Supplemental Table S1. Example search strategy, MEDLINE.

1. Aerobic train$.tw.

2. Behav$ Modif$.tw.

3. Behav$ therap$.tw.

4. Cognitive$ therap$.tw.

5. counsel$.ti.

6. Health$ Educ$.tw.

7. Health$ Promot$.tw.

8. Health$ behav$.tw.

9. Educat$ program$.tw.

10. Patient Educ$.tw.

11. (Diet$ adj2 Intervention$).tw.

12. (Diet$ adj2 Modif$).tw.

13. Food habit$.tw.

14. (Health$ adj2 Eating).tw.

15. (Nutrition$ adj2 Counselling).tw.

16. (Nutrition$ adj2 Therap$).tw.

17. (Exercis$ adj2 intervention$).tw.

18. Physical Exercise.tw.

19. (Exercis$ adj2 therap$).tw.

20. Physical endurance.tw.

21. Physical education.tw.

22. Physical Fitness.tw.

23. Physical Activit$.tw.

24. Physical Train$.tw.

25. Resistance Train$.tw.

26. Strength Train$.tw.

27. (Lifestyle adj2 advice).tw.

28. (Lifestyle adj2 Guid$).tw.

29. (Lifestyle adj2 Modif$).tw.

30. Lifestyle Program$.tw.

31. Weight control$.tw.

32. Weight Train$.tw.

33. Weight reduc$.tw.

34. Weight loss program$.tw.

35. weight loss.tw.

36. (Weight adj loss adj program$).tw.

37. (lifestyle adj2 intervention).tw.

38. Sport$.tw.

39. walk$.tw.

40. jog$.tw.

41. swim$.tw.

42. cycle$.tw.

43. Bicycle$.tw.

44. exp Health Promotion/

45. exp Program Evaluation/

46. exp Patient Education as Topic/

47. exp Diet Therapy/

48. exp Nutrition Therapy/

49. exp Exercise Therapy/

50. exp Diet, Reducing/

51. (diabet$ adj4 lessen$).tw.

52. (diabet$ adj5 (reduc$ adj4 risk$)).ti,ab.

53. (diabet$ adj4 (lower$ adj5 incidence$)).ti,ab.

54. (diabet$ adj4 (decreas$ adj5 risk$)).ti,ab.

55. (diabet$ adj4 (reduc$ adj5 incidence$)).ti,ab.

56. (diabet$ adj4 (decreas$ adj5 incidence$)).ti,ab.

57. (diabet$ adj4 (lower$ adj5 risk$)).ti,ab.

58. (diabet$ adj4 (delay$ adj5 onset$)).ti,ab.

59. (diabet$ adj4 (delay$ adj5 onset$)).ti,ab.

60. (diabet$ adj4 (reduc$ adj5 onset$)).ti,ab.

61. (diabet$ adj4 (reduc$ adj5 progress$)).ti,ab.

62. (diabet$ adj4 (decreas$ adj5 onset$)).ti,ab.

63. (risk$ adj4 develop$ adj4 diabet$).ti.

64. (reduc$ adj4 develop$ adj4 diabet$).ti,ab.

65. (decreas$ adj4 develop$ adj4 diabet$).ti,ab.

66. (diabet$ adj4 prevent$).tw.

67. (diabet$ adj4 reduc$).tw.

68. (diabet$ adj4 decreas$).tw.

69. (diabet$ adj4 lower$).tw.

70. (diabet$ adj4 lessen$).tw.

71. (diabet$ adj4 (reduc$ adj5 prevalence)).ti,ab.

72. (diabet$ adj4 (reduc$ adj5 progress$)).ti,ab.

73. (Diabet$ adj4 (decreas$ adj5 progress$)).ti,ab.

74. (diabet$ adj4 (lessen$ adj5 prevalence)).ti,ab.

75. (diabet$ adj4 (decreas$ adj5 prevalence)).ti,ab.

76. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50

77. 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75

78. Diabetes Mellitus, Type 2/pc [Prevention & Control]

79. exp Exercise/

80. exp Diet/

81. 79 or 80

82. 78 and 81

83. 76 and 77

84. OBSERVATIONAL.ti,ab.

85. RCT.ti,ab.

86. (RANDOMI$4 adj CONTROL adj TRIAL$).ti,ab.

87. Experimental studies.ti,ab.

88. (QUASI adj EXPERIMENTAL).ti,ab.

89. TRIAL$.ti,ab.

90. Time-series.ti,ab.

91. Cross-sectional.ti,ab.

92. Cross-sectional studies.ti,ab.

93. longitudinal study.ti,ab.

94. Clinical trial.ti,ab.

95. randomized.ab.

96. placebo.ab.

97. dt.fs.

98. randomly.ab.

99. trial.ab.

100. groups.ab.

101. (Before adj2 after).ab.

102. Cohort analy$.ab.

103. exp cohort studies/

104. (cohort adj (study or studies)).ab.

105. (cohort adj (study or studies)).ab.

106. (cohort adj (study or studies)).ab.

107. (follow up adj (study or studies)).ab.

108. Retrospective.ab.

109. 84 or 85 or 86 or 87 or 88 or 89 or 90 or 91 or 92 or 93 or 94 or 95 or 96 or 97 or 98 or 99 or 100 or 101 or 102 or 103 or 104 or 105 or 106 or 107 or 108 or 109

110. 82 or 83

111. 109 and 110

112. animal/ not (animal/ and human/)

113. 111 not 112

114. limit 113 to english language

115. limit 114 to yr=1998-current

Supplemental Table S2. Coding of intervention content in relation to guideline recommendations.

1. Aim to promote changes in both diet and physical activity.	Yes /No (1,0)
2. Use established, well defined behaviour change techniques (e.g. Specific goal-setting, relapse prevention, self-monitoring, motivational interviewing, prompting self-talk, prompting practice, individual tailoring, time management).	Yes /No (1,0). Yes is scored if, as well as basic information provision, it includes ≥ 3 techniques from Table 14 in the IMAGE guideline (which provides definitions used by NICE and other reviewers), or from a recognised taxonomy of behaviour change techniques [Michie 2011].
3. Work with participants to engage social support for the planned behaviour change (i.e. engage important others such as family, friends, and colleagues).	Yes /No (1,0). Yes is scored if participants are encouraged to identify and seek social support *outside* the group (i.e. in their day to day lives). Encouraging social support within the group in a group based intervention is not sufficient to code Yes.
4. Maximize the frequency or number of contacts with participants (within the resources available).	High /Medium /Low (2,1,0), based on median split of *total number of contacts* Structured PA (e.g. gym-based exercise) sessions that were offered have not been counted, as they are assumed not to involve a substantial interactive component. Written contacts (newsletters etc) were not counted.
5. Use a coherent set of 'self-regulatory' intervention techniques (Specific goal setting (ideally with coping planning aka 'relapse prevention'); Prompting self-monitoring; Providing feedback on performance; problem-solving; Review of behavioural goals).	Yes /No (1,0). Yes is scored if the intervention includes goal setting, self-monitoring (of outcomes or behaviours) and at least one other self-regulation technique (providing feedback on performance, problem-solving (relapse prevention), revising action plans in the light of performance)
6. Use a group size of 10-15. This recommendation is designed to balance cost and effectiveness, rather than to be an exact specified range, so we coded for "a group size of no more than 15" (the point at which effectiveness is expected to be diminished).	Yes /No (1,0). If a range was reported for group size (e.g. groups of 15-20), the mid-point of the range was used for coding purposes. If individual (one-to-one) intervention was used, then a Yes is coded (1 case).
7. Provide at least 16 hours of contact time over the first 18 months	Yes /No (1,0). Contact time is assumed to be 1 hour per group session if session-length is not stated (1 case) or 10 mins for a telephone contact (2 cases), 30 mins for an individual counselling session (1 case) and 15 mins for a GP visit (1 case).
8. Ensure programmes adopt a person-centred, empathy-building approach	Yes /No (1,0). Coded as Yes if it is explicitly stated that a person-centred, empathy-building or empowerment theory based approach was used throughout, or if motivational interviewing or other empathy-building techniques are specified
9. Allow time between sessions, spreading them over a period of 9-18 months	Yes /No (1,0)
10. Information provision: to raise awareness of the benefits of and types of lifestyle changes needed	Yes /No (1,0)
11. Exploration and reinforcement of participants' reasons for wanting to change and their confidence about making changes.	Yes /No (1,0)
12. Gradual building of confidence (self-efficacy) by starting with achievable and sustainable short-term goals and setting of graded tasks	Yes /No (1,0)
13. Use a logical sequence of intervention methods (e.g. Motivation, action-planning, maintenance)	Yes /No (1,0)
Total IMAGE guidance score	Possible maximum score of 6 points: 1 point for each Yes for items 1,2,3 and 5. For item 4, score 2 points for a High amount of contact, 1 point for a medium amount..
Total NICE guidance score	Possible maximum score of 12 points: IMAGE score (as above but without item 4, which overlaps with item 7) plus 1 point for each Yes for items 6 to 13
14. Intervention fidelity checking	We also coded whether the developers used specific methods to check intervention fidelity (e.g. monitoring the first 4 sessions and giving formative feedback).

Reference:
Michie S, Ashford S, Sniehotta FF, Dombrowski SU, Bishop A, French DP. A refined taxonomy of behaviour change techniques to help people change their physical activity and healthy eating behaviours: The CALO-RE taxonomy. *Psychol Health* 2011;26(11):1479-98.

Supplemental Table S3. Coding scores for study interventions in relation to guideline recommendations.

Criteria for coding intervention content	Absetz 2009 GOAL Trial	Ackerman 2008 DEPLOY	Almeida 2010 KPCO	Boltri 2008 DPP in faith based setting	Costa 2012 DE-PLAN Spain	Davis-Smith 2007	Faridi 2010 PREDICT	Gilis-Januszewska 2011 DE-PLAN Poland	Katula 2011 HELP PD	Kramer 2009 GLB 2005-2008	Kramer 2012 GLB 2009 CPC	Kramer 2012 GLB 2009 TPC	Kulzer 2009 PREDIAS	Laatikainen 2012 GGT Study	Makrilakis 2010 DE-PLAN Greece	Mensink 2003 SLIM study	Ockene 2012 Lawrence Latino DPP	Parikh 2010 Project HEED	Payne 2008 Payne et al	Penn 2009 Penn et al	Ruggerio 2011 Ruggerio et al	Saaristo 2010 FIN-D2D	Sakane 2011 Sakane et al	Yates 2009 PREPARE	Yates 2009 PREPARE + pedometer
1. Diet & physical activity	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
2. Established techniques	1	1	1	1	1	1	1	1	1	1	1	1	1	1	x	x	1	1	1	1	1	1	1	1	1
3. Engage social support	0	1	0	1	1	x	1	1	1	1	1	1	1	0	x	x	x	0	0	0	1	0	x	0	0
4. Maximised the frequency or number of contacts	0	2	0	2	1	0	x	2	2	1	2	2	1	0	0	0	2	1	2	1	2	1	0	0	0
Nº of contacts in 1yr (total nº if different)	6	23	1	16	10	6	x	16	41 (65)	12	21	21	12	6	6	5 (13)	16	8	13	8 (24)	22	8	6 (10)	3	3
Nº of physical activity sessions in 1yr	0	0	0	0	0	0	0	78	0	0	0	0	0	0	0	52	0	0	24	1	0	0	0	0	0
5. Self-regulatory intervention techniques	1	1	0	1	1	x	0	1	1	1	1	1	1	1	x	x	1	1	1	1	1	0	1	1	1
6. Group size ≤15	1	1	0	1	1	1	x	1	1	1	1	1	1	1	1	1	x	1	0	1	1	1	x	1	1
7. Contact time ≥16 hours	0	1	0	1	0	0	x	0	1	0	1	1	1	0	0	0	0	0	1	0	1	0	0	0	0
8. Person centred, empathy building approach	1	0	0	0	1	x	0	1	0	0	0	0	1	1	x	x	1	1	1	1	0	1	x	1	1
9. Sessions spread	0	1	0	0	1	0	x	1	1	0	1	1	1	0	1	1	x	0	1	1	1	0	1	0	0

10. Information provision	1	1	1	1	1	x	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11. Exploration & reinforcement of motivation	1	1	1	1	1	x	0	1	1	1	1	1	1	1	x	x	1	0	1	1	x	1	x	0	0
12. Building of confidence (self-efficacy)	1	1	0	1	0	x	0	1	1	1	1	1	0	1	x	x	1	0	1	1	x	1	x	1	1
13. Logical sequence of intervention methods	1	1	0	1	1	x	0	1	1	1	1	1	1	1	x	x	x	1	1	1	1	0	0	1	1
Total NICE score	**9**	**11**	**4**	**10**	**10**	**3**	**4**	**11**	**11**	**9**	**11**	**11**	**11**	**9**	**4**	**4**	**7**	**7**	**10**	**10**	**9**	**7**	**5**	**7**	**7**
NICE score without imputation	9	11	4	10	10	x	x	11	11	9	11	11	11	9	x	x	x	7	10	10	x	7	x	7	7
Total IMAGE score	**3**	**6**	**2**	**6**	**5**	**2**	**3**	**6**	**6**	**5**	**6**	**6**	**5**	**3**	**1**	**1**	**5**	**4**	**5**	**4**	**6**	**3**	**3**	**2**	**2**
IMAGE score without imputation	3	6	2	6	5	x	x	6	6	5	6	6	5	3	x	x	x	4	5	4	6	3	x	2	2
14. Intervention fidelity checking	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1

Abbreviations: IMAGE, Development and **Im**plementation of **a** European **G**uidelin**e** and Training Standards for Diabetes prevention; NICE, National Institute for Health and Clinical Excellence (*Preventing type 2 diabetes: Risk identification and interventions for individuals at high risk*).

(x) data missing/unknown

Total scores are with imputations: missing data replaced with zero, assumes that the recommendation was not met; For scores without imputations: missing data treated as unknown, guideline adherence score not computed;

Supplemental Table S4. Mean change (baseline to 12-months) in outcomes for body composition and glycaemic control.

Main reference	Weight, kg		BMI, kg/m^2		Waist, cm		HbA1c, % (mmol/mol)		Fasting glucose, mmol/l		2 hr glucose, mmol/l	
(Author and date)	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD
Absetz 2009	312	-0.8 ± 4.5	312	-0.3 ± 1.6	312	-1.6 ± 4.8	-	- - -	312	0.1 ± 0.6	312	0.1 ± 1.7
Ackerman 2008	29	-5.7 ± 5.2	29	-2.1 ± 2.1	-	- - -	29	-0.1 ± 0.4 (-1.1 ± 4.4)	-	- - -	-	- - -
Almeida 2010	760	-1.4 ± 3.5	-	- - -	-	- - -	-	- - -	-	- - -	-	- - -
Boltri 2008	8	-0.5 ± 4.9	8	-0.2 ± 2	-	- - -	-	- - -	8	-0.4 ± 0.2	-	- - -
Costa 2012	-	- - -	-	- - -	-	- - -	-	- - -	-	- - -	-	- - -
Davis-Smith 2007	10	-4.8 ± 11.5	10	-1.9 ± -	-	- - -	-	- - -	10	-0.55 ± 0.5	-	- - -
Faridi 2010	83	0.1 ± 11.8	83	-0.63 ± 6.72	-	- - -	-	- - -	-	- - -	-	- - -
Gilis-Januszewska 2011	175	-1.92 ± 5.01	175	-0.69 ± 1.9	175	-3.26 ± 6.11	-	- - -	175	0.11 ± 0.72	175	0.31 ± 2.35
Katula 2011	135	-7.0 ± 4.5	135	-2.29 ± 1.2	135	-5.61 ± 2.3	-	- - -	135	-0.25 ± 0.6	-	- - -
Kramer 2009	42	-4.2 ± 5.7	42	-1.6 ± 2.1	42	-7.1 ± 6.1	-	- - -	-	- - -	-	- - -
Kramer 2012 (CPC)	29	-4 ± 5	29	-1.5 ± 1.7	29	-5.59 ± 2.5	27	-0.16 ± 0.3 (-1.7 ± 3.3)	27	-0.29 ± 0.6	-	- - -
Kramer 2012 (TPC)	31	-2.6 ± 6.4	31	-0.9 ± 1.5	31	-4.32 ± 3	31	-0.1 ± 0.2 (-1.1 ± 2.2)	31	-0.05 ± 0.5	-	- - -
Kulzer 2009	91	-3.6 ± 5.1	91	-1.3 ± 1.7	91	-4.1 ± 6	91	0 ± 0.3 (0.0 ± 3.3)	91	-0.27 ± 0.7	91	-0.46 ± 1.89
Laatikainen 2012	221	-2.6 ± 5.2	237	-0.93 ± 1.9	220	-4.3 ± 5.3	-	- - -	221	-0.1 ± 0.5	232	-0.6 ± 1.7
Makrilakis 2010	125	-1 ± 4.7	125	-0.5 ± 2.1	125	-0.3 ± 6.8	-	- - -	125	-0.15 ± 0.69	125	0.03 ± 1.85
Mensink 2003	47	-2.7 ± 3.8	47	-0.9 ± 1.4	47	-3.5 ± 3.4	47	-0.2 ± 0.7 (-2.2 ± 7.7)	47	-0.1 ± 0.7	47	-0.8 ± 0.3
Ockene 2012	147	-1.1 ± 4.6	147	-0.4 ± 1.6	-	- - -	147	-0.1 ± 0.3 (-1.1 ± 3.3)	147	0.03 ± 0.7	-	- - -
Parikh 2010	35	-3.3 ± 3.3	-	- - -	35	-3.3 ± 6.6	35	-0.3 ± 0.2 (-3.3 ± 2.2)	35	0.62 ± 0.8	35	0.19 ± 2.1
Payne 2008	122	-4.1 ± 5.2	122	-1.46 ± 2	120	-4.68 ± 6.8	-	- - -	122	-0.15 ± 0.5	118	-0.34 ± 1.4

Study	n		n		n		n		n		n	
Penn 2009	39	-2.3 ± 5.1	-	- - -	-	- - -	-	- - -	-	- - -	-	- - -
Ruggerio 2011	57	-1.3 ± 5.1	57	-0.5 ± 2.03	55	-3.5 ± 6.2	-	- - -	-	- - -	-	- - -
Saaristo 2010	2798	-1.1 ± 5.6	2786	-0.4 ± 1.9	2709	-1.3 ± 5.6	-	- - -	-	- - -	-	- - -
Sakane 2011	146	-1.4 ± 4.1	123	-0.6 ± 1	123	-1.7 ± 2.2	-	- - -	123	-0.1 ± 0.6	123	-1.2 ± 1.8
Yates 2009 (PREPARE + pedometer)	29	0.49 ± 3.8	-	- - -	29	0.5 ± 3.8	-	- - -	29	-0.2 ± 0.5	29	-1.75 ± 2.2
Yates 2009 (PREPARE)	29	-0.54 ± 3.8	-	- - -	29	-0.5 ± 3.7	-	- - -	29	-0.03 ± 0.4	29	0.19 ± 1.7

Supplemental Table S5. Mean change (baseline to 12-months) in outcomes for lipids, blood pressure and incident diabetes.

Main reference	Total Cholesterol		LDL		HDL		Triglycerides		Systolic BP		Diastolic BP		T2DM
(First author and date)	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N	Mean ± SD	N / 1000 person-yrs
Absetz 2009	312	-0.1 ± 0.9	-	- - - -	312	0 ± 0.3	312	-0.07 ± 0.63	-	- - - -	-	- - - -	28.4
Ackerman 2008	29	-0.35 ± 0.8	-	- - - -	29	0.05 ± 0.2	-	- - - -	29	-1.6 ± 15.7	-	- - - -	-
Almeida 2010	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-
Boltri 2008	-	- - - -	-	- - - -	-	- - - -	-	- - - -	8	-8 ± 12.9	8	-8 ± 6.4	-
Costa 2012	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	46.0
Davis-Smith 2007	-	- - - -	-	- - - -	-	- - - -	-	- - - -	10	-13 ± 11.6	10	-19 ± 10.2	-
Faridi 2010	83	-0.62 ± 6.84	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-
Gilis-Januszewska 2011	175	-0.23 ± 1.16	-	- - - -	175	0 ± 0.32	175	-0.13 ± 1.14	175	-2.07 ± 14.4	175	-1.96 ± 9.01	-
Katula 2011	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-
Kramer 2009	41	-0.17 ± 0.57	-	- - - -	41	0.07 ± 0.21	-	- - - -	38	-13 ± 18	38	-4.3 ± 8.1	-
Kramer 2012 (CPC)	26	0.15 ± 1	26	0.22 ± 0.9	26	-0.01 ± 0.22	26	-0.08 ± 0.02	21	-4.2 ± 12	21	-5.9 ± 10.6	-
Kramer 2012 (TPC)	27	-0.08 ± 0.9	27	0.13 ± 0.8	27	-0.08 ± 0.3	27	-0.29 ± 0.02	27	-8.4 ± 17.6	27	-8.5 ± 11.2	-
Kulzer 2009	91	-0.26 ± 0.92	-	- - - -	91	-0.03 ± 0.18	91	-0.4 ± 1.54	91	-4.6 ± 19.1	91	-4.4 ± 11.7	-
Laatikainen 2012	221	-0.3 ± 0.9	229	-0.25 ± 0.7	221	0.1 ± 0.2	221	-0.2 ± 0.8	236	-1.01 ± 12.5	220	-2.3 ± 9.4	-
Makrilakis 2010	125	-0.37 ± 0.99	125	-0.39 ± 0.91	125	0 ± 0.07	125	0.03 ± 0.68	125	-6 ± -	125	1 ± -	-
Mensink 2003	40	0 ± 0.6	40	0.01 ± 0.5	40	-0.04 ± 0.1	40	-0.01 ± 0.5	-	- - - -	-	- - - -	-
Ockene 2012	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	12.9
Parikh 2010	-	- - - -	35	0.03 ± 0.9	-	- - - -	-	- - - -	35	-1 ± 13	35	-2 ± 9	360.0
Payne 2008	120	-0.23 ± 0.7	98	-0.21 ± 0.8	101	0.02 ± 0.2	120	-0.17 ± 0.6	119	-10.5 ± 19.2	119	-4.03 ± 10.5	8.2
Penn 2009	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	32.7
Ruggerio 2011	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-
Saaristo 2010	2480	-0.18 ± 0.82	2395	-0.18 ± 0.76	2453	0.03 ± 0.28	2443	-0.06 ± 0.83	2748	-1.54 ± 14.81	2748	-1.57 ± 8.57	58.9
Sakane 2011	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	-	- - - -	25.3
Yates 2009 (PREPARE + pedometer)	29	-0.04 ± 0.81	-	- - - -	29	-0.03 ± 0.2	29	0.03 ± 0.6	29	-0.4 ± 13.3	-	- - - -	-
Yates 2009 (PREPARE)	29	-0.02 ± 0.55	-	- - - -	29	0 ± 0.2	29	0.08 ± 0.7	29	-2.5 ± 16.3	-	- - - -	-

Supplemental Table S6: Study quality

	Checklist criteria	Absetz 2009	Ackerman 2008	Almeida 2010	Boltri 2008	Costa 2012	Davis-Smith 2007	Faridi 2010	Gilis-Januszewska	Katula 2011	Kramer 2009	Kramer 2012	Kulzer 2009	Laatikainen 2012	Makrilakis 2010	Mensink 2003	Nilsen 2011	Ockene 2012	Parikh 2010	Payne 2008	Penn 2009	Ruggerio 2011	Saaristo 2010	Sakane 2011	Vermunt 2011	Yates 2009
1.1	Source population or area well described	+	++	+	++	+	++	++	++	+	++	++	+	+	++	++	+	++	++	++	+	++	+	+	++	+
1.2	Eligible population or area representative	++	++	+	+	++	+	+	+	++	+	+	+	+	+	+	++	++	++	++	+	++	++	+	++	+
1.3	Selected participants or areas representative	++	++	++	+	++	++	+	+	++	+	+	+	++	+	++	+	+	++	+	++	+	+	++	++	+
2.1	Allocation: selection bias minimised	NA	+	NR	NA	+	NA	+	NA	++	NA	+	++	NA	NA	++	++	++	++	NA	++	NA	NA	+	+	++
2.2	Interventions (& comparisons) well described & appropriate	++	++	+	++	++	+	+	++	++	++	++	++	++	+	+	+	++	++	++	++	+	++	+	+	++
2.3	Allocation concealed	NA	NA	NA	NA	−	NA	NA	NA	NA	NA	+	++	NA	NA	++	++	NR	NA	NA	++	NA	NA	+	NA	++
2.4	Participants &/or investigators blinded	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2.5 Exposure to intervention & comparison adequate	NA	++	NR	NA	NR	NA	+	NA	++	NA	++	+	NA	NA	++	++	+	++	NA	++	NA	NA	++	++	++
2.6 Contamination acceptably low	NA	++	NR	NA	++	NA	++	NA	++	NA	++	++	NA	NA	++	++	++	++	NA	++	NA	NA	++	++	++
2.7 Other interventions similar in groups	NA	++	NR	NA	++	NA	++	NA	++	NA	++	+	NA	NA	++	++	++	++	NA	++	NA	NA	++	++	++
2.8 All participants accounted for at study conclusion	++	+	++	++	+	++	+	++	++	+	++	+	+	+	+	++	++	+	++	+	++	NA	++	++	++
2.9 Setting reflects usual UK practice	++	++	+	++	++	++	++	++	++	++	++	+	++	++	+	+	++	++	+	+	++	++	++	++	+
2.10 Intervention or control reflects usual UK practice	++	++	++	++	++	++	++	++	++	++	+	+	++	++	+	++	++	++	+	+	++	++	++	++	++
3.1 Outcome measures reliable	++	+	+	+	++	+	++	++	++	++	++	++	++	++	++	++	++	+	++	++	++	++	++	++	++
3.2 Outcome measures complete	++	++	++	++	++	++	+	++	++	++	++	++	++	+	++	++	+	++	++	+	++	++	++	++	++
3.3 All important outcomes assessed	++	++	+	++	+	++	+	++	++	++	++	++	++	++	++	++	++	++	++	+	++	++	++	++	++
3.4 Outcomes relevant	++	++	NA	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++
3.5 Similar follow-up times in groups	NA	++	++	NA	++	NA	++	NA	++	NA	++	++	NA	NA	++	++	++	++	NA	++	NA	NA	++	++	++

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
3.6	Follow-up time meaningful	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++
4.1	Groups similar at baseline	NA	++	NR	NA	++	NA	+	NA	++	NA	++	++	NA	NA	++	++	++	++	NA	++	NA	NA	++	++	++
4.2	ITT analysis conducted	NR	+	NR	++	++	++	+	++	+	++	++	++	+	+	++	+	+	++	++	++	+	NR	++	+	+
4.3	Study sufficiently powered	NR	NR	NR	NR	++	NR	++	NR	++	++	++	++	+	NR	+	++	NR	NR	++	NR	NR	NR	++	++	++
4.4	Estimates of effect size given or calculable	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++
4.5	Analytical methods appropriate	++	++	++	+	++	+	++	++	++	++	+	+	+	++	++	+	++	+	+	+	++	++	+	++	++
4.6	Precision of intervention effects given or calculable	++	++	++	+	++	+	++	++	+	++	++	++	++	++	++	+	++	++	++	++	++	++	+	++	++
5.1	**Study results internally valid (i.e. unbiased)**	++	++	+	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++
5.2	**Findings generalizable to source population (i.e. externally valid)**	++	++	+	+	++	++	+	+	++	+	+	+	+	+	++	+	++	++	++	+	++	+	+	++	+

Supplemental Table S7. Pooled effects for intervention groups showing change from baseline to 12 months.

Outcome	N Study groups	Pooled effect	95% CI	P-value	I^2	Publication bias p-value
Weight, kg	24	-2.31	-2.92, -1.72	<0.001	93.3%	0.005
BMI, kg/m^2	18	-0.96	-1.27, -0.66	<0.001	95.7%	0.077
Waist circumference, cm	17	-3.17	-4.14, -2.19	<0.001	97.2%	0.167
HbA1c, %	7	-0.13	-0.22, -0.05	0.002	86.7%	0.706
HbA1c, mmol/mol	7	-1.4	-2.4, -0.5	0.002	86.7%	0.706
Fasting glucose, mmol/l	17	-0.10	-0.19, -0.02	0.017	87.4%	0.374
2 hour glucose, mmol/l	11	-0.38	-0.69, -0.07	0.017	93.4%	0.195
Total cholesterol, mmol/l	15	-0.18	-0.24, -0.13	<0.001	42.5%	0.881
LDL cholesterol, mmol/l	8	-0.14	-0.24, -0.05	0.003	73.0%	0.384
HDL cholesterol, mmol/l	14	0.01	-0.01, 0.03	0.344	83.7%	0.607
Triglycerides, mmol/l	12	-0.11	-0.20, -0.01	0.024	99.3%	0.641
Systolic blood pressure, mmHg	14	-4.30	-6.11, -2.49	<0.001	77.9%	0.017
Diastolic blood pressure, mmHg	11	-4.28	-5.70, -2.86	<0.001	84.5%	0.004
Incident diabetes per 1000 person-years*	8	33.9	22.2, 51.8	<0.001	73.2%	0.095

*NB not change from baseline.
Abbreviations: CI, confidence interval; BMI, body mass index; HbA1c, glycated haemoglobin; LDL, low density lipoprotein; HDL, high density lipoprotein

Supplemental Table S8. Meta-regression results for change from baseline to 12 months.

Variable	N study groups	Explanatory variable	Effect (95% CI)	P value
BMI	19	NICE	-0.12 (-0.23, -0.01)	0.028
(kg/m$^{2)}$)	-	IMAGE	-0.16 (-0.32, 0.01)	0.063
Waist circumference	17	NICE	-0.52 (-0.88, -0.16)	0.007
(cm)	-	IMAGE	-0.80 (-1.24, -0.37)	0.001
HbA1c	7	NICE	0.02 (-0.02, 0.06)	0.203
(%)	-	IMAGE	0.03 (-0.04, 0.10)	0.348
HbA1c	7	NICE	0.2 (-0.2, 0.7)	0.203
(mmol/mol)	-	IMAGE	0.3 (-0.4, 1.1)	0.348
Fasting glucose	17	NICE	-0.00 (-0.05, 0.05)	0.995
(mmol/l)	-	IMAGE	-0.00 (-0.07, 0.07)	0.923
2 hour glucose	11	NICE	0.07 (-0.09, 0.24)	0.351
(mmol/l)	-	IMAGE	0.11 (-0.15, 0.37)	0.367
Total cholesterol	15	NICE	-0.01 (-0.04, 0.03)	0.680
(mmol/l)	-	IMAGE	-0.01 (-0.05, 0.03)	0.600
LDL cholesterol	8	NICE	0.03 (-0.04, 0.09)	0.360
(mmol/l)	-	IMAGE	0.05 (-0.03, 0.14)	0.184
HDL cholesterol	14	NICE	0.00 (-0.01, 0.01)	0.580
(mmol/l)	-	IMAGE	0.00 (-0.01, 0.02)	0.716
Triglycerides	12	NICE	-0.03 (-0.06, -0.01)	0.016
(mmol/l)	-	IMAGE	-0.04 (-0.07, -0.01)	0.023
Systolic blood pressure	15	NICE	0.10 (-1.11, 1.32)	0.858
mmHg	-	IMAGE	-0.62 (-2.27, 1.02)	0.427
Diastolic blood pressure	12	NICE	0.81 (-0.45, 2.07)	0.180
mmHg	-	IMAGE	0.48 (-1.79, 2.75)	0.649
Incident T2DM	8	NICE	-0.02 (-0.33, 0.30)	0.902
-	-	IMAGE	-0.21 (-0.87, 0.44)	0.457

*NB not change from baseline.
Abbreviations: CI, confidence interval; IMAGE, Development and **Im**plementation of **a** European **G**uidelin**e** and Training Standards for Diabetes prevention; NICE, National Institute for Health and Clinical Excellence (*Preventing type 2 diabetes: Risk identification and interventions for individuals at high risk)*; BMI, body mass index; HbA1c, glycated haemoglobin; LDL, low density lipoprotein; HDL, high density lipoprotein; T2DM, type 2 diabetes.

Supplemental Figure S1. Meta-regression showing the effect of adherence to the NICE guidelines on weight change.

Circles show the number of NICE recommendations met and the mean change in weight for each study. Size of circle is proportional to weight of that study result. The line represents the fitted meta-regression line showing the relationship between number of recommendations met and the mean change in weight.

See additional file

Supplemental Figure S2. Meta-regression showing the effect of adherence to the IMAGE guidelines on weight change.

Circles show the number of IMAGE recommendations met and the mean change in weight for each study. Size of circle is proportional to weight of that study result. The line represents the fitted meta-regression line showing the relationship between number of recommendations met and the mean change in weight.

See additional file