "humans"[MeSH Terms] AND English[lang])

Records found: 220

SUPPLEMENTARY DATA

Supplementary Table 1. Inclusion/exclusion criteria for literature search

Considered items	Inclusion	Exclusion
Study type	Randomized controlled trials, controlled-feeding studies	Not an interventional study, observational studies, reviews, conference proceedings
Study population/disease indication	Adults with confirmed type II diabetes mellitus or non-insulin dependent diabetes mellitus	Conditions that are not type II diabetes (or non-insulin dependent diabetes), including: type I diabetes, children with type I or II diabetes, prediabetes, impaired glucose tolerance
Intervention	Monounsaturated or polyunsaturated fatty acids (mainly omega-6 fatty acids)	Unspecified dietary changes, change in physical activity, dietary pattern change, omega-3 fatty acids, medications, supplements instead of dietary changes
Outcomes	Glycemic control, blood lipids, body measurements, blood pressure	No outcomes reported
Publication date range	Up to March 2015	
Language restriction	English only	Not English
Other	Human trials only	Non-human animal trials, no full text, or non-English

SUPPLEMENTARY DATA

Supplementary Table 2. Assessment of publication bias

Metabolic parameter	Number of studies	Number of participants	*P* -value[1]	*P* -value[2]
HbA1c (%)	14	925	0.509	0.608
Fasting plasma glucose (mmol/L)	22	1283	0.148	**0.049**
Fasting insulin (pmol/L)	11	679	0.493	0.401
LDL cholesterol (mmol/L)	17	791	**0.044**	0.138
HDL cholesterol (mmol/L)	20	1067	0.672	0.315
Triglycerides (mmol/L)	21	1075	0.413	0.555
Weight (kg)	16	1081	0.304	0.083
Systolic blood pressure (mmHg)	6	529	0.224	0.492
Diastolic blood pressure (mmHg)	5	373	0.050	0.119

CI: confidence interval; HbA1c: glycated hemoglobin; LDL: low-density lipoprotein; HDL: high-density lipoprotein

Bolded values indicate statistical significance at $P < 0.05$.

Notes:

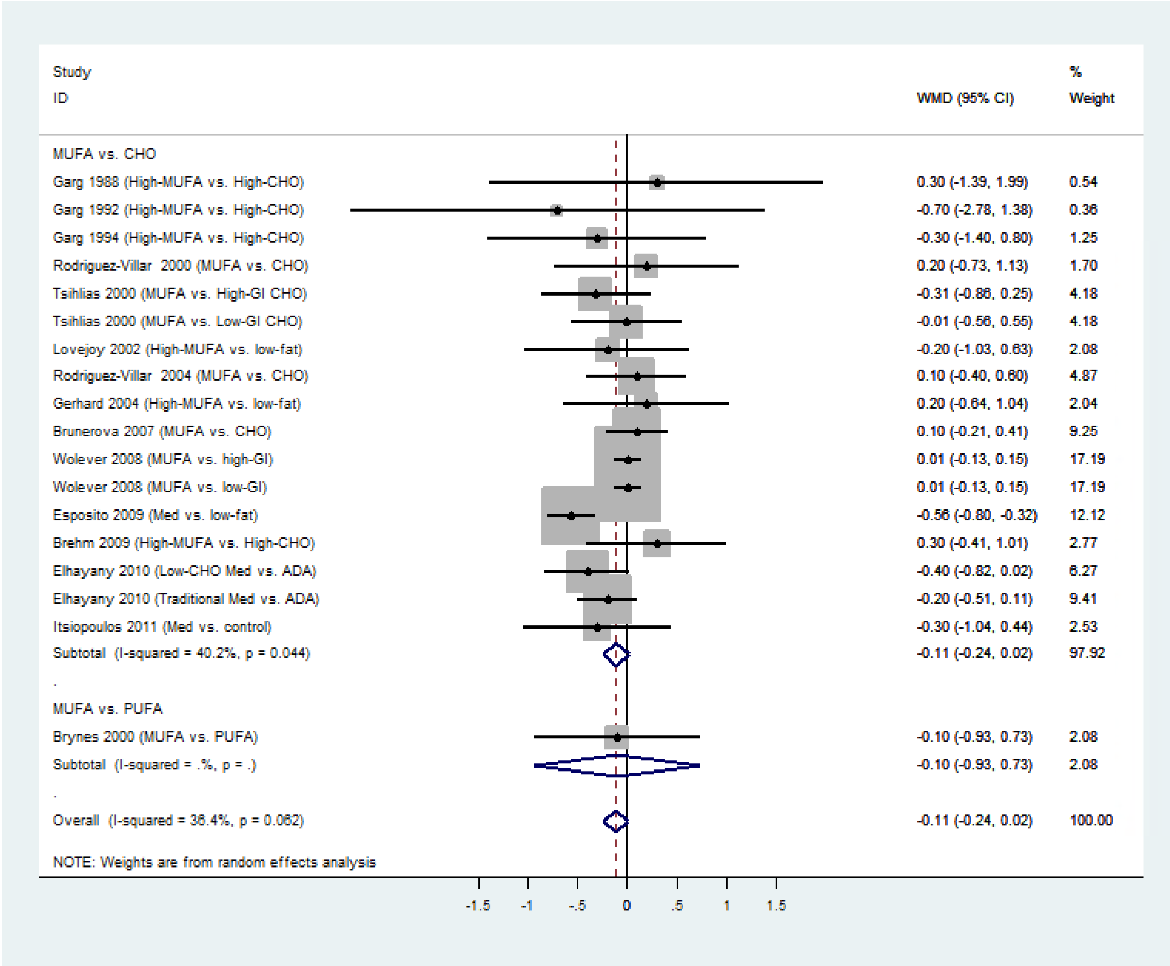
[1] *P* -value calculated from the Begg-Mazudumar test for assessing small effect size.

[2] P-value calculated from the Egger test for assessing small effect size.

SUPPLEMENTARY DATA

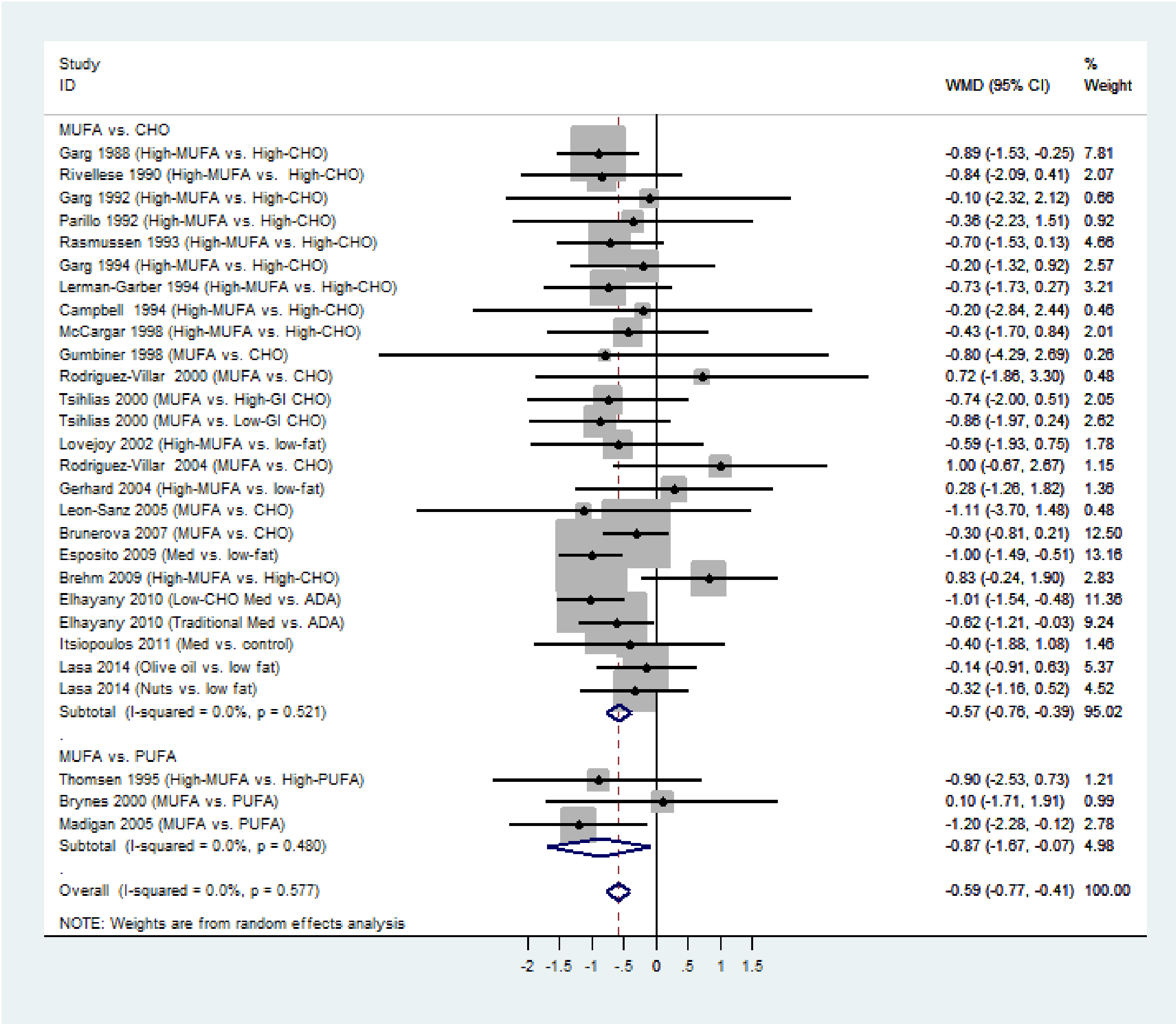
Supplementary Figure 2. Forest plots of main outcomes using random-effects model

HbA1c (%)



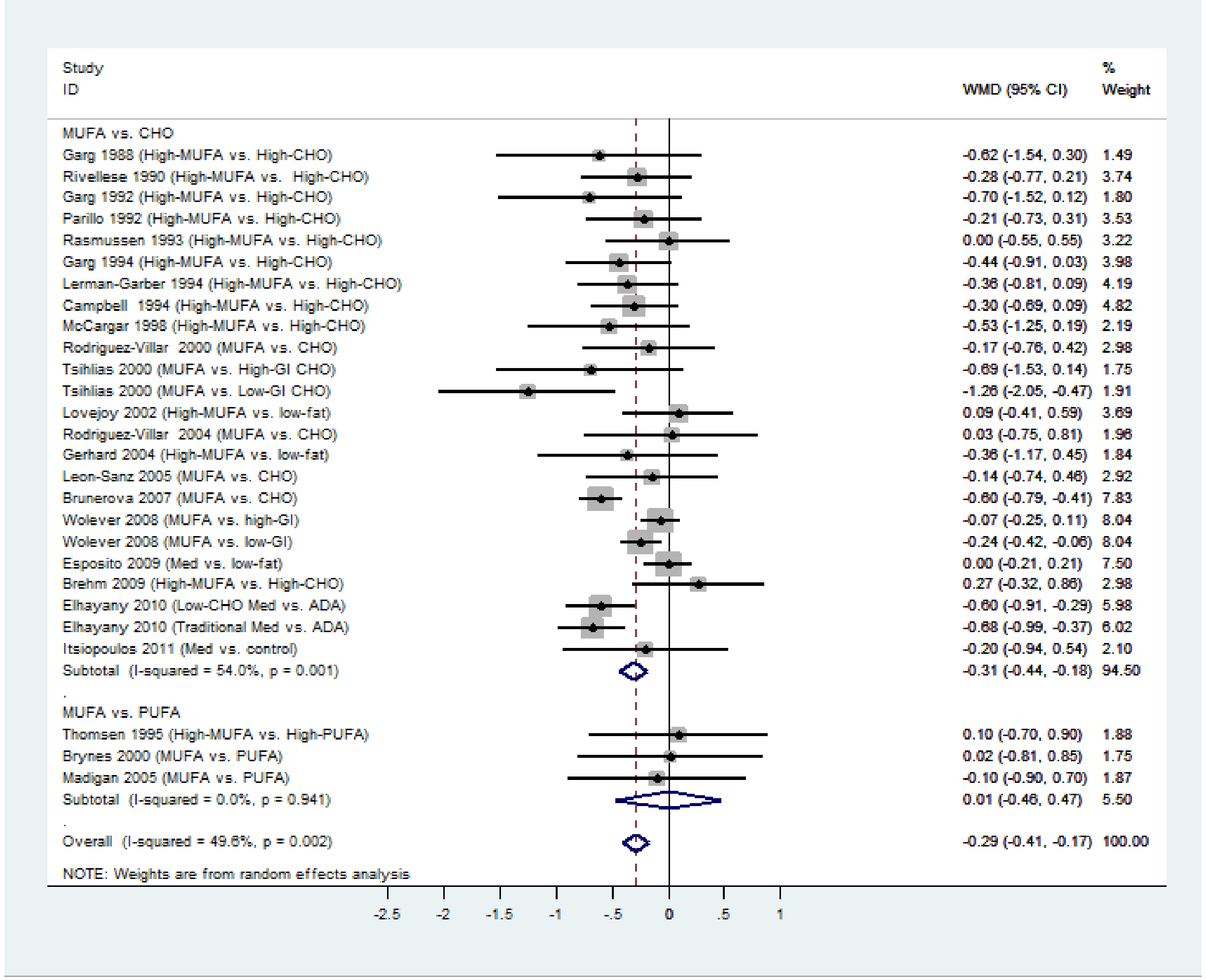
SUPPLEMENTARY DATA

Fasting plasma glucose (mmol/L)



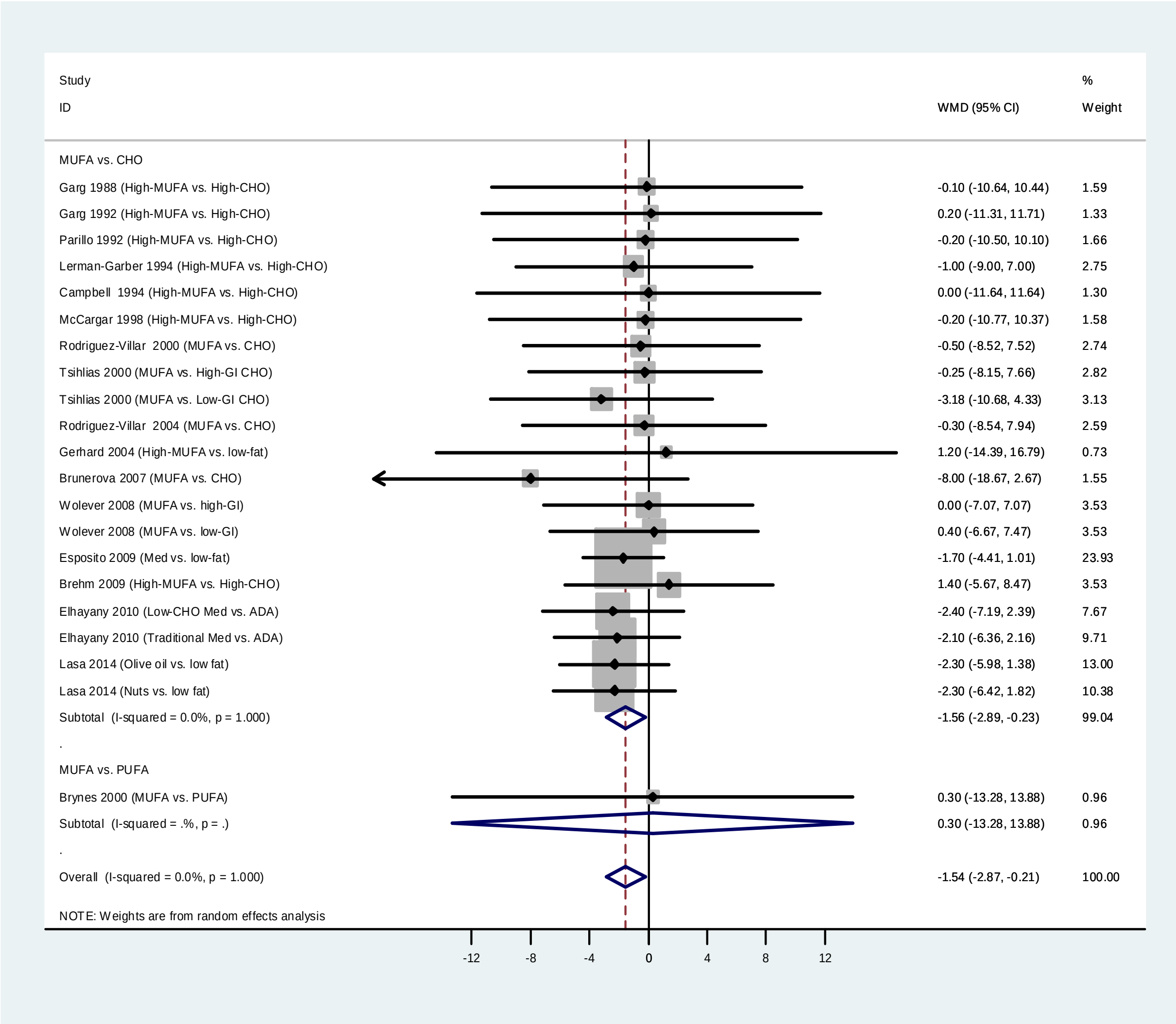
SUPPLEMENTARY DATA

Triglycerides (mmol/L)



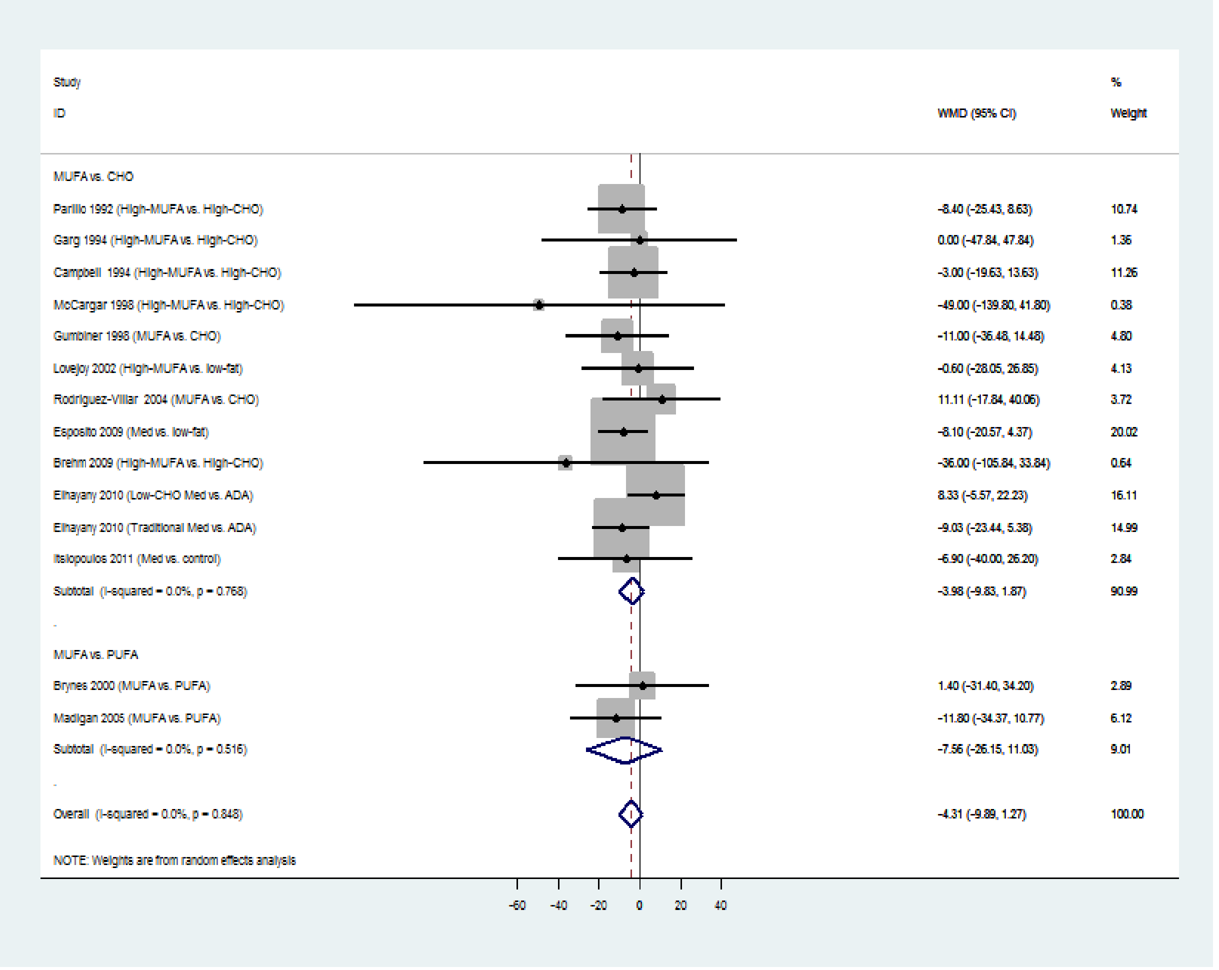
SUPPLEMENTARY DATA

Body weight (kg)



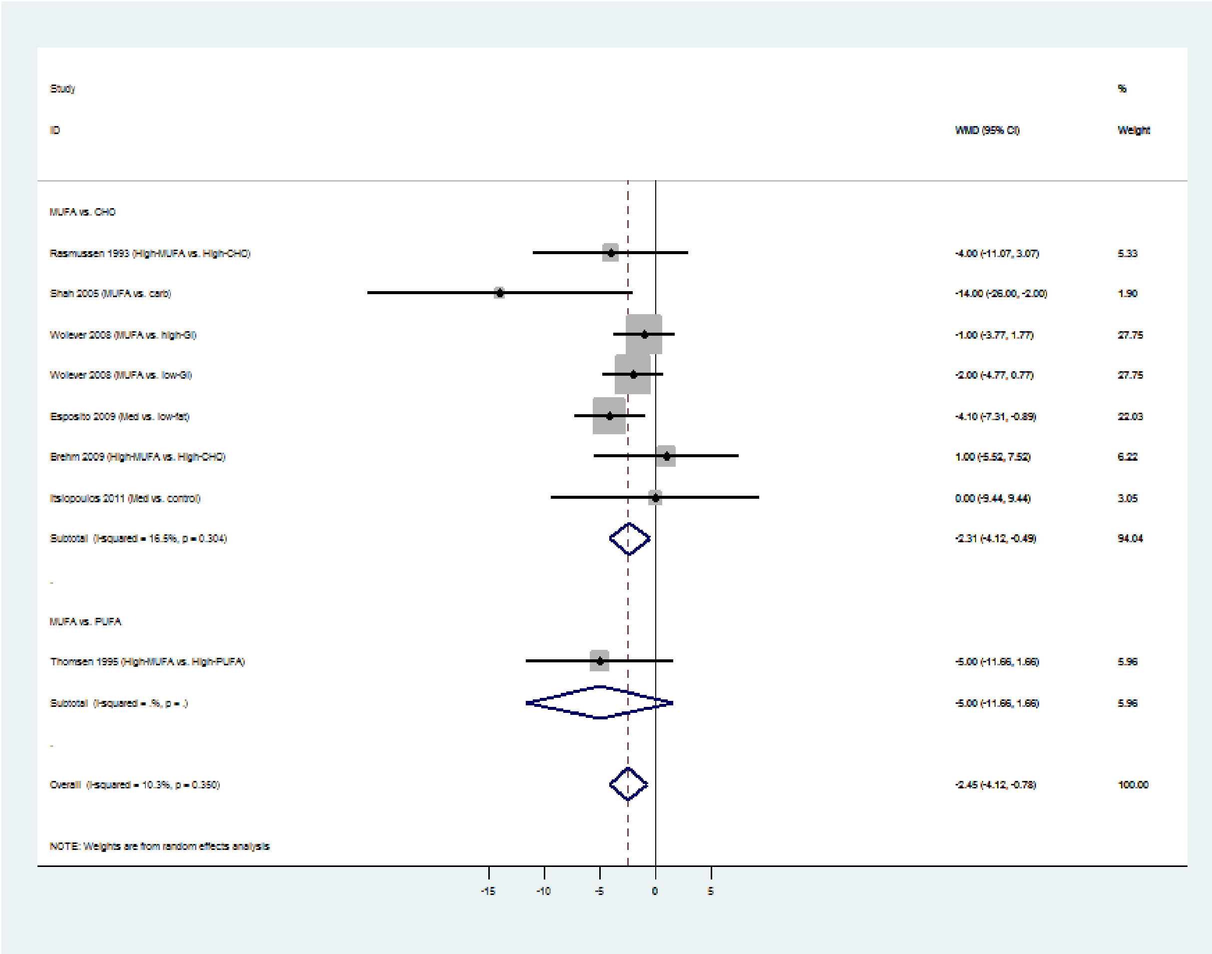
SUPPLEMENTARY DATA

Fasting insulin (pmol/L)



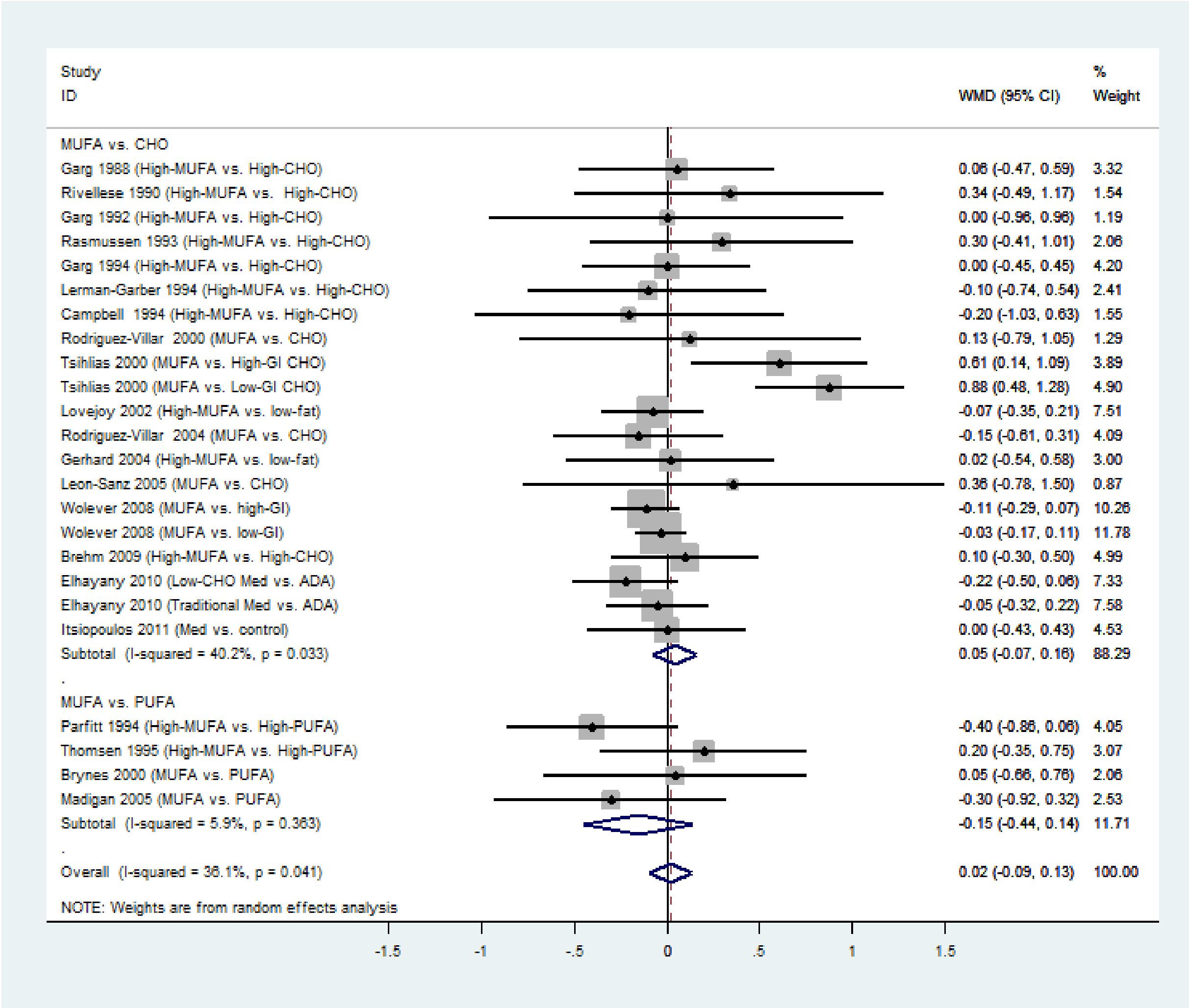
SUPPLEMENTARY DATA

Systolic blood pressure (mmHg)



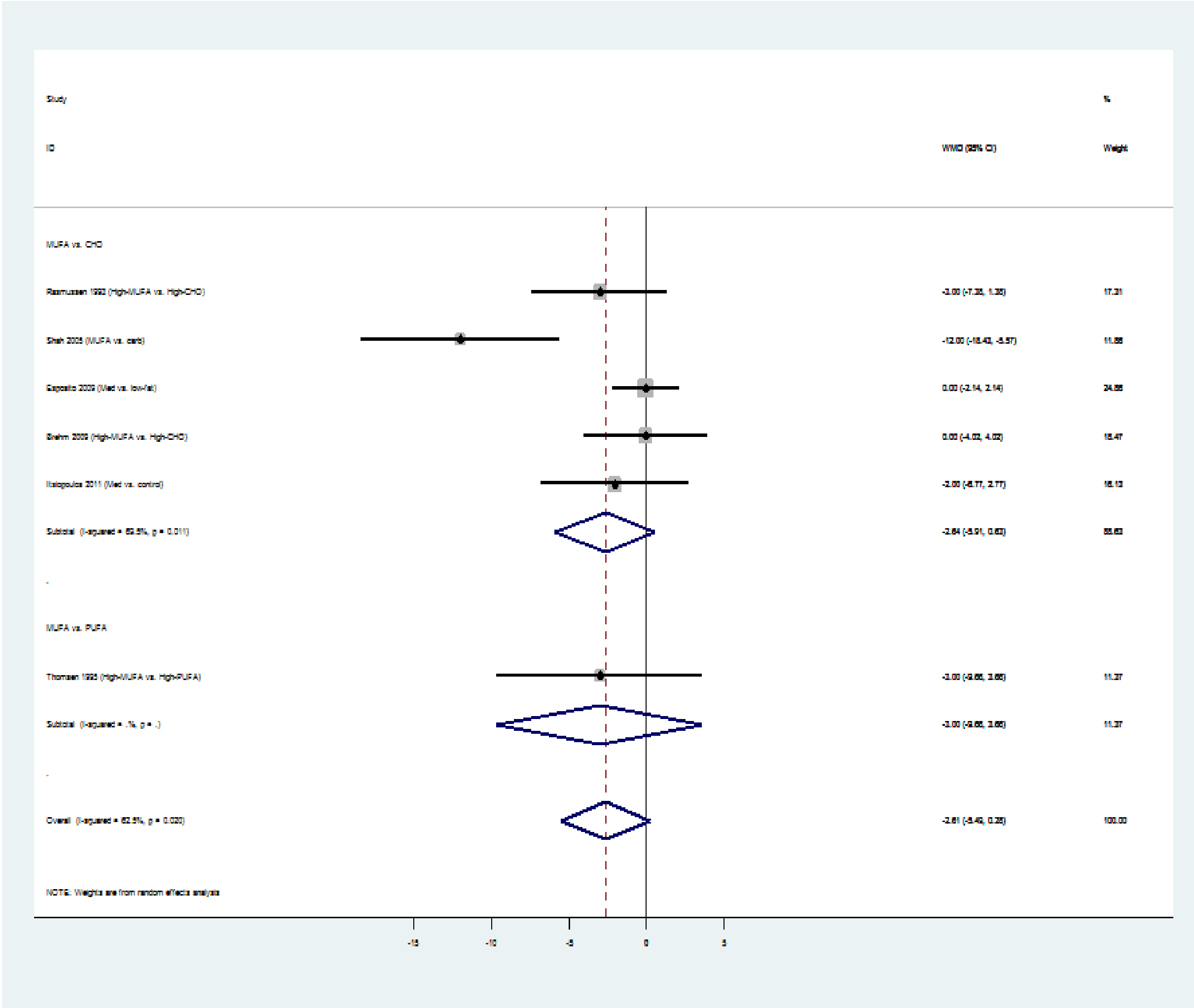
SUPPLEMENTARY DATA

LDL cholesterol (mmol/L)

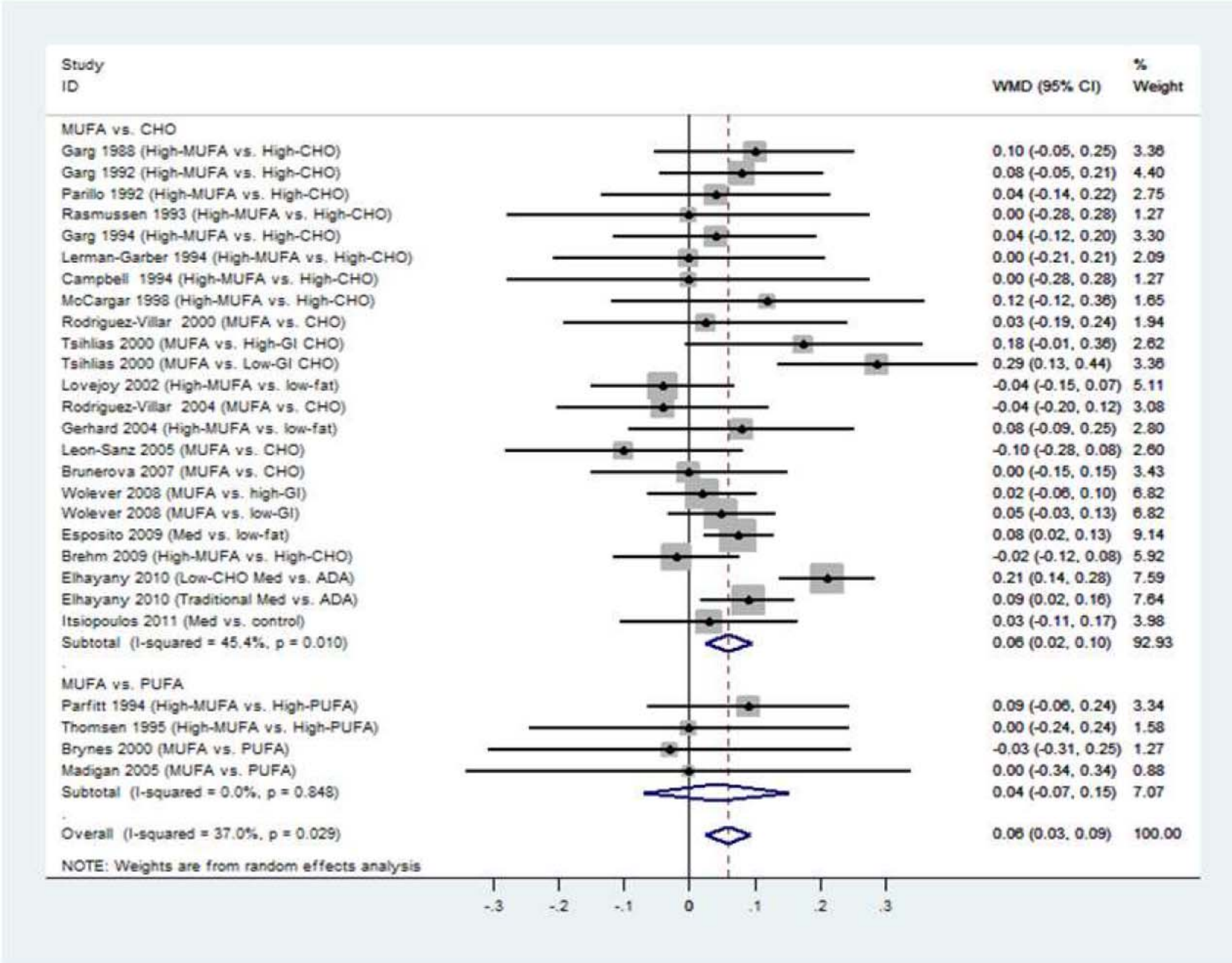


SUPPLEMENTARY DATA

Diastolic blood pressure (mmHg)



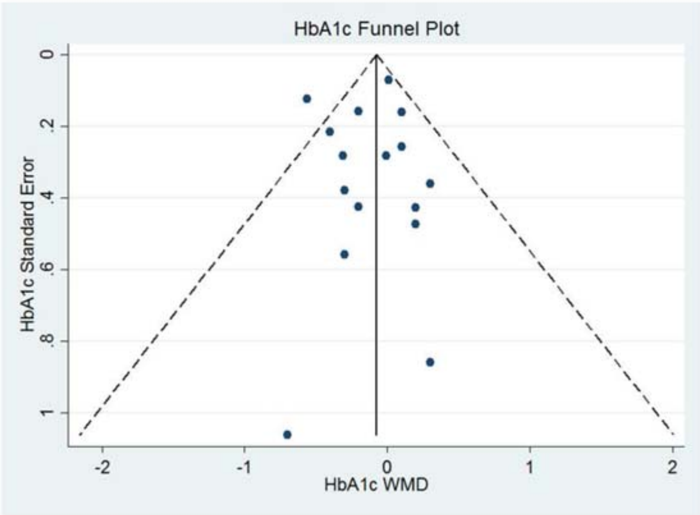
HDL cholesterol (mmol/L)



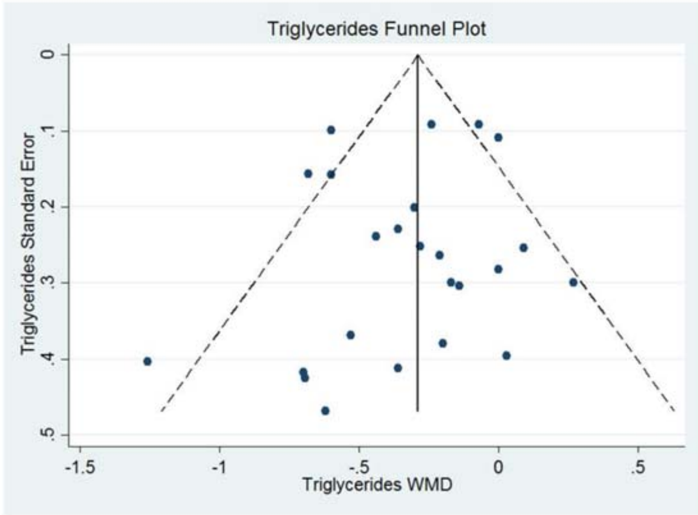
SUPPLEMENTARY DATA

Supplementary Figure 3. Funnel plots of main outcomes using random-effects model

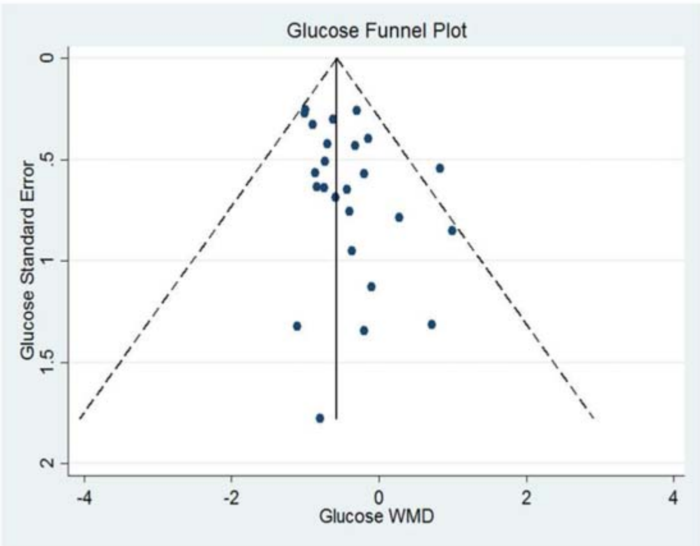
HbA1c (%)



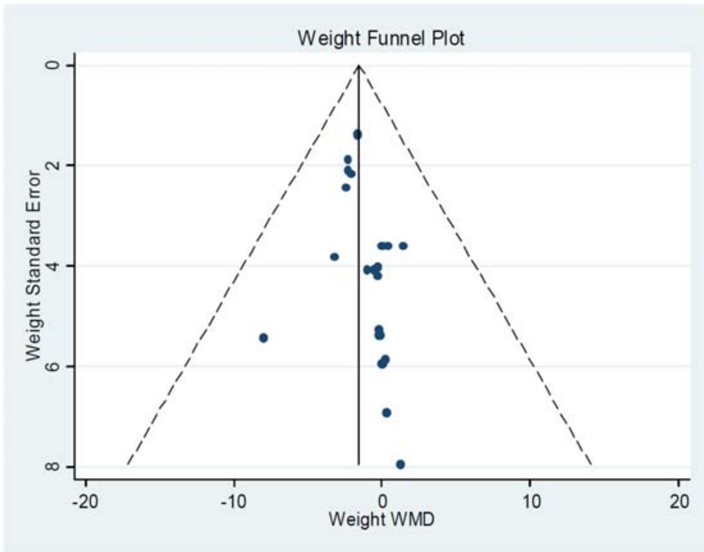
Triglycerides (mmol/L)



Fasting plasma glucose (mmol/L)

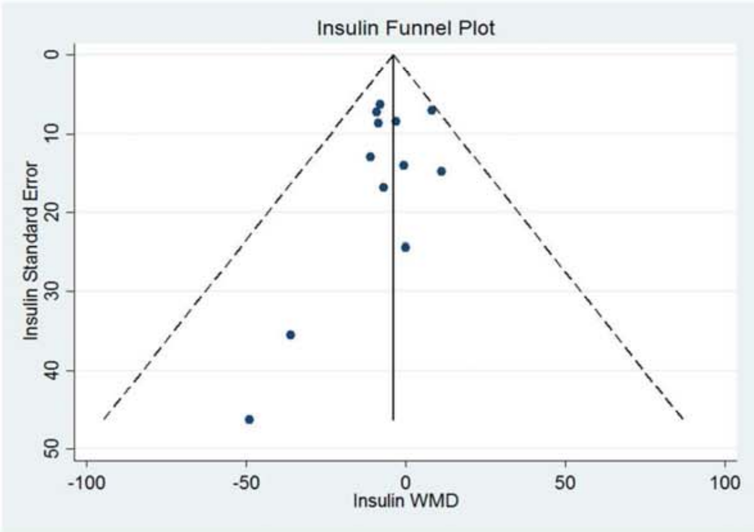


Body weight (kg)

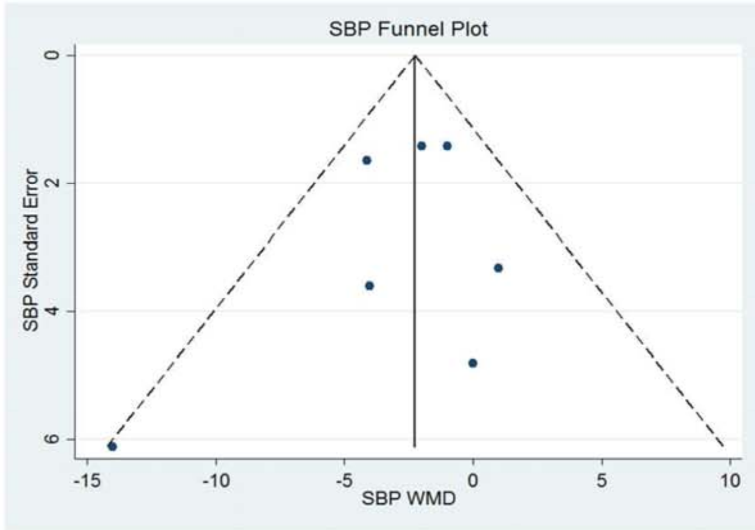


SUPPLEMENTARY DATA

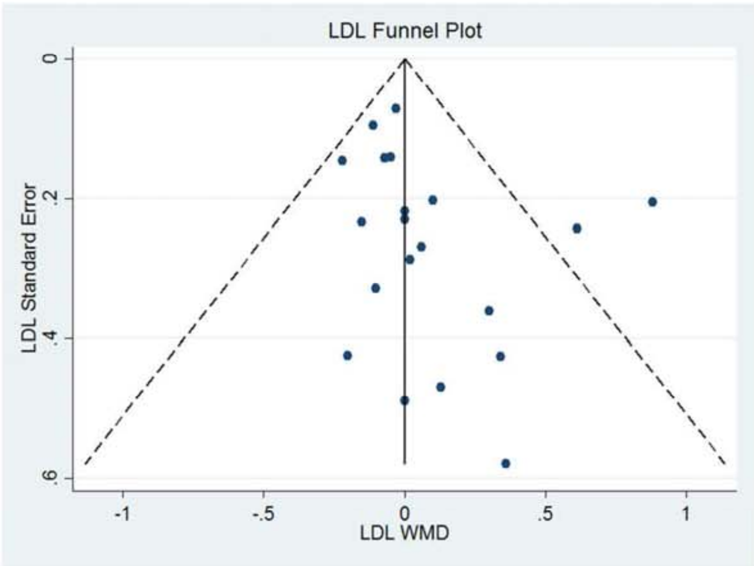
Fasting insulin (pmol/L)



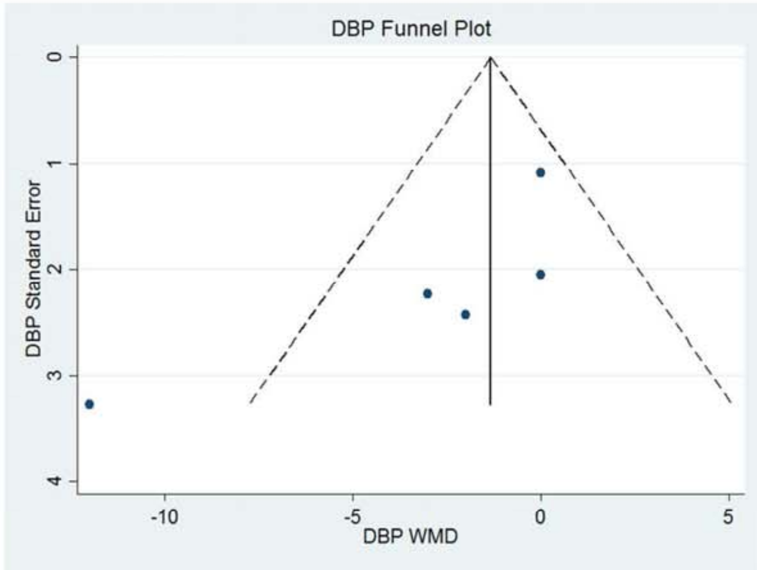
Systolic blood pressure (mmHg)



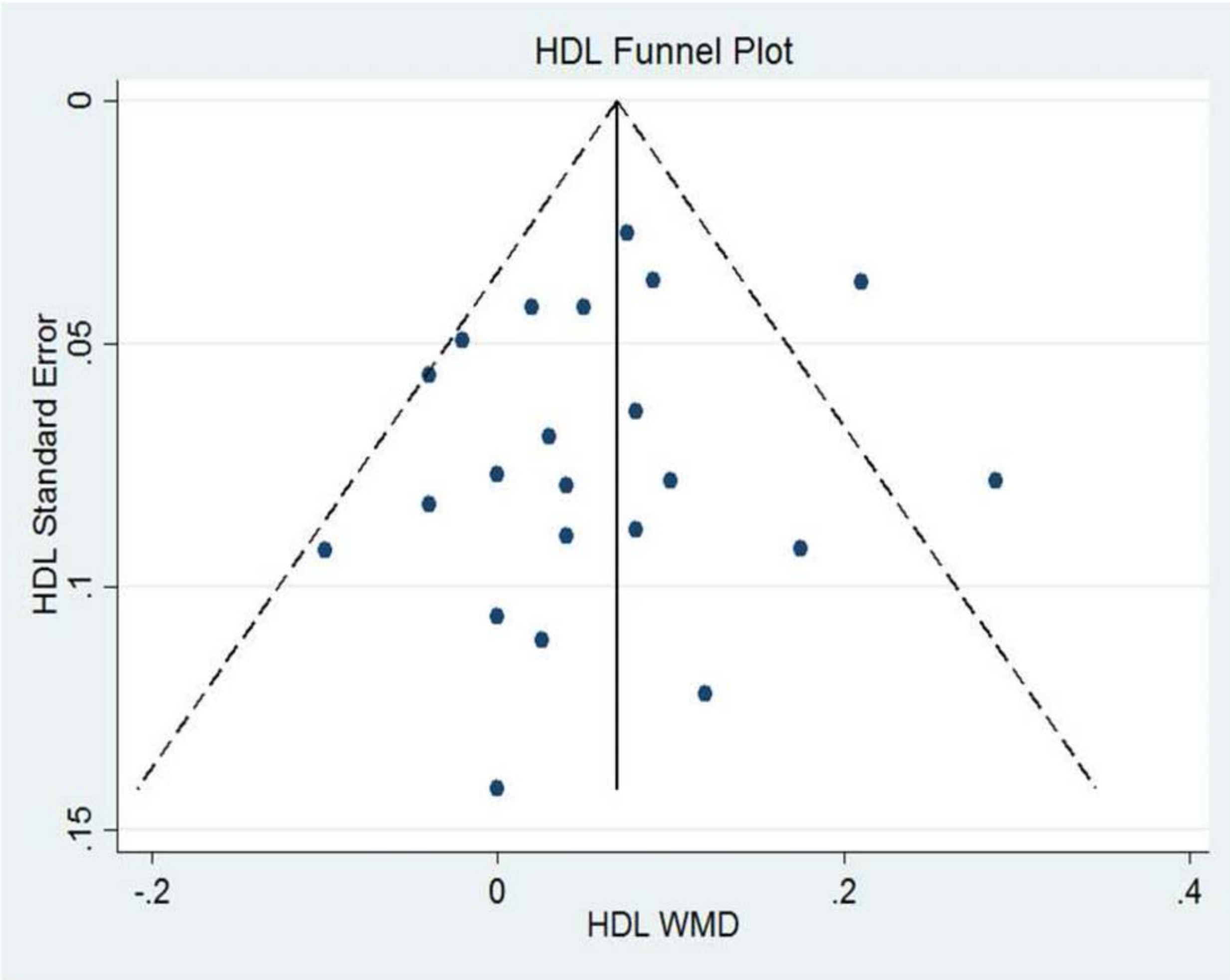
LDL cholesterol (mmol/L)



Diastolic blood pressure (mmHg)



HDL cholesterol (mmol/L)



Supplementary Table 3. Assessment of study quality

Study citation	Database	Trial arms/Total sample size	Duration	Random Sequence Generation	Allocation Concealment	Blinding of Participants and Personnel	Blinding of Outcome Assessment	Incomplete Outcome Data	Selective Reporting	Other Bias
Monounsaturated fats										
Lasa A, Miranda J, Bullo M, Casas R, Salas-Salvado J, Larretxi I, et al. Comparative effect of two Mediterranean diets versus a low-fat diet on glycaemic control in individuals with type 2 diabetes. *European journal of clinical nutrition* 2014;68(7):767-72	PubMed	Control: Low-fat (67) Intervention: Olive oil (74) Total: 141	1 year	Low Risk	Unclear	High Risk	Low Risk	Low Risk - no dropouts	Low Risk	Low Risk
Lasa A, Miranda J, Bullo M, Casas R, Salas-Salvado J, Larretxi I, et al. Comparative effect of two Mediterranean diets versus a low-fat diet on glycaemic control in individuals with type 2 diabetes. *European journal of clinical nutrition* 2014;68(7):767-72	PubMed	Control: Low-fat (67) Intervention: Nuts (50) Total: 117	1 year	Low Risk	Unclear	High Risk	Low Risk	Low Risk - no dropouts	Low Risk	Low Risk
Itsiopoulos C, Brazionis L, Kaimakamis M, Cameron M, Best JD, O'Dea K, et al. Can the Mediterranean diet lower HbA1c in type 2 diabetes? Results from a randomized cross-over study. *Nutrition, metabolism, and cardiovascular diseases : NMCD* 2011;21(9):740-7	PubMed	Control: Control Intervention: Mediterranean Cross-over design Total: 27	3 months	Low Risk	Unclear	High Risk	Low Risk	Low Risk - 4 subjects dropped out	Low Risk	Low Risk
Esposito K, Maiorino MI, Ciotola M, Di Palo C, Scognamiglio P, Gicchino M, et al. Effects of a Mediterranean-style diet on the need for antihyperglycemic drug therapy in patients with newly diagnosed type 2 diabetes: a randomized trial. *Annals of internal medicine* 2009;151(5):306-14	PubMed	Arm 1: Low-fat (107) Arm 2: Mediterranean (108) Total: 215	4 years	Low Risk	Low Risk	High Risk	Low Risk	Low Risk - equal number dropped out (10) from each arm	Low Risk	Low Risk
Wolever TM, Mehling C, Chiasson JL, Josse RG, Leiter LA, Maheux P, et al. Low glycaemic index diet and disposition index in type 2 diabetes (the Canadian trial of carbohydrates in diabetes): a randomised controlled trial. *Diabetologia* 2008;51(9):1607-15	PubMed	Arm 1: High-GI (41) Arm 2: Low-GI (46) Arm 3: Low CHO (MUFA) (48) Total: 135	12 months	Low Risk	Unclear	High Risk	Low Risk	Low Risk - Mean imputation	Low Risk	Low Risk
Wolever TM, Gibbs AL, Mehling C, Chiasson JL, Connelly PW, Josse RG, et al. The Canadian Trial of Carbohydrates in Diabetes (CCD), a 1-y controlled trial of low-glycemic-index dietary carbohydrate in type 2 diabetes: no effect on glycated hemoglobin but reduction in C-reactive protein. *The American journal of clinical nutrition* 2008;87(1):114-25	PubMed	Control: High-GI (48) Intervention: Low CHO (MUFA) (53) Total: 101	12 months	Low Risk	Low Risk	High Risk	Low Risk	Low - Medium Risk (unclear if missingness is not random)	Low Risk	Low Risk
Wolever TM, Gibbs AL, Mehling C, Chiasson JL, Connelly PW, Josse RG, et al. The Canadian Trial of Carbohydrates in Diabetes (CCD), a 1-y controlled trial of low-glycemic-index dietary carbohydrate in type 2 diabetes: no effect on glycated hemoglobin but reduction in C-reactive protein. *The American journal of clinical nutrition* 2008;87(1):114-25	PubMed	Control: Low-GI (55) Intervention: Low CHO (MUFA) (53) Total: 108	12 months	Low Risk	Low Risk	High Risk	Low Risk	Low - Medium Risk (unclear if missingness is not random)	Low Risk	Low Risk

SUPPLEMENTARY DATA

Shah M, Adams-Huet B, Bantle JP, Henry RR, Griver KA, Raatz SK, et al. Effect of a high-carbohydrate versus a high--cis-monounsaturated fat diet on blood pressure in patients with type 2 diabetes. Diabetes care 2005;28(11):2607-12	PubMed	Control: High-carb (13) Intervention: High-MUFA (8) Total: 21	14 weeks	Unclear	Low Risk	High Risk	Low Risk	Unclear	Low Risk	Low Risk
Leon-Sanz M, Garcia-Luna PP, Sanz-Paris A, Gomez-Candela C, Casimiro C, Chamorro J, et al. Glycemic and lipid control in hospitalized type 2 diabetic patients: evaluation of 2 enteral nutrition formulas (low carbohydrate-high monounsaturated fat vs high carbohydrate). *JPEN. Journal of parenteral and enteral nutrition* 2005;29(1):21-9	PubMed	Control: Precitene (High-CHO) (53) Intervention: Glucerna (High-MUFA) (51) Total: 104	2 weeks	Unclear	Unclear	High Risk	Unclear	High Risk - significant loss to follow-up	Low Risk	Low Risk
Rodriguez-Villar C, Perez-Heras A, Mercade I, Casals E, Ros E. Comparison of a high-carbohydrate and a high-monounsaturated fat, olive oil-rich diet on the susceptibility of LDL to oxidative modification in subjects with Type 2 diabetes mellitus. *Diabetic medicine : a journal of the British Diabetic Association* 2004;21(2):142-9	PubMed	Control: High-CHO Intervention: High-MUFA Cross-over design Total: 22	6 weeks	Low Risk	Low Risk	High Risk	Low Risk	Low Risk	Low Risk	Low Risk
Lovejoy JC, Most MM, Lefevre M, Greenway FL, Rood JC. Effect of diets enriched in almonds on insulin action and serum lipids in adults with normal glucose tolerance or type 2 diabetes. *The American journal of clinical nutrition* 2002;76(5):1000-6	PubMed	Control: High-fat with almonds Intervention: Low-fat with almonds Cross-over design Total: 30	4 weeks	Unlcear	Low Risk	High Risk	Low Risk	Low Risk - low drop out rate	Low Risk	Low Risk
Tsihlias EB, Gibbs AL, McBurney MI, Wolever TM. Comparison of high- and low-glycemic-index breakfast cereals with monounsaturated fat in the long-term dietary management of type 2 diabetes. *The American journal of clinical nutrition* 2000;72(2):439-49	PubMed	Control: CHO-High GI (29) Intervention: MUFA (32) Total: 61	6 months	Low Risk	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Low Risk
Tsihlias EB, Gibbs AL, McBurney MI, Wolever TM. Comparison of high- and low-glycemic-index breakfast cereals with monounsaturated fat in the long-term dietary management of type 2 diabetes. *The American journal of clinical nutrition* 2000;72(2):439-49	PubMed	Control: CHO-Low GI (30) Intervention: MUFA (32) Total: 62	6 months	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Low Risk
Brunerova L, Smejkalova V, Potockova J, Andel M. A comparison of the influence of a high-fat diet enriched in monounsaturated fatty acids and conventional diet on weight loss and metabolic parameters in obese non-diabetic and Type 2 diabetic patients. *Diabetic medicine : a journal of the British Diabetic Association* 2007;24(5):533-40	MedLine	Control: CHO (13) Intervention: MUFA (14) Total: 27	3 months	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	High Risk - weight loss in treatment group
McCargar LJ, Innis SM, Bowron E, Leichter J, Dawson K, Toth E, et al. Effect of enteral nutritional products differing in carbohydrate and fat on indices of carbohydrate and lipid metabolism in patients with NIDDM. *Molecular and cellular biochemistry* 1998;188(1-2):81-9	MedLine	Control: High-CHO (16) Intervention: High-MUFA (16) Total: 32	4 weeks	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	High Risk - weight loss in both groups

SUPPLEMENTARY DATA

Garg A, Bantle JP, Henry RR, Coulston AM, Griver KA, Raatz SK, et al. Effects of varying carbohydrate content of diet in patients with non-insulin-dependent diabetes mellitus. *Jama* 1994;271(18):1421-8	MedLine	Control: High-CHO (22) Intervention: High-MUFA (20) Total: 42	6 weeks	Low Risk	Low Risk	High Risk	Low Risk	Low Risk	Low Risk	Low Risk
Lerman-Garber I, Ichazo-Cerro S, Zamora-Gonzalez J, Cardoso-Saldana G, Posadas-Romero C. Effect of a high-monounsaturated fat diet enriched with avocado in NIDDM patients. *Diabetes care* 1994;17(4):311-5	MedLine	Control: High-CHO Intervention: MUFA Cross-over design Total: 12	4 weeks	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Low Risk
Brehm BJ, Lattin BL, Summer SS, Boback JA, Gilchrist GM, Jandacek RJ, et al. One-year comparison of a high-monounsaturated fat diet with a high-carbohydrate diet in type 2 diabetes. *Diabetes care* 2009;32(2):215-20	Additional	Control: High-CHO (52) Intervention: High-MUFA (43) Total: 95	12 months	Unclear	Unclear	High Risk	Low Risk	High Risk - significant loss to follow-up, seems to be mostly at random	Low Risk	Weight loss in both arms of the trial
Gerhard GT, Ahmann A, Meeuws K, McMurry MP, Duell PB, Connor WE. Effects of a low-fat diet compared with those of a high-monounsaturated fat diet on body weight, plasma lipids and lipoproteins, and glycemic control in type 2 diabetes. *The American journal of clinical nutrition* 2004;80(3):668-73	Additional	Control: Low-fat Intervention: High-MUFA Cross-over design Total: 11	6 weeks	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Wight loss in one arm of the trial Small sample size
Gumbiner B, Low CC, Reaven PD. Effects of a monounsaturated fatty acid-enriched hypocaloric diet on cardiovascular risk factors in obese patients with type 2 diabetes. *Diabetes care* 1998;21(1):9-15	Additional	Control: CHO (8) Intervention: MUFA (9) Total: 17	6 weeks	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Small sample size
Elhayany A, Lustman A, Abel R, Attal-Singer J, Vinker S. A low carbohydrate Mediterranean diet improves cardiovascular risk factors and diabetes control among overweight patients with type 2 diabetes mellitus: a 1-year prospective randomized intervention study. *Diabetes, obesity & metabolism* 2010;12(3):204-9	Additional	Control: ADA (55) Intervention: Low-CHO Mediterranean (61) Total: 116	12 months	Low Risk	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Low Risk
Elhayany A, Lustman A, Abel R, Attal-Singer J, Vinker S. A low carbohydrate Mediterranean diet improves cardiovascular risk factors and diabetes control among overweight patients with type 2 diabetes mellitus: a 1-year prospective randomized intervention study. *Diabetes, obesity & metabolism* 2010;12(3):204-9	Additional	Control: ADA (55) Intervention: Traditional Mediterranean (63) Total: 118	12 months	Low Risk	Low Risk	High Risk	Low Risk	High Risk - loss to follow-up	Low Risk	Low Risk
Garg A, Bonanome A, Grundy SM, Zhang ZJ, Unger RH. Comparison of a high-carbohydrate diet with a high-monounsaturated-fat diet in patients with non-insulin-dependent diabetes mellitus. *The New England journal of medicine* 1988;319(13):829-34	Additional	Control: High-CHO Intervention: High-MUFA Cross-over design Total: 10	4 weeks	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Low Risk
Rivellese AA, Giacco R, Genovese S, Patti L, Marotta G, Pacioni D, et al. Effects of changing amount of carbohydrate in diet on plasma lipoproteins and apolipoproteins in type II diabetic patients. *Diabetes care* 1990;13(4):446-8	Additional	Control: High-CHO Intervention: High-MUFA Cross-over design Total: 8	15 days	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Small sample size

Garg A, Grundy SM, Unger RH. Comparison of effects of high and low carbohydrate diets on plasma lipoproteins and insulin sensitivity in patients with mild NIDDM. *Diabetes* 1992;41(10):1278-85	Additional	Control: High-CHO Intervention: High-MUFA Cross-over design Total: 8	3 weeks	Unclear	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Small sample size
Parillo M, Rivellese AA, Ciardullo AV, Capaldo B, Giacco A, Genovese S, et al. A high-monounsaturated-fat/low-carbohydrate diet improves peripheral insulin sensitivity in non-insulin-dependent diabetic patients. *Metabolism: clinical and experimental* 1992;41(12):1373-8	Additional	Control: High-CHO Intervention: High-MUFA Cross-over design Total: 10	15 days	Low Risk	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Small sample size
Rasmussen OW, Thomsen C, Hansen KW, Vesterlund M, Winther E, Hermansen K. Effects on blood pressure, glucose, and lipid levels of a high-monounsaturated fat diet compared with a high-carbohydrate diet in NIDDM subjects. *Diabetes care* 1993;16(12):1565-71	Additional	Control: High-CHO Intervention: High-MUFA Cross-over design Total: 15	3 weeks	Low Risk	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Small sample size
Campbell LV, Marmot PE, Dyer JA, Borkman M, Storlien LH. The high-monounsaturated fat diet as a practical alternative for NIDDM. *Diabetes care* 1994;17(3):177-82	Additional	Control: High-CHO Intervention: High-MUFA Cross-over design Total: 10	2 weeks	Low Risk	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Small sample size
Polyunsaturated fats										
Madigan C, Ryan M, Owens D, Collins P, Tomkin GH. Comparison of diets high in monounsaturated versus polyunsaturated fatty acid on postprandial lipoproteins in diabetes. *Irish journal of medical science* 2005;174(1):8-20	Additional	Control: Linoleic acid Intervention: Oleic acid Cross-over design Total: 6	2 weeks	Low Risk	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Small sample size
Thomsen C, Rasmussen OW, Hansen KW, Vesterlund M, Hermansen K. Comparison of the effects on the diurnal blood pressure, glucose, and lipid levels of a diet rich in monounsaturated fatty acids with a diet rich in polyunsaturated fatty acids in type 2 diabetic subjects. *Diabetic medicine : a journal of the British Diabetic Association* 1995;12(7):600-6	Additional	Control: High-PUFA Intervention: High-MUFA Cross-over design Total: 16	3 weeks	Low Risk	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Small sample size
Brynes AE, Edwards CM, Jadhav A, Ghatei MA, Bloom SR, Frost GS. Diet-induced change in fatty acid composition of plasma triacylglycerols is not associated with change in glucagon-like peptide 1 or insulin sensitivity in people with type 2 diabetes. *The American journal of clinical nutrition* 2000;72(5):1111-8	PubMed	Control: PUFA Intervention: MUFA Cross-over design Total: 9	24 days	Low Risk	Unclear	High Risk	Low Risk	Low Risk	Low Risk	Small sample size
Parfitt VJ, Desomeaux K, Bolton CH, Hartog M. Effects of high monounsaturated and polyunsaturated fat diets on plasma lipoproteins and lipid peroxidation in type 2 diabetes mellitus. *Diabetic medicine : a journal of the British Diabetic Association* 1994;11(1):85-91	MedLine	Control: High-PUFA Intervention: High-MUFA Cross-over design Total: 13	6 weeks	Unclear	Unclear	High Risk	Low Risk	High Risk, two individuals did not complete the cross-over design. Rebalanced with ANOVA	Low Risk	Small sample size

SUPPLEMENTARY DATA

Supplementary Table 4. Baseline and outcome results for participants at the end of follow-up

Citation	Intervention_sample_size	Control_sample_size	Duration	Age_intervention	Age_control	BMI_intervention	BMI_control	Diabetes_duration	Diff_MUFA	Time	HbA1c_intervention_mean	HbA1c_intervention_sd	HbA1c_control_mean
Lasa 2014 (Olive oil vs. low fat)	74	67	1 year	67.4	67.2	29.4	29.8		2.461817182	52			
Lasa 2014 (Nuts vs. low fat)	50	67	1 year	67.1	67.2	30.1	29.8		1.667633455	52			
Itsiopoulos 2011 (Med vs. control)	27	27	3 months					6	10.2	12	6.8	1.263655745	7.1
Esposito 2009 (Med vs. low-fat)	108	107	1 year	52.4	51.9	29.7	29.5	0	6	52	6.55	0.9	7.11
Wolever 2008 (MUFA vs. high-GI)	53	48	12 months	58.6	60.4	31.1	30.1		6	48	6.35	0.364005494	6.34
Wolever 2008 (MUFA vs. low-GI)	53	55	12 months	58.6	60.6	31.1	31.6		7.6	48	6.35	0.364005494	6.34
Shah 2005 (MUFA vs. carb)	8	13	14 weeks	58	58	28.1	28.1		15	14			
Leon-Sanz 2005 (MUFA vs. CHO)	36	27	2 weeks	73.9	70.6	25.5	26.5		25.47	2			
Rodriguez-Villar 2004 (MUFA vs. CHO)	22	22	6 weeks	61	61	28.3	28.3	5.3	11.3	6	6.6	0.9	6.5
Rodriguez-Villar 2000 (MUFA vs. CHO)	12	12	6 weeks			27.9	27.9	6	13.2	6	6.7	1.3	6.5
Lovejoy 2002 (High-MUFA vs. low-fat)	30	30	4 weeks	53.8	53.8	33	33		7	4	7	1.643167673	7.2
Tsihlias 2000 (MUFA vs. High-GI CHO)	32	29	6 months	63	62.9	27.8	28		6.2	24	7.9832	1.13137085	8.292
Tsihlias 2000 (MUFA vs. Low-GI CHO)	32	30	6 months	63	61.8	27.8	27.7		6.8	24	7.9832	1.13137085	7.992
Brunerova 2007 (MUFA vs. CHO)	14	13	3 months	54.7	51.2	33.4	34.7		12.5	12	6.6	0.3	6.5
McCargar 1998 (High-MUFA vs. High-CHO)	16	16	4 weeks	55	59	28.4	28.7	4.45		4			
Garg 1994 (High-MUFA vs. High-CHO)	20	22	6 weeks	58	58	28.1	28.1		15	6	7.9	1.5	8.2
Lerman-Garber 1994 (High-MUFA vs. High-CHO)	12	12	4 weeks	56	56	28	28		17.4	4			
Brehm 2009 (High-MUFA vs. High-CHO)	43	52	12 months	56.5	56.5	35.9	35.9			48	7.5	1.967231557	7.2
Gerhard 2004 (High-MUFA vs. low-fat)	11	11	6 weeks	50.4	50.4	37.2	37.2		16.8	6	6.9	1.1	6.7
Gumbiner 1998 (MUFA vs. CHO)	9	8	6 weeks	55	51	36.3	37.2	7.435294118	48	6			
Elhayany 2010 (Low-CHO Med vs. ADA)	61	55	12 months	55.5	56	31.4	31.8	5.310344828		48	6.3	1.4	6.7
Elhayany 2010 (Traditional Med vs. ADA)	63	55	12 months	57.4	56	31.1	31.8	5.687288136		48	6.5	0.8	6.7
Garg 1988 (High-MUFA vs. High-CHO)	10	10	4 weeks	56	56	29	29		24	4	8.1	1.58113883	7.8
Rivellese 1990 (High-MUFA vs. High-CHO)	8	8	15 days	45	45	22	22	5		2.142857143			
Garg 1992 (High-MUFA vs. High-CHO)	8	8	3 weeks	63	63	30	30		20	3	7.1	1.979898987	7.8
Parillo 1992 (High-MUFA vs. High-CHO)	10	10	15 days	52.7	52.7	26.7	26.7	8.4	16	2.142857143			
Rasmussen 1993 (High-MUFA vs. High-CHO)	15	15	3 weeks	57	57	27	27	6	19	3			
Campbell 1994 (High-MUFA vs. High-CHO)	10	10	2 weeks	55	55	26.5	26.5	4.6	14	2			
Madigan 2005 (MUFA vs. PUFA)	6	6	2 weeks	56	56	28	28			2			
Thomsen 1995 (High-MUFA vs. High-PUFA)	16	16	3 weeks	59	59	28	28	6	20	3			
Brynes 2000 (MUFA vs. PUFA)	9	9	24 days	56	56	29.8	29.8	3	8.6	3.428571429	6.5	0.9	6.6
Parfitt 1994 (High-MUFA vs. High-PUFA)	13	13	6 weeks	58	59	28.4	28.4	4.2	13.06298451	6			

SUPPLEMENTARY DATA

HbA1c_control_sd	Glucose_intervention_mean	Glucose_intervention_sd	Glucose_control_mean	Glucose_control_sd	Insulin_intervention_mean	Insulin_intervention_sd	Insulin_control_mean	Insulin_control_sd	LDL_intervention_mean	LDL_intervention_sd	LDL_control_mean	LDL_control_sd	HDL_intervention_mean	HDL_intervention_sd
	8.394444444	2.755555556	8.177777778	1.894444444										
	8.244444444	2.572222222	8.177777778	1.894444444										
1.516386894	8.9	2.780042639	9.3	2.780042639	90.3	52.56807898	97.2	70.25925941	3	1.010924596	3	0.505462298	1.07	0.278004264
0.9	6.7	1.9	7.7	1.8	94	43	102.1	50					1.2	0.2
0.346410162									2.89	0.364005494	3	0.554256258	1.21	0.218403297
0.370809924									2.89	0.364005494	2.92	0.370809924	1.21	0.218403297
	11.22	5.142503865	12.33	8.072905513					2.87	2.483610361	2.51	3.371195082	0.83	0.358884328
0.8	9.3	3.2	8.3	2.4	93.06	61.116	81.95	32.6415	3.27	0.64	3.42	0.89	1.28	0.28
1	9.83333	3.22222	9.11111	3.22222					4.1376	1.13784	4.0083	1.1637	1.24128	0.2586
1.643167673	8.14	2.683840532	8.73	2.629068276	88.2	55.86770087	88.8	52.58136552	2.51	0.547722558	2.58	0.547722558	1.13	0.219089023
1.077032961	8.335514	2.2627417	9.080374	2.692582404					3.7421782	0.848528137	3.1307206	1.023181313	1.21348	0.339411255
1.095445115	8.335514	2.2627417	9.2	2.19089023					3.7421782	0.848528137	2.8630197	0.766811581	1.21348	0.339411255
0.5	6.7	0.5	7	0.8									1.4	0.2
	7.54	1.48	7.97	2.12	129	44	178	180					1.2	0.4
2.1	8.1	1.8	8.3	1.9	144	79	144	79	3.36	0.78	3.36	0.7	0.96	0.27
	5.43	1.11	6.16	1.38					3.38	0.72	3.48	0.88	0.98	0.26
1.44222051	7.89	2.950847336	7.06	2.203424495	251	154.7555492	287	192.5364381	2.61	1.034435927	2.51	0.913718804	1.22	0.220461083
0.9	7.78	2.16667	7.5	1.44444					2.53	0.6465	2.51	0.69822	1.09	0.20688
	8	3.3	8.8	3.959797975	71	15	82	33.9411255						
0.9	6.18	0.84	7.19	1.85	103.48	39.5865	95.15	36.8085	2.46	0.72	2.68	0.83	1.21	0.21
0.9	6.57	1.34	7.19	1.85	86.12	43.059	95.15	36.8085	2.63	0.67	2.68	0.83	1.09	0.21
2.213594362	5.6	0.537587202	6.49	0.885437745					3.45	0.600832755	3.39	0.600832755	0.88	0.158113883
	9.66	1.21	10.5	1.33					3.44	0.88	3.1	0.82		
2.2627417	7.6	2.2627417	7.7	2.2627417					3.01	0.90509668	3.01	1.046518036	0.76	0.141421356
	6.38	1.97	6.74	2.28	43.2	14.4	51.6	23.4					0.99	0.2
	6.1	1.161895004	6.8	1.161895004					3.8	1.161895004	3.5	0.774596669	1.2	0.387298335
	8.5	2.846049894	8.7	3.16227766	35	18.97366596	38	18.97366596	3	0.948683298	3.2	0.948683298	0.8	0.316227766
	7.8	1	9	0.9	90.3	17.3625	102.1	22.224	2.9	0.5	3.2	0.6	1.1	0.3
	6.6	2.3	7.5	2.4					3.5	0.8	3.3	0.8	1.3	0.4
0.9	8.3	1.8	8.2	2.1	57.6	38.1	56.2	32.7	2.87	0.9	2.82	0.6	0.97	0.3
									3.2	0.6	3.6	0.6	0.99	0.2

SUPPLEMENTARY DATA

HDL_control_mean	HDL_control_sd	Trig_intervention_mean	Trig_intervention_sd	Trig_control_mean	Trig_control_sd	Weight_intervention_mean	Weight_intervention_sd	Weight_control_mean	Weight_control_sd	Systolic_intervention_mean	Systolic_intervention_sd	Systolic_control_mean	Systolic_control_sd	Diastolic_intervention_mean
						74.39	11.4	77.21	10.9					
						74.49	11.5	77.21	10.9					
1.04	0.227458034	2.2	1.263655745	2.4	1.516386894					132	17.69118043	132	17.69118043	70
1.125	0.2	1.9	0.8	1.9	0.8	79.8	10.4	81.5	9.9	133.9	12	138	12	83
1.19	0.207846097	1.93	0.436806593	2	0.484974226	84.3	18.92828571	84.3	17.32050808	127	7.280109889	128	6.92820323	
1.16	0.222485955	1.93	0.436806593	2.17	0.519133894	84.3	18.92828571	83.9	18.54049622	127	7.280109889	129	7.416198487	
										118	14	132	13	71
0.93	0.566303316	1.55	1.352890117	1.69	1.732716937									
1.32	0.27	2.12	0.98	2.09	1.58	77.8	13.9	78.1	14					
1.21542	0.28446	1.8064	0.73385	1.97575	0.73385	73.3	9.4	73.8	10.6					
1.17	0.219089023	1.77	0.985900604	1.68	0.985900604									
1.03829	0.376961536	1.88841	1.58391919	2.58106	1.723252738	76.251478	16.40487732	76.497015	15.07846146					
0.92594	0.273861279	1.88841	1.58391919	3.14476	1.588395417	76.251478	16.40487732	79.427204	13.69306394					
1.4	0.2	1.2	0.2	1.8	0.3	89.8	9.8	97.8	17.2					
1.08	0.28	1.33	0.96	1.86	1.12	83	16.4	83.2	14					
0.92	0.24	1.75	0.7	2.19	0.85									
0.98	0.26	1.25	0.41	1.61	0.68	64	10	65	10					
1.24	0.261041912	2.27	1.480669619	2	1.416621096	99.7	19.67231557	98.3	14.4222051	130	15.73785246	129	16.58553587	73
1.01	0.20688	1.68	0.84675	2.04	1.07255	102.3	19	101.1	18.3					
1	0.19	1.66	0.36	2.26	1.12	77.8	13.1	80.2	13.2					
1	0.19	1.58	0.33	2.26	1.12	78.1	9.9	80.2	13.2					
0.78	0.18973666	1.84	0.948683298	2.46	1.138419958	86.8	12.33288287	86.9	11.70042734					
		1.11	0.4	1.39	0.59									
0.68	0.113137085	2.55	0.876812409	3.25	0.791959595	87.8	12.16223664	87.6	11.3137085					
0.95	0.2	1.16	0.59	1.37	0.59	68.7	11.6	68.9	11.9					
1.2	0.387298335	1.6	0.774596669	1.6	0.774596669					126	7.745966692	130	11.61895004	75
0.8	0.316227766	1.1	0.632455532	1.4	0.063245553	76.1	13.28156617	76.1	13.28156617					
1.1	0.3	1.8	0.6	1.9	0.8									
1.3	0.3	2	1.1	1.9	1.2					124	8	129	11	73
1	0.3	1.8	0.9	1.78	0.9	87.3	14.7	87	14.7					
0.9	0.2													

SUPPLEMENTARY DATA

Diastolic_intervention_sd	Diastolic_control_mean	Diastolic_control_sd
7.581934469	72	10.10924596
8	83	8
8	83	6
9.836157786	73	10.09554357
7.745966692	78	3.872983346
8	76	11

Supplementary Table 5. Sensitivity analyses of high-MUFA vs. high-CHO diets in type 2 diabetes patients, after excluding trials resulting in significant weight differences

Metabolic parameter	WMD (95% CI)[1]	WMD (95% CI)[2]	I^2	P_{het}
HbA1c (%)	0.00 (-0.08, 0.09)	0.00 (-0.09, 0.09)	0.0%	0.965
Fasting plasma glucose (mmol/L)	**-0.44 (-0.74, -0.14)**	**-0.44 (-0.74, -0.14)**	0.0%	0.682
Fasting insulin (pmol/L)	-4.99 (-13.83, 3.85)	-3.98 (-9.83, 1.87)	0.0%	0.905
LDL cholesterol (mmol/L)	-0.01 (-0.10, 0.07)	-0.01 (-0.10, 0.07)	0.0%	0.816
HDL cholesterol (mmol/L)	0.03 (-0.01, 0.06)	0.03 (-0.01, 0.06)	0.0%	0.884
Triglycerides (mmol/L)	**-0.19 (-0.29, -0.10)**	**-0.19 (-0.29, -0.10)**	0.0%	0.781
Body weight (kg)	0.04 (-2.40, 2.47)	0.04 (-2.40, 2.47)	0.0%	1.000
Systolic blood pressure (mmHg)	-1.69 (-3.45, 0.07)	-1.74 (-3.71, 0.24)	9.3%	0.356
Diastolic blood pressure (mmHg)	**-2.93 (-5.28, -0.59)**	-3.74 (-8.08, 0.60)	69.5%	0.020

CI: confidence interval; HbA1c: glycated hemoglobin; HDL: high-density lipoprotein; LDL: low-density lipoprotein; WMD: weighted mean difference

Bolded values indicate statistical significance at $P < 0.05$.

Notes:

[1] Calculated using a fixed-effects model.

[2] Calculated using a random-effects model.

Supplementary Table 6. Sensitivity analyses of high-MUFA vs. high-CHO diets in type 2 diabetes patients, after excluding trials with less than 12 weeks duration

Metabolic parameter	WMD (95% CI)[1]	WMD (95% CI)[2]	I^2	P_{het}
HbA1c (%)	-0.08 (-0.16, 0.00)	-0.14 (-0.30, 0.02)	63.6%	0.003
Fasting plasma glucose (mmol/L)	**-0.59 (-0.81, -0.37)**	**-0.53 (-0.84, -0.23)**	40.6%	0.087
Fasting insulin (pmol/L)	-3.77 (-11.32, 3.78)	-3.86 (-12.50, 4.78)	15.6%	0.315
LDL cholesterol (mmol/L)	0.01 (-0.08, 0.09)	0.10 (-0.10, 0.30)	75.8%	<0.001
HDL cholesterol (mmol/L)	**0.09 (0.06, 0.11)**	**0.09 (0.03, 0.14)**	68.5%	0.001
Triglycerides (mmol/L)	**-0.30 (-0.39, -0.22)**	**-0.36 (-0.57, -0.15)**	79.1%	<0.001
Body weight (kg)	**-1.81 (-3.27, -0.35)**	**-1.81 (-3.27, -0.35)**	0.0%	0.976
Systolic blood pressure (mmHg)	**-2.16 (-3.74, -0.58)**	**-2.22 (-4.28, -0.16)**	27.9%	0.226
Diastolic blood pressure (mmHg)	-1.08 (-2.78, 0.61)	-2.72 (-6.84, 1.39)	75.9%	0.006

CI: confidence interval; HbA1c: glycated hemoglobin; HDL: high-density lipoprotein; LDL: low-density lipoprotein; WMD: weighted mean difference

Bolded values indicate statistical significance at $P < 0.05$.

Notes:

[1] Calculated using a fixed-effects model.

[2] Calculated using a random-effects model.

Supplementary Table 7. Food patterns in published studies

Comparison	Trial arms	Statistical difference between intakes of foods in the two diets P-values)						
		Cereals	Vegetables	Fruits	Fiber	Meat	Dairy	Seafood
High-MUFA vs. High-CHO								
Lasa 2014 (13)	MUFA (olive oil) vs. LF	NS	0.029, higher in MUFA arm	0.029, higher in MUFA arm	NA	NS	NS	NS
Lasa 2014 (13)	MUFA (nuts) vs. LF	NS	NS	NS	NA	NS	0.003, higher in CHO arm	NS
Itsiopoulos 2011 (14)	MED vs. control	NS	<0.001, higher in MUFA arm	NS	NA	<0.01, higher in CHO arm	<0.01, higher in CHO arm	NS
Elhayany 2010 (15)	MED (low-carb) vs. LF	NA	NA	NA	higher in MUFA arm	NA	NA	NA
Elhayany 2010 (15)	MED (traditional) vs. LF	NA	NA	NA	higher in MUFA arm	NA	NA	NA
Brehm 2009 (16)	MUFA vs. CHO	NA	NA	0.012, higher in CHO arm	NA	NA	NA	NA
Esposito 2009 (17)	MED vs. LF	NA	NA	NA	NA	NA	NA	NA
Wolever 2008 (18, 19)	MUFA vs. HGI	higher in CHO arm	NA	higher in MUFA arm	NA	NA	NA	NA
Wolever 2008 (18, 19)	MUFA vs. LGI	higher in CHO arm	NA	higher in MUFA arm	higher in CHO arm	NA	NA	NA
Brunerova 2007 (20)	MUFA vs. CHO	NA	NA	NA	NA	NA	NA	NA
Leon-Sanz 2005 (21)	MUFA vs. CHO	NS	NS	NS	NS	NS	NS	NS
Shah 2005 (22)	MUFA vs. CHO	NA	NA	NA	higher in CHO arm	NA	NA	NA
Gerhard 2004 (23)	MUFA vs. LF	NA	NA	NA		NA	NA	NA
Rodriguez-Villar 2004 (24)	MUFA vs. CHO	NA	NA	NA	0.001, higher in CHO arm	NA	NA	NA
Lovejoy 2002 (25)	HF vs LF	NA	NA	NA	higher in MUFA arm	NA	NA	NA
Rodriguez-Villar 2000 (26)	MUFA vs. CHO	NA	NA	NA	0.035, higher in CHO arm	NA	NA	NA
Tsihlias 2000 (27)	MUFA vs. HGI	NA	NA	NA	NS	NA	NA	NA
Tsihlias 2000 (27)	MUFA vs. LGI	NA	NA	NA	higher in CHO arm	NA	NA	NA
Gumbiner 1998 (28)	MUFA vs. CHO	NA	NA	NA	NA	NA	NA	NA
McCargar 1998 (29)	MUFA vs. CHO	NA	NA	NA	NS	NA	NA	NA
Campbell 1994 (30)	MUFA vs. CHO	NA	NA	NA	NS	NA	NA	NA
Garg 1994 (31)	MUFA vs. CHO	NA	NA	NA	higher in CHO arm	NA	NA	NA
Lerman-Garber 1994 (32)	MUFA vs. CHO	NA	NA	NA	higher in CHO arm	NA	NA	NA
Rasmussen 1993 (33)	MUFA vs. CHO	NA	NA	NA	NS	NA	NA	NA
Garg 1992 (34)	MUFA vs. CHO	NA	NA	NA	NS	NA	NA	NA
Parillo 1992 (35)	MUFA vs. CHO	NA	NA	NA	NS	NA	NA	NA
Rivellese 1990 (36)	MUFA vs. CHO	NA	NA	NA	NS	NA	NA	NA
Garg 1988 (37)	MUFA vs. CHO	NA	NA	NA	NA	NA	NA	NA

NS: not significant; NA: not available
Bolded values indicate statistical significance at $P < 0.05$.
Notes:
[1] For cross-over trials, the sample size is double the number of actual participants, since each participant received both interventions.