SUPPLEMENTARY ONLINE TABLES

Supplementary Table 1. Example of the database search strategy, CAB Direct

Search ID #	Search terms	Results
1	(nutrition education) AND (diabetes prevention)	630
2	(dietary education) AND (diabetes prevention)	136
3	(Lifestyle intervention) AND (diabetes prevention)	689
4	(Behavioral intervention) AND (diabetes prevention)	109
5	(Lifestyle intervention) AND (diabetes prevention) AND (prediabetes)	54
6	(Glucose tolerance) OR (Glucose homeostasis) OR (Fasting glucose) AND (nutrition) AND (diabetes prevention)	554
7	(cost-effectiveness) AND (diabetes prevention) OR (prediabetes) AND (nutrition)	5
8	(cost) AND (Lifestyle intervention) AND (nutrition education) AND (diabetes prevention) OR (prediabetes)	44
9	(dietary education) AND (prediabetes)	7
10	(registered dietitian) OR (registered dietician) AND (diabetes)	11
Total number of articles		2239

Supplementary Table 2. Example of the database search strategy, PubMed

Search ID #	Search terms	Search details	Results
1	(nutrition education) AND (diabetes prevention)	(("nutritional status"[MeSH Terms] OR ("nutritional"[All Fields] AND "status"[All Fields]) OR "nutritional status"[All Fields] OR "nutrition"[All Fields] OR "nutritional sciences"[MeSH Terms] OR ("nutritional"[All Fields] AND "sciences"[All Fields]) OR "nutritional sciences"[All Fields]) AND ("education"[Subheading] OR "education"[All Fields] OR "educational status"[MeSH Terms] OR ("educational"[All Fields] AND "status"[All Fields]) OR "educational status"[All Fields] OR "education"[All Fields] OR "education"[MeSH Terms])) AND (("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR "diabetes insipidus"[All Fields]) AND ("prevention and control"[Subheading] OR ("prevention"[All Fields] AND "control"[All Fields]) OR "prevention and control"[All Fields] OR "prevention"[All Fields]))	889

2	(dietary education) AND (diabetes prevention)	(("diet"[MeSH Terms] OR "diet"[All Fields] OR "dietary"[All Fields]) AND ("education"[Subheading] OR "education"[All Fields] OR "educational status"[MeSH Terms] OR ("educational"[All Fields] AND "status"[All Fields]) OR "educational status"[All Fields] OR "education"[All Fields] OR "education"[MeSH Terms])) AND (("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR "diabetes insipidus"[All Fields]) AND ("prevention and control"[Subheading] OR ("prevention"[All Fields] AND "control"[All Fields]) OR "prevention and control"[All Fields] OR "prevention"[All Fields]))	1452
3	(Lifestyle intervention) AND (diabetes prevention)	(("life style"[MeSH Terms] OR ("life"[All Fields] AND "style"[All Fields]) OR "life style"[All Fields] OR "lifestyle"[All Fields]) AND ("Intervention (Amstelveen)"[Journal] OR "intervention"[All Fields] OR "Interv Sch Clin"[Journal] OR "intervention"[All Fields])) AND (("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR	1690

		"diabetes insipidus"[All Fields]) AND ("prevention and control"[Subheading] OR ("prevention"[All Fields] AND "control"[All Fields]) OR "prevention and control"[All Fields] OR "prevention"[All Fields]))	
4	(Behavioral intervention) AND (diabetes prevention)	("behavior therapy"[MeSH Terms] OR ("behavior"[All Fields] AND "therapy"[All Fields]) OR "behavior therapy"[All Fields] OR ("behavioral"[All Fields] AND "intervention"[All Fields]) OR "behavioral intervention"[All Fields]) AND (("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR "diabetes insipidus"[All Fields]) AND ("prevention and control"[Subheading] OR ("prevention"[All Fields] AND "control"[All Fields]) OR "prevention and control"[All Fields] OR "prevention"[All Fields]))	1556
5	(Lifestyle intervention) AND (diabetes prevention)	(("life style"[MeSH Terms] OR ("life"[All Fields] AND "style"[All Fields]) OR "life style"[All Fields] OR "lifestyle"[All Fields]) AND ("Intervention (Amstelveen)"[Journal] OR "intervention"[All Fields] OR "Interv Sch Clin"[Journal] OR "intervention"[All Fields])) AND (("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All	173

	AND (prediabetes)	Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR "diabetes insipidus"[All Fields]) AND ("prevention and control"[Subheading] OR ("prevention"[All Fields] AND "control"[All Fields]) OR "prevention and control"[All Fields] OR "prevention"[All Fields])) AND ("prediabetic state"[MeSH Terms] OR ("prediabetic"[All Fields] AND "state"[All Fields]) OR "prediabetic state"[All Fields] OR "prediabetes"[All Fields])	
6	(Glucose tolerance) OR (Glucose homeostasis) OR (Fasting glucose) AND (nutrition) AND (diabetes	(("glucose"[MeSH Terms] OR "glucose"[All Fields]) AND ("immune tolerance"[MeSH Terms] OR ("immune"[All Fields] AND "tolerance"[All Fields]) OR "immune tolerance"[All Fields] OR "tolerance"[All Fields] OR "drug tolerance"[MeSH Terms] OR ("drug"[All Fields] AND "tolerance"[All Fields]) OR "drug tolerance"[All Fields])) OR (("glucose"[MeSH Terms] OR "glucose"[All Fields]) AND ("homoeostasis"[All Fields] OR "homeostasis"[MeSH Terms] OR "homeostasis"[All Fields])) OR (("fasting"[MeSH Terms] OR "fasting"[All Fields]) AND ("glucose"[MeSH Terms] OR "glucose"[All Fields])) AND ("nutritional status"[MeSH Terms] OR ("nutritional"[All Fields] AND "status"[All Fields])	690

	prevention)	OR "nutritional status"[All Fields] OR "nutrition"[All Fields] OR "nutritional sciences"[MeSH Terms] OR ("nutritional"[All Fields] AND "sciences"[All Fields]) OR "nutritional sciences"[All Fields]) AND (("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR "diabetes insipidus"[All Fields]) AND ("prevention and control"[Subheading] OR ("prevention"[All Fields] AND "control"[All Fields]) OR "prevention and control"[All Fields] OR "prevention"[All Fields]))	
7	(cost-effectiveness) AND (diabetes prevention) OR (prediabetes) AND (nutrition)	((("cost-benefit analysis"[MeSH Terms] OR ("cost-benefit"[All Fields] AND "analysis"[All Fields]) OR "cost-benefit analysis"[All Fields] OR ("cost"[All Fields] AND "effectiveness"[All Fields]) OR "cost effectiveness"[All Fields]) AND (("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR "diabetes insipidus"[All Fields]) AND ("prevention and control"[Subheading] OR ("prevention"[All Fields] AND	444

		"control"[All Fields]) OR "prevention and control"[All Fields] OR "prevention"[All Fields]))) OR ("prediabetic state"[MeSH Terms] OR ("prediabetic"[All Fields] AND "state"[All Fields]) OR "prediabetic state"[All Fields] OR "prediabetes"[All Fields])) AND ("nutritional status"[MeSH Terms] OR ("nutritional"[All Fields] AND "status"[All Fields]) OR "nutritional status"[All Fields] OR "nutrition"[All Fields] OR "nutritional sciences"[MeSH Terms] OR ("nutritional"[All Fields] AND "sciences"[All Fields]) OR "nutritional sciences"[All Fields])	
8	(cost) AND (Lifestyle intervention) AND (nutrition education) AND (diabetes prevention)	((("economics"[Subheading] OR "economics"[All Fields] OR "cost"[All Fields] OR "costs and cost analysis"[MeSH Terms] OR ("costs"[All Fields] AND "cost"[All Fields] AND "analysis"[All Fields]) OR "costs and cost analysis"[All Fields]) AND (("life style"[MeSH Terms] OR ("life"[All Fields] AND "style"[All Fields]) OR "life style"[All Fields] OR "lifestyle"[All Fields]) AND ("Intervention (Amstelveen)"[Journal] OR "intervention"[All Fields] OR "Interv Sch Clin"[Journal] OR "intervention"[All Fields]))) AND (("nutritional status"[MeSH Terms] OR ("nutritional"[All Fields] AND "status"[All Fields]) OR "nutritional status"[All Fields] OR "nutrition"[All Fields] OR "nutritional sciences"[MeSH	10

		Terms] OR ("nutritional"[All Fields] AND "sciences"[All Fields]) OR "nutritional sciences"[All Fields]) AND ("education"[Subheading] OR "education"[All Fields] OR "educational status"[MeSH Terms] OR ("educational"[All Fields] AND "status"[All Fields]) OR "educational status"[All Fields] OR "education"[All Fields] OR "education"[MeSH Terms])) AND (("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR "diabetes insipidus"[All Fields]) AND ("prevention and control"[Subheading] OR ("prevention"[All Fields] AND "control"[All Fields]) OR "prevention and control"[All Fields] OR "prevention"[All Fields]))	
9	(dietary education) AND (prediabetes)	(("diet"[MeSH Terms] OR "diet"[All Fields] OR "dietary"[All Fields]) AND ("education"[Subheading] OR "education"[All Fields] OR "educational status"[MeSH Terms] OR ("educational"[All Fields] AND "status"[All Fields]) OR "educational status"[All Fields] OR "education"[All Fields] OR "education"[MeSH Terms])) AND ("prediabetic state"[MeSH Terms] OR ("prediabetic"[All Fields] AND "state"[All Fields]) OR "prediabetic state"[All	76

		Fields] OR "prediabetes"[All Fields])	
10	(registered dietitian) OR (registered dietician) AND (diabetes)	((registered[All Fields] AND ("nutritionists"[MeSH Terms] OR "nutritionists"[All Fields] OR "dietitian"[All Fields])) OR (registered[All Fields] AND ("nutritionists"[MeSH Terms] OR "nutritionists"[All Fields] OR "dietician"[All Fields]))) AND ("diabetes mellitus"[MeSH Terms] OR ("diabetes"[All Fields] AND "mellitus"[All Fields]) OR "diabetes mellitus"[All Fields] OR "diabetes"[All Fields] OR "diabetes insipidus"[MeSH Terms] OR ("diabetes"[All Fields] AND "insipidus"[All Fields]) OR "diabetes insipidus"[All Fields])	88
Total number of articles			7068

Supplementary Table 3. The effectiveness and cost of lifestyle interventions including nutrition education for diabetes prevention: Characteristics of included studies (by publication date)

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & maintenance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
US studies with RCT[e] design								
Tate et al., 2003[34]	92 (46+46)[f] Mean age (years): 48.5±9.4 Overweight/obese	12 months /0	Web site	IG[g]: Basic internet program plus behavioral e-counseling. CG[h]: Basic internet weight loss program.	12 Mo[i] IG: -4.4±6.2 [j] CG: -2.0±5.7[j] P=0.04	3 Mo IG: -4.6±7.9[j] CG: -0.3±8.4[j] P=0.01		
Ackermann, Finch et al., 2008[36]	92(46+46) Mean age (years) CG: 60.1±10.5 IG: 56.5±9.7 BMI[k] ≥ 24/ ADA-score[l] ≥ 10	4 months/ 12 months	Wellness instructor	IG: 16 classroom-style meetings for goal setting, self-monitoring and problem-solving. CG: brief counseling, materials, and limited access to the YMCA.	4-6 Mo CG: -2.0 % (-3.3, -0.6) [m] IG: -6.0 % (-7.3, -4.7) [m] P<0.001 12-14 Mo CG:-1.8 % (-3.9, 0.3)[m] IG: -6.0% (-8.3, -3.8)[m] P=0.008			4-6 Mo CG: -0.1 (-0.2, 0.01)[j] IG: -0.1 (-0.2, 0.01)[j] P=0.96 12-14 Mo CG: 0 (-0.1, 0.2)[j] IG: -0.1 (-0.2,0.1)[j] P=0.28

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Estabrooks and Smith-Ray, 2008[38]	77(39+38) Mean age (years): 59 Prediabetic[o]	3 months /0	IVR[n] telephone messages	IG: a series of IVR telephone calls over the 12-week study period. CG: standard care 90-min diabetes prevention class.	BL[p] IG: 88.2±18.4[q] CG: 87.3±18.5[q] 3 Mo IG: 86±18.7[q] CG:85.8±18.2[q]			
Almeida, Shetterly et al., 2010[40]	1520 (760+760) Mean age (years): 63±10 Overweight/ Prediabetic/IGT[r]	12 months /0	Dietitian	IG: a presentation by a dietitian to a class of 10-20 participants and a 90-miniute session. CG: a dummy date for participation in a small-group session.	12 Mo IG: -1.4 (-1.6, -1.1)[j, q] p<0.001 CG : -0.6 (-0.9, -0.4)[j, q] p<0.001			
Parikh, Simon et al., 2010[43]	99 Mean age (years): 48 Overweight	6 months/ 6 months	Lay leaders	IG: culturally sensitive curriculum with simple, actionable messages to make lifestyle changes. CG: Delayed intervention	12 Mo IG: -3.3±3.3[j, q] CG:-1.1±3.7[j, q] P=0.01	12 Mo IG: 10±13[j] CG:11±11[j] p=0.83		12 Mo IG: -0.3±0.2[j] CG:-0.3±0.2[j] p=0.13
Vadheim, McPherson et al.,	27 (14+13) Mean age (years):	4 months/ 6	RD[s]	IG: same core curriculum sessions via telehealth video	4 Mo IG: -6.7±3.7[j] CG:-6.5±3.1[j]			

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
2010[44]	CG: 53 IG: 50 Overweight/ Prediabetic	months		conferencing. CG: a 16 weekly core curriculum sessions and the 6 monthly after-core sessions.	P=0.85			
Katula, Vitolins et al., 2011[45]	301 (150+151) Mean age (years): 57.9±9.5 Overweight/ Prediabetic	6 months/ 6 months	Commun-ity health workers (CHW[t])	IG: a weekly CHW-led group sessions during the first 6 months and two scheduled contacts with CHW each month from 7 to 12 months. CG: usual care of two individual sessions with a nutritionist during the first 3 months.	12 Mo -5.73±0.42[u] P<0.001	12 Mo -3.76±0.76[u] P<0.001		
Kanaya, Santoyo-Olsson et al., 2012[49]	230 (113+117) Mean age (years) CG: 55 ±17 IG: 58 ±16 A capillary blood glucose	6 months/ 6 months	Trained health depart-ment counselors	IG: a telephone-based counseling of education and skills training to modify diet and physical activity in Spanish and English. CG: wait-list control	6 Mo CG:-0.2±0.26[j, q] IG: -1.0± 0.3[j, q] P=0.03 12 Mo CG:-0.2±0.4[j, q] IG: -0.6± 0.32[j,	6 Mo CG: 0.42±1.04[j] IG: -0.70±0.87[j] P=0.41 12 Mo CG: -		

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
	value is between 106 and 160 mg/dl			group.	[q] P=0.4	1.39±0.96[j] IG: -0.88±1.02[j] P=0.72		
Cole, Boyer et al., 2013[51]	65(34+31) Mean age (years): 58.3±9.6 Prediabetic	3 months/ 12 months	RD	IG: three 90-minute nutrition shared medical appointments (SMA) sessions. CG: a 45- to 60-minute individualized counseling session with a registered dietitian.	3 Mo IG:-3.0±3.0[j] CG-1.6±3.3[j] P<0.05 12 Mo IG:-1.5± 4.4[j] CG-1.2±4.4[j]			3 Mo IG: 0.1±0.4[j] CG0.4±1.1[j] P<0.05 12 Mo IG: 0.1±0.4[j] CG: 0.5±1.3[j] P<0.05
Islam, Zanowiak et al., 2013[52]	48(25+23) Mean age (years): 59.7 Family history of diabetes/ADA score	6 months/ 0	CHW	IG: interventions with follow-up phone calls from the CHW to discuss the challenges and strategies for improving diet and physical activity. CG: intervention sessions were held every 3 weeks in a convenient community setting.	6 Mo IG: -0.5±1.7[j, q] CG: 0.3±1.5[j ,q] P=0.14	6 Mo IG:4.0±30.8[j] CG:0.4±27.4[j] P=0.74		

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Katula, Vitolins et al., 2013[53]	301 (150+151) Mean age (years): 57.9±9.5 Overweight/ Prediabetic	6 months/ 18 months	CHW	IG: three personalized consultations, two scheduled contact with the CHW each month, one group session and one telephone contact. CG: usual care of two individual sessions involving healthy eating and physical activity education.	24 Mo -4.9±0.71[u] P<0.001	24 Mo -4.35±1.14[u] P<0.001		
Ma, Yank et al., 2013[25]	160 (79+81) Mean age (years): 53±11 Prediabetic/ Metabolic syndrome	3 months/ 12 months	RD	IG: face-to-face weekly classes via a home-based DVD to self-directed group. CG: the same classes in face-to-face manner for coach-led group over 12 weeks.	3 Mo IG: -4.5±0.8[j] CG: -5.4±0.7[j] P=0.09 6 Mo IG: -4.3±0.8[j] CG: -6.6±0.8[j] p<0.001 15 Mo IG: -4.5±0.9[j] CG: -6.3±0.9[j] P=0.04			

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Xiao, Yank et al., 2013[54]	160 (79+81) Mean age (years): 53±11 Prediabetic/ Metabolic syndrome	3 months/ 21 months	RD	IG: face-to-face weekly classes via a home-based DVD to self-directed group. CG: the same classes in face-to-face manner for coach-led group over 12 weeks.	24 Mo IG: -4.5±0.9[j] CG: 5.4±0.7[j]			
Ackermann, Sandy et al., 2014[55]	306 (153+153) Mean age (years): 46.7±11.3 A parent or a sibling has diabetes/personal history of gestational diabetes	5 months/ 7 months	Lifestyle coach	IG: VOD programming in combination with an interactive web portal (VOD Plus). CG: DPP by Video On-Demand (VOD) alone.	5 Mo IG: 2.9% (0.7-4.2)[m] CG: 3.7% (1.9-5.0)[m] P=0.23			

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Islam, Zanowiak et al., 2014[57]	126(76+50) Mean age (years): IG: 46.3±11.6 CG: 47.8±9.5 Family history of diabetes/ADA score	6 months/ 0	CHW supervisor	IG: a multi-component CHW-led intervention, which is consisted of six 2-hour interactive group sessions. CG: standard acre including seeking preventive and acute care from their usual health care sources as needed.	BL IG: 72.7±12.6 CG: 79.3±10.5 3 Mo IG: 71.4±12.1 CG: 76.7±10.3 6 Mo IG: 70.4±11.5 CG: 78.8±8.8	BL IG: 114.5±36.8 CG: 111.3±22.0 3 Mo IG: 96.7±17.6 CG: 102.2±19.3 6 Mo IG: 88.9±16.5 CG: 113.0±12.0		
Fukuoka, Gay et al., 2015[15]	61(30+31) Mean age (years): 55.2±9 Overweight/ obese/Prediab-etic/Diabetes risk score ≥5	5 months /0	Research staff members	IG: Six in-person sessions delivered by two trained non-medical research staff members with the aid of mDPP mobile app. CG: A brochure about pre-diabetes and standard medical care	3 Mo IG: -5.2±4.4[j] CG:0.4±1.8[j] P<0.001 5 Mo IG:-6.2±5.9[j] CG: 0.3±2.7[j] P<0.001			

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Yeh, Heo et al., 2015[63]	58 (30+28) Mean age (years) 58.8 Prediabetic/ Overweight	6 months/ 6 months	Trained lifestyle coaches	IG: 12 bi-weekly core sessions and two 6-monthly follow-up sessions	6 Mo IG:-2.42±1.86[j,m] CG:-0.07±1.46[j,m] 10 Mo IG: -2.28±1.86[j,m] CG: 0.2±1.46[j,m]	6 Mo IG:-0.18±0.38[j,m] CG:-0.12±0.34[j,m] 10 Mo IG: -0.29±0.38[j,m] CG:-0.09±0.34[j,m]		6 Mo IG: -0.19±0.24[j,m] CG:-0.05±0.29[j,m] 10 Mo IG:0.001±0.24[j,m] CG:0.23±0.29[j,m]
US studies with QED[v] design								
Davis-Smith, Boltri et al., 2007[35]	10 Mean age was not reported Prediabetic	2 months/ 12 months	Volunteer healthcare profess-ionals	Six sessions over 7 weeks by volunteer healthcare professionals. Handouts for each session were distributed at the beginning of the session. Each session included a review of the activity logs.	BL 104.8±25.3[q] 6 Mo 101.8±27.2[q] 12 Mo 100±15.7[q] P<0.05	BL 109±8.3 6 Mo 99±9.8 12 Mo 100±5.8		

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Boltri, Davis-Smith et al., 2008[37]	8 Mean age (years): female 52.1 Male 52.4 Prediabetic	4 months/ 12 months	Group leader	An individualized lifestyle program including a 16-session church DPP over 4 months.	BL 93.3±15.4[q] 6 Mo 90.7[q] 12 Mo 92.8[q] P<0.05	BL 104±2.8 6 Mo 100 12 Mo 97.7 P<0.05		
Amundson, Butcher et al., 2009[39]	293 Mean age (years): 53.6±9.7 Overweight/pre-diabetic/IGT/IFG/history of gestational diabetes	4 months/ 0	Dietitian	A group-based program through 16 weekly sessions followed with a monthly group sessions over a 6-month period led by the lifestyle coaches.	BL Male: 110.6±21.1 Female: 96.4±18.6 4 Mo Male: 102±20.4 P<0.001 Female: 90.2±17.7 P<0.001			
Faridi, Shuval et al., 2010[41]	161(83+78) Age range (years): 18-79 Overweight/ A history of gestational diabetes	12 months / 0	Certified diabetes educator	IG: A 10-week training session series led by a certified diabetes educator (2 hour per series) with 21 intervention CHAs[w] were held.	12 Mo IG: 0.14±11.8[j, q] CG:0.37±8.8[j, q] P=0.8974			

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
				CG: a delayed intervention.				
Kramer, Kriska et al., 2010[42]	48 (22+26) Mean age (years): 59.7 Overweight/ Prediabetic	3 months/ 0	Health care professionals	IG: materials of the GLB-DVD intervention with instructions to view one session/week. CG: a total of 12 health care professional contacts with related materials.	3 Mo IG:-5.4±5.2[j, q] CG: -6.3±6.5[j, q] P<0.001	3 Mo IG:-4.71±6.66[j] CG:1.15±10.52[j] P=0.98		3 Mo IG:-0.16±0.23[j] CG:-0.31±0.25[j] P<0.0001
Kramer, McWilliams et al,. 2011[46]	81 Mean age (years): 52.9 Overweight/ Prediabetic	3 months/ 0	Health educators	A 12-session group lifestyle intervention by the trained diabetes educators in groups with GLB related materials.	3 Mo -5.1±4.8[j, q] P<0.001	3 Mo -2.9±11.3[j] P<0.001		
Rosal, Lemon et al., 2011[47]	27 Mean age (years): 27.8±5.1 Overweight/ Obese	4 months/ 0	Dietitian	8 group 2.5-hour sessions led by a WIC nutritionist and co-led by a peer and followed by two telephone contracts.	4 Mo -2.1±3.7[j, q] P=0.04			
Ruggiero, Oros et al.,	69 Mean age	6 months/	A commun-	Culturally specific information on	6 Mo -2.2±4.4[j, q]			

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
2011[48]	(years): 37.86±8.52 Prediabetic/ Overweight	6 months	ity resident or CHW	diabetes risk delivered in a small group format with supplemental educational materials in Spanish.	P=0.016 12 Mo -1.3±5.1[j, q] P=0.0649			
Benyshek, Chino et al., 2013[50]	12 Mean age (years): 39 Overweight/ Range of HbA1c is 35 mmol/mol to 64 mmol/mol from a whole blood capillary blood sample.	4 months/ 8 months	Native lifestyle coaches	A 16-week intensive interventions included weight-loss curriculum, meal planning, fat gram and calorie counting, portion size and food content education.	4 Mo -5.79%[m] P=0.010	4 Mo -0.39%[m] P=0.502		
Cha, Kim et al., 2014[56]	15 Mean age (years): 24.4±2.2 Prediabetic/ IFG	4 months/ 0	RD	A 12-week weekly intervention with each participants' reported weekly dietary and exercise habits via handheld device and/or Web site log-in and	3 Mo -0.13[j] p=0.031	3 Mo 0.39[j] P=0.112		3 Mo -0.76[j] p=0.007

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
				individualized phone counsel.				
Kaholokula, Wilson et al., 2014[58]	239 Mean age (years): 50.8±14.3 Overweight	3 months/ 0	CHA	Translated lessons from the original DPP-LI lessons on economical healthy eating and communicating effectively with the doctor.	3 Mo -1.7±3.5[j] P<0.01			
Kramer, Miller et al., 2014[59]	68 Mean age (years): 52.9 Overweight/ obese/Prediab-etic/Metabolic syndrome	3 months/ 9 months	Trained diabetes educators	12 weekly 1-hour sessions conducted by the trained diabetes educator with the completion of home assignments.	4 Mo -5.9±10.3[j] P<0.001 12 Mo -5.6±2.5[j] P<0.001	4 Mo -3.6±12.5[j] P=0.04 12 Mo -4.7±14.7[j] P=0.009		

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Sepah, Jiang et al., 2014[60]	220 Mean age (years): 43.6±12.4 Prediabetic/Overweight	4 months/ 8 months	Profess-ional health coach	The DPP lifestyle intervention in an online small-group format with participants ' communication via a private online social network.	12 Mo Core participants: -4.9±0.5[j, q] P<0.001 Post-core participants: -5.1±0.5[j, q] P<0.001			12 Mo Core participants: -0.37±0.07 p<0.0001 Post-core participants: 0.40±0.07 p<0.0001
Tang, Nwankwo et al., 2014[61]	11 Mean age (years): 60±12 Overweight/ ADA score≥10	2 months/ 3 months	Peer lifestyle coaches	6 group-based face-to-face sessions delivered by peer over 8 weeks and 6 biweekly telephone support calls over a period of 12 weeks.	2 Mo -1.6±2.7[j, q] 5 Mo -1.2±2.7[j, q]			
Brokaw, Carpenedo et al., 2015[62]	3804 Mean age (years) 52.5±11.9 Overweight/ Prediabetic/IGT /IFG	4 months/ 6 months	RD	10 diabetes self-management education (DSME) programs, two DSME programs in collaboration with their local YMCA	4 Mo -6.2±5.2[j]	4 Mo Age<65 -2.5±7.2[j] P<0.001 Age≥65 -4.8±7.7[j] P<0.001		
Non-US studies with RCT design								

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Eriksson, Lindström et al., 1999[64]	212 (112+100) Mean age IG: 54 ±7 CG: 52 ±7 Overweight/IGT	12months/ 0	Dietitian	IG: frequent face-to-face dietary advice tailored to each subject individually and also in group sessions by a nutritionist. CG: dietary advice by verbal and written information at annual follow-up visits.	12 Mo IG: -4.7±5.5[j] CG: -0.9±4.1[j] P<0.001	12 Mo IG: 0±14.4[j, x] CG: 5.4±10.8[j, x] P<0.01	12 Mo IG: -16.2±28.8[j, x] CG: -5.4±39.6[j, x] P<0.05	
Wein, Beischer et al., 1999[65]	193 (97+96) Mean age (years) IG: 39.5 CG:37.8 IGT	51 months /0	Dietitian	IG: Participants were given the same dietary advice, in addition, telephone was arranged 3-monthly. CG: The control group were given dietary questionnaires and the standard diet advice sheet.		BL CG:100.9 (99, 104.4)[x] IG: 99 (97.2, 102.6)[x] 51 Mo CG: 109.8 (104.4, 113.4)[x] IG: 102.6 (100.8, 106.2)[x] P=0.13	BL CG: 176.4 (174.6, 180)[x] IG: 178.2 (174.6, 180)[x] 51 Mo CG: 178.2 (171, 187.2)[x] IG: 176.4 (167.4, 185.4)[x] P=0.71	
Tuomilehto, Lindström	506 (256+250)	12 months/	Staff members	IG: tailored advices on diet and physical	12 Mo CG:-0.8±3.7[j]	12 Mo CG: 1±12[j]		

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
et al., 2001[24]	Mean age (years) 55 IGT	38 months		activity about how to achieve the goals of the intervention. CG: general oral and written information about diet and exercise at base line and at subsequent annual visits	IG: -4.2±5.1[j] P<0.001	IG: -4±12[j] P<0.001		
Lindstrom, Louheranta et al., 2003[66]	434 (231+203) Mean age (years) CG: 55 ±7 IG: 55 ±7 Overweight/IGT	12 months /36 months	Dietitian	IG: face-to –face consultation sessions with the study nutritionist with guide to increase level of physical activity. CG: general information about lifestyle and diabetes risk.	12 Mo CG: -1±3.7[j] IG: -4.5±5[j] P<0.0001	12 Mo CG:0±0.7[j] IG: -0.2±0.7[j] P<0.0001	12 Mo CG: -0.3±2.2[j] IG: -0.9±1.9[j] P=0.0001	12 Mo CG: 0.1±0.6[j] IG: -0.1±0.7[j] P=0.0003

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Watanabe, Yamaoka et al., 2003[67]	358 (102+256) Mean age (years): 55 1-h PG ≥10 mmol/l	12 months /0	Research staff	IG: information of reducing weight to the desirable level based on "Food Exchange Lists, Dietary Guidance for persons with Diabetes" CG: Subjects were told to avoid gaining weight by dieting and exercise.		12 Mo CG:2.2%±0.9[m] IG: -0.5%±0.9[m] P=0.153	12 Mo CG: 11.2%±3[m] IG: -8.2%±1.9[m] P<0.001	
Kosaka, Noda et al., 2005[68]	358 (102+256) Initial BMI no mean age A fasting plasma glucose value <140 mg/dl and 2-h plasma glucose value after a 100g glucose load of 160-239	12 months /48 months	Research staff	IG: reduction of weight to the desirable level based on "Food Exchange Lists, Dietary Guidance for persons with Diabetes". CG: no gain in weight by dieting and exercise.		48 Mo CG: -0.39[j] IG: -2.18[j]		

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
	mg/dl.							
Lindstrom, Ilanne-Parikka et al., 2006[69]	522 (265+257) Mean age (years) 55 Overweight/IGT	12 months /38 months	Dietitian	IG: detailed and individualized personal counselling sessions with the study nutritionist. CG: general verbal and written health behavior information at baseline	BL CG: 86.7 IG: 85.5 P=0.3267 12 Mo CG: 84.8 IG: 82.2 P<0.001			
Oldroyd, Unwin et al., 2006[70]	54 (30+24) Mean age (years) CG: 57.5 IG: 58.2 IGT	6 months/ 18 months	Dietitian	IG: written nutrition education material and a graded physical activity plan. CG: no dietary or physical activity	6 Mo CG: 0.54±2.2[j] IG: -1.1±2.9[j] P=0.010	6 Mo CG: 3.24±19.8[j, x] IG: 0.9±10.8[j, x] P=0.560	6 Mo CG: -9±30.6[j, x] IG: -9.9±34.2[j, x] P=0.910	

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
				advice for the duration of the study.				
Barclay, Procter et al., 2008[74]	28 (17+11) Mean age (years) CG: 62.3 IG: 67.5 Overweight/ Prediabetic	6 months / 0	Nutrition scientist	IG: diet messages based on the Harvard diet pyramid. CG: standard healthy-eating and dietary advice based on the UK Food Standard Agency's guidelines for a healthy diet.	6 Mo CG: -0.3±1.36[j] IG: -2.73±3.15[j] P=0.03	6 Mo CG: 4.5±12.1[j] IG: -0.36±8.28[j] P=0.049		
Penn, White et al., 2009[77]	102 (51+51) Mean age (years) CG: 57.4 IG: 56.8 Overweight/IGT	3 months/ 60 months	Dietitian and physio-therapist	IG: advice from a dietitian and physiotherapist with some group sessions and a regular quarterly newsletter. CG: 'usual care' by their primary care physician.	12 Mo CG: 0.01[j] IG: -2.3[j] P=0.007			
Kang, Cho et al., 2010[78]	125 (25+25+75) Mean age	3 months/ 24	Experien-ced staff and	1-year IG: 5 times of 20-30 min of face-to-face counseling based	12 Mo CG: -0.27±2.13[j]			12 Mo CG: 0.27±0.65[j]

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
	(years) CG: 47.47 ±5.79 1-year IG: 45.61 ±6.06 2-year IG: 45.84 ±5.17 FPG ≥5.6 mmol	months	dietitian	on the participant's health profiles. 2-year IG: same as the 1-year IG, but lasts for 2 years CG: general information on health at baseline	IG: -0.32±1.36 [j] 24 Mo CG: -0.27±2.13[j] -0.86±1.92 [j]			IG: -0.13±0.71[j] 24 Mo CG: 0.27±0.65[j] IG: -0.15±0.69[j]
Pimentel, Portero-Mclellan et al., 2010[80]	51 (21+30) Mean age (years) CG: 59.8±9.2 IG: 51.7±14.5 Overweight/IGT	12 months / 0	Dietitian	IG: individual and group counselling with a team of nutritionists and written instructions. CG: no nutritional education	BL CG: 76±15 IG: 70.65±17 12 Mo CG: 76.2±16.2 p=0.43 IG: 68.2±17.6 p<0.00001	BL CG: 91.7±18.3 IG: 105±21.6 12 Mo CG: 90.2±28.9 p=0.72 IG: 90.8±14.2 p=0.03		BL CG: 6.5±1.8 IG: 6.7±1.8 12 Mo CG: 7±2 p=0.23 IG: 5.1±1.2 p=0.006
Moore, Hardie et al., 2011[82]	274 (183+91) Mean age (years): 62.5 Family history of diabetes/IGT	6 months/ 0	General practitio-ner	IG: one pre-course individual session and six sessions over 6 months CG: a wait group for the HLC with standard care.	BL CG: 82.02±16.27 IG: 80.7±16.01 6 Mo CG:81.2 ±17.39	BL CG: 106.4±10.44 IG: 105.7±10.44 6 Mo CG:	BL CG: 145.4±32.04 IG: 152.5±25.02 6 Mo CG:	

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
					IG: 78.11 ±14.98	106.02±15.48 IG: 101.88±14.76	143.64±48.2 IG: 140.22±41.6	
Nilsen, Bakke et al., 2011[83]	182 (93+89) Mean age (years) 46 FINDRISC-score[y] ≥ 9	6 months/ 18 months	Study physician	IG: a group-based program, one day each week for six weeks and a new gathering after 12 weeks. CG: usual care from general practitioner.	BL CG: 111.7±22 IG: 110.5±22 18 Mo CG: 108.7±23 p<0.001 IG: 108±20 P<0.001	BL CG: 99±14.4 IG: 100.8±14.4 18 Mo CG: 100.8±12.6 p=0.69 IG: 104.4±21.6 p=0.08		BL CG: 5.6±0.4 IG: 5.6 ±0.5 18 Mo CG: 5.6±0.4 p=0.11 IG: 5.6±0.5 p=0.29
Roumen, Feskens et al., 2011[84]	147 (74+73) Mean age (years) CG: 58.8 ±8.4 IG: 55 ±6.5 IGT	12 months / 60 months	Research-er and/or dietitian	IG: dietary recommendations based on the Dutch guidelines for a healthy diet. CG: standard care.	BL CG: 84.08±12.06 IG: 86.83±13.24 12 Mo CG: 83.47±11.38 IG: 84.36±13.18	BL CG: 106.6±12.6 IG: 108.2±15.12 12 Mo CG: 106.9±11.52 IG: 107.3±15.8	BL CG: 158.4±37.62 IG: 159.3±36.18 12 Mo CG: 158.22±40.5 IG: 148.3±36.7	

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Sakane, Sato et al., 2011[85]	296 (150+146) Mean age (years) CG: 51± 6 IG: 51 ±7 IGT	6 months/ 36 months	Study nurse	IG: Four group sessions using slides, video tapes and a booklet with each session lasting two or three hours. CG: only one group session on prevention of diabetes at the baseline.	BL CG: 63.9±11.7 IG: 64.9±12.9 12 Mo CG: 63.1±11.7 IG: 63.5±12.9 P=0.023	BL CG: 109.8±9 IG: 106.2±9 12 Mo CG: 106.2±10.8 IG: 104.4±10.8 P=0.698	BL CG: 162±16.2 IG: 165.6±16.2 12 Mo CG: 149.4±36 IG: 144±37.8 P=0.083	
Salas-Salvadó, Bulló et al., 2011[86]	418 (139+145+134) Age range: 55-80 Overweight/ Family history of premature cardiovascular disease	12 months / 48 months	Dietitian	IG1: MedDiets with extra virgin olive oil IG2: MedDiets with mixed nuts with personalized dietary advice by dietitian. CG: Low-fat control diet on cardiovascular and other chronic disease.	60 Mo IG1: -0.2±4.6[j] IG2: -0.6±4.2[j] CG: -0.6±4.3[j]			

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Vermunt, Milder et al., 2012[88]	925 (479+446) Age range (years) 40-70 FINDRISC-score≥13	6 months/ 0	General practition-er and dietitian	IG: 11 consultations of 20 min over 2.5 years alternatively with the nurse practitioner and the general practitioner. CG: oral and written information about T2D and healthy lifestyle.	6 Mo CG:-0.5±3.0[j] IG: -0.8±3.3[j] 18 Mo CG: -0.3±4.5[j] IG: -0.6±5.1[j]	6 Mo CG: -1.8±7.2[j] IG: -1.44±7.4[j] 18 Mo CG: -1.44±8.28[j] IG: -0.09±7.38[j]	6 Mo CG: -2.52±26.8[j] IG: -0.72±24.7[j] 18 Mo CG: 3.06±28.08[j] IG: 2.16±26.8[j]	
Admiraal, Vlaar et al., 2013[89]	355 (177+158) Mean age (years) 44.9 ±10.1 IGT/IFG	6 months/ 6 months	Trained dietitians	IG: six to eight sessions in the first 6 months with two booster sessions in the next 6 months. CG: Two group sessions led by student dietitians.	12 Mo CG: 0.4±3.1[j] IG: -0.2±3.3[j] P=0.08	12 Mo CG: -9±14.4[j] IG: -9±16.2[j] P=0.66		12 Mo CG: 0±0.4[j] IG: 0±0.3[j] P=0.99
Sangeetha, Fatimah et al., 2013[90]	62 (29+33) Mean age (years) CG: 31.5 ±4.5 IG: 30.9 ±4.3 History of gestational diabetes	6 months / 0	Research dietitian	IG: glycemic index (GI)-education, how to substitute high GI foods with low GI options. CG: conventional healthy dietary recommendation.	BL IG: 65.3±11.5 CG: 64.6±12.5 3 Mo IG: 64.6±11.5 CG: 64.7±12.6 6 Mo IG: 64±11.7			

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
					CG:64.5±13			
Telle-Hjellset, Raberg Kjollesdal et al., 2013[91]	198 (101+97) Mean age (years) CG: 42 IG: 41 Metabolic syndrome	7 months/ 0	Research personnel	IG: six 2-hour educational sessions on the benefits of light physical activity CG: feedback on blood sugar levels with lifestyle advice in one single group session.			7 Mo CG: -3.96 (-9.9, 1.98)[j] IG: -9.54 (-15.12, -3.78)[j] P=0.186	7 Mo CG: 0.05 (-0.04, 0.15)[j] IG: 0.04 (0, 0.09)[j] P=0.878
Xu, Sun et al., 2013[92]	88 (46+42) Mean age (years) IG: 60.35±9.8 CG: 56.55±8.6 BMI≥ 18.5 kg/m^2/fasting plasma glucose of 5.6-6.9 mmol/l	3 months/ 9 months	Study dietitian	IG: a daily meal replacement and intensive lifestyle intervention. CG: an educational lecture on balanced diet, regular exercise and how to control blood glucose.	12 Mo CG: -0.55±0.4[j] IG: -1.75±0.35[j] P=0.02	12 Mo CG: 6.84±1.62[j] IG: -2.16± 1.8[j] P=0.001	12 Mo CG: 15.3±15.48[j] IG: -22.32± 6.3[j] P=0.02	12 Mo CG: 0.07±0.08[j] IG: -0.12±0.04[j] P=0.02

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Bhopal, Douglas et al., 2014[93]	171(85+86) Mean age (years) CG: 52.2 ±10.3 IG: 52.8 ±10.2 IGT/IFG	3 months/ 36 months	Dietitian	IG: consultation with a dietitian throughout the study. Families had 15 visits from a dietitian over 3 years. CG: standardized written and verbal advice.	36 Mo -1.64 [u] (-2.83, -0.44) P=0.01	36 Mo -2.34[u] (-7.02, 2.34) P=0.3361	36 Mo -10.08 [u] (-23.76, 3.42) P=0.1428	
Parker, Byham-Gray et al., 2014[96]	81 (43+38) Mean age (years) IG: 51.1 ±12.36 CG: 49.61 ±15.6 Overweight/IFG	3 months/ 3 months	RD	IG: medical nutrition therapy based on the American Diabetes Association Standards Medical Care by a registered dietitian nutritionist. CG: usual care		3 Mo IG: -1.66±17.16[j] CG: -1.97±17.67[j] P=0.94		
Dawes, Ashe et al., 2015[98]	56(33+23) No mean age A1C is between 5.7% to 6.4%/ Fasting blood glucose is between 6.1 to 6.9	6 months /0	Lifestyle change facilitators	IG: Facilitators made telephone calls twice per months for 6 months to aid the participants in forming attaining goals according to intervention manual. CG: Usual care was	6 Mo IG:-3.4±3.1[j] CG: -0.3±1.8 [j]			6 Mo IG: -0.07±0.21 [j] CG: 0.03±0.24 [j]

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
	mmol/L/2-hour 75 g oral glucose is between 7.8 to 11.0 mmol/l			offered.				
Schmiedel, Mayr et al., 2015[99]	1092(530+562) Mean age (years): 57.5 ±11.3 FINDRISC-score ≥ 7	12 months / 0	Pharma-cists	IG: three individual counseling sessions and five group-based lectures lasted 75–90 min (program GLICEMIA). CG: Only assessment and information about health status was provided.	12 Mo IG:-1.52±3.84[j] CG: 0.11±3.58[j]			
Non-US studies with QED design								
Absetz, Valve et al., 2007[71]	352 Mean age (years) Female: 58 ±4.3 Male : 59 ±3.7	12 months / 0	Public health nurses	Information on self-monitoring of behavior, goal setting and planning with group discussions facilitated by nurses or a physiotherapist.	BL Female: 86±13.2 Male: 100±18.1 12 Mo Female:	BL Female: 100.8±14.4 Male: 106.2±12.6 12 Mo Female:	BL Female: 117±30.6 Male: 124.2±32.4 12 Mo Female:	

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
	The diabetes risk score ≥ 12				85.5±13.3 Male: 98.5±18.1	102.6±12.6 Male: 109.8±14.4	118.8±34.2 Male: 122.4±41.4	
Kilkkinen, Heistaro et al., 2007[72]	248 Mean age (years) 57.4 The diabetes risk score ≥ 12	12 months / 0	Trained study nurses and dietitian	Six group counseling sessions of dietary and physical activity guidance facilitated by trained study nurses, a dietitian and a physiotherapist.	3 Mo -2.254[j] P=0.001	0.005[j,x] P<0.386		
Laatikainen, Dunbar et al., 2007[73]	311 Mean age (years) 56.7 ±8.7 Diabetes Risk Score ≥12	8 months/ 4 months	Study nurses and dietitians	Six structured 90-minute group sessions over 8 months using the Health Action Process Approach.	3 Mo -2.38[j] (-2.79, -1.98) 12 Mo -2.52[j] (-3.19, -1.85)	3 Mo 0[j] (-1.26, 1.44) 12 Mo -2.52[j] (-3.6, -1.26)	12 Mo -10.44[j] (-14.2, -6.48)	

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Botomino, Bruppacher et al., 2008[75]	1370 Mean age (years) 59.9± 11 Overweight	3 months/ 12 months	Pharma-cists	IG: intensive individualized advices on weight reduction, nutrition habits and physical activity. CG: Standard interventions.	BL CG: 77.9±10.4 IG: 83.6±11.5 12 Mo CG: 76.8±10.6 p<0.001 IG: 81.2±11.5 p<0.001			
Absetz, Oldenburg et al., 2009[76]	352 Mean age (years) Female: 58 ±4.3 Male : 59 ±3.7 Diabetes Risk Score ≥12	8 months/ 36 months	Public health nurses	Information on self-monitoring of behavior, goal setting and planning with group discussions facilitated by nurses or a physiotherapist.	36 Mo -0.5±2.1[j] P=0.002	36 Mo 0±14.4[j] P<0.001	36 Mo 1.8±34.2[j]	
Makrilakis, Liatis et al., 2010[79]	191 Mean age (years) 56.3 ±10.8 FINDRISC-score ≥15	12 months / 0	RD	Six sessions held by a RD at the area of the participants' residence or work.	12 Mo 1±4.7[j] P=0.022			

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Gilis-Januszewska, Szybinski et al., 2011[81]	175 Middle-aged FINDRISC-score≥14	4 months/ 8 months	Trained nurses	10 group sessions on lifestyle changes, diet and physical activity education. Six telephone motivation sessions and two motivation letters were followed.	12 Mo 1.92±5.01[j] P<0.05	12 Mo -1.98±12.96[j]	12 Mo -5.58±42.3[j]	
Kontogiannni, Liatis et al., 2012[87]	112 (71+41) Mean age (years) 56.3±10.8 FINDRISC-score ≥9	12 months /0	RD	6 group-based sessions offered by a RD at the area of the participants' residence or work.	12 Mo Improved group (IG): -1.73±5.2[j] p=0.007 Worsened group(WG): 0.24±4.0[j] p=0.704	12 Mo IG: -3.41±12.7[j] p=0.027 WG: 4.13±38.8[j] p=0.505	12 Mo IG: -2.65±32.2[j] p=0.49 WG: 15.53±70.8[j] p=0.173	
Duijzer, Haveman-Nies et al., 2014[94]	31 Mean age (years) 54.1 ±8.5 IFG	10 months /0	Dietitian	Tailored dietary advices during individual consultations and one group session.	10 Mo -3.5±5.4[j] P=0.005	10 Mo 5.4±14.4[j] P=0.062		

Reference[a]	Sample size, mean age, and diabetes risk criteria	Active & mainten-ance phases	Delivery Agent	Intervention description	Weight (kg)	FBG[b] (mg/dl)	2-h BG[c] (mg/dl)	HbA1c[d] (%)
Dunbar, Jayawardena et al., 2014[95]	3114 Mean age (years) 61.3 ± 0.1 AUSDRISK-score [z] ≥ 12	8 months / 0	Trained facilitator	A group-course six-session intensive for 8-15 people followed by sixth intervention session at 8 months after the first session.	BL 86.5±0.3 8 Mo 84.2±0.3 P<0.001			
Weir, Johnson et al., 2014[97]	45 Mean age (years) 58.6 ±8.2 Prediabetic	6 months/ 0	Dietitian	A 3-hour dietitian-led pre-diabetes education session on how to prevent or delay type 2 diabetes.	BMI (kg/m^2)[ǂ] BL: 31.6±6.7 3 Mo: 31.6±7.2 6 Mo: 31.0±6.9 P=0.798			

[a] Each study is identified by author and year.
[b] FBG=Fasting blood glucose
[c] 2-h BG=2-hour blood glucose
[d] HbA1c=Hemoglobin A1c
[e] RCT=Randomized control trial
[f] sample size of intervention group+ sample size of control group
[g] IG=Intervention group
[h] CG=Control group
[i] Mo=month
[j] Change in outcome over time.
[k] BMI=body mass index
[l] ADA score=American Diabetes Association (ADA) risk assessment score
[m] Percent change is reported in the study
[n] IVR=Interactive voice response
[o] Prediabetes is defined as fasting blood glucose between 100 to125 mg/dl

[p] BL= baseline
[q] Pound is converted to kilogram
[r] IGT=Impaired glucose tolerance
[s] RD=Registered dietitian
[t] CHW=Community health worker
[u] Between-group difference
[v] QED=Quasi-experimental design
[w] CHA=Community health advocates
[x] mmol/l is converted to mg/dl.
[y] FINDRISC=Finnish Diabetes Risk score
[z] AUSDRISK=The Australian diabetes risk tool
[ǂ] Only BMI is reported.

Supplementary Table 4. The effectiveness of lifestyle intervention including nutrition education for diabetes prevention: mean difference (intervention group compared to control group) in outcomes by subgroups (delivery agent and delivery channel)

Outcome	3 months		6 months		12 months		13-60 months	
Delivery Agent								
	Dietitian	Non-dietitian	Dietitian	Non-dietitian	Dietitian	Non-dietitian	Dietitian	Non-dietitian
Weight	-3.46*** (-4.88, -2.03)[a]	-2.85*** (-4.13, -1.56)	-2.91** (-5.44, -0.38)	-2.14*** (-2.67, -1.61)	-1.90*** (-2.73, -1.06)	-2.23*** (-2.99, -1.46)	-1.47** (-2.36, -0.58)	-0.68**[b] (-1.20, -0.17)
FBG[c]	-2.12 (-4.78, 0.55)	-3.72*** (-4.85, -2.58)	-2.32[b,d] (-7.00, 2.36)	-4.59*** (-7.65, -1.54)	-2.84*** (-3.10, -2.58)	-1.57 (-3.20, 0.07)	-2.17** (-3.12, -1.23)	0.43[d] (-1.07, 1.94)
2-h BG[e]	-	-	-	-	-9.73 (-21.52, 2.06)	-2.98 (-7.42, 1.47)	-3.70***[b,d] (-7.14, -0.26)	0.73[d] (-3.07, 4.52)
HbA1c[f]	-	-0.13[d] (-0.67, 0.41)	-	0.00[b] (-0.01, 0.01)	-0.27*** (-0.47, -0.07)	-0.15 (-0.30, 0.01)	-0.23[d] (-0.33, -0.12)	-
Delivery Channel								
	IP[g]	TECH[h]	IP	TECH	IP	TECH	IP	TECH
Weight	-3.30*** (-4.60, -1.99)	-2.83*** (-4.66, -1.00)	-2.41*** (-3.43, -1.39)	-2.83*** (-4.57, -1.09)	-1.89*** (-2.43, -1.35)	-2.69*** (-4.49, -0.90)	-1.17** (-1.95, -0.39)	-0.74[d] (-1.53, 0.05)
FBG	-3.11*** (-4.97, -1.24)	-2.28 (-7.68, 3.11)	-4.22*** (-6.89, -1.55)	-	-1.91 (-2.95, -0.87)	-3.89*** (-6.46, -1.32)	-2.01** (-3.54, -0.48)	-
2-h BG	-	-	-0.27 (-3.54, 3.00)	-	-6.83 (-17.18, 3.52)	-9.59[d] (-14.6, -4.62)	-2.77[b,d] (-7.14, 1.61)	-
HbA1c	-	-0.13[d] (-0.67, 0.41)	0.00 (-0.01, 0.01)	-	-0.14***[b,d] (-0.23, -0.04)	-	-0.17[d] (-0.37, 0.02)	-

[a] The 95% confidence intervals are in the parenthesis.
[b] Indicates that fixed-effect model was used to calculate the summary mean difference in outcomes.
[c] FBG=Fasting blood glucose
[d] The number of studies is less than 4.
[e] 2-h BG=2-hour blood glucose
[f] HbA1c=Hemoglobin A1c
[g] IP=In-person intervention

[h] TECH=Technology-delivered intervention with/without in-person contact.
[*]Statistical significance at 10% level
[**]Statistical significance at 5% level.
[***]Statistical significance at 1% level.
- Insufficient data for analysis

Supplementary Table 5. The effectiveness of lifestyle intervention including nutrition education for diabetes prevention: effect sizes according to study design (randomized controlled trial vs quasi-experimental design) and study location (US vs Non-US) over time, in the active intervention and overall (active + maintenance study phases)

Outcome	3 months		6 months		12 months		13-60 months	
Active Intervention Phase								
Study Design								
	RCT[a]	QED[b]	RCT	QED	RCT	QED	RCT	QED
Weight	-0.37*** (-0.64, -0.09)[c]	-0.2*** (-0.26, -0.14)	-1.02*** (-1.95, -0.08)	-0.07***[d] (-0.08, -0.07)	-0.45*** (-0.65, -0.26)	-0.04** (-0.08, -0.01)	-	-
FBG[e]	-0.33*** (-0.55, -0.11)	-0.22*** (-0.41, -0.03)	-0.86 (-2.37, 0.65)	-	-0.87 (-1.82, 0.08)	0.05 (-0.17, 0.28)	-	-
2-h BG[f]	-	-	-0.03 (-0.14, 0.09)	-	-2.17 (-5.45, 1.11)	0.02 (-0.05, 0.1)	-	-
HbA1c[g]	-0.11[h] (-0.84, 1.07)	-	-0.16 (-0.37, 0.04)	-	-0.69[d, h] (-1.52, 0.14)	-	-	-
Study Location								
	US	NON-US	US	NON-US	US	NON-US	US	NON-US
Weight	-0.24*** (-0.29, -0.18)	-0.19*** (-0.32, -0.07)	-1.21*** (-2.56, 0.13)	-0.39*** (-0.6, -0.17)	-0.19*** (-0.28, -0.09)	-0.07*** (-0.09, -0.05)	-	-
FBG	-0.35*** (-0.51, -0.2)	0.03 (-0.05, 0.11)	-1.28 (-3.93, 1.36)	-0.2 (-0.51, 0.11)	-	-0.35 (-0.78, 0.08)	-	-
2-h BG	-	-	-	-0.03 (-0.14, 0.09)	-	-0.95 (-2.06, 0.16)	-	-
HbA1c	-0.61**[d] (-0.77, -0.46)	-	-0.22[d,h] (-0.55, 0.11)	-0.13[d,h] (-0.39, 0.13)	-	-0.69[d,h] (-1.52, 0.14)	-	-

Outcome	3 months		6 months		12 months		13-60 months	
Overall Intervention Phase								
Study Design								
	RCT	QED	RCT	QED	RCT	QED	RCT	QED
Weight	-0.37***d (-0.64, -0.09)	-0.2*** (-0.25, -0.14)	-0.93*** (-1.61, -0.24)	-0.07*** (-0.08, -0.07)	-0.45*** (-0.58, -0.32)	-0.13*** (-0.19, -0.07)	-0.18*** (-0.36, -0.01)	-
FBG	-0.33***d (-0.55, -0.11)	-0.25** (-0.44, -0.06)	-0.86 (-2.37, 0.65)	-1.21***h (-1.96, -0.47)	-0.53*** (-0.89, -0.17)	-0.11 (-0.29, 0.06)	-0.15***d (-0.23, -0.07)	-
2-h BG	-	-	-0.03 h (-0.14, 0.09)	-	-1.25 (-2.82, 0.32)	0.02 (-0.03, 0.08)	-0.13*** (-0.22, -0.04)	-
HbA1c	-0.11 (-0.84, 1.07)	-	-0.16 h (-0.37, 0.04)	-	-0.4*** (-0.62, -0.18)	-	-0.29 (-0.59, 0.01)	-
Study Location								
	US	NON-US	US	NON-US	US	NON-US	US	NON-US
Weight	-0.24*** (-0.29, -0.18)	-0.18*** (-0.28, -0.09)	-0.85*** (-1.3, -0.4)	-0.21*** (-0.3, -0.13)	-0.34*** (-0.48, -0.21)	-0.23*** (-0.29, -0.17)	-0.49*** (-0.74, -0.24)	-0.05*** (-0.17, 0.07)
FBG	-0.37*** (-0.52, -0.23)	0.03h h (-0.05, 0.11)	-1.29 (-3.47, 0.88)	-0.2 (-0.51, 0.11)	-0.37*** (-0.57, -0.17)	-0.28*** (-0.54, -0.03)	-	-0.09**h (-0.16, -0.02)
2-h BG	-0.20 h (-0.96, 0.55)	-	-	-0.03 d,h (-0.14, 0.09)	-0.22 d,h (-0.68, 0.23)	-0.68*** (-1.32, -0.04)	-	-0.06 h (-0.14, 0.01)
HbA1c	-0.61** (-0.77, -0.46)	-	-0.22 h (-0.55, 0.11)	-0.13 h (-0.39, 0.13)	-0.15*** (-0.20, -0.10)	-0.44** (-0.74, -0.13)	-	-0.28 h (-0.43, 0.13)

[a] RCT=Randomized control trial

[b] QED=Quasi-experimental design
[c] The 95% confidence intervals are in the parenthesis.
[d] Indicates that fixed-effect model was used to calculate the summary mean difference in outcomes.
[e] FBG=fasting blood glucose
[f] 2-h BG=2-hour blood glucose
[g] HbA1c=hemoglobin A1c
[h] The number of studies is less than 4.

*Statistical significance at 10% level
**Statistical significance at 5% level.
***Statistical significance at 1% level.
- Insufficient data for meta-analysis

Supplementary Table 6. The effectiveness of lifestyle intervention including nutrition education for diabetes prevention: mean difference (intervention group compared to control group) in outcomes by subgroups (design and locations)

Outcome	3 months		6 months		12 months		13-60 months	
Design								
	RCT[a]	QED[b]	RCT	QED	RCT	QED	RCT	QED
Weight	-1.74*** (-3.06, -0.41)[c]	-3.98*** (-5.21, -2.75)	-2.66*** (-4.02, -1.31)	-2.38*** (-2.54, -2.22)	-1.89*** (-2.52, -1.26)	-2.38*** (-3.46, -1.30)	-1.21*** (-1.97, -0.46)	-
FBG[d]	-4.39***e,f (-6.93, -1.85)	-2.72*** (-4.60, -0.84)	-3.32*** (-6.11, -0.54)	-4.41**e (-6.28, -2.53)	-3.22*** (-4.55, -1.88)	-1.36 (-3.23, 0.52)	-2.04** (-3.78, -0.30)	-
2-h BG[g]	-	-	-0.27[e] (-3.54, 3.00)	-	-14.05***e (-22.74, -5.37)	1.02[e, f] (-1.00, 3.04)	-3.88***e (-7.13, -0.64)	-
HbA1c[h]	-0.03**e (-0.46, -0.40)	-	0.00 (-0.01, 0.01)	-	-0.14 (-0.23, -0.04)	-	-0.17[e] (-0.37, 0.02)	-
Location								
	US	Non-US	US	Non-US	US	Non-US	US	Non-US
Weight	-3.55*** (-4.72, -2.38)	-1.84*** (-2.47, -1.22)	-3.06*** (-4.60, -1.53)	-1.82*** (-2.57, -1.06)	-2.79*** (-3.98, -1.60)	-1.58*** (-2.04, -1.12)	-3.41*** (-4.34, -2.48)	-0.55*** (-1.07, -0.03)
FBG	-3.65*** (-4.83, -2.48)	0.05[e,f] (-0.06, 0.17)	-4.50*** (-7.64, -1.36)	-2.48[e,f] (-6.24 1.29)	-3.16*** (-5.00, -1.31)	-1.76*** (-3.30, -0.22)	-	-1.01**f (-1.87, -0.15)
2-h BG	-	-	-	-0.27[e,f] (-3.54, 3.00	-8.00[e, f] (-24.40, 8.40)	-19.96** (-20.88, -19.05)	-	-1.70[f] (-4.25, 0.85)
HbA1c	-0.18[e] (-0.61, 0.25)	-	-0.52[e] (-0.19, 0.08)	-0.05[e,f] (-0.13, 0.03)	-0.17*** (-0.32, -0.01)	-0.26*** (-0.47, -0.04)	-	-0.17[e] (-0.37, 0.02)

[a] RCT=Randomized control trial
[b] QED=Quasi-experimental design
[c] The 95% confidence intervals are in the parenthesis.
[d] FBG=Fasting plasma glucose
[e] The number of studies is less than 4.
[f] Indicates that fixed-effect model was used to calculate the summary mean difference in outcomes.

[g] 2-h BG=2-hour blood glucose
[h] HbA1c=Hemoglobin A1c
[*]Statistical significance at 10% level
[**]Statistical significance at 5% level.
[***]Statistical significance at 1% level.
- Insufficient data for analysis

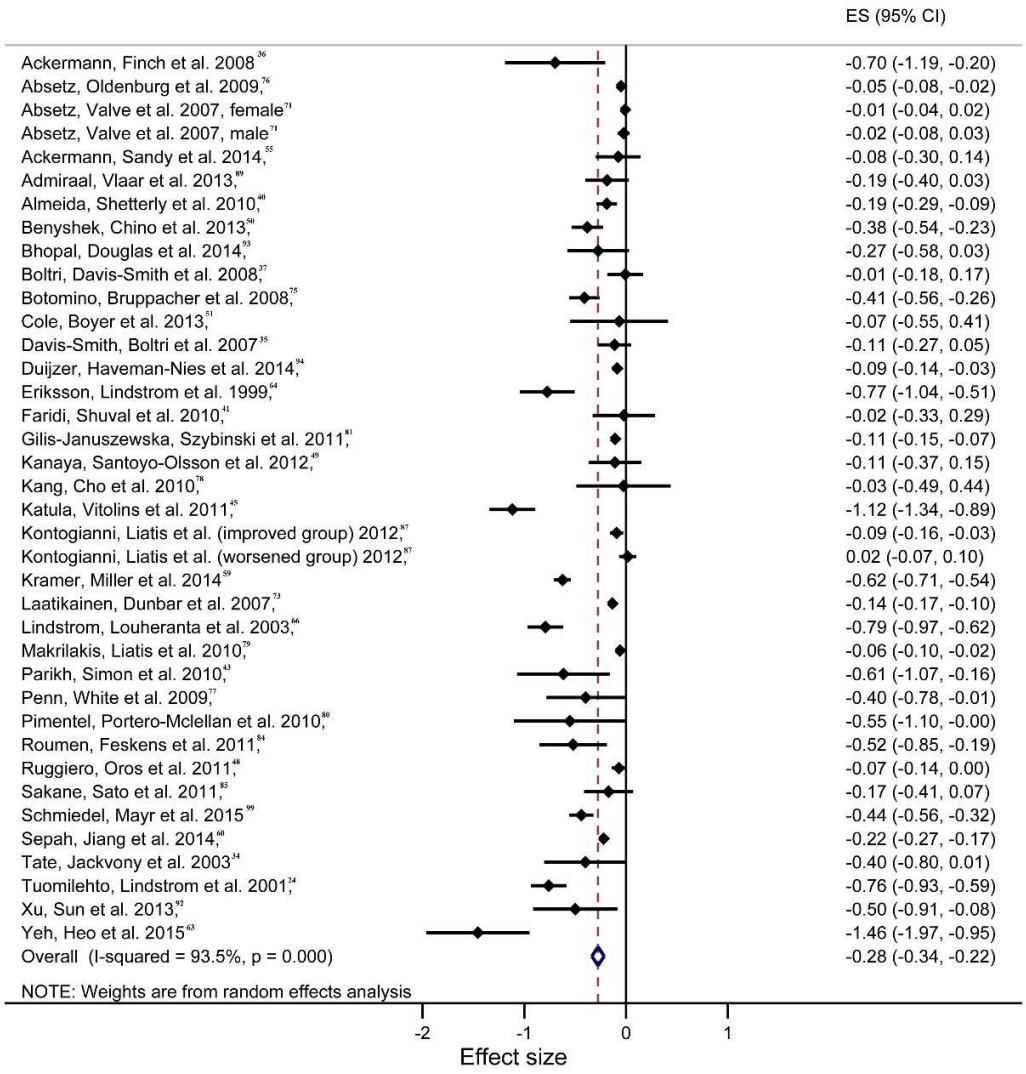
Supplementary Table 7. The effectiveness of lifestyle intervention including nutrition education for diabetes prevention: Study quality rating results

Reference	Relevance Questions[a]	Validity Questions[b]										Quality
		1	2	3	4	5	6	7	8	9	10	
Tate, Jackvony et al. 2003,	Yes	Yes	Yes	Yes	Yes	Unc[c]	Yes	Yes	Yes	Yes	Yes	+
Davis-Smith, Boltri et al. 2007,	Yes	Yes	unc	No	Yes	No	Yes	unc	unc	Yes	Yes	0
Ackermann, Finch et al. 2008,	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	Yes	+
Boltri, Davis-Smith et al. 2008,	Yes	Yes	unc	No	No	Yes	Yes	Yes	Yes	Yes	Yes	0
Estabrooks and Smith-Ray 2008,	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Amundson, Butcher et al. 2009	Yes	Yes	Yes	N/A[d]	unc	unc	Yes	Yes	Yes	Yes	unc	0
Almeida, Shetterly et al. 2010,	Yes	Yes	Yes	Yes	Yes	Yes	unc	unc	Yes	Yes	Yes	+
Faridi, Shuval et al. 2010,	Yes	Yes	Yes	Yes	Yes	unc	unc	Yes	Yes	Yes	Yes	+
Kramer, Kriska et al. 2010,	Yes	Yes	Yes	No	Yes	unc	Yes	Yes	unc	Yes	Yes	+
Parikh, Simon et al. 2010,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	+
Vadheim, McPherson et al. 2010,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	unc	unc	Yes	Yes	+
Katula, Vitolins et al. 2011,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	+
Kramer, McWilliams et al. 2011,	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	+
Rosal, Lemon et al. 2011,	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	Yes	Yes	+
Ruggiero, Oros et al. 2011,	Yes	Yes	Yes	unc	unc	Yes	Yes	Yes	unc	Yes	Yes	+
Kanaya, Santoyo-Olsson et al. 2012,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	+
Benyshek, Chino et al. 2013,	Yes	unc	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	0
Cole, Boyer et al. 2013,	Yes	Yes	unc	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Islam, Zanowiak et al. 2013,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	+
Katula, Vitolins et al. 2013,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	+

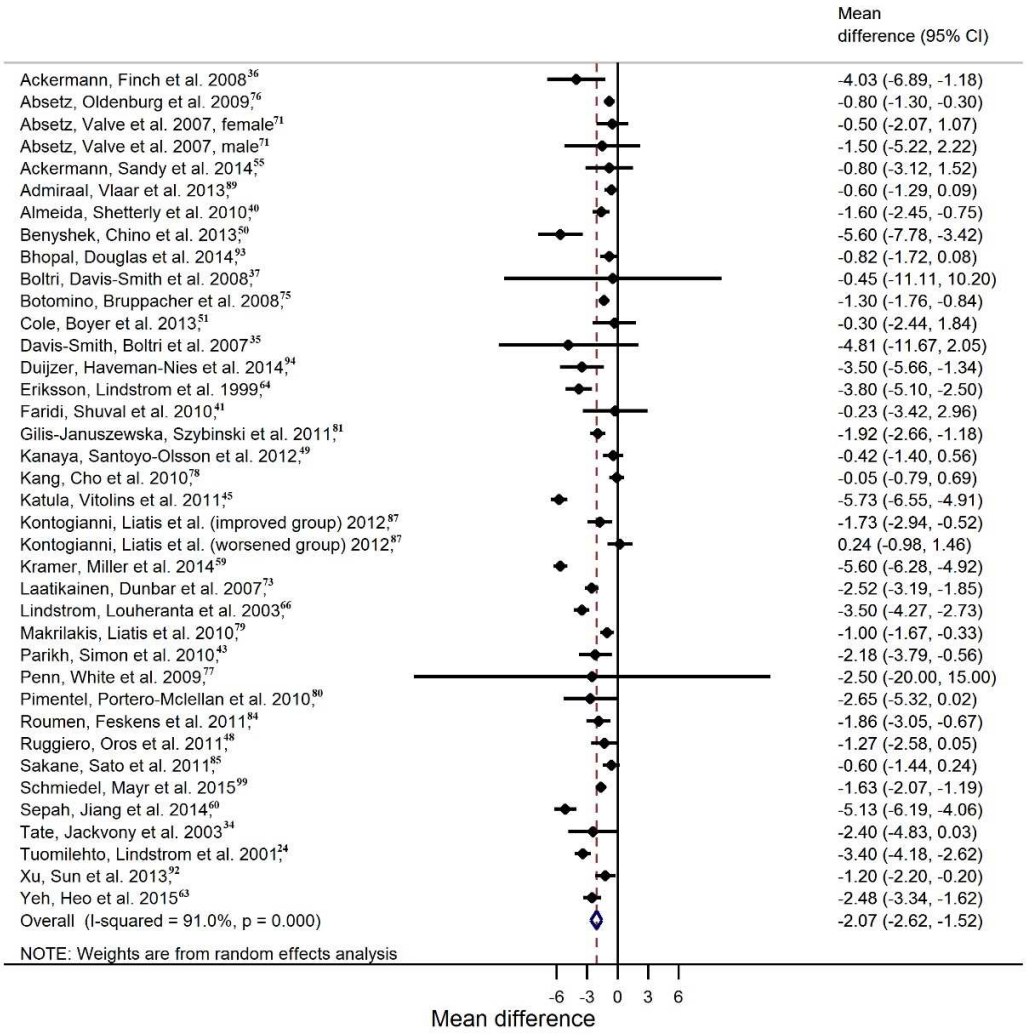
Reference	Relevance	Validity Questions[b]										Quality
Ma, Yank et al. 2013,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	+
Xiao, Yank et al. 2013,	Yes	Yes	Yes	unc	Yes	Yes	Yes	unc	Yes	Yes	Yes	+
Ackermann, Sandy et al. 2014,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	+
Cha, Kim et al. 2014,	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	0
Islam, Zanowiak et al. 2014,	Yes	Yes	Yes	unc	unc	unc	Yes	Yes	unc	Yes	Yes	0
Kaholokula, Wilson et al. 2014,	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	+
Sepah, Jiang et al. 2014,	Yes	Yes	No	No	unc	unc	Yes	unc	Yes	Yes	unc	0
Tang, Nwankwo et al. 2014	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	+
Brokaw, Carpenedo et al. 2015	Yes	Yes	Yes	N/A	Yes	Yes	Yes	unc	Yes	Yes	Yes	+
Fukuoka, Gay et al. 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	+
Yeh, Heo et al. 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	+
Eriksson and Lindgärde 1991	Yes	Yes	No	Yes	Yes	unc	Yes	unc	unc	unc	unc	0
Eriksson, Lindström et al. 1999	Yes	Yes	Yes	Yes	Yes	unc	Yes	unc	Yes	unc	unc	+
Wein, Beischer et al. 1999	Yes	Yes	Yes	Yes	unc	unc	Yes	Yes	unc	Yes	unc	0
Tuomilehto, Lindström et al. 2001	Yes	Yes	Yes	Yes	unc	unc	Yes	Yes	Yes	Yes	unc	+
Lindstrom, Louheranta et al. 2003	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	unc	Yes	unc	+
Watanabe, Yamaoka et al. 2003	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	unc	+
Kosaka, Noda et al. 2005	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	unc	+
Lindström, Ilanne-Parikka et al. 2006	Yes	Yes	Yes	Yes	unc	unc	Yes	Yes	Yes	Yes	Yes	+
Oldroyd, Unwin et al. 2006	Yes	Yes	Yes	Yes	unc	unc	Yes	Yes	Yes	Yes	unc	+
Absetz, Valve et al. 2007	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	unc	+
Kilkkinen, Heistaro et al. 2007	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	unc	Yes	unc	+
Laatikainen, Dunbar et al. 2007	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	unc	unc	Yes	+
Barclay, Procter et al. 2008	Yes	Yes	Yes	Yes	unc	unc	Yes	Yes	unc	Yes	Yes	+
Botomino, Bruppacher et al. 2008	Yes	Yes	Yes	Yes	unc	unc	Yes	Yes	Yes	Yes	unc	+
Absetz, Oldenburg et al. 2009	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	unc	Yes	+

Reference	Relevance	Validity Questions[b]										Quality
Penn, White et al. 2009	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	unc	unc	+
Kang, Cho et al. 2010	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Makrilakis, Liatis et al. 2010	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Pimentel, Portero-Mclellan et al. 2010	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Gilis-Januszewska, Szybinski et al. 2011	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	unc	unc	unc	0
Moore, Hardie et al. 2011	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	Yes	Yes	unc	+
Nilsen, Bakke et al. 2011	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Roumen, Feskens et al. 2011	Yes	Yes	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	Yes	+
Sakane, Sato et al. 2011	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Salas-Salvadó, Bulló et al. 2011	Yes	Yes	Yes	Yes	unc	No	Yes	Yes	Yes	Yes	Yes	+
Kontogianni, Liatis et al. 2012	Yes	Yes	Yes	unc	unc	unc	Yes	Yes	Yes	Yes	Yes	+
Vermunt, Milder et al. 2012	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	unc	unc	+
Admiraal, Vlaar et al. 2013	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Sangeetha, Fatimah et al. 2013	Yes	Yes	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	Yes	+
Telle-Hjellset, Raberg Kjollesdal et al. 2013	Yes	Yes	Yes	Yes	Yes	unc	Yes	Yes	unc	Yes	Yes	+
Xu, Sun et al. 2013	Yes	Yes	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	Yes	+
Bhopal, Douglas et al. 2014	Yes	Yes	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	Yes	+
Duijzer, Haveman-Nies et al. 2014	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Dunbar, Jayawardena et al. 2014	Yes	Yes	Yes	unc	Yes	unc	Yes	unc	Yes	unc	Yes	0
Parker, Byham-Gray et al. 2014	Yes	Yes	Yes	Yes	Yes	unc	Yes	unc	unc	unc	Yes	0
Weir, Johnson et al. 2014	Yes	Yes	Yes	unc	Yes	unc	Yes	unc	Yes	Yes	Yes	+
Dawes, Ashe et al. 2015	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	Yes	Yes	Yes	+
Schmiedel, Mayr et al. 2015	Yes	Yes	Yes	Yes	Yes	unc	Yes	unc	Yes	Yes	Yes	+

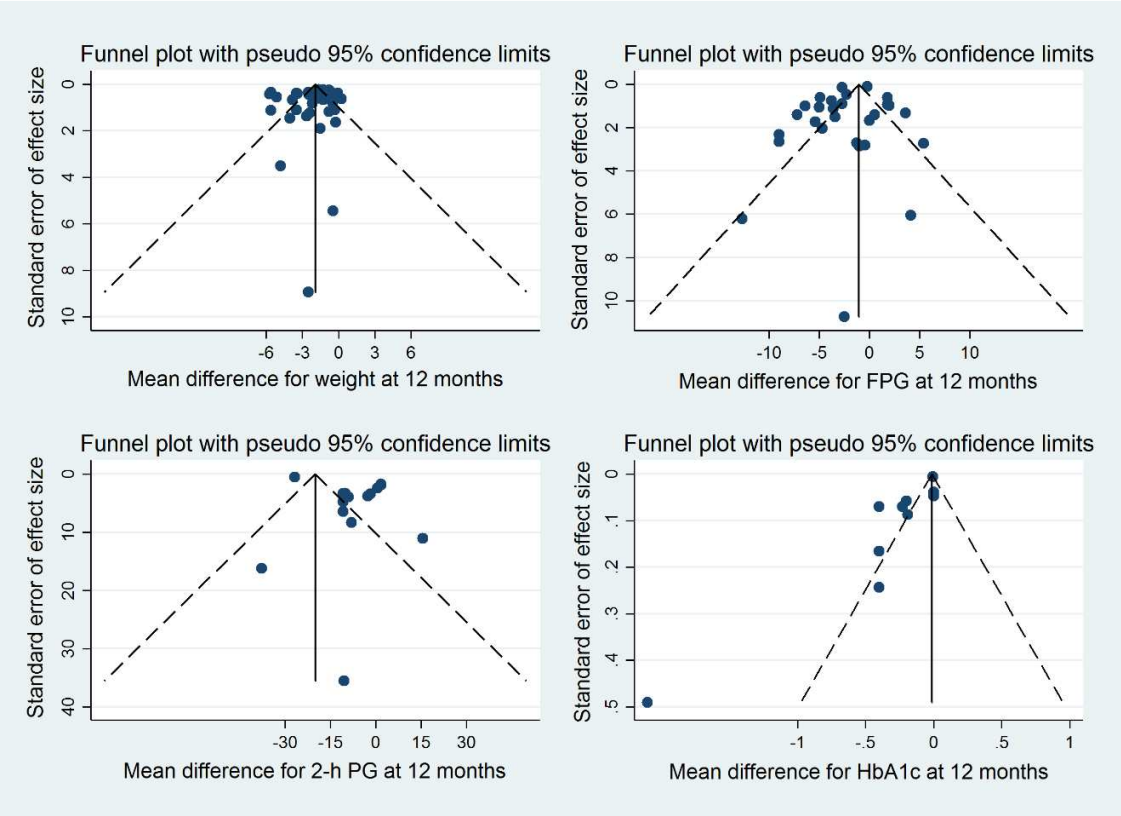
[a] Four relevance questions (e.g., “Is the intervention or procedure feasible?”) are included in the Quality Criteria Checklist. Available at: https://www.uwgb.edu/laceyk/NutSci486/EA%20Quality%20Criteria%20Checklists.doc
[b] Ten validity questions (e.g., “Was the research question clearly stated?”, “Were study groups comparable?”) are included in the Quality Criteria Checklist. Available at: https://www.uwgb.edu/laceyk/NutSci486/EA%20Quality%20Criteria%20Checklists.doc
[c]Unc=unclear;
[d]N/A=not available.
Note: Kappa-statistic (a measure of inter-rater reliability score) is 0.67, indicating substantial amount of agreement between the two raters. Results from one rater are reported in the table.



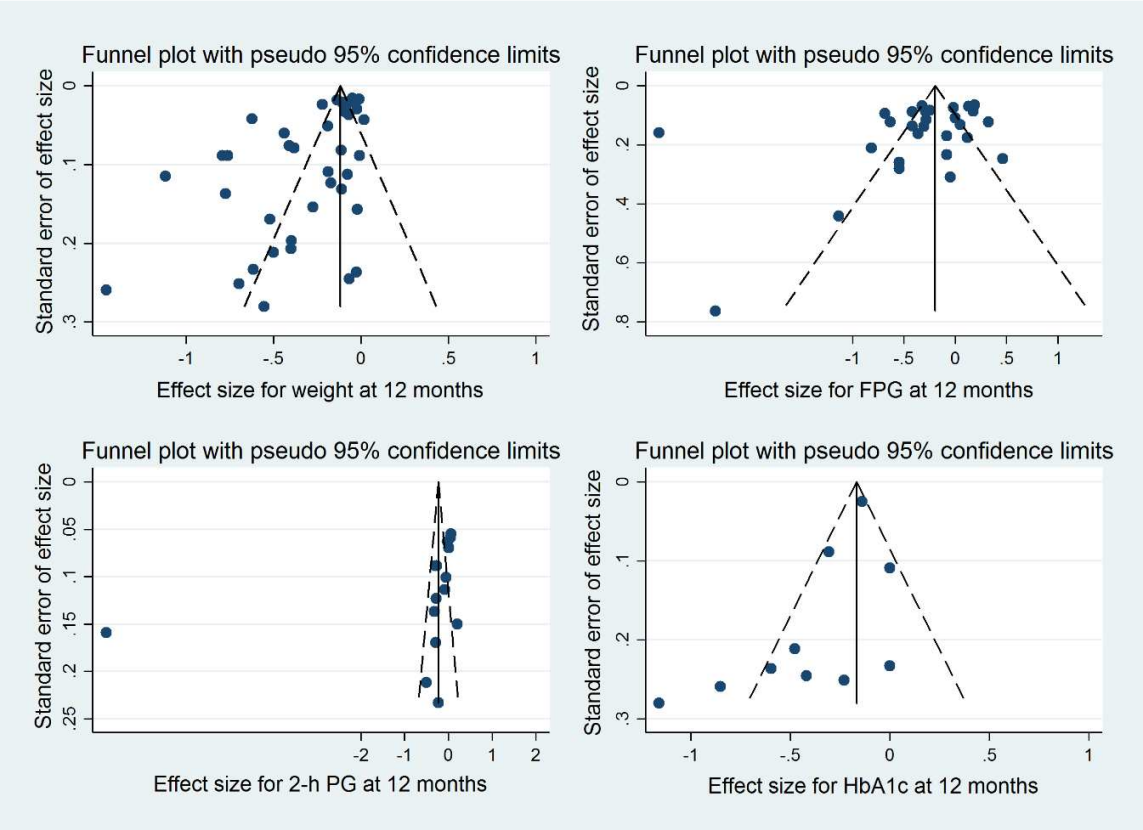
Supplementary Figure 1. Forest plot for the overall summary effect size for weight change at 12 months. Each study is identified by author and year. Horizontal lines represent the effect size for each study. The whiskers extending to each side represent the study effect's 95% CI. The diamond indicates the overall mean difference.



Supplementary Figure 2. Forest plot for the overall summary mean difference relative to control group for weight change (in kg) at 12 months. Each study is identified by author and year. Horizontal lines represent the mean difference for each study. The whiskers extending to each side represent the study mean difference's 95% CI. The diamond indicates the overall mean difference.



Supplementary Figure 3. Funnel plots for risk of publication bias: mean difference for weight, fasting and 2-hour blood glucose (BG), and HbA1c at 12 months against the SE. Scatter dots represent individual studies, dashed diagonal lines indicates pseudo 95% confidence interval.



Supplementary Figure 4. Funnel plots for risk of publication bias: effect size in weight, PBG, 2-h BG and HbA1c at 12 months against the SE. Scatter dots represent individual studies, dashed diagonal lines indicates pseudo 95% confidence interval.